2015

Basic Epidemiology

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Epidemiology: The study of the distribution and determinants of health-related states in specified populations, and the application of this study to control health problems.

The term “epidemiology” can be best understood by examining the key words within its definition.

- **Study:** Epidemiology is the basic science of public health. It is a highly quantitative discipline based on principles of statistics and research methodologies.

- **Distribution:** Epidemiologists study the distribution of frequencies and patterns of health events within groups in a population. Using descriptive epidemiology, epidemiologists characterize health events in terms of time, place, and person.

- **Determinants:** Epidemiologists search for causes or factors that are associated with increased risk or probability of disease.
Field Questionnaire Methodology
Steps for Implementing Outbreak Investigation
Questionnaire Methods

Developed by the Florida Center for Public Health Preparedness

Module Objectives

• Understand development of field questionnaires
• Describe different methods of exposure measurement and identify strengths and weaknesses of each
• Identify issues associated with editing, coding, and entering survey data
• Identify steps for pilot testing survey
• Awareness of ethical issues in public health

Why is Field Questionnaire Design Important?

With an understanding of good field questionnaire design principles, you will ask only about what you need to meet your research objectives.

Ask only about what you need... Example: You ask respondents to list all medications that they are taking (difficult in terms of respondent recall or accuracy), when you really only need to know if they are taking antibiotics.
Field Questionnaires for Exposure Assessment

Whether you use a pre-existing investigation worksheet or develop your own, there are steps to field questionnaire development and implementation which should be followed in order to ensure an effective and efficient investigation.

Florida Department of Health Case Report Forms and Investigation Worksheets: http://www.doh.state.fl.us/disease_ctrl/topics/crforms.htm

General Investigation Worksheet

Creating a Field Questionnaire Steps

Step 1 - Identify the leading hypotheses about the source of the problem

Step 2 - Identify the information needed to test the hypotheses

Step 3 - Identify the information needed for the logistics of the study and identify possible sources of error

Step 4 - Write the questions to collect this information

Step 5 - Organize the questions into field questionnaire format

Step 6 - Pilot test the field questionnaire

Step 7 - Revise the field questionnaire based on pilot test
Step 1
Identify the leading hypotheses about the source of the problem

- One of the most common errors in field questionnaire development is to start by writing the questions.
- The first step in creating a field questionnaire is actually to identify the leading hypotheses about the source of the problem.
- Only after you have identified the information you need are you ready to write the questions and organize them into a field questionnaire.
- This is where you distinguish between “What would I like to know” versus “What do I need to know.”

Step 2
Identify the information needed to test the hypotheses

An epidemiological field questionnaire typically includes five categories of information:

1. Identifying information
2. Demographic information
3. Clinical information
4. Exposure or risk factor information
5. Source of information

Identifying information
- Important for the logistics of the study
- Includes:
  - Respondent’s name or other identifier
  - Respondent’s address (and/or where they can be found)
  - Respondent’s telephone number
- This information identifies the subject, allows for updating of the field questionnaires as more information becomes available, and can be used to link the field questionnaire to other records (e.g., laboratory results or other field questionnaires)
- This information can also prevent duplicate entry of records
Step 2 (continued)
Identify the information needed to test the hypotheses

Demographic information
- Age
- Sex
- Race
- Educational level
- Location

- These items are used to characterize the population at risk and to explore the problem under investigation
- The information is important in the search for possible confounders (factors that distort the apparent exposure-disease relationship)

Step 2 (continued)
Identify the information needed to test the hypotheses

Clinical information
- Signs and symptoms of the disease
- Date of onset of illness
- Results of laboratory testing

This information allows you to characterize the illness, decide who has the outcome of interest, and chart the time course of the problem

Step 2 (continued)
Identify the information needed to test the hypotheses

Exposure or risk factor information
- Used to test the hypotheses under investigation
- Should be specific to the problem under investigation and reflect your hypotheses about the source of the problem

Exposure or risk factor information often includes
- The respondent’s exposure to the factor of interest
- The route of exposure
- The amount of exposure
- The timing of exposure
- Other details of exposure (e.g., brand distributor)
Step 2 (continued)
Identify the information needed to test the hypotheses

Source of the information
• The individual supplying the information as well as the person receiving it (i.e., the interviewer)
• Identification of the person supplying the information provides some insight to its validity. Is this person a study subject or a surrogate such as the spouse or parent?
• Identification of the interviewer can also be important for follow-up or clarification

Step 3
Identify the information needed for the logistics of the study and identify possible sources of error

It is important to identify the logistical needs of field questionnaire implementation early in the process.

By addressing each of the components listed, you will be able to tailor your field questionnaire instrument to the needs and demands of your situation.

Step 3 (continued)
Identify the information needed for the logistics of the study and identify possible sources of error

• What is the timeline for data collection?
• Who is our population of interest?
  – How do we access this population?
  – How do we locate households in the sample?
• How do we visit all households selected?
• What logistical elements do we need?
  – Office and supplies? (e.g., computers, printers, software, other office supplies)
  – Vehicles?
  – Fieldwork supplies?
  – Maps for each area?
  – Special travel arrangements?
  – Do we need to contact local authorities?
Step 3 (continued)
Identify the information needed for the logistics of the study and identify possible sources of error

• What special needs will be there for fieldwork?
  – Facilitating the work of the team in the field?
  – Maintaining interviewer morale?
  – Ensuring contact with the central office?
  – Maintaining fieldwork control sheets?
  – Spot checking field questionnaire accuracy?

Step 3 (continued)
Identify the information needed for the logistics of the study and identify possible sources of error

• What special field documents are needed?
  – Interviewer’s Manuals?
  – Maps and household listing forms?
    Will each team be given:
    • General cluster maps
    • Household listing forms for urban areas
    • Sketch maps and written descriptions of the boundaries of selected areas
  – If symbols are used on the maps, does the interviewer/team know how to interpret them?
  – ID cards?
  – Letters of introduction?
  – Field questionnaires?
  – Interviewer's Assignment Sheets?

Step 3 (continued)
Identify the information needed for the logistics of the study and identify possible sources of error

• What special fieldwork supplies are needed?
  – Pens/pencils for interviewers?
  – Clipboards?
  – Paper clips, scissors, string, staplers, tape, etc.?
  – Envelopes to store completed field questionnaires?
  – First aid kit?
  – Communication system?
  – Personal protection equipment or gear?
Step 3 (continued)
Identify the information needed for the logistics of the study and identify possible sources of error

• What is our sampling plan?
  – Who will be included in the sample?
  – What mode of field questionnaire will be used?
    • Self-administered paper and pencil?
    • Interviewer administered?
    • Face-to-face?
    • Telephone?
    • Mail?
    • Reference to existing records?
    • Physical and/or chemical measurements?
  • How many interviewers will be needed?

• How will we train interviewers?
• What method of data entry will be used?
  – Paper and pencil?
  – PDA?
  – Laptop?
• How do we revise the field questionnaire, if needed?

Field questionnaires can be conducted in a variety of ways.
Your sampling plan should identify the mode or modes of field questionnaire administration as there are distinct purposes, as well as, advantages and disadvantages associated with each.
Step 3 (continued)
Field Questionnaires

Self-administered paper and pencil
Purpose: Obtain survey information directly from the respondent.

Mode: Respondent fills out the survey themselves with little or no oversight from the interviewer.

Special Design Note:
• Field questionnaires should be designed so they can be completed in less than 30 minutes
• Field questionnaires may need to be translated into different languages

Step 3 (continued)
Field Questionnaires

Self-administered paper and pencil
Method: There are three ways in which a self-administered paper and pencil survey can be implemented
• Face-to-face either individually or in a group setting
• Mail
• Third person

Step 3 (continued)
Field Questionnaires

Self-administered paper and pencil
Advantages
• Low cost
• Easier to standardize
• Anonymity
• Reduce Interviewer Bias

Disadvantages
• Low response rate
• Inappropriate or inaccurate answers due to misunderstanding the question
• Lack of open ended questions
• Possible source of bias
• Respondents may get distracted and not complete the instrument
Step 3 (continued)
Field Questionnaires

Interviewer administered
Purpose: Obtain survey information directly from the respondent

Mode: Interviewer asks the respondent the survey questions

Special Design Note:
• Field questionnaires should be designed so they can be completed in less than 45 minutes
• Data could be entered directly into an electronic database

Method: There are two ways in which a self-administered paper and pencil survey can be implemented
• Face-to-face
• Telephone

Step 3 (continued)
Field Questionnaires

Interviewer administered
Face-to-Face Advantages
• High Response Rate
• Flexibility
• Contact hard to reach populations

Face-to-Face Disadvantages
• High cost
• Interviewer Bias
• Personal Safety

Step 3 (continued)
Field Questionnaires

Interviewer administered
Telephone Advantages
• Rapid data collection
• Low cost
• Large-scale accessibility
• Interviewer can explain questions, probe for more information, and/or reschedule if language is a barrier

Telephone Disadvantages
• Less credibility
• Respondents can be distracted and/or end call anytime
• Telephone access/use may not be available
• Lack of visuals
Step 3 (continued)
Field Questionnaires

Reference to existing records
• Sometimes adequately standardized information is already available from existing records
• It is possible to identify treated patients and obtain the information needed to follow them up (name, date of birth, sex, address, etc) by searching hospital files
• When existing records are used in this way, the required information is normally abstracted on to a specially designed form or even direct on to a portable computer

Step 3 (continued)
Field Questionnaires

Reference to existing records
• The design of the abstraction form or of the computer program for inputting data should take into account the layout of the source material
• Each abstracted record should be identified by a serial number, and should include sufficient information to permit easy access back to the source material and to obtain additional data if required
• To minimize the chance of error, any reformulation of numerical data (for example, derivation of age at hospital admission from date of birth and date of admission) should be carried out by the computer after data entry, and not as part of the abstraction process
• When coding data, allowance must be made for the possibility of missing information

Step 3 (continued)
Identify the information needed for the logistics of the study and identify possible sources of error

• The longer the recall time, the less detail can be expected from the respondent and the less likely it is that the respondent will give an answer of sufficient quality to be included in the analysis
• In most cases, it is important to focus on key events
• Rare events may only be remembered by the subjects if they made a large impact on their life or are somehow connected to other events
Step 3 (continued)
Identify the information needed for the logistics of the study and identify possible sources of error

Possible sources of error
- Incomplete list
- Non-response bias
- Response bias
- Wording

Incomplete list
- Occurs when any part of a population is not included in a list that sample respondents are chosen from
- Some examples of respondents that might be missed are people in prison, homeless people, students, and long term travelers

Strategy
- Ensure sample is representative of the population under study
- Follow-up on leads of “where to find” sample

Non-response bias
- Occurs when a large portion of those sampled do not respond

Strategy
- Questionnaire design may be flawed – Re-design and pilot test
- Questionnaire may be too long – Re-design and pilot test
- Sample may have re-located – Use leads to determine new location(s)
Step 3 (continued)
Identify the information needed for the logistics of the study and identify possible sources of error

Response bias
Occurs when a respondent tries to tailor a response to what she/he thinks the interviewer wants because the respondent is:

• Unable to understand the question
  Strategy: Re-ask the question
  Native language may not be English and thus require an interpreter
  Show the person the question in writing
• Unable to understand the response choices
  Strategy: Re-ask the question
  Ask the person to respond with their own answer
  Show the person the response choices in writing

Response bias (continued)
• Unable to recall the requested information
  Strategy: Use calendar and/or other events to aid recall

• Unable to articulate a response (usually in response to open-ended questions)
  Strategy: Use the 10 second rule and wait for a response
  Rephrase the question

• Unwilling to disclose or social desirability
  Strategy: Restate confidentiality
  Restate purpose of study
  Restate the ways the information will be used

Wording
• Leading statements, questions, or response choices can affect the answers to questions
  Strategy: Pilot test questionnaire
  Train interviewers to “stick” to the questions

• Field investigators may:
  – Ask unclear or ambiguous questions
  – Lack a neutral demeanor
  – Transcribe or record the response incorrectly
  Strategy: Train interviewers
  Build in quality checks
Step 4
Write the questions to collect this information

Two considerations:
1. Type of question
2. Design of the question

Step 4 (continued)
Write the questions to collect this information

Type of Question
Three types of questions are used in field questionnaires for epidemiologic studies:
- Open-ended questions
- Fill-in-the-blank questions
- Closed-ended questions

Step 4 (continued)
Write the questions to collect this information

– Type of Question

Open-Ended Questions
- Allow respondents to provide answers in their own words
- Yield qualitative data
- May yield unanticipated answers that contribute to the study
- Are most appropriate for hypothesis generating versus testing field questionnaires
Step 4 (continued)
Write the questions to collect this information
– Type of Question

Example: Open-Ended Questions
- What restaurants did you patronize in the past seven days?
- Please list the two main symptoms you are having with this illness

Step 4 (continued)
Write the questions to collect this information
– Type of Question

Fill-in-the-Blank Questions
- Allow respondents to provide short answers in their own words
- Yield qualitative data
- Are most appropriate when possible response categories are too numerous to list
- Are most appropriate when the question is measuring respondent characteristics versus attitudes, beliefs, or behaviors

Step 4 (continued)
Write the questions to collect this information
– Type of Question

Example: Fill-in-the-Blank Questions
- Country of residence
- Age in years
- Number of children under age 18 in your household
- Birthdate (mm/dd/yyyy)

(DK=don’t know R=refused)
Step 4 (continued)
Write the questions to collect this information

– Type of Question

Closed-Ended Questions:

• Provide answer choices in pre-coded categories that represent counts, ranges, or demographic information
• Yield quantitative data
• Are preferable for self-administered and hypothesis testing field questionnaires

Two Types of Closed-Ended Questions:

1. Categorical (or nominal)
2. Ordinal

Categorical Closed-Ended Questions
The available response fits into categories that have no particular order or inherent numerical value with respect to each other.

Example: To explore why Medicare beneficiaries did not get vaccinated against influenza, the following categorical closed-ended questions could be posed:

What was the main reason you did not get the flu shot last winter?
1. Did not know it was needed
2. Could cause influenza
3. Could cause side effects
4. Vaccine not available
5. Do not like shots or needles
6. Doctor recommended against it
7. Doctor did not recommend it
8. Unable to get to location
9. Do not know
10. Refuse to answer
Step 4 (continued)
Write the questions to collect this information
– Type of Question

Categorical Closed-Ended Questions (continued)
Options can also result in the classification of a respondent into a category for race, gender, marital status, etc.

Example: Please select the one response that describes your marital status.
___ Single
___ Married
___ Divorced
___ Widowed

Step 4 (continued)
Write the questions to collect this information
– Type of Question

Ordinal Closed-Ended Questions
The available responses tend to describe a range of choices and have a quantitative value with respect to each other.

Ordinal closed-ended questions are useful for determining the frequency of participation, degree of involvement, or intensity of Feelings.

Step 4 (continued)
Write the questions to collect this information
– Type of Question

Ordinal Closed-Ended Questions (continued)
Example: In seeking information on how much “could cause side effects” influences a person’s decision to get vaccinated against influenza, the following ordinal closed-ended question may be posed:
Describe your level of concern about the side effects caused by the flu shot (circle one):
1. Not concerned
2. A little concerned
3. Somewhat concerned
4. Moderately concerned
5. Very concerned
6. DK = Do not know
7. R = Refuse to answer
Step 4 (continued)
Write the questions to collect this information
– Type of Question

Ordinal Closed-Ended Questions (continued)
Likert scales contain pre-coded ordinal responses with assigned values. You can then calculate averages to determine the most prevalent response.

Example: On a scale of 1 to 5, with 1 being low and 5 being high, please rate the severity of your abdominal cramp pain.
1. Minimal
2. Mild
3. Moderate
4. Painful
5. Very painful

Step 4 (continued)
Write the questions to collect this information
– Type of Question

All three question types – open-ended, fill-in-the-blanks, and closed-ended – have their place.

When do you use which types?
• Select the question type based on the kind of information you need and your expectations about that information
• In the early exploration of a problem, you will be more likely to use open-ended questions
• As information about the problem grows, you will be able to anticipate possible response and will be more likely to use closed-ended questions

Step 4 (continued)
Write the questions to collect this information

Question Design
• Choosing the type of question is just the first issue
• Care needs to be given to the wording of the question and the response categories (if applicable)

Here are a few guidelines for writing questions for an epidemiologic study...
Step 4 (continued)
Write the questions to collect this information
– Question Design

Elements of good question design:
• Reliability
• Validity
• Specificity versus ambiguity
• Simplicity
• Ask only one question at a time
• Mutually exclusive answer choices
• Refers respondents to dates/times for recall
• When feasible, makes response categories comparable to existing data sources
• Back-translate and re-check wording of questions
• Avoid leading and loaded questions

Reliability
A question that is designed to be reliable will assure that the words are interpreted the same way in any setting, and that respondents answer the same way in any setting.

Example: “Are you experiencing diarrhea?”

Interviewer then adds:
“For the purposes of this survey, we consider diarrhea to be 3 or more loose bowel movements in a 24 hour period.”

Validity
A question that is designed to be valid will always yield information that can be used as a true measure of what you are looking for.

Less Useful:
Which is your source of drinking water at home?
1. Tap water
2. Bottled water

Improved:
Which is your source of drinking water at home?
1. Municipal tap water
2. Municipal tap water with additional filtration
3. Well water
4. Commercially bottled water
Step 4 (continued)
Write the questions to collect this information
– Question Design

Specificity versus ambiguity
Word each question as precisely as possible. Use caution with general adjectives and adverbs that may have different meanings for different people (e.g., big, bad, nice, etc.).

Less Useful
“When did you have ‘Disease X’?”

Improved
“How old were you when you had ‘Disease X’?”

Less Useful
“Have you been examined by a physician in the past seven days?”

Improved
“Have you been examined by a physician for these symptoms in the past seven days?”

Step 4 (continued)
Write the questions to collect this information
– Question Design

Simplicity
Use simple language and keep questions short.

Avoid technical jargon, slang, abbreviations, and stuffy sounding bureaucratic words.

Less Useful
“Were you exposed to the fomite at the dinner party?”

Improved
“Did you use a shared hand towel at the dinner party?”

Step 4 (continued)
Write the questions to collect this information
– Question Design

Ask only one question at a time
Limit each question to a single idea. Combining questions can result in responses that are conflicting and may not answer the question you think you asked.

Less Useful
“Did you eat mashed potatoes and giblet gravy?”

Improved
“Did you eat mashed potatoes?” Yes  No
If Yes, did you eat them:
___ Plain
___ With butter
___ With giblet gravy

55

56

57
Step 4 (continued)
Write the questions to collect this information
– Question Design

Mutually exclusive answer choices
In creating the responses for a closed-ended question, be sure that the categories cover all potential responses and are every response fits into one and only one category.

Less Useful
“What is your age?”
A. 18 years old or younger
B. 18 years or older

Improved
“What is your age?”
A. 17 years old or younger
B. 18 years old or older

NOTE - Always include a “Do not know” or “Refuse to answer” category with potential responses.

This will help you distinguish between respondents who do not answer a question because they do not remember the answer and those who choose not to answer or just skipped the question.

Step 4 (continued)
Write the questions to collect this information
– Question Design

Refers respondents to dates/times for recall
Use specific date/time references to improve respondent recall.
Refer to a calendar and/or special event to improve recall.

Less Useful
“Have you been swimming in a public pool recently?”

Improved
“Did you swim in a public pool between Monday, June 2nd and Monday, June 9th, 2006?”
Step 4 (continued)
Write the questions to collect this information
– Question Design

When feasible, makes response categories comparable to existing
data sources.
Try to quantify measures and provide the format in which to record data
as much as possible.

Less Useful
Case-patient birth date

Improved
Case-patient birth date

M/d/yyyy

Step 4 (continued)
Write the questions to collect this information
– Question Design

Back-translate and re-check wording of questions
If the field questionnaire is translated from one language (say,
English) to another (say, Chinese), test it with native speakers.
A good test is to have the translated field questionnaire “back
translated” (that is, translated from Chinese to English).
Back-translation allows investigators to see or hear what the
respondents will be seeing or hearing and may reveal problems.

Step 4 (continued)
Write the questions to collect this information
– Question Design

Avoid leading and loaded questions
Leading Question – A question is phrased in a way that suggests a
response (i.e., a leading question) or implies a value judgment. The
interviewer’s attitude, as perceived by respondents, can influence their
response.

Less Useful
“No one else in your family is sick, are they?”
This question implies a “No” response

Improved
“Are other members of your immediate family feeling ill?”
Step 4 (continued)
Write the questions to collect this information
– Question Design
Avoid leading and loaded questions (continued)
Loaded question - A question with a false or questionable pre assumption.

Less Useful
“Have you stopped using drugs?”
This question presupposes that you have used drugs in the past prior to its asking, as well as you are still using drugs.

Improved
“Do you use drugs?”

Step 5
Organize the questions into field questionnaire format
General Guidelines:
1. Format page layout with a vertical flow from question to question and from response option to response option.
2. Maintain “white space” on the page.
3. Number every question.
4. Use consistent codes for response options and indicate units for fill-in-the-blank questions.
5. When applicable, use numbers versus check boxes for pre-coded response options so they can be used for data entry and analysis (e.g., in a software program).

Step 5 (continued)
Organize the questions into field questionnaire format
General Guidelines: (continued)
6. Use differentiating font for questions and response options.
7. Provide clear but brief instructions for survey completion.
8. Use clear cues (text or arrows) to guide through skip patterns.
9. Use transitional cues for each subsection of questions (“The next series of questions will ask about . . .”).
10. Include a unique identification number so you can maintain confidentiality and link data when applicable (e.g., in a software program).
Step 5 (continued)
Organize the questions into field questionnaire format

Special Note:
To reduce the difficulty of distinguishing between missing data and simply "no" responses to a categorical list of response options, consider alternative formatting.

Example: Standard question format
Where did you see published information about this free HIV screening?
  __ Billboard on subway
  __ Doctor's office
  __ Local newspaper

Step 5 (continued)
Organize the questions into field questionnaire format

Example: Alternative question format
Where did you see published information about this free HIV screening?
  Billboard on subway   Yes        No
  Doctor's office       Yes        No
  Local newspaper      Yes        No

Step 5 (continued)
Organize the questions into field questionnaire format

Tips for Formatting the Field Questionnaire
1. Introduction
2. Length
3. Logic
4. Layout
5. Wrap up
Step 5 (continued)
Organize the questions into field questionnaire format

Introduction
The introduction for the field questionnaire should:
• Identify the organization sponsoring the study
• Explain the study purpose in general terms so respondents understand the importance of the interview and their part in the process
• Give credence to the undertaking and increase the likelihood that respondents will participate and answer honestly
• State how long the interview is likely to take
• Reassure participants that their answers will be strictly confidential
• Stress the ways the data will be used in compliance with HIPAA and the Privacy Rule

HIPAA – Health Insurance Portability and Accountability Act of 1996
• Federal regulation, not state
• Involves privacy, security, transactions and code sets, and electronic transmission of personal information
• Almost all employees of the healthcare industry must abide by HIPAA regulations
  – Health care providers
  – Health care clearinghouses
  – Health plans
• HIPAA sets a national minimum of basic privacy protection for individuals, however many state laws are more stringent

The Privacy Rule
• Defines and limits the circumstances in which an individual’s protected health information may be used or disclosed by a covered entity
  • The Privacy Rule - Standards for Confidentiality of Individually Identifiable Health Information – became effective in April 2001

HIPAA Privacy Act
• Sets national standards for ensuring the privacy of protected health information (PHI)
• Requires covered entities to implement measures that protect against the misuse of PHI
• Provides individuals with privacy rights and control over how their PHI is used
Step 5 (continued)
Organize the questions into field questionnaire format

Protected Health Information (PHI)
• Health information relates to:
  – Past, present, and/or future physical/mental health or condition
  – Provision of health care to an individual
  – Payment for the provision of health care
• Individually identifiable information is:
  – Name, geography, month & day of birth, telephone #, email address, SSN, health insurance account #s, photographs and more

Covered Entities Include:
• Health Plans: Individual/group health insurance, HMOs, Medicare, Medicaid and other government health plans
• Health Care Clearinghouses: Billing services and providers
• Health Care Providers: Hospitals/clinics, doctors, nurses, pharmacies, paramedics, and other emergency service personnel

The Privacy Rule and Public Health
• Access to PHI is an essential element in public health
• Public Health uses PHI to identify, monitor, and respond to disease, death and disability among populations
• Covered entities may disclose PHI to public health authorities authorized to collect necessary data
Step 5 (continued)
Organize the questions into field questionnaire format

Extension of PHI Disclosure Rules – Public Health

- PHI can be disclosed when:
  - A person may have been exposed to a communicable disease or may be at risk for contracting or spreading disease
  - A person is subject to jurisdiction of the Food and Drug Administration (FDA) concerning the quality, safety, or effectiveness of an FDA product
  - An employer needs certain PHI to meet the requirements of Occupational Safety and Health Administration (OSHA) or other similar laws

Step 5 (continued)
Organize the questions into field questionnaire format

Length

- In general, a field questionnaire should be as short as possible
- It should focus on the hypotheses being tested in the study
- Try to strike a balance between testing the hypotheses and taking advantage of opportunities to gather “extra” information that is of interest to the investigation

Step 5 (continued)
Organize the questions into field questionnaire format

Logic

- The field questionnaire should appear logically organized and not skip from topic to topic
- The questions should be organized to promote the rapport between the respondent and the interviewer
Step 5 (continued)
Organize the questions into field questionnaire format

Logic (continued)
• Commonly used methods of organization include:
  – Grouping similar types of information or topics
  – Asking general questions first, followed by more specific questions
  – Asking the least sensitive questions first, leaving questions about sexual habits, religious beliefs, political orientation, or income for later when rapport has been developed
  – Asking the most important question first (relating to your leading hypotheses), followed by less critical questions in case the respondent loses interest

Step 5 (continued)
Organize the questions into field questionnaire format

Layout
• The organization of the field questionnaire should make it easy to read and complete
  – Instructions should be clearly stated
  – Questions and pages should be numbered
  – Each page should include an identifying code for the respondent
  – Possible responses to question and the place for recording responses should be clearly separated from the questions
  – You should include skip patterns to avoid asking irrelevant questions

Step 5 (continued)
Organize the questions into field questionnaire format

Skip Patterns
• A skip pattern usually begins with a "screening question" that tells the interviewer to know whether a set of subsequent questions pertain to a particular respondent
  – If they do, the subsequent questions are read. If not, they interviewer skips over the questions and continues with the next set
  – Using skip patterns can prevent a respondent from hearing and having to answer questions that do not pertain to him or her
  – Make sure the skip pattern is clearly marked and easy to follow
Step 5 (continued)
Organize the questions into field questionnaire format

Skip patterns (continued)
1. In the past 7 days, did you eat any mixed lettuce? This lettuce can be pre-bagged. Or it can be picked from a bin, or you use tongs to put it into a bag yourself. It is sometimes called Spring or Mesclun mix.
   Yes  No  Don’t know  Refused

If no, skip to Question 3.
2. Was the type of mix called:
   - Italian?
     Yes  No  Don’t know  Refused
   - Caesar?
     Yes  No  Don’t know  Refused

Step 5 (continued)
Organize the questions into field questionnaire format

Skip patterns (continued)
3. In the last 7 days, did you eat sprouts, such as alfalfa or bean sprouts? These may have been eaten as part of a salad or as part of any other food item such as sandwiches, tacos, etc.
   Yes  No  Don’t know  Refused

Wrap it up
• An ending statement is important
• You should thank respondents for their input and their time
• You should also provide them with a means to contact the study investigators if they have questions or remember additional information
Step 6
Pilot test the field questionnaire

- In pilot testing, the flow of the questions, whether the words are understood, and whether the questions are interpreted similarly are evaluated
- Need to evaluate how the answers can be interpreted and if they can be analyzed and used for the epidemiological study
- Pilot testing in the field will most likely be done with a sample of convenience; for example, relatives, friends, or colleagues
- The better the pilot testing, the less regrets there will be at the end of the study

Step 6 (continued)
Pilot test the field questionnaire

Questions to Ask:
- Are questions yielding the information that they are supposed to yield?
- Do respondents understand all wording?
- Do respondents interpret the questions the same way?
- Do closed-ended questions have a response option that applies to each respondent?
- Are skip patterns followed correctly?

Step 7
Revise the field questionnaire based on the pilot test

Possible ways field questionnaire will need to be revised:
- Re-word questions
- Revise closed-ended question options
- Re-work skip patterns
- Re-write instructions
- Re-format layout/design
Step 7 (continued)
Revise the field questionnaire based on the pilot test

Re-word questions
• Are the words uniformly understood?
• Do the questions contain abbreviations or unconventional phrases?
• Are the questions too vague?
• Is the question too precise?
• Is the question biased?
• Is the question objectionable?
• Is more than 1 question being asked?
• Does the question contain a double-negative?
• Is the question technically accurate?
• Is an appropriate time referent provided?

Step 7 (continued)
Revise the field questionnaire based on the pilot test

Revise closed-ended question options
• Are the options uniformly understood?
• Are the options too vague?
• Are the options too precise?
• Are the options mutually exclusive?

Step 7 (continued)
Revise the field questionnaire based on the pilot test

Re-work skip patterns
• Are the skip patterns clear?
• Are the skip patterns easy to follow?
• Is the lead-in question clear?
• Do the skip patterns need to re-formatted?
Creating a Field Questionnaire Steps

Step 1 - Identify the leading hypotheses about the source of the problem
Step 2 - Identify the information needed to test the hypotheses
Step 3 - Identify the information needed for the logistics of the study and identify possible sources of error
Step 4 - Write the questions to collect this information
Step 5 - Organize the questions into field questionnaire format
Step 6 - Pilot test the field questionnaire
Step 7 - Revise the field questionnaire based on pilot test

Step 7 (continued)
Revise the field questionnaire based on the pilot test

Re-write instructions
• Does a context need to be provided to frame responses?
• Does confidentiality need to be stressed more?
• Is the purpose of the study clear?
• Is the role of Florida Department of Health clearly stated?

Re-format layout/design
• Is it too long? Too short?
• Do the questions logically flow?
• Is the layout easy to administer?
• Is there a clear conclusion?
Summary

Whether you use a pre-existing investigation worksheet or develop your own, the steps covered in this module for survey development and implementation should be followed in order to ensure an effective and efficient Investigation.

Acknowledgements

The following material and information was used with permission:

- An Overview of HIPAA and the Privacy rule. UNC slide presentation
- Designing Field questionnaires. Pfau, S. NC Center for Public Health Preparedness.
- Nieuwenhuijsen, M. J. “Design of exposure field questionnaires for epidemiological studies.” Downloaded from oem.bmjjournals.com on 13 January 2006.
  - “Planning and conducting a study” http://bmj.bmjjournals.com/epidem/epid.5.html

These materials were adapted for use in Florida by the Florida Center for Public Health Preparedness.
Epidemiology Key Terms and Core Concepts

• Health-Related States: Early epidemiological study focused solely on infectious diseases. Today epidemiology studies a variety of health-related events, which includes chronic disease, environmental problems, behavioral problems, and injuries, in addition to infectious disease.

• Populations: Epidemiology studies groups of people rather than with individuals.

Epidemiology Key Terms and Core Concepts

• Control: Epidemiology is used in two ways:
  1) As an analytical tool for studying diseases and their determinants, and
  2) To guide public health decision-making by developing and evaluating interventions that control and prevent health problems.

Epidemiology is a scientific method of problem-solving.

Epidemiology Key Terms and Core Concepts

Examples of the types of community health problems investigated by epidemiologists include:

• A measles outbreak on a small college campus
• A global influenza pandemic
• An increase in homicide in a community
• A national surge in violence
• An increase in the number of cancer cases
**Epidemiology Key Terms and Core Concepts**

Epidemiologists answer questions, such as:

- Who is sick?
- What are their symptoms?
- When did they get sick?
- Where were they exposed to the illness?

---

**Two Types of Epidemiological Studies**

- **Experimental.** Used when epidemiologists have control over the circumstances from the start. Vaccine efficacy trials are good examples of experimental studies because investigators control who gets the vaccine and who does not.

- **Observational.** Used when epidemiologists do not have control over the circumstances. Outbreak investigations are usually conducted to support observational studies. Observational studies can be designed in two ways:
  - Descriptive study design
  - Analytical study design

---

**Descriptive Study Design**

**Defined:** A type of observational epidemiologic study that has no predetermined hypothesis. A descriptive study simply describes what exists in a population by person, place, or time variables (Oleckno, 2002).

- Descriptive studies are useful in demonstrating trends and generating hypotheses about disease causation.
Descriptive Study Design

Examples:
- Why does disease occurrence vary with age?
- Why are there health disparities between different socioeconomic levels of the population?

The epidemiologist collects information to characterize and summarize the health event or problem.

Descriptive Study Design

Asks: Who? Where? When?

Three main elements of descriptive epidemiology:
1. Person
2. Place
3. Time

Analytical Study Design

Defined: A type of observational epidemiological study where epidemiologists make inferences based on the data they collect. These inferences are the bases for hypotheses, which must be tested using one of two analytical study designs.

Epidemiologists rely on comparisons between groups to determine what role various risk factors had in causing the problem.
Analytical Study Design

**Asks:** How? Why?

**Examples:**
- Did the chicken salad at the company picnic cause the Salmonella outbreak?
- Does cigarette smoke cause lung cancer?
- Are alcohol use and motor vehicle crashes related?

Cohort Study Design

**Defined:** A designated group of individuals who are followed or traced over a period or time (Last, 2001).

**Step 1:** The study population is selected according to exposure status, regardless of whether they have the disease or health outcome being investigated.

**Step 2:** The exposed group’s development rate of the disease (study outcome) is compared with the non exposed group’s rate of development of the disease (study outcome).

Analytical Study Design

**Two Types of Analytical Study Designs:**

1. Cohort study design

2. Case-control study design

In analytical study designs, the epidemiologist is attempting to discover the relationship between an exposure or risk factor and a health outcome.
Cohort Study Design

Elements:
- Often referred to as prospective studies because a cohort study follows the population forward in time from suspected cause to effect.
- Used to investigate outbreaks in small, well-defined populations.

Example:
- Dividing a group of people on the basis of smoking status and then following them for 20 years to see if they develop lung cancer.

---

Cohort Study Design

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can examine multiple outcomes for a single exposure</td>
<td>Costly in time</td>
</tr>
<tr>
<td>Are very useful in examining rare exposures</td>
<td>Costly in resources</td>
</tr>
<tr>
<td>Can directly calculate the incidence of disease for each of the exposure groups</td>
<td>Requires a large number of subjects, if the disease is rare.</td>
</tr>
<tr>
<td>Is logical; sequence follows the exposure to the development of the disease</td>
<td>Follows study groups forward in time which may result in logistical problems and subjects dropping out of study</td>
</tr>
</tbody>
</table>

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Case-Control Study Design

Defined: A group of individuals with an event or condition of interest (case-subject) is identified and compared to individuals without the event or condition of interest (controls).
Case-Control Study Design

**Step 1:** Participants are selected on the basis of the presence or absence of the disease or outcome in question.

**Step 2:** Participants are assigned to one of two groups:
- People with the health problem (case-subjects)
- People without the health problem (controls).

**Step 3:** Case-subjects are compared to controls in order to determine the presence of specific exposures or risk factors.

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**Case-Control Study Design Elements:**
- The epidemiologist is working backward from the effect to the suspected cause.
- These studies are often referred to as retrospective studies since they look back in time.

---

**Analytical Study Design**
- Cohort and Case-Control
- Attempt to answer the “how” and “why” questions.
- Are able to quantify the relationship between an exposure and an outcome.
- However, a mathematical or quantitative relationship between the two is not enough to establish causation.
Analytical Study Design

Five criteria must be met to establish a cause-and-effect relationship:

1. **Strength of association.** The association or relationship between cause and effect must be clear.
2. **Consistency.** Observation of the association must be repeatable in different populations at different times.
3. **Temporality.** The cause must precede the effect.
4. **Plausibility.** The explanation must make sense biologically.
5. **Biological gradient.** There must be a dose-response relationship.

Disease Transmission Terminology

**Epidemic:** The occurrence of more cases of a disease than would normally be expected in a specific place or group of people (population) over a given period of time.

- **Note:** To an epidemiologist, “outbreak” means basically the same thing as epidemic. To the public, however, “epidemic” is perceived to be more serious than “outbreak.” For this reason, the term “outbreak” is often used to avoid public concern and panic.

**Cluster:** A group of cases in a specific time and place that may or may not be greater than the expected rate. Often the aim of investigating clusters is to determine the baseline rate of disease for that time and place.

- **Note:** The word “cluster” is sometimes incorrectly used in place of “epidemic” or “outbreak.”

**Endemic:** A high baseline or background rate of disease.
Disease Transmission Terminology

**Exposure**: Having a certain feature that is being studied. For example, in a study on alcohol consumption, people who drink alcohol are considered the “exposed” group, while non-drinkers are considered the “unexposed” group.

- **Note**: There is a wide variety of “exposure” to consider when studying a disease, such as exposure related to lifestyle, behavior, occupation, employment, genetics, diet, and the use of medications.

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**Incidence**: The occurrence of new cases of disease that develop in a population over a specific period of time. It is the frequency with which new disease develops.

**Incubation period**: A period of sub-clinical or non-obvious pathologic changes following an exposure. The incubation period ends with the onset of symptoms.

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**Latent period**: The interval between disease onset and clinical diagnosis.

**Morbidity rate**: The number of existing or new cases of a particular disease or condition per 1000 people (Achengrau & Seage, 2003).

**Mortality rate**: The total number of deaths per 100,000 people (Achengrau & Seage, 2003).
Disease Transmission Terminology

Pandemic: An epidemic causing illness or death over an extensive area, generally crossing international borders (Oleckno, 2002).

Period of communicability
The time (days, weeks, months) during which an infectious agent may be transmitted, directly or indirectly, from an infected person to another person; infected animal to humans; or from an infected person to animals or arthropods.

Prevalence: The proportion of the total population that is diseased. It is the frequency of existing disease.

Prodromal period
The time during which a disease process has begun but is not yet clinically manifest.

Reservoir (of an infectious agent)
Any person, animal, arthropod, plant, soil, or substance (or combination of these) in which an infectious agent normally lives and multiplies, on which it depends primarily for survival, and where it reproduces itself in such manner that it can be transmitted to a susceptible host.

Chain of Transmission

Defined: Occurs when an agent is passed from one host to another, and a suitable mode of spread allows an outbreak to develop.

Requirement: A chain of transmission must be present in order to cause an epidemic.

Elements:
1. Agent
2. Host
3. Environment
Chain of Transmission: Agent

**Defined:** Any substance that can cause death, disease, or other biological malfunction in humans, animals, plants, or other living organisms.

**Three types of agents:**

**A. Biological** - A bacterium, parasite, or virus.

**B. Physical force** - Any type of physical force (e.g., earthquake, car crash, accidentally dropping an object).

**C. Chemical** - Chemical substances, whether gaseous, liquid, or solid, which can be inhaled, ingested, absorbed, or injected.

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Chain of Transmission: Agent

**Key characteristics of agents:**

- **Infectivity** - The capacity to cause infection in a susceptible host.
- **Pathogenicity** - The ability to cause disease in a host.
- **Virulence** - The severity of disease that the agent causes in the host.
- **Transmissability** - The ease with which the agent can be transmitted.

---

Chain of Transmission: Host

**Defined:** The person or organism that is susceptible to the effect of an agent.

**Key characteristics of hosts:**

- The status of the host is important and is generally classifiable as susceptible, immune, or infected.
- The host's response to exposure varies widely, from showing no effect to manifesting sub-clinical disease, atypical symptoms, or severe illness.
Chain of Transmission: Environment

Key characteristics of the environment:
- Physical
- Climatologic
- Biologic
- Social
- Economic

Chain of Transmission

Requires Four Phases:
1. Source for the agent
2. Portal of exit
3. Mode of transmission
4. Portal of entry

Note: When an investigator knows how an outbreak occurs, public health strategies that prevent health problems can be implemented at each phase in the chain of transmission.

Chain of Transmission: Phase 1

Source for the agent: Often the place where the agent originates - where it lives, grows, and multiplies.

Example: The agent that causes botulism (Clostridium botulinum) originates in soil, but the source of most botulinum infections is improperly canned food containing C. botulinum spores.
Chain of Transmission: Phase 2

**Portal of exit:** The pathway by which the agent leaves the source. This pathway is usually related to the place where the agent is localized.

**Example:** The agents causing tuberculosis and the flu are released through the respiratory tract; agents for many stomach ailments are released through the digestive tract. Agents found in the blood, such as Hepatitis B and HIV, can be released through cuts or needles.

Chain of Transmission: Phase 3

**Mode of transmission:** Once the agent leaves the source, the means of carrying it to the host is needed. This can happen in a number of ways, some of which are direct and some indirect.

- **Direct transmission mode.** Direct contact with soil, animals, or plants, as well as contact between people.

- **Indirect transmission mode.** No direct contact with the source. Three possible modes of indirect transmission are airborne, vector-borne, or vehicle-borne.

Chain of Transmission: Phase 3

**Indirect Transmission:**

- **Airborne:** Agent is carried from the source to the host suspended in air particles.

- **Vector-borne:** Agent is transmitted indirectly by a live carrier, usually an arthropod, such as mosquitoes, fleas, or ticks.

- **Vehicle-borne:** Agent is carried by inanimate objects, such as food or water, blood, or items like handkerchiefs, bedding, and surgical instruments.
Chain of Transmission: Phase 4

**Portal of entry:** A pathway into the host that gives the agent access to tissue where it can multiply or act. Often the agent enters the host in the same way that it left the source.

**Example:** The flu virus leaves the source through the respiratory tract and enters a new host through the respiratory tract.

---

Chain of Transmission

**Note:** Infection does not automatically occur when an agent enters the body of a host. Whether exposure to an agent results in infection depends on several factors related to the host, the agent, and the environment.

- Host factors that influence the outcome of an exposure include the presence or absence of natural barriers, the functional state of the immune system, and the presence or absence of an invasive device.

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Chain of Transmission

Preventive measures can be implemented at various points in a chain of transmission.

- The specific agent (e.g., guinea worm)
- The host (e.g., immunization to prevent measles)
- The environment (e.g., sanitation improvements to prevent Salmonella)
- Specific points in the chain of transmission (e.g., thorough cooking of hamburgers to interrupt transmission of the *E. coli* bacterium)
Immunity

• **Natural immunity** - Immunity that is naturally present and is not due to prior sensitization to an antigen form, for example, an infection or vaccination. Since it is not stimulated by specific antigens, innate immunity is generally nonspecific.

• **Acquired immunity** - Immunity acquired by infection or vaccination (active immunity) or by the transfer of antibody or lymphocytes from an immune donor (passive immunity), such as from mother to infant via breast milk.

Vaccination for Level A Pathogens

**Available vaccines**
- Smallpox
- Anthrax
- Some Hemorrhagic Fevers – Yellow Fever

**Conditions for which there is no vaccine**
- Botulism
- Ebola
- Some Hemorrhagic Fevers

Vaccination

http://www.cdc.gov/nip/publications/vis/#spox

**Smallpox**
The vaccine is made from a virus called vaccinia, which is another “pox”-type virus related to smallpox but cannot cause smallpox.

**Who gets vaccinated for smallpox?**
- Smallpox response teams
- Certain military and civilian personnel who are or may be deployed in high threat areas
- Some United States personnel assigned to certain overseas embassies
Vaccination
http://www.cdc.gov/nip/publications/vis/#anthrax

Anthrax
Vaccine does not contain actual B. anthracis cells and does not cause anthrax disease

Who gets vaccinated for anthrax?
- Lab workers between 18-65
- Military personnel who may be at risk of exposure

Vaccines Strengths & Weaknesses

Strengths
- Cost-effective
- Safe
- Community immunity
- Potential for disease eradication

Weaknesses
- Some have adverse reactions
- Links to neuro-developmental disorders
- Mass immunization can be labor intensive
- Logistics for mass immunization can be difficult

Objectives of Epidemiology

- Determining the extent of disease in a population
- Identifying patterns and trends in disease occurrence
- Identifying the causes of disease
- Evaluating the effectiveness of measures that prevent and treat disease (Aschengrau & Seage, 2003)
Objectives of Epidemiology: Your Role

• An important role you may play during times of heightened demand when epidemiology staff capacity is overburdened is to assist the epidemiology staff in achieving epidemiology objectives.

• Your key role will be to gather data that may help prevent, identify, and control disease outbreaks.

Possible ways you could be asked to assist in an epidemiology outbreak event:

• Develop interview questionnaire
• Conduct face-to-face and/or phone interviews
• Enter interview data
• Manage documents
• Prepare, record, and document specimens
• Review patient records
• Review pertinent literature and databases
• Handle cases by screening phone calls, screening patients for symptoms, directing and coordinating patients for mass vaccinations, etc.
• Gather and record field evidence

How epidemiology is applied in the core processes of public health practice

Four core processes are used in the field of epidemiology:

1. Surveillance
2. Screening
3. Outbreak investigation
4. Assessing causation
Epidemiology Core Processes: Surveillance

**Defined:** The regular collection, meaningful analysis, and routine distribution of relevant data that provides opportunities for public health action to prevent and control disease.

---

**Reasons for surveillance:**
- Identify cases of diseases (like meningitis) that pose immediate risk to communities
- Detect clusters
- Monitor trends of disease that may represent outbreaks
- Evaluate control and prevention measures
- Develop hypotheses for emerging diseases

---

**Two categories of surveillance:**

**Active surveillance:** Consists of actively searching for cases by proactively calling and visiting hospitals. This type of surveillance is often conducted when an outbreak is detected.

**Passive surveillance:** Refers to information provided to the health agency without an initiating action by the agency. This type of surveillance includes traditional reportable disease surveillance, vital statistics, and disease registries (Bureau of Epidemiology, FDOH, 2005).
Epidemiology Core Processes: Screening

Defined: The identification of an unrecognized disease or defect by the application of tests, examinations, or other procedures. Screening tests sort out apparently well persons, who probably have a disease from those persons who probably do not.

Note: If a screening results in suspicious findings, the individual is referred to a physician for further testing.

Epidemiology Core Processes: Outbreak Investigation

Defined: A multi-step process for determining the dynamics of a disease outbreak and implementing control and prevention measures.

In an outbreak investigation, the population at risk is investigated.

• Populations - Groups of people with common characteristics, such as race, gender, age, place of residence, religion, work place, and/or a shared event.

• Population at risk - The group of individuals who are most likely to have the disease or condition being investigated.

Epidemiology Core Processes: Outbreak Investigation

Keys to determining an outbreak:

• Two or more cases of a disease that are epidemiologically linked.

• In some instances of rare diseases or those with high public health impact, one case is enough to qualify as an outbreak (such as botulism).

• Syndromic surveillance data alerts the epidemiologist to changes in expected disease patterns.
Epidemiology Core Processes: Outbreak Investigation

Sources of outbreak indicators include:

- Notifiable disease health department surveillance records,
- Neighboring areas or national data
- School absenteeism
- 911 calls
- Emergency room visits, hospital admissions, discharge records
- Death rates
- Laboratory data
- Pharmacy data

When to initiate an outbreak investigation:

- Outbreak investigations should be initiated as soon as an event is verified so that measures to control and prevent further transmission of the agent can be implemented.
- During an outbreak investigation, it is vital to provide prompt and accurate education to healthcare providers, patients, contacts, facilities, and the public in order to prevent fear and misinformation from other sources.

Fact sheets for the common sources of outbreaks should be available ahead of time for quick reference.

Fact sheets are available and frequently updated on the CDC website located at http://www.cdc.gov
Epidemiology Core Processes: Assessing Causation

- It is vital that information gathered through screening and surveillance is entered into a common reporting system that can be accessed by epidemiologists and healthcare practitioners statewide.
- Merlin Reporting System

Merlin Reporting System

- Merlin is the Bureau of Epidemiology's real-time web-based surveillance system for communicable disease reporting, with the exception of tuberculosis, sexually transmitted diseases, and HIV/AIDS.
- The system is a single, statewide database with real-time web pages for entering patient demographics, case data, laboratory results, and extended case report form data, where applicable.

Merlin Reporting System

- Surveillance data should be analyzed regularly to detect potential outbreaks and disseminate the information collected (Bureau of Epidemiology, FDOH, 2005).
- The Merlin system of operations will not be covered in detail at this time as it is beyond the scope of this course. Simply be aware that such a system for entering data exists and is available from county to county throughout Florida.
Examples of the use and application of epidemiology

Example 1:
In October 2001, Dr. Jean Malecki, Director of the Palm Beach County Health Department (Florida), received a call from an old friend and physician colleague. Her friend, whom she trusted as an excellent physician, spoke very quickly and sounded very concerned. He said, “I did a spinal tap on a man and saw something I haven’t seen in my 20 years of practice.” The doctor described the situation to Dr. Malecki. They decided to send the specimen from the spinal tap to the county health department laboratory, the State laboratory, and the CDC laboratory to confirm their suspicions that the spinal tap results revealed a case of inhalation anthrax.

The immediate questions were: Is this really anthrax? Could this be related to the recent bioterrorist acts? Should the team err on the side of caution and report the suspected incident or wait and see? In this instance, the decision was to pursue an investigation. The sample turned out to be anthrax and the collaboration and quick action on the parts of the doctor and the health department director led to a head start on addressing the problem (Shapiro, Landis, Mescia, & Reid, 2001).

Example 2:
At 8:30 in the morning on August 2, 1976, Dr. Robert B. Craven of the CDC’s Viral Diseases Division received a call from a nurse at a Veterans’ Hospital in Philadelphia, Pennsylvania. The nurse reported two cases of severe respiratory illness, one of which had been fatal. Both people had attended the annual American Legion Convention held July 21-24. By the evening of August 2, 71 additional people attending the convention had the same illness - symptoms of acute onset of fever, chills, headache, malaise, dry cough, and myalgia. Further conversations with local and state public health officials revealed that between July 26 and August 2, eighteen conventioneers had died. Deaths were due primarily to pneumonia.
Examples of the use and application of epidemiology

Example 2:

An intense investigation began immediately. The incident became known as the first outbreak of Legionnaires’ disease and led to the discovery of the gram-negative pathogen, Legionella pneumophila (CDC EXCITE, 2004).

Example 3:

In June 2003 the Hillsborough County Health Department, in Florida, was informed by a physician that two people who had eaten at a local BBQ restaurant experienced gastrointestinal illness approximately 24 hours after their meal. Thirteen additional individuals were identified through a resulting epidemiological investigation. Epidemiologic investigations found Salmonella Group B to be the agent.

Examples of the use and application of epidemiology

These examples illustrate some of the key reasons for needing applied or field epidemiology:

- The events were unexpected.
- The events demanded an immediate response.
- The investigators had to go outside the health department to solve the problem.
- Collaboration is essential in epidemiology.
Epidemiology requires collaboration

One of the most common ways health departments learn about disease outbreaks is through calls from a community doctor, some other health care provider, or a citizen. Without this information, gained through collaboration, it would take far longer for health departments to discover when a problem exists. It is very important to keep the lines of communication open within the health department, between the health department, and healthcare providers.

Disease Overview Summary

In this module, you learned to:

• Define epidemiology’s key terms and core concepts.
• Recognize the objectives of epidemiology in public health practice and describe your role.
• Describe how epidemiology is applied in the core processes of public health practice.
• Describe examples of the use and application of epidemiology.
• Apply the basic terms, concepts, and processes of epidemiology.

Disease Overview Summary

Epidemiology:

• Is applied to virtually all health-related events, which include chronic disease, environmental and behavioral problems, and injuries, in addition to infectious disease.
• Deals with groups of people rather than with individuals.
• Can be used as an analytical tool for studying diseases and their determinants.
• Can influence public health decision making, policy making, and aid in developing and evaluating interventions to control and prevent health problems.
Surveillance:
Post-event Strategies

Program Objectives

- Understand surveillance purpose and use in post-event epidemiologic investigation
- Aware of the steps in setting up a surveillance system

Surveillance Defined

The ongoing, systematic collection, analysis and interpretation of health-related data essential to the planning, implementation, and evaluation of public health practice, closely integrated with the timely dissemination of these data to those responsible for prevent and control

KEY: Collect the right data in order to answer needed questions

CDC, 1963
Purposes of Surveillance

- Determine baseline rates of disease by monitoring trends
- Detect epidemics, outbreaks, and public health emergencies in order to recognize unusual events
- Estimate the extent/magnitude of a problem
- Identify and describe populations at risk for a disease
- Describe the geographic distribution of a disease
- Assess public health interventions
- Aid in resource allocation

How Surveillance Changed in Florida during the 2004 and 2005 Hurricanes

- Regular public health surveillance disrupted
- First surveillance system included DMATS, Emergency Rooms, and Shelters
- HIPAA waiver cited in DOH letter
- Electronic data implemented for last three 2004 hurricanes and 2005 hurricane season
- New method of analysis
- Special surveillance systems included the Medical Examiner and Poison Control

How does Post-Event Surveillance differ from "Normal" Epidemiological Surveillance?

- Time/political pressure by providing data for decision making
- Primary purpose is to find a source rather than give a precise estimate of a risk ratio
- Identify requirements, local capabilities, and gaps
  - Surveillance often includes more than data gathering
- Supplement regular disease reporting
- Identify outbreaks and prevent spread of disease
- Describe distribution of illness and injury to guide public health interventions
- Respond to public and press concerns
Agencies Involved in Disaster Management

Emergency Management  Hospitals
Fire  Law Enforcement
EMS  Red Cross
Public Health  Other NGOs

More information on the Emergency Support Functions, or ESF, structure of the Emergency Operations Center can be found at http://www.flordisaster.org/internaltraining/ESFs.htm

Planning a Surveillance System

Establish objectives
- Identify index case, characterize epidemiology, understand transmission, control outbreak, evaluate intervention

Develop case definitions
- Standardize for comparability over time and place, evolve in acute setting, may alter magnitude

Determine data sources
- Hospitals, labs, physicians
- Validity and reliability of data varies with reporting venue

Develop data collection mechanism
- Passive reporting, active reporting, survey, sentinel system, chart abstraction

Planning a Surveillance System (continued)

Field test
- Ensure viability of collection method (e.g. acceptability, simplicity)

Analytic approach
- Level of detail varies significantly

Dissemination
- Electronic, Epi-X, EpiCom, public health advisories, media, newsletters, website

Use of analysis and interpretation
- Communication and evaluation
Influences on Surveillance System

Surveillance programs are influenced by external controls

- Return time for testing
- Cost of testing
- Ability to provide follow-up
- Provider education
- Legal authority
- Public education/public opinion

Steps For Setting Up A Surveillance System

- Assessment of available resources
- Locate sites for surveillance systems
- Implement surveillance by gathering data
- Download information from the DMATs and analyze it
- If identify something unusual, investigate (whether it is a rumor or real)
- Communicate findings

1. Assessment of available resources
   - Find out what Hospitals, Clinics, Emergency Rooms, Dialysis Centers and Shelters are open and available
   - Identify the official and “unofficial” shelters and what health resources may be there
     - Even if the resources are not open, people might congregate at these areas in hopes of receiving care
     - Disaster Medical Assistance Teams (DMATs) may set up in parking lots as an area of operation
Steps For Setting Up A Surveillance System (continued)

2. Locate sites for surveillance systems
   • Set up a clinic at sites where Disaster Medical Assistance Teams (DMATs) are located
   • Use information DMAT has collected or create forms that are easy for DMATs to use
     • In some cases, information the DMATs have about patients can be downloaded directly on to computer
     • Information collected by DMATS will include how many GI, scrapes, nausea, prescription refills, etc. were seen that day
   • It is important to carry a letter from the State Public Health Officer explaining that HIPAA exempts public health surveillance from its rules
     • This will ensure DMAT, Hospital, Physician, etc. cooperation

Type of Data needed Post-Event

Morbidity data
   • Routine and special surveillance
   • Baseline data on endemic disease burden

Mortality data

Characteristics of affected zone
   • Geographic size
   • Type of population

Status of public health/health care resources

How Data can be Collected Post-Event

Rapid needs assessment
   • Conducted as soon as possible
   • Identify communicable disease threats
   • Outline public health needs

Special (temporary) surveillance

Data collection methods can vary
   • Manual data collection is labor intensive but provides on-site assessments
   • Electronic data collection is less labor intensive but may lose on-the-ground view
Potential Data Sources

- Laboratories
- Infectious disease specialists
- Hospitals
- Emergency Rooms
- Physician's offices
- Poison control centers
- Schools
- Daycares
- Nurse Triage
- Medical Examiner

- Death certificates
- Police/Fire departments
- EMS/911
- Pharmacy data
- Veterinarians
- Nursing homes
- Occupational health
- Environment health

Steps For Setting Up A Surveillance System (continued)

3. Implement surveillance by gathering data
   - Set up protocol for gathering data - where, how often, etc.
   - Collect patient info, case logs, etc.

   Surveillance strategies are best based on the characteristics of the disease(s) and/or outbreak
   - Passive surveillance assumes report will be made by data sources
   - Active surveillance means looking for cases by interviews and clinic and/or Emergency Room visits

Steps For Setting Up A Surveillance System (continued)

4. Download information from the data sources and analyze it
   - Look for anything that stands out
   - Compare data to baseline measures, if available
   - Data sent back to team leader (at the end of each day) who assembles it
   - Next morning the analysis arrives from headquarters
   - Print the data out as a graph or table and give to data source as a courtesy

   Building relationships is VERY important
Using Surveillance Data
for Analysis and Response

Estimate magnitude of the problem
• Is this a new outbreak or ongoing?

Determine geographic distribution
• How are populations in different locations being impacted?
• Is the impact dependent on location?

Portray natural history of a disease
• Generate hypotheses about disease trends or specific outbreak

Detect epidemics and define a problem
• Identify populations groups who might benefit from intervention

Evaluate control measures
• Interventions are effective when disease declines or plateaus

Monitor changes in disease and impacted population
• How are populations in different locations being impacted?
• Is the impact dependent on location?

Detect changes in health practices

Facilitate planning
• Identification of needed supplies and resources

Steps For Setting Up A Surveillance System (continued)

5. If identify something unusual, investigate (whether it is a rumor or real)
• Determine if something is really going on
• Conduct the steps of an outbreak investigation
• Put together Investigation Teams
• Investigation may not involve sample collection as labs may not be available
• Deal mostly with symptoms and cause
Steps For Setting Up A Surveillance System (continued)

6. Communicate findings
   • Communicate information back to the DMATs
   • Communicate info to the Public Information Officer (PIO), other health authorities and colleagues, and Incident Commander
     - Important to have a PIO on-site

Communication to the community
   • Stop rumors
   • Increase healthy behaviors
   • Stop “bad” behaviors
   • Increase trust in public health

Communication needs to be woven through each step

Surveillance System – General Points

Surveillance team is on site to do more than just surveillance
   • They are there to assess the needs of the people and to assist in getting those needs met
   • They may direct people to the resources they need, coordinate transportation to the resource, and/or identify needed resources

Important to be safe
   • Need to travel in teams of 2 or more
   May be involved with rumor control

Surveillance System – General Points (continued)

Sample collection does not occur often because labs not available and difficulty of shipping
   • Usually deal with the situation by treating the symptoms of a suspected illness

It is important to form the right teams
   • The right combination of skills, such as surveillance person, medical person, PIO, epi person, etc.
   • It is important that the members of the team get along and understand their roles
Always Check Equipment

Some essentials include:

- Laptop - with wireless connection capability
- ICS centers have wireless access
- Skill in Excel is important
- Epi books such as *Field Epidemiology* by Gregg, et al or *Communicable Diseases In Man*
- Satellite phone is VERY important
- Paper, pens, food, water
- Badges and other identifying clothing are important to wear

A list of field supplies is included in your I-FIRST training materials

Summary

- Understand surveillance purpose and use in post-event epidemiologic investigation
- Aware of the steps in setting up a surveillance system

Acknowledgements

The following material and information was used with permission:

Alan D. Rowan, DrPH, MPA
Acting Bureau Chief, State Laboratory Services; Program Manager, Florida Epidemic Intelligence Service Bureau of Epidemiology Florida Department of Health

Field Surveillance for Disasters
Michigan Center for Public Health Preparedness
University of Michigan – School of Public Health
JoLynn Montgomery, PhD, MPH
Jim Collins, MPH, RS

These materials were adapted for use in Florida by the Florida Center for Public Health Preparedness
Acknowledgements (continued)

The following material and information was used with permission:

Hurricanes & Public Health:
Issues in Surveillance & Response for Florida
Roger Sanderson, RN, MPH, Joann Schulte, DO, MPH, and
Richard Hopkins, MD, MSPH
Regional Epidemiology Seminar, January 2006

Public Health Surveillance:
Challenges for the 21st Century
Janet Hamilton, MPH, Bureau of Epidemiology
Florida Department of Health
Regional Epidemiology Seminar, January 2006

These materials were adapted for use in Florida by the Florida Center for Public Health Preparedness
Sampling & Packaging

Adapted by the Florida Center for Public Health Preparedness

Overview

- Understand existing state laboratory roles and responsibilities
- Aware of field sampling and packaging protocols for an epidemiological investigation

NOTE - Those who are certified in packaging and shipping and who routinely pack and ship diagnostic specimens should be assigned this responsibility in a disaster response

The Laboratory Response Network (LRN)

Nationwide network of Federal and State public health laboratories, working closely with private labs
Perform testing according to established protocols
Provides timely and accurate testing and reporting
Links local, state, and federal agencies
Provides emergency response 24/7
State Laboratories – Roles and Responsibilities

Florida Department of Health

Responsibility:
• Florida’s public health system

Testing Capabilities:
• Clinical samples
• Environmental samples

Locations:
• Jacksonville
• Miami
• Tampa
• Pensacola
• Lantana

BT Agent Sample Analysis:
• Jacksonville
• Miami
• Tampa

Testing Capabilities

Florida Department of Health

• Pathogenic microbial and viral
• Serological
• Food pathogens
• Tuberculosis
• Parasites
• Molecular typing
• Water, air, human and environmental chemical analysis
• Pesticides
• Newborn screening
• Mycology

The Florida Department of Health’s Laboratory Services web page provides more information
http://www.doh.state.fl.us/lab/laboratoryservices.htm

Click on Analytic Services for a complete listing of DOH laboratory services
State Laboratories – Roles and Responsibilities
Department of Agriculture and Consumer Services

Responsibility:
• Safeguard the public and support Florida’s agricultural economy

Testing Capabilities:
• Environmental Samples

Locations:
• Kissimmee

* Would be able to assist DOH in BT testing by providing microbiologists, consultation, equipment loans, and support staff for logistics

Testing Capabilities
Department of Agriculture and Consumer Services

• Food microbiology
• Chemical and physical analysis of foods
• Identification of food adulterants and pathogens
• Molecular biology & chemistry
• Metals
• Analysis of chemical residues (pesticides, antibiotics, other)
• Animal feeds
• Animal clinical microbiology
• Toxicology
• Clinical and gross pathology/histopathology
• Microbiology and nutrient content of milk and other dairy products and frozen desserts

Testing Capabilities (continued)
Department of Agriculture and Consumer Services

• Water and environmental pesticide monitoring
• Analysis of pesticide product formulations and tank mixes
• Fertilizer nutrients and micronutrients in formulations or environmental samples
• Seed germination
• Seed identification
• Arthropod identification
• Plant disease diagnosis
• Limited pesticide analysis
• Coliforms
• Water quality testing
• Shellfish tissue testing
• Analysis & testing of gasoline and other petroleum products
• Calibration of all measurement devices used in commerce
State Laboratories – Roles and Responsibilities

Department of Environmental Protection

Responsibility:
• Conserving Florida’s natural resources

Testing Capabilities:
• Environmental Samples

Locations:
• Tallahassee
• 1 satellite laboratory
• 7 smaller district laboratories

* Would be able to assist DOH in BT testing by providing consultation, equipment loans, and support staff for logistics

Testing Capabilities

Department of Environmental Protection

• Full service organic and inorganic chemical testing
• Air monitoring
• Bioassays
• Biological identifications
• Environmental and microbiology field sampling

State Laboratories – Roles and Responsibilities

Florida Department of Law Enforcement

Responsibility:
• Statewide law enforcement agency that offers a wide range of investigative and technical services to local criminal justice agencies.

Testing Capabilities:
• Environmental Samples

Locations:
• Tallahassee
• Pensacola
• Tampa
• Jacksonville
• Orlando
• Daytona Beach
• Ft. Myers

* Would be able to assist DOH in BT testing by providing support staff for logistics.
Testing Capabilities
Florida Department of Law Enforcement

- DNA analysis
- Latent fingerprint identification
- Firearms/toolmark identification
- Toxicology
- Controlled substance analysis
- Computer evidence recovery
- Crime scene analysis
- Trace evidence analysis

Geographical Areas of DOH Testing Responsibility

Jacksonville Laboratory
Department of Health
1217 Pearl Street
Jacksonville, FL 32202
Tel: 904-791-1500
After Hours: 904-750-0640

Tampa Laboratory
Department of Health
3602 Spectrum Boulevard
Tampa, FL 33612
Tel: 813-974-8000
After Hours: 813-883-5929

Miami Laboratory
Department of Health
1325 N.W. 14th Avenue
Miami, FL 33125
Tel: 305-324-2432
After Hours: 305-366-9139

*Not yet accepting samples.
### Geographical Areas of DOH Testing Responsibility (continued)

**Pensacola Laboratory**  
50 West Maxwell Street-32501  
P.O. Box 2666  
Pensacola, FL 32513  
Tel: 850-595-8895  
FAX: 850-438-7922

**West Palm Beach Laboratory**  
A.G. Holley Complex  
East End, Lantana Road  
P.O. Box 3738, Lantana, FL 33462  
Tel: 561-540-1170  
FAX: 561-540-1172

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### Packaging and Shipping of Diagnostic Samples – Checklist

All primary receptacles (i.e., blood tubes, sample vials, etc.) have positive closures, such as screw-on, snap-on or push-on caps/lids

- Screw-on caps are wrapped with Parafilm or adhesive tape

Each primary receptacle is labeled with the patient’s name and the date the sample was collected

- If a computer-generated label is affixed to the primary receptacle, it is placed directly over the manufacturer’s label to allow the sample to be viewed through the receptacle

NOTE - Those who are certified in packaging and shipping and who routinely pack and ship diagnostic specimens should be assigned this responsibility in a disaster response

[http://www.doh.state.fl.us/lab/PDF_Files/Diag_Spec_P_and_S_Check_List_0422051.pdf](http://www.doh.state.fl.us/lab/PDF_Files/Diag_Spec_P_and_S_Check_List_0422051.pdf)

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### Packaging and Shipping of Diagnostic Samples – Checklist (continued)

For liquid specimens, the primary receptacle is leak-proof and contains a maximum of 500 milliliters (17 ounces)

- When shipped by air, the primary or secondary receptacles are able to withstand, without leakage, an internal pressure producing a pressure differential of not less than 95 kPa in the range of - 40°C to + 55°C (- 40°F to + 130°F)

For solid specimens, the primary receptacle is sift-proof and contains a maximum of 500 grams (~17.5 ounces)
Packaging and Shipping of Diagnostic Samples – Checklist (continued)

Primary receptacles are individually wrapped or separated and placed inside a leak-proof secondary receptacle

Secondary receptacles are certified by the manufacturer prior to use
  • All containers provided by the DOH Bureau of Laboratories have been certified and can be used for ground OR air transport

Absorbent material has been placed between the primary and secondary receptacle
  • Enough absorbent material is used to absorb the entire contents of all primary receptacles
  • The secondary receptacle is not over packed
    – A pencil will fit between the primary receptacles after the absorbent material is added.

Packaging and Shipping of Diagnostic Samples – Checklist (continued)

An itemized list/manifest (sample log) of the contents is included with each shipment

The log contains a:
  • Telephone number and/or cell phone number
  • FAX number
  • Email address

Packaging and Shipping of Diagnostic Samples – Checklist (continued)

A sturdy outer (tertiary) package is used to ship secondary receptacles
  • The outer packaging consists of corrugated fiberboard, wood, metal, or rigid plastic and is appropriately sized for content

For liquids, the outer packaging does NOT contain more than a total of 4 liters (~ 4.228 quarts)
  • Each individual primary receptacle contains a maximum of 500 milliliters (ml) or 17 ounces

For solids, the outer packaging does NOT contain more than a total of 4 kilograms (~ 8.82 pounds)
  • Each individual primary receptacle contains a maximum of 500 grams (~17.5 ounces)
Packaging and Shipping of Diagnostic Samples – Checklist (continued)

If a courier such as DHL, FedEx, or UPS is used, then the waybill number has been written on the outside of each secondary Container.

The minimum package size in the smallest overall external dimension is 4 inches.
• If using the “double mailers” provided by DOH Bureau of Laboratories, they have been placed in a plastic envelope or pouch provided by the courier

Packaging and Shipping of Diagnostic Samples – Checklist (continued)

Each completed package is capable of withstanding a 4 foot (1.2 meter) drop as outlined in IATA regulation 6.6.1.

The outer-most packaging includes an approved “Diagnostic Specimen” label.

Ice packs and insulated outer packaging is being used to assure specimen integrity during transit.

Bleach Solution

This can be made by mixing the following:
• 1 part household bleach
• 9 parts water

Do not use straight bleach
• It is no more effective and can damage chemically-resistant suits, gloves, and boots

Should be made ON-SCENE or daily
• Shelf-life is 48 hours or less
Chemical Agent Decontamination and Clean-up

The Department of Environmental Protection (DEP) has the technology and training to provide chemical agent decontamination.

Contact Phil Wieczynski, Greg Lee, or Doug White at (850) 245-2010

Biological Agent Decontamination and Clean-up

The Environmental Protection Agency (EPA) has the technology and training to provide biological agent decontamination.

Contact EPA at (404) 562-8700

Types of Containers For Diagnostic Specimens
Sample Transport and Chain of Custody

Sample can be transported, assuming due diligence, through any municipality without notice or contact of local agencies.

At this point, it is not determined that the agent is a biological Hazard.

In order to maintain the integrity of any evidence and the chain of custody for the sample, it must be transported by law enforcement or health department personnel.

Once at the lab, custody will be transferred to DOH personnel.

NOTE - Strike Team leader and Strike Team members with sampling and packaging certification will know the proper protocols to follow.

Sample Submission Form

http://www.doh.state.fl.us/lab/PDF_Files/doh_form.pdf

Sample Submission Form (continued)

If you are deployed, you will be provided with the necessary Sample Submission Forms.
Sampling & Packaging Summary

- Understand existing state laboratory roles and responsibilities
- Aware of field sampling and packaging protocols for an epidemiological investigation

NOTE - Those who are certified in packaging and shipping and who routinely pack and ship diagnostic specimens should be assigned this responsibility in a disaster response.

Acknowledgements

The following material and information was used with permission:

Joann M. Schulte DO, MPH
CDC Assignee to Florida Department of Health
Bureau of Epidemiology

Recognition of and Response to Biological and Chemical Agents
USF Center for Biological Defense
Amanda Shaw
Education Coordinator
http://www.bt.usf.edu

State of Florida
Laboratory Bioterrorism Testing Capacity Assessment
June 2002

These materials were adapted for use in Florida by the Florida Center for Public Health Preparedness
Overview

The learning objectives for this module are:

• Awareness of federal and state quarantine and isolation regulations

• Awareness of the major considerations involved with quarantine and isolation

• Understand role in quarantine and isolation procedures

CDC Definition: Quarantine vs. Isolation

Isolation
The separation of a person or group of persons from other people to prevent the spread of infection

Quarantine
Restriction of activities or limitation of freedom of movement of those presumed exposed to a communicable disease in such a manner as to prevent effective contact with those not so exposed

http://www.doh.state.fl.us/chd/decon/tele/teleint村委会/bioterrorismconseqmgmt1.htm

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Statutory Authority

Federal

Section 311 of Public Health Service Act
http://www.fda.gov/opacom/laws/phsvcact/phsvcact.htm

Title 42 of the Code of Federal Regulations
http://www.access.gpo.gov/nara/cfr/waisidx_03/42cfrv1_03.html

State

Chapter 381 of the Florida Statutes
http://www.leg.state.fl.us/Statutes/index.cfm

Why and How?

WHY?
• To control spread of communicable disease within a community

HOW?
• Infectious case required to stay home or other location until free of infection
• Healthy individuals who have been exposed- required to stay home or otherwise restrict movements until specified period has passed
• Extreme circumstances:
  • Suspension of public gatherings
  • Closure of public places
  • Restriction of travel

Elements of an Effective Quarantine and Isolation Plan

An effective quarantine and isolation plan would address the following components:

• Legal issues and statutory authority
• Implementation, maintenance, and removal of quarantine
• Surveillance and monitoring of additional cases and exposures
• Social support for individuals
• Risk communication to the public
Legal Issues and Statutory Authority Considerations

Be aware of the following:

• What legal authority exists?
• Who has the authority?
• How will restrictions be enforced?
• Legal orders or voluntary?

Legal Issues and Statutory Authority Considerations (Continued)

In addition:

• What if non-compliance?
• Contingency plan for large scale quarantine
• Process for waving requirements
• Your role as part of the public health workforce

Implementation, Maintenance, and Removal of Quarantine Considerations

Be aware of the following:

• How persons will be notified of their quarantine or isolation
• How persons will be transported to quarantine locations
• How persons will know when quarantine is over
• How public will be educated
Implementation, Maintenance, and Removal of Quarantine Considerations (Continued)

Rights of those affected:

Due Process
Patients are constitutionally guaranteed the right to object to any restrictions

Rights to Privacy
• Is notification a breach of privacy?
• Who can authorize release of information for the sake of the public’s health?
• Should notification be in writing?

http://www.naccho.org/toolbox/issues%20to%20Consider%20isolation%20Quarantine.pdf

Surveillance and Monitoring of Additional Cases and Exposures - Considerations

Effective use of quarantine and isolation must include surveillance for additional cases and incidences of exposure

Questions such as:
• Is infrastructure in place for monitoring?
• Who will monitor?
• How will monitoring be done?
• What are the implications for self monitoring?

http://www.naccho.org/toolbox/issues%20to%20Consider%20isolation%20Quarantine.pdf

Social Support for Individuals - Considerations

When health authorities restrict movements of persons through isolation or quarantine, it becomes the FDOH’s responsibility to ensure that the basic needs of those individuals are met.

It is important to consider:
• How will essential services be provided?
• Who will evaluate client needs?
• Who will authorize provision of services?
• Who will provide services and how often?

http://www.naccho.org/toolbox/issues%20to%20Consider%20isolation%20Quarantine.pdf
Social Support for Individuals – Considerations (Continued)

Examples of Essential Services:
- Shelter
- Caregivers
- Food and meal preparation
- Medications
- Childcare
- Essential shopping
- Social diversion (e.g., TV, radio, reading materials, internet access)
- Work or school arrangements
- Pet care
- Clothes and laundry services

Risk Communications - Considerations

- Public Information Officer
- Develop key messages
- Interagency coordination
- Train public health staff, media representatives, and key spokespersons including elected officials, agency heads, and partners

Florida County Health Departments’ Responsibilities

Outlined in the Annex V: Isolation and Quarantine of the Emergency Operations Plan

- Develop local plans to assess existing health care resources
- Coordinate responses with key stakeholders in the counties
- Develop contingencies for anticipated shortages of essential services
- Promote treatment and prophylaxis to designated groups of individuals
Bureau of Epidemiology Responsibilities

Outlined in the Annex V: Isolation and Quarantine of the Emergency Operations Plan

• In cooperation with local disease investigation teams of the CHD-conduct surveillance of disease activity
• Provide continuous information of its course and impact on the population

Epidemiology Strike Team’s Role in Quarantine and Isolation

• FDOH Isolation and Quarantine Annex V of the Emergency Operations Plan
• Be ready to deploy and assist in your county or others
• Investigate cases and contacts
• Issue quarantine orders
• Check compliance with quarantine instructions
• Release individuals from quarantine

Epidemiology Strike Team’s Role in Quarantine and Isolation (Continued)

• Assist in the identification and provision of resources needed by local health and medical systems to cope with the emergency
• Promote treatment and prophylaxis in identified groups
• Follow instructions provided by incident command
Sample Patient Checklist

<table>
<thead>
<tr>
<th>Name: ___________________________</th>
<th>Date: ___________</th>
<th>Gender: M  F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address: ________________________</td>
<td>City: ______________________ Zip: ______</td>
<td></td>
</tr>
<tr>
<td>Parent/Guardian: ____________________</td>
<td>Phone: (H) ___________ (W) ____________</td>
<td></td>
</tr>
<tr>
<td>Name: _______________________________</td>
<td>D.O.B_________________</td>
<td></td>
</tr>
</tbody>
</table>

Date of Exposure: ____________   Contagion: ___________________
Address: ___________________________ City: ______________________ Zip: ______
Parent/Guardian: ____________________ Phone: (H) ___________ (W) ____________
Name: _______________________________  D.O.B_________________ Gender: M  F

Quarantine Information Sheet

<table>
<thead>
<tr>
<th>PATIENT'S NAME: ___________________________</th>
<th>DATE OF BIRTH:   __________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIAGNOSIS:          _________________________________________________</td>
<td></td>
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<tr>
<td>DATE OF BIRTH:   __________________</td>
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<tr>
<td>PATIENT'S NAME: ________________________________________________</td>
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Epidemiology Report to County Health Officer

<table>
<thead>
<tr>
<th>Number of cases: (_________ cases)</th>
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</table>
Summary

The learning objectives for this module are:

- Awareness of federal and state quarantine and isolation regulations
- Awareness of the major considerations involved with quarantine and isolation
- Understand role in quarantine and isolation procedures

Acknowledgements

We would like to thank the National Association of County and City Health Officials (NACCHO) for use of their "Isolation and Quarantine Issues to Consider" document in the creation of this presentation.

- You may access the NACCHO document with this link: http://www.naccho.org/toolbox/Issues%20to%20Consider%20Isolation%20Quarantine.pdf


These materials were adapted for use in Florida by the Florida Center for Public Health Preparedness.
Basic Interview Techniques

Developed by the Florida Center for Public Health Preparedness

Training Outcome

Understand basic interview communication concepts and techniques.
- Understand the purpose of an epidemiological field interview.
- Awareness of interviewing techniques.
- Identify the ways in which bias can influence interview results.
- Understand the importance of identifying unusual occurrences.
- Awareness of appropriate cultural sensitivity, confidentiality, and ethics when interviewing.

Epidemiological Interview Purpose

Purpose of an epidemiological interview. To elicit exposure information from the person being interviewed without bias.

Goal of most epidemiological interviews. To gather information as efficiently and effectively as possible.
Interviewing Techniques

Communication is the key to effective interviewing.

Two kinds of communication:

- Nonverbal
- Verbal

Nonverbal Communication

Definition - Any communication that is not verbal or spoken.

- 65 to 85 percent of the meaning of a message comes from the nonverbal component.
- People believe the nonverbal message more than the verbal message.
- During an interview, people spend the first three to five minutes "reading" the other person’s nonverbal communication.

- Eye contact
- Facial expressions
- Posture
- Personal space and distance
Nonverbal Communication is . . .

Eye Contact
It is important to maintain eye contact when communicating with interviewees.

Key Elements:
- Look at someone when you ask a question.
- Avoid eye contact when you do not want to be interrupted.
- Use the 60/40 rule.
- Eye contact over 3 seconds without verbal communication is considered staring.
- Pay attention to cultural rules or norms.

Nonverbal Communication is . . .

Facial Expressions
A skilled interviewer will also be mindful of the facial expressions they display.

Key Elements:
- Adopt a “neutral” or non-judgmental expression when listening to emotional statements.
- Do not express surprise, shock, disdain, disapproval, or disagreement.
- Avoid exaggerated facial expressions.

Nonverbal Communication is . . .

Posture
It is important that the interviewer maintain an “interested” or open posture during the interview process.
Nonverbal Communication is . . .

Posture (continued)

Key Elements:
- Orient your body towards the interviewee.
- Do not cross your arms or legs.
- Lean slightly forward to appear "interested" and elicit information.
- Avoid placing clipboards, papers, books, bags, etc. between yourself and the interviewee.
- Maintain a sitting or standing position that is not higher or lower than the interviewee.

Nonverbal Communication is . . .

Posture (continued)

• Maintain open body posture during the first 3-5 minutes.
• Continually check your posture.
• Monitor interviewee’s body posture.
• Open body posture opens up the conversation.

Nonverbal Communication is . . .

Personal Space and Distance
The physical distance between the interviewer and interviewee strongly influences the communication, and is culture- and gender-specific.

Key Elements:
• 18 inches to 4 feet is considered most effective across cultures and gender.
• Touching such as pats on the back, arm, or leg can “violate” culture and gender barriers.
Closed Nonverbal Communication

**Eye Contact:** Avoid eye contact completely or “stare” at the interviewee.

**Facial Expressions:** Adopt a “stone” face or over exaggerate your facial expressions.

**Posture:** Turn your body away from the interviewee, cross your arms and legs, put objects between you and the interviewee, lean back.

**Personal Space and Distance:** Sit or stand either too far or too close.

Open Nonverbal Communication

**Eye Contact:** Use the 60/40 rule – establish eye contact with the interviewee 60% of the time. The other 40% of the time you will be asking the interviewee questions.

**Facial Expressions:** Use a “neutral” facial expression or mirror your partner’s expressions.

**Posture:** Orient your shoulders towards the interviewee, do not cross your arms and legs, remove objects from between you and the interviewee, and lean slightly forward.

**Personal Space and Distance:** Sit or stand 18 inches to 4 feet away from the interviewee.

Verbal Communication

**Definition -** The content or *what* is said, as well as your voice or *how* it is said. It communicates feelings and attitudes.

- Content or “what is said.”
- Voice or “how it is said.”
Content or “What is said”

Key Elements:

- **Brevity**: Communications should be short, simple, and to the point.
- **Comprehension**: The comprehension level must be adjusted for the specific interviewee. Avoid the use of jargon and acronyms.

(continued)

- **Repetition**: During the interview process, it may be necessary to repeat questions or information.
- **Organization**: Communication content should be well organized in a sequential manner. The interview will have a “structure” to it (introduction, body, and conclusion).
Organization of an Interview

Introduction:
• Your name, title, and organization
• Purpose of the interview
• How information from the interview will be used
• Confidentiality of information
• W.I.I.F.M. – What’s In It For Me
• Explain you will be taking notes

Organization of an Interview (continued)

Body:
• Interview questionnaire or worksheet
• Repeat any of the introduction elements as often as necessary during the interview

Organization of an Interview (continued)

Conclusion:
• Your name, title, and organization
• Purpose of the interview
• How information from the interview will be used
• Confidentiality of information
• W.I.I.F.M. – What’s In It For Me
• Possible follow-up interview
Verbal Communication is . . .

Voice or “How it is said”

The voice communicates in ways that have nothing to do with the actual words that are being said.

Voice or “How It is Said”

Key Elements:

- **Tone of Voice:** A skilled interviewer will be mindful of their vocal tone (not being judgmental or condescending).

- **Volume:** The loudness or softness of speech will be adjusted based on the needs of the specific interviewee and the environmental conditions.

Voice or “How It is Said” (continued)

Key Elements:

- **Speed:** Speech should be paced in a manner so it is clear and can be understood by the specific interviewee.

- **Inflection:** Emphasis should be given to certain key words or phrases to ensure understanding and not change the meaning of a statement.
Nonverbal and Verbal Communication

- Nonverbal and verbal communication should complement each other.
- Pay attention to both verbal and nonverbal communication.
- Monitor the verbal and nonverbal communication of the interviewee.

Interviewing Techniques

- **Ask Open-Ended Questions.**
- **Use Probing.**

**Ask Open-Ended Questions.**
Definition - Questions that require more than a single word answer to encourage conversation.

- Move beyond simple “Yes” or “No” responses.
- Allow the interviewee to provide more detailed answers.
- Give the perception there is no “right” or “wrong” answer.
Types of Questions

Open-Ended Questions
- “What brings you to the clinic today?”
- “What kinds of meats have you recently eaten?”
- “What symptoms are members of your family experiencing?”
- “What symptoms do you have?”

Closed-Ended Questions
- “Are you here for a flu shot today?”
- “You haven’t eaten any uncooked meat, have you?”
- “No one else in your family is sick, are they?”
- “Do you have a headache?”

Sample Open-Ended Questions
- “Tell me about . . .”
- “Start at the beginning and tell me about . . .”
- “What specifically is going on?”
- “Could you describe how you are feeling?”
- “What changes in your health have you noticed?”

Interviewing Techniques (continued)

Use Probing.
Definition – A questioning technique which asks more specific questions about previously stated information.

- Probing is useful when the interviewee’s answer is not clear, or when the interviewee has not understood the question.
- Probing only asks about previously stated information. It does not introduce a new topic or new line of questioning.
- Probing is important because it allows the interviewer to obtain more information without influencing the response.
Probing Techniques

Elaborate: “Tell me a little more about that,” or “you started to say something about _____, is there anything else?”

Exemplify: “Can you give me an example of that?”

Explain: “I am not sure if I got all of that, can you explain it one more time?”

Specify: When a respondent says something that requires more information, “Please be more specific about _____.”

Restate: Repeat part or all of the interviewee’s response in such a way to encourage elaboration or explanation. It allows interviewee to clarify their ideas and listen to what they just said in a way that is non-evaluative.

Bias and how it influences interview results

Interview Bias

Definition - The difference that occurs from one interview to another in soliciting, recording, or interpreting information during face-to-face or telephone interviews.
Interview Bias

- Interviews are subjective, no matter how many objective questions are introduced or how hard the interviewer attempts to maintain objectivity.
- Interviewers are human, and carry with them some assumptions about different types of people.
- Interviewers should try to conduct each interview the same while working to minimize the effects of interview bias.

Interview Bias comes from . . .

There are two common types of interview bias:
- Environment
- Past experiences

The Environment

The physical setting where the interview occurs can impact the success of the interview.
Bias from the Environment

**Key Elements**

- Time
- Distractions
- Physical Arrangement

Bias from the Environment (continued)

**Time:** Consider the amount of time required to effectively gather the information needed, as well as, the time of day.

**Strategy:**
- Know how much time the interview will take.
- Schedule the interview when the interviewee can focus on the questions.

Bias from the Environment (continued)

**Distractions:** Noise, lighting, temperature, furniture, etc. all influence the interview.

**Strategy:**
- Control those distractions you can.
- Acknowledge those distractions you can’t control.
Bias from the Environment (continued)

**Physical Arrangement:**
The arrangement of desk and chairs can impact perceptions of power and dominance.

**Strategy:**
- Sitting side-by-side or at the corners of a desk communicate a more “equal” power level.
- Avoid sitting directly across a desk or table from the interviewee.

Interview Bias comes from . . .

**Past Experiences**
The interviewee’s past experiences in both interview situations and with medical staff impacts how well they may listen or respond.

**Strategy:**
Be aware that some resistance or lack of responsiveness by the interviewee may be due to their own past experience.

Bias from Past Experiences

**Past Experiences**
The interviewer’s past experiences can influence the verbal and nonverbal components of the epidemiological interview.
Bias from Past Experiences (continued)

Key Elements of the Interviewer's Past Experiences

- Stereotyping
- First impressions
- Interviewee "noise"
- Nonverbal bias

Stereotyping.
Be conscious of your opinions about how people of a given gender, religion, race, appearance think, act, or respond.

Strategy:
- Focus on the interview sheet and the need for information.
- Do a quick nonverbal check.

First impressions.
It is only natural that first impressions influence our communication with others. Avoid making a snap judgment, whether positive or negative, based on a first impression.

Strategy:
- Focus on maintaining an open body posture.
- Avoid standing or sitting higher than the interviewee.
Bias from Past Experiences (continued)

**Interview noise.** Some interviewees want to appear favorable or positive during the interview. They may present information in a way that casts them in a favorable light and/or say things they think the interviewer wants to hear.

**Strategy:**
- Be sure to ask for examples or specifics.
- Focus on maintaining non-judgmental expressions and responses.

Bias from Past Experiences (continued)

**Nonverbal bias.** Undue emphasis might be placed on interviewee nonverbal cues that have nothing to do with the interview (such as loudness or softness of voice, or the type of handshake given).

**Strategy:**
- Be aware of your body language and nonverbal cues.
- Make sure your nonverbal communication is as neutral and open as possible.

Communication Techniques to Minimize Bias

**Listen actively.**
Maintain eye contact, orient your body posture towards the person, lean forward slightly, and nod your head or provide verbal cues that you are listening (example: "Uh, huh;" "Yes, I see").

**Probe for more information.**
When answers are vague or incomplete, use the probing techniques described earlier.
**Communication Techniques to Minimize Bias (continued)**

**Repeat questions.**
Sometimes people can not hear well or do not hear the question the first time it is asked. Repeat the question when someone provides incomplete or “off-target” answers.

**Paraphrase.**
Restate the answer in different words and check for understanding. Paraphrasing invites the person to clarify and elaborate on a previous answer.

**Use silence.**
Sometimes not talking is the best way to get information or clarification. A pause of up to ten seconds invites the interviewee to continue talking. Use silence with intermittent eye contact as appropriate.
Identifying Unusual Occurrences

Key Elements:
Be ALERT!
Read over fact sheets so you’ll be aware of modes of transmission.

Example: If you are investigating encephalitis, it is important to know the disease can be transmitted by mosquitoes, and standing bodies of water contribute to the breeding of mosquitoes.

Identifying Unusual Occurrences (continued)

Strategies:
1. Face-to-face clues
2. Environment clues
3. People clues

Identifying Unusual Occurrences Strategies

1. Face-to-face clues. Look at the person you are interviewing, what clues do you see?
   • Many clues about the disease being investigated can be observed from a face-to-face interview.
   • Ask interviewee to demonstrate a protocol or behavior.
   • Observations during the interview need to be noted.
Identifying Unusual Occurrences Strategies (continued)

2. **Environmental clues.** Consider all environmental clues.
   - **Water resources.** From where does the water supply originate?
   - **Food resources.** How is food stored?
   - **Animal resources.** What types of animals are living in proximity?
   - **Exposures.** What is the interviewee’s occupation?

Identifying Unusual Occurrences Strategies (continued)

3. **People clues.** Be sure to consider what interactions the person being interviewed has had.
   - Have they traveled recently?
   - Are there any pieces of information they give that are contradictory?
Cultural Sensitivity, Confidentiality, and Ethics When Interviewing

The Council on Linkages between Academia and Public Health Practice developed a list of core competencies for public health professionals. Among these are Cultural Sensitivity and Cultural Competency.

Cultural Competency

In order to interview effectively, it is important to practice cultural competence by responding specifically and sensitively to various cultural and diverse groups.

Cultural Competency Quick Tips

- **Slow down.**
  When we speak quickly, we often don't produce all the sounds that help a listener identify a word.

- **Pay attention to your voice.**
  Avoid a monotone pattern, and remember that louder does not help.
Cultural Competency Quick Tips (continued)

- **Less is better.**
  Choose short words and use short sentences.

- **Rephrase and restate.**
  If one way of saying something is not being understood, try using different words.

Cultural Competency Quick Tips (continued)

- **When in doubt, write it out.**
  Some people understand written instructions, information, and/or questions better than spoken ones.

- **Draw a picture.**
  A picture is often worth a million words.

Cultural Competency Quick Tips (continued)

- **Avoid acronyms and jargon.**
  Use the most common words with most common meanings.

- **Repeat and summarize.**
  If a question is critical or information is vital, repeat it at least 3 times during the course of the interview. Summarize often to assure understanding.
Cultural Competency Quick Tips (continued)

- **Get help.** When necessary, call someone else to help.
- **Check the message.** ALWAYS have the listener re-tell the complete message to check for accurate understanding.

Ensuring Confidentiality

- Surveys and interviews can be intrusive even when conducted for public health safety.
- Questions about attitudes, beliefs, interests, values, behaviors and background data can be seen as personal and possibly controversial.
- Survey and interview professionals must protect each participant’s well-being to prevent harm and to get accurate information.
Ensuring Confidentiality (continued)

HIPAA: The Health Insurance Portability and Accountability Act of 1996 (HIPAA) was signed into law on August 21, 1996.

The regulations protect medical records and other individually identifiable health information, whether it is on paper, in computers or communicated orally (United States Department of Health and Human Resources, 2003, [http://www.hhs.gov/news/facts/privacy.html](http://www.hhs.gov/news/facts/privacy.html)).

Ensuring Confidentiality (continued)

Interviewer’s Responsibility.
The interviewer has an affirmative responsibility not to discuss or disclose any information relating to the interview to persons or parties who are not authorized to be privy to such information.

During the Interview. Tell the interviewee information exchanged during the interview will be treated with respect, and that standards of confidentiality will be maintained.

Ensuring Interview Ethics

The ethical principles which guide data gathering are rooted in two inalienable human rights: free speech and privacy.

Interview participants have the right to:
• Speak freely, without constraint, even if others may not like what they say.
• Remain silent.
• If they speak, to set limits on the personal information they divulge, and have what they say as individuals remain confidential (unless they consent to disclosure).
Interview Strategies Review

Communicate at the interviewee's level of understanding.

- Avoid technical terms, jargon, or words deemed beyond the comprehension of interviewees.
- Clearly explain necessary medical and technical terms and concepts.

Interview Strategies Review (continued)

Give factual information.

- Demonstrate an accurate knowledge of disease.
- Correct interviewee’s misconceptions.
- Provide disease information.
- Avoid extraneous information.

Interview Strategies Review (continued)

Use appropriate nonverbal communication.

- Maintain eye contact.
- Minimize physical barriers.
- Lean towards the interviewee.
- Nonverbal communication complements the verbal communication.
Basic Interview Techniques Summary

In this training program, you learned to:

Understand interview communication concepts and techniques.
- Understand the purpose of an epidemiological field interview.
- Awareness of interviewing techniques.
- Identify the ways in which bias can influence interview results.
- Understand the importance of identifying unusual occurrences.
- Awareness of appropriate cultural sensitivity, confidentiality, and ethics when interviewing.

Acknowledgements

The following material and information was used with permission:


These materials were adapted for use in Florida by the Florida Center for Public Health Preparedness.
Epidemiology Contact Investigation

Training Outcome

Understand the function and associated skills for epidemiology contact investigation.
- Define the purpose of a contact investigation.
- Identify the steps of a contact investigation.
- Describe strategies for contact identification.
- Identify strategies for overcoming field interview challenges.

Epidemiology Contact Investigation

The function of most field investigation interviews is to gather information as efficiently and effectively as possible.
Epidemiology Contact Investigation

Information gathering in an epidemiology contact investigation involves:

1. Contact elicitation with index interviewee
2. Prioritizing contacts
3. Interviewing contacts

What Is A Contact Investigation?

- Allows for early detection and treatment of recently acquired disease infection.
- Represents an active case finding process in that it identifies, examines, and evaluates all persons who are at risk for disease infection.
- May allow for the initiation of early treatment of new, previously untreated cases of active disease.
- May prevent infection from occurring.

Purpose

- Identify contacts to an infectious case.
- Evaluate contacts for infection and/or disease.
- Interrupt chain of transmission.
- Prevent infection from progressing to disease.
- Identify source.
When to Perform?

- Person-to-person transmission
- Disease severity
- Disease prevalence
- Best use of limited public health resources
- Broader population approaches are not feasible, such as mass vaccination and/or screening

What to Do?

- Identify and treat persons with active disease.
- Find and screen persons who have been in contact with index interviewee.
- Screen high-risk individuals to detect disease.

What Information Is Needed?

- What is the infectious agent?
- How is the disease transmitted?
- When is the infectious period?
- How long is the infectious period?
- How infectious is the index case?
- Who is susceptible to infection?
- Who is at risk of disease or severe disease?
- What is time frame of susceptibility?
Challenges

• Contact tracing poses threats to individual privacy.
  • Breaking confidentiality
  • Invasion of privacy

• Stigma may hinder free flow of information.

• Interviewee may be reluctant to reveal contact names.

• Concerns from the “worried well.”

Possible Infectious Disease Control Measures

• Chemoprophylaxis/Treatment
  • Isolation/quarantine
  • Vaccination
  • Education/Behavioral intervention
  • Further investigation

Key Terms

Index case/interviewee. The first case in a family or other defined group to come to the attention of the investigator.

Disease education. Important for index case to have knowledge of disease (e.g., how disease is spread, the infectious period, medication protocol).
**Key Terms (continued)**

**Contact.** A person or animal that has been in association with an infected person or animal or a contaminated environment as to have had an opportunity to acquire the infection.

The index case will be asked to identify the names of people they may have had contact with during a specified period of time.

**Will need to determine risk ratings for:**
- High risk contact
- Medium/Casual risk contact
- Low risk or Non-contact

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**Key Terms (continued)**

**Risk ratings established by:**
- Physical proximity to index case.
- Environment where exposure occurred.
- Host factors of contact.
- Infectious period of disease.

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**Key Terms (continued)**

**High risk contact.** Close contacts of index case where prolonged, frequent, or intense contact occurred during the index case’s infectious period.

**Medium/Casual risk contact.** Person who has less prolonged, intense, or frequent contact with case under investigation.

**Low risk or Non-contact.** Person who has probably not had close contact with index case but who requests inclusion in the investigation (e.g., worried well).
Key Terms (continued)

Contact elicitation. The act of identifying the index case’s potential contacts during the infectious period.

- Identify the locations, time/dates, and activities.
- Identify known and unknown persons for each location.
- Identify those at greater risk for being infected or developing the disease (i.e., children, immunosuppressed).

Key Terms (continued)

Infectious/Communicable period. The infectious period is that time during which the disease is most transmissible. With some diseases, the index case may be asymptomatic or not showing any signs of the disease during the infectious period.

Calculate a case’s infectious period by considering:
- Whether or not the index case had disease symptoms (need a specific start and end date), and
- Whether or not the index case was positive for the disease on laboratory test(s).

Structure of the Interview

- Step 1: Pre-Interview Activities
- Step 2: Establish Rapport
- Step 3: Information & Education Exchange
- Step 4: Contact Identification
- Step 5: Conclusion
- Step 6: Follow-Up
Step 1: Pre-Interview Activities

Determine urgency.

Review disease related information.
- Consider potential settings of transmission.
- Review chain of transmission.
- Review PPE requirements.
- Obtain fact sheets for distribution.

Step 1: Pre-Interview Activities (continued)

Review index case’s medical record.
- Review and note medical record information related to the diagnosis.
- Review and record social history and any cultural barriers
- Note previous hospital admissions and history.
- Assess the need for PPE during the interview
- Obtain and record locating information

Note: Background information regarding the interviewee should be gathered in preparation of the interview. Consider all potential sources of information.

Step 1: Pre-Interview Activities

Establish a preliminary infectious period.
- The preliminary infectious period may be already established and/or will be refined through the course of the interview.

Develop a strategy for the interview process.
- Look for unusual factors about the interviewee.
- Arrange an interview time and place.
- Ensure privacy and minimize distractions.
- Allow 2 – 4 hours for the interview dependent upon the interviewee’s condition.
Step 1: Pre-Interview Activities (continued)

How should an investigation be conducted if an interviewee dies, is too ill, or cannot be located?

• A member of the interviewee's household (or another person who is knowledge about the places where the person may have been) can be interviewed as a proxy.
• If a proxy is used, write this on the investigation form and include locating information for the proxy.

Step 2: Establish Rapport

Ask Open-ended to Closed-ended Questions

Open-ended Questions

Closed-ended Questions

Step 2: Establish Rapport (continued)

Open-ended Questions

• Allow the interviewee to provide a longer response.
• Used to stimulate a response.
• Use "Tell me about..." or "Describe to me..."
• Avoid asking "Why?"
Step 2: Establish Rapport (continued)

Examples of Open-ended questions:
- What is troubling you?
- What kind of medicines are you taking at the moment?
- Is there anything else? Note: May need to ask this several times, particularly on sensitive topics or items where interviewee may think the information is relevant.
  - Is there anything else you want to tell me?
  - Is there anything else you ought to tell me?
  - What else is there I ought to know?
  - But I suspect that there is more to this than what you have told me. . . . (followed by silence and eye contact)
- What symptoms do you have?
- Who are the people who visit your home?
- What places do you go to on a daily basis?
- What is your daily routine?
- How do you get to work?
- Who are the people you spend time with at work, at church, etc.?
- Who are the people you see every day?
- What are your hobbies?
- Who do you sleep with each night?
- Where else do you sleep?

Step 2: Establish Rapport (continued)

Closed-ended Questions
- Interviewee answers in one word, short phrase, or “Yes/No.”
- Used to capture distinct or specific information like “Name,” “Address,” or “Age.”

Step 2: Establish Rapport (continued)

1. Greet the Interviewee
- Use a welcoming tone of voice & smile.
- Introduce yourself.
- Make eye contact if culturally appropriate.
- Thank the interviewee in advance for participation in the investigation.
Step 2: Establish Rapport (continued)

2. Introduce the Investigation
   • Introduce yourself/organization.
   • Read the survey introduction word-for-word.
   • Speak in a conversational tone.
   • Provide a time estimate for interview.
   • Address confidentiality.
   • Offer FDOH contact information.

3. Remind the Interviewee...
   • Responses are confidential.
   • Participation is voluntary.
   • They can say “I don’t know” or “I don’t understand.”

Structure of the Interview (continued)

☑ Step 1: Pre-Interview Activities
☑ Step 2: Establish Rapport
☐ Step 3: Information & Education Exchange
☐ Step 4: Contact Identification
☐ Step 5: Conclusion
☐ Step 6: Follow-Up
Step 3: Information and Education Exchange

• Confirm key information from the pre-interview phase.
• Obtain any missing information.
• Obtain information needed to determine infectious period.
• Provide disease education and explain disease intervention behaviors.
• Define/re-evaluate infectious period.

Step 3: Information and Education Exchange (continued)

Confirm key information from the pre-interview phase.
• Full name
• Alias(es) or nickname(s)
• Date of birth
• Place of birth (city, state/province, country)
• If born in a foreign country, date arrived in USA
• Travel destinations (when last there and for how long)
• Physical description (height, weight, race, other identifying characteristics)
• Current address and post office (PO) box or place of residence, including directions, if necessary
• Telephone number
• Length of stay at current address
• Marital status
• Next of kin (name, address, telephone number, other locating information)
• Emergency contact (name, address, telephone number, other locating information)
• Employer or school (name, address, telephone number, other locating information)

Step 3: Information and Education Exchange (continued)

Obtain any missing information.
• Fill in any “gaps” in information.
• Resolve any differences that may arise when confirming previous information – Make note of this on the investigation worksheet.
Step 3: Information and Education Exchange (continued)

Obtain information needed to determine infectious period.

- Review known exposure to the disease (who, where, when) or knowledge of anyone with similar symptoms.
- Obtain any past hospitalization(s) and/or treatment for the disease (name, admission and discharge date[s], treating physician).
- Review the appropriate disease-related symptoms, including onset dates and duration.

Note: Recall of symptom onset can generally be poor. Mentioning prominent dates and major holidays can help the interviewee recall symptom onset.

Step 3: Information and Education Exchange (continued)

Provide disease education and explain disease intervention behaviors.

- Use open-ended questions to determine the interviewee’s disease knowledge.
- Reinforce the interviewee’s disease knowledge and correct any misconceptions.
- Explain mode of transmission and how the disease affects the body, using language the interviewee can understand.
- Avoid using medical terms and defer questions to appropriate medical personnel.
- Provide appropriate disease education materials.
- Review treatment regimen.
- Identify infection control measures (may include isolation or quarantine).

Step 3: Information and Education Exchange (continued)

Define/re-evaluate infectious period.

- If necessary, refine previously established infectious period based on the information obtained.
- Review significance of infectious period with interviewee.
- Discuss the role of the infectious period in contact identification.
Step 4: Contact Identification

- Reinforce confidentiality.
- Review the disease transmission process.
- Identify transmission settings.
- Identify potentially exposed contacts for each transmission site.
- Identify length and duration for each potentially exposed contact.
- Classify contacts – High, Medium, Low risk.

Step 4: Contact Identification (continued)

Reinforce confidentiality.
- Tell the interviewee the health department will maintain confidentiality when talking to any potential contacts.
- If the interviewee chooses to tell others, the health department will continue to maintain their confidentiality.

Note: May need to reinforce confidentiality throughout the interview in order to get information about name of contacts, type of exposure, duration of exposure, etc.

Step 4: Contact Identification (continued)

Review the disease transmission process.
- Re-emphasize the ways in which the disease is transmitted.
- Review the dates of the infectious period.
- Reinforce the importance of identifying contacts in order to protect family and friends who may have been exposed during the infectious period.
Step 4: Contact Identification (continued)

Identify transmission settings.
• Start at the beginning or the end of the infectious period.
• Discuss where the interviewee spends nights, met with friends, worked, ate, visited, and sought health care.
• Ask specifically about congregate settings (e.g., school, shelters, nursing homes, correctional facilities).
• Ask about modes of transportation to and from each setting.
• Identify routine and non-routine travel, events, or settings.

Keep in Mind:
• The key to efficient contact investigations is setting priorities.
• All possible sites of transmission should be listed, regardless of how long the interviewee spent at the sites.
• Priorities should be set on the basis of the time spent in each setting by the index interviewee.
• Decisions regarding investigation of the sites and contacts should be made after all the information has been collected.

Step 4: Contact Identification (continued)

Identify transmission settings (continued)

Identify potentially exposed contacts for each transmission site.
• Collect contacts for each transmission setting.
• Ask the names of contacts including full name, aliases or street names, a physical description, location and communication information (e.g., addresses and telephone numbers), and current general health.
• Spend time on contacts who are difficult for the interviewee to remember.
• Use open-ended questions to prompt recall (e.g., “How do you spend your time during a typical day?” “What do you do and where do you go on the weekends?”).
• Use the social networking approach - Ask the interviewee where and how he/she spends time. Find out where he/she has been staying or hanging out.
Step 4: Contact Identification (continued)

Identify potentially exposed contacts for each transmission site (continued).

Be sure to ask about:

- Close friends
- Sex partners
- Overnight guests and regular visitors
- Persons with whom drugs are used
- Overnight visits to any other locations
- Young children or immuno-compromised individuals
- Congregate settings (e.g., classrooms, grocery stores, etc.)

Step 4: Contact Identification (continued)

Identify length and duration for each potentially exposed contact.

For each contact in each transmission setting, ask for the type, frequency, and duration of exposure.

- How far apart was the contact from the interviewee?
- Was there any physical contact? If so, what and how much?
- How long were the interviewee and contact together?

May need to re-emphasize confidentiality throughout this process.

- Explain that the interviewee’s identity will not be disclosed during the investigation, and the same is true for contacts’ confidentiality.
- The health department cannot reveal the results of medical evaluations of contacts to the interviewee.
Step 4: Contact Identification (continued)

Classify contacts – High, Medium, Low risk.
• Priority ranking is determined by the characteristics of individual contacts and the features of the exposure.
• Review the case definition and state protocols.
• Priorities are based on the likelihood of infection and the potential hazards to the individual contact if infected.

Step 5: Conclusion

• Be positive.
• Acknowledge the interviewee’s participation.
• Let the interviewee know you can be contacted with any concerns that may arise.
• Remind the interviewee of their confidentiality.
• Emphasize the potential for a second interview.

Step 5: Conclusion (continued)

• Request and answer the interviewee’s questions.
• Review components of the treatment plan.
• Evaluate the interviewee’s remaining needs or potential adherence problems.
• Restate the date of the next medical appointment, if known.
• Reinforce the procedures for referral of each contact.
• Provide information on how the interviewee can contact you.
• If appropriate, shake the interviewee’s hand, express thanks and appreciation, and close the interview.
Step 6: Follow-up

- Best site for second interview is often the interviewee’s residence.
- Each site visit creates opportunities to:
  - Interview the index interviewee again.
  - Interview and test contacts.
  - Collect specimens.
  - Provide education.
- Environmental clues may create a new direction for the investigation.
- Certain sites (e.g., congregate settings) require special arrangements to visit.

Structure of the Interview

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Common Interview Challenges

- Need to change topic or get interviewee back on track.
- Interviewee provides too much information or goes off on a tangent.
- Interviewee asks lots of questions.
- Interviewee questions the use of surveys.
- Interviewee is reluctant to give information.
- Interviewee questions confidentiality.
- Interviewee does not have time.
- Language problems.
- Interviewee refuses to answer.
- Interviewee becomes impatient or expresses fatigue.
- Interviewee does not understand the question or gives irrelevant answer.
- Interviewee asks for feedback, confirmation, or additional information.
- Interviewee did not know he/she had the diagnosis in question.
Common Interview Challenges

Need to change topic or get interviewee back on track.
• Could be caused by an impatient or tired interviewee.
• If the interviewee seems confused rather than reluctant, probe by asking if you are being clear.

Strategy:
When the interviewee takes a breath or pauses . . .
• “That was helpful. But could you tell me about . . .”
• “Just a minute, tell me more about . . .”
• “You mentioned ____, tell more about that.”
• “I have a pretty good sense of your symptoms, now I’m going to ask about . . .”
• “That’s very interesting. Can you tell me more about . . .”

Interviewee provides too much information or goes off on a tangent.
• Do not sound uninterested in the interviewee’s digression.
• Guide the conversation back to the question at hand.

Strategy:
When the interviewee takes a breath or pauses . . .
• “I know you have a lot to do, so I’d like to move you through these questions.”
• “That was helpful. Now I want to ask you . . .”
• “I do not want to keep you on the phone too long. Here’s the next question.”
• “There are some questions about that later in the survey. Hold on to that thought for just a minute.”

Interviewee asks lots of questions.

If an interviewee asks: “What sorts of questions will you ask me?”
• Your response should be to give examples of several questions to the interviewee. Then move forward with the interview.

If an interview continues to ask questions . . .
• May need to re-emphasize the W.I.I.F.M., purpose of the investigation, and/or confidentiality.
• Offer to write down ALL the questions and provide answers during and/or after the interview.
Common Interview Challenges

Interviewee questions the use of surveys.

If the interviewee asks: “What good are these surveys?” or says: “Surveys are a waste of time.”

Strategy:
• “Information from this survey will be used to identify why people are getting sick in your community (city, town, neighborhood) and help us stop transmission of the disease.”
• Re-emphasize purpose and/or confidentiality.
• Review disease transmission as it may potentially impact the interviewee’s family and friends.

Common Interview Challenges

Interviewee is reluctant to give information.

If an interviewee says: “I’m uncomfortable about giving out personal information.”

Strategy:
• “We can skip any questions that make you uncomfortable.” Write “REFUSED” next to any questions the interviewee does not answer.
• Re-emphasize confidentiality.
• Inform interviewee these questions are being asked of everyone.
• Review the disease transmission process, and explain how the information provides insight into protecting family and friends AND identifying those people who may have been potentially exposed.

Common Interview Challenges

Interview questions confidentiality.

• Recognize the interviewee may have had past experiences where confidentiality was not maintained.
• Interviewee may be concerned about being “blamed” or “targeted.”

Strategy:
• “We maintain confidential health records here at the health department.”
• “I apologize confidentiality was not maintained in the past. I assure you I will follow the federal laws and maintain your confidentiality during this investigation.”
• Explain the purpose of the investigation and how results are used.
Common Interview Challenges

Interviewee does not have time.
If an interviewee says: “I don’t have time to complete a survey. Let’s do it another time.”

Strategy:
• Do not argue with interviewee.
• Do not rush through the questions or have the interviewee end the survey halfway through.
• Stress the importance of completing this survey. If they cannot complete the survey now, try to schedule the interviewee for a specific time to complete it.
• Set a specific time – do not leave the interviewee with a promise to “get back” on a time.

Common Interview Challenges

Language problems.

Strategy:
• If you are unable to understand what an interviewee is saying, ask the person to speak more slowly.
• If you still cannot understand, ask the person to reschedule and let your supervisor know.
• The study protocol may provide for a translator at the health department, or you may be able to ask a family member to translate.
• Be sure to ask your Strike Team Leader if there is a standard method of dealing with these situations.

Common Interview Challenges

Interviewee refuses to answer.
• If the interviewee seems confused rather than reluctant, probe by asking if you are being clear.
• Could be caused by an impatient or tired interviewee.

Strategy:
• Re-emphasize confidentiality and/or how the information will be used.
• If it is obvious that a interviewee is uncomfortable with a question, move on to the next question.
• Record response as “Refused to answer.”
• Interviewees have the right to refuse to answer questions.
Common Interview Challenges

Interviewee becomes impatient or expresses fatigue.
• Asking interviewees about where they have been during a specified time and who they may have had contact with can be tedious.
• If interviewees are not feeling well, the interview process can be stressful.

Strategy:
• “This should only be a few more minutes (or name an estimated amount of time). We will move through this as quickly as we can.”
• “We really appreciate your help with this survey; this should only take a few more minutes of your time.”
• “We are about half-way through. We have ____ more hours/minutes to go. I know this seems tedious. The information you provide allows us to help those who may have been exposed.”

Common Interview Challenges

Interviewee does not understand the question or gives irrelevant answer.
• May be caused by language, culture, or other barriers.
• Avoid rephrasing the question or response choices.

Strategy:
• “I think I read that question incorrectly, let me repeat it.”
• “Let me ask the question and the choices again.”
• “This is a tough question. Let me show you what it says.” Then show the interviewee the question on the survey.

Common Interview Challenges

Interviewee asks for feedback, confirmation, or additional information.
• An interviewee may want to know if his or her answers are “right.”
• The interviewee may not fully understand the purpose of the investigation or how the information will be used.

Strategy:
• Rather than saying anything that could influence their responses, say “there are no right or wrong answers.” Then move on to the next question.
• Restate the purpose, W.I.I.F.M., confidentiality, or outcomes of the investigation.
Common Interview Challenges

Interviewee did not know he/she had the diagnosis in question.

Strategy:
• Inform the interviewee that the diagnosis was reported to the state health department by the person’s doctor (or by the lab to which the doctor sent specimens).
• Suggest that the interviewee call the doctor for more information on the diagnosis.
• Offer to wait why the interviewee calls their doctor for verification.
• Try to conduct the interview, but reschedule if the interviewee can not focus on the questions.

Common Interview Challenges

• Need to change topic or get interviewee back on track.
• Interviewee provides too much information or goes off on a tangent.
• Interviewee asks lots of questions.
• Interviewee questions the use of surveys.
• Interviewee is reluctant to give information.
• Interviewee questions confidentiality.
• Interviewee does not have time.
• Language problems.
• Interviewee refuses to answer.
• Interviewee becomes impatient or expresses fatigue.
• Interviewee does not understand the question or gives irrelevant answer.
• Interviewee asks for feedback, confirmation, or additional information.
• Interviewee did not know he/she had the diagnosis in question.

Epidemiology Contact Investigation Summary

In this Module you learned to:
Understand the function and associated skills for epidemiology contact investigation.
• Define the purpose of a contact investigation.
• Identify the steps of a contact investigation.
• Describe strategies for contact identification.
• Identify strategies for overcoming interview challenges.
Acknowledgements

The following material and information was used with permission:


- Guidelines for the Investigation of Contacts of Persons with Infectious Tuberculosis. Recommendations from the National Tuberculosis Controllers Association and CDC. http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5415a1.htm


These materials were adapted for use in Florida by the Florida Center for Public Health Preparedness