

What To Know About Protecting Myself and Others from Disease: A General Communicable Disease Overview

Satellite Conference and Live Webcast
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Video Communications and Distance Learning Division

Faculty

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Overview

- Public Health Surveillance of Disease
- Notifiable Disease Law and Rules
- Diseases: Facts and Prevention
- Foodborne Disease Outbreaks

Bureau of Communicable Diseases

- Epidemiology
- HIV / AIDS
- Immunization
- Sexually Transmitted Diseases
- Tuberculosis

Bureau of Clinical Laboratories (BCL)

- Montgomery
- Clinical Chemistry
- Metabolic
- Microbiology
- Respiratory
- Sanitary Bacteriology / Media
- Serology
- Mobile
- Clinical
- Environmental

www.adph.org/bcl

Bureau of Environmental Services (BES)

- Community Environmental Protection
 - Soil and onsite sewage
 - Indoor air quality and lead
 - Solid waste
- Food, Milk, and Lodging
 - Food and lodging

Bureau of Environmental Services (BES)

- Seafood and shellfish
- Milk
- Quality assurance

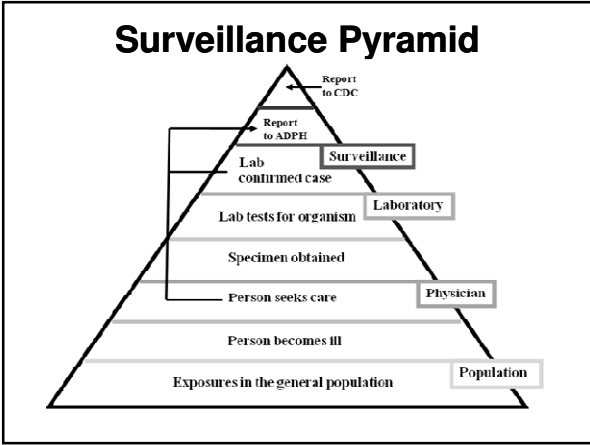
www.adph.org/environmental

Epidemiology Division Branches

- Analysis and reporting
- Healthcare - associated infections
 - Infected healthcare workers program
- Surveillance
- Toxicology
- Zoonotic

Public Health Epidemiology Mission

- To protect the residents of Alabama through constant monitoring of the incidence (occurrence of certain diseases) and prevalence of infectious, zoonotic (disease in animals that human can get), and environmentally-related (mercury poisons, lead) human disease



Field Surveillance Staff (FSS)

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Epidemiology Division
Ph: 334.206.2474 | 1.800.778.3871 (24/7) | Fax: 334.206.3734

Investigations and Cases (Previous 12 months)

Disease	Investigations	Cases	Reported	Other
Arboviral disease (includes West Nile virus)	157	59	14	45
Botulism	1	1	0	0
Bruceellosis	5	2	0	0
Complicated dengue	444	242	0	0
Chickpea (Arboviral, Adult-1)ys	190	25	0	0
Legionnaires	115	107	0	0
Dengue	14	3	0	0
E. coli Shiga toxin-producing (includes EHEC)	154	80	0	0
Encephalomyelitis	29	18	0	0
Gardnerella	222	185	0	0
Hemophilus influenzae, invasive	82	76	0	0
Hemolytic-uremic syndrome (HUS)	3	3	0	0
Hepatitis A, acute	139	11	0	0
Hepatitis B, acute	80	78	0	0
Hepatitis C, acute	382	35	0	0
Legionnaires	115	107	0	0
Measles	0	0	0	0
Meningococcal disease	9	5	0	0
Pharyngitis	1	0	0	0
Q Fever	5	2	0	0
SARS-CoV (Severe Acute Respiratory Syndrome associated Coronavirus)	5	0	0	0
Shigellosis	1122	1040	0	0
Shingles	308	296	0	0
Scarlet Fever/Rickettsia	697	196	0	0
Strepococcal pneumoniae, invasive disease (IP)	190	175	0	0
Typhoid fever	9	5	0	0
VISA (Staph aureus, methicillin-resistant)	1	0	0	0
Viralosis (non-dengue)	13	12	0	0
Other	2	0	0	0
Total	6601	3703	0	0

Notifiable Diseases / Conditions

- **Purpose of Notifiable Diseases**
 - Prevent disease
 - Provider, patient, and community education
 - Confirm disease
 - Required by law, Code of Alabama, Section 22-11A-1,
 - <http://alisondb.legislature.state.al.us/acas/CASLoginFire.asp>

Notifiable Diseases / Conditions

- **ADPH administrative code authorizes and requires reporting**
 - <http://www.alabamaadministrativecode.state.al.us/docs/hlth/420-4-1.pdf>
- **ADPH is exempt from HIPAA Privacy Rules,**
 - <http://www.cdc.gov/mmwr/pdf/other/m2e411.pdf>

Total Outbreaks

AL Outbreaks	2011	2012	2012***
Adenovirus*	1	0	0
Bacillus cereus*	1	0	0
E. coli O157:H7	1	0	0
Campylobacter	1	0	0
Coccidioides (CVA6)*	0	1	0
Flitha Disease*	0	0	1
Influenza*	0	5	5
Multi-organism*	1	6	0
Norovirus*	9	30	21
Public Health Importance	0	1	2
RSV*	0	1	0
Salmonella	3	5	2
Serratia marcescens*	1	0	0
Shigella	4	10	1
Staph aureus	0	1	0
Unknown Gastrointestinal	-	-	10
Unknown Respiratory	-	-	5
Undetermined	10	26	3
Total Outbreaks**	32	86	50

Who Must Report

- **Physicians**
- **Dentists**
- **Nurses**
- **Medical Examiners**
- **Hospital Administrators**
- **Nursing Home Administrators**

Who Must Report

- **Laboratory Directors**
- **School Principals**
- **Day Care Center Directors**
 - We expect and want multiple reports

How to REPORT

- | | |
|---|---|
| <ul style="list-style-type: none"> – Immediate, Extremely Urgent within 4 hrs of diagnosis <ul style="list-style-type: none"> • Phone -1-800-338-8374 – Immediate, Urgent Within 24 hrs of dx <ul style="list-style-type: none"> • Online, REPORT Card • Phone 1-800-338-8374 • Email to report@adph.state.al.us • Fax (334) 206-3734 | <ul style="list-style-type: none"> – Standard within 7 days of dx <ul style="list-style-type: none"> • Online, REPORT Card • Phone 1-800-338-8374 • Email to report@adph.state.al.us • Fax (334) 206-3734 |
|---|---|

Online REPORT Card

REPORT Notifiable Disease Card

Reportable Disease/Health Condition:
Enter the name of the reportable disease/condition, select from the drop box. For immediate, extremely urgent diseases, please call 1-800-338-8374 within 1 year of exposure.

Rules for Every Provider and Organization to Report: Time
Arizona Department of Public Health, Epidemiology Division, adph.org/epi, 1-800-338-8374.

Please check:

* Patients First Name:

* Patients Last Name:

* Patients Date of Birth:

* Patients Address:

* Patients City:

* Patients State:

* Patients Zip:

* Patients County of Residence:

* Reportable Disease/Health Condition:

Date of Onset:

Date of Diagnosis:

Date of Lab Results:

* Reporter Type:

* Reporter Facility Name:

* Reporter's First Name:

* Reporter's Last Name:

* Reporter's Area Code and Phone:

You must submit at least 1 of 3 date fields listed below.

Contact Information

- County Health Department (CHD)
 - http://adph.org/administration/assets/co_untylist.pdf
- Field Surveillance Staff (FSS)
 - <http://www.adph.org/epi/default.asp?id=1438>
- Epidemiology Division (EPI)
 - 1-800-338-8374
 - <http://www.adph.org/epi/>

What Information We Should Receive

- Name disease or health condition
- Patient name
- Patient DOB
- Patient gender
- Patient address
- Patient phone number
- Date of illness

HIPAA

- ADPH is a public health authority as defined by the Health Insurance Portability and Accountability Act (HIPAA) to collect or receive Protected Health Information (PHI) for the purpose of surveillance, investigations, and interventions of notifiable diseases, without authorization of the patient

<http://www.cdc.gov/mmwr/preview/mmwrhtml/m2e411a1.htm>

The Key to Protecting Yourself and Others

- Know the facts from myths
- Know how disease is spread
- Know how to prevent yourself from becoming sick

What Do I Need to Know?

- Botulism
- Salmonella
- Shigella
- Norovirus
- E coli
- Hepatitis
- Influenza (flu)
- Tuberculosis
- Vibriosis
- Rabies
- Tick Diseases
- Mosquito Diseases

Botulism: Clostridium Botulinum

- Clostridium botulinum bacteria can be found in soil
- Not spread from one person to another
- Can affect your nerves, paralyze you, and cause death
- Foodborne botulism is a rare

Botulism: Clostridium Botulinum

- Serious illness caused by eating foods that are contaminated with a nerve toxin called botulinum toxin
- Most foodborne botulism cases are caused by home - processed and home - canned foods
- Wound botulism usually associated with black - tar heroin injection

Botulism: Clostridium Botulinum



Protect Yourself

- When you open a jar of commercially or home - canned food, thoroughly inspect the can or jar



- Do not taste or eat foods that are discolored, moldy, or smell bad
- Do not use products that spurt liquid or foam when the container is opened

Protect Yourself

- Use a pressure canner or cooker and follow all specified home canning processing times
- Pay special attention to the processing times for low - acid vegetables like green beans, carrots, and corn
- Boil home-processed, low-acid canned foods for 10 minutes before serving

Protect Yourself

- Children less than 12 months old should not be fed honey
 - Honey can contain the bacteria that causes baby botulism



- Oils infused with garlic or herbs should be refrigerated



Protect Yourself

- Potatoes which have been baked while wrapped in aluminum foil should be kept hot until served or refrigerated
- Make sure the potatoes are eaten within 2 hours of being cooked, or kept at 60°C or hotter, or refrigerate the potatoes within 2 hours of being cooked



Salmonella

- What is Salmonella?
 - Salmonella are bacteria that affect the stomach and intestines
- You may have diarrhea (sometimes bloody), stomach cramps, and fever
- Symptoms usually begin 12 - 72 hours after exposed to bacteria and most people get better within 5 - 7 days

Salmonella

- How does Salmonella spread?
 - Water - to - Person
 - Swallowing infected water
 - Animal - to - Person
 - Contact with animals, specifically birds, rodents (rats, mice) and reptiles (lizards, snakes), and their feces

Salmonella

- Food - to - Person
 - Eating undercooked meat or eggs
 - Consuming food or liquid handled by a sick person who did not wash their hands well (people can shed salmonella for months)
 - Drinking raw (unpasteurized) milk

Protect Yourself

- Cook chicken, ground beef, and eggs thoroughly
- Do not eat or drink foods containing raw eggs, or raw (unpasteurized) milk
- Do not eat undercooked meat, chicken, or eggs in a restaurant



Protect Yourself

- Wash hands with soap after handling reptiles, birds, or baby chicks, and after contact with pet feces and pet food
- Avoid holding reptiles (turtles, iguanas, other lizards, snakes) and infants and/or persons with health problems
- Do not work with raw chicken or meat, and an infant (e.g., feed and change diaper) at the same time

Shigella

- **What is Shigella?**
 - Shigella is a bacterial disease that affects the stomach and intestines
- **You may get diarrhea (often bloody), fever, and stomach cramps starting a day or two after being exposed to the bacteria and usually resolve in 5 to 7 days**

Shigella

- **How does Shigella spread?**
 - Person - to - person
 - Passed from one infected person to the next
- **Most Shigella infections are the result of passing infected stools on soiled fingers of one person to the mouth of another person**

Shigella

- **Shigella is present in the diarrheal stools of infected persons while they are sick and for up to two weeks afterwards**

Protect Yourself

- **Keep children with diarrhea out of daycare and schools**
- **Supervise hand washing of toddlers and small children after they use the bathroom**
- **Do not prepare food for others while you are sick with diarrhea and for at least 2 days after diarrhea has stopped**

Protect Yourself

- **Avoid swallowing water from ponds, lakes, or untreated pools**

Norovirus

- **What is Norovirus?**
 - Norovirus is a virus that affects the stomach and intestines
 - Sometimes called “food poisoning”, “cruise ship virus” or “stomach flu”

Norovirus

- Symptoms are stomach cramping, vomiting, or diarrhea often begins suddenly
 - Most people recover within 1 or 2 days
- You can get the virus more than once

Norovirus

- How does Norovirus spread?
 - Caring for sick people (vomiting and diarrhea) or when sharing food, drinks, or eating utensils with a sick person
- Eating food or drinking liquids handled by a sick person
- Touching a surface or object handled by a sick person and touching your mouth

Protect Yourself

- Wash and cook food thoroughly before eating them
- Ill people should not prepare food for 3 days after they stop having symptoms
- Clean and disinfect surfaces, after contact with sick person, with bleach cleaner or 5 - 25 tablespoons of bleach in 1 gallon of water

Protect Yourself

- Wash clothing, sheets, and towels, after contact with sick person, with soap in the washing machine for the longest cycle and put items in the dryer

E. Coli

- What is E. coli?
 - E. coli are bacteria that affect the stomach and intestines
- Symptoms are severe stomach cramps, diarrhea (often bloody), and vomiting
 - If you have a fever, it usually is less than 101°F

E. Coli

- Can lead to life threatening illness and death
- How does E. coli spread?
 - Swallowing water while swimming or drinking untreated water
 - Caring for sick people with vomiting and diarrhea



E. Coli

- Eating food or drinking liquid handled by a sick person who did not wash their hands well or drinking unpasteurized (raw) milk
- Touching a surface or object handled by a sick person or within an animal living area, such as a petting zoo, then touching your mouth



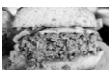
Protect Yourself

- Do not swim for 2 weeks after the diarrhea has stopped
- Take your kids on bathroom breaks or check diapers often when swimming
- Do not change diapers at poolside and do not swallow water when swimming



Food Concerns

- Cook ground beef and meat to at least 160°F - use a thermometer
- Avoid raw milk, dairy products, juices, like fresh apple cider
- Prevent cross contamination in food preparation areas: thoroughly washing hands, counters, cutting boards, utensils after touching raw meat

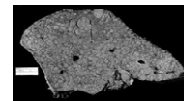


WARNING: This product has not been pasteurized and, therefore, may contain harmful bacteria that can cause serious illness in children, the elderly and persons with weakened immune systems.



Hepatitis

- Hepatitis is an inflammation of the liver and also refers to a group of viral infections that affect the liver
- Hepatitis A
 - Only occurs as a new infection and does not become chronic
 - Very common in other countries



Hepatitis

- Hepatitis B and C
 - Can be acute or chronic infection
 - Transmitted through activities that involve puncture through the skin or mucosal contact with infectious blood or body fluids



Hepatitis

- They are not spread through food or water, sharing eating utensils, breastfeeding, hugging, kissing, hand holding, coughing, or sneezing

How is Hepatitis A Spread?

- Hepatitis A is usually spread
 - When a person ingests stool, even in microscopic amounts
 - From contact with objects, food, or drinks contaminated by stool from an infected person

How is Hepatitis A Spread?

- Hepatitis A can be spread when:
 - An infected person does not wash his or her hands properly after going to the bathroom and then touches objects or food
- A caregiver does not properly wash his or her hands after changing diapers or cleaning up the stool of an infected person

How is Hepatitis A Spread?

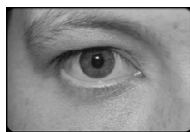
- Hepatitis A also can be spread through contaminated food or water
 - Contamination of food can happen at any point: growing, harvesting, processing, handling, and even after cooking

Symptoms of Hepatitis A

- Fever
- Weakness
- Loss of appetite
- Nausea
- Vomiting
- Grey - colored stools

Symptoms of Hepatitis A

- Abdominal pain
- Dark urine
- Joint pain
- Jaundice or yellowing of the skin or eyes
 - Symptoms are more likely to occur in adults than in children



Protect Yourself

- The best way to prevent Hepatitis A is by getting vaccinated
- Experts recommend the vaccine for all children, some international travelers, and people with certain risk factors and medical conditions

Protect Yourself

- The Hepatitis A vaccine is safe and effective and given as 2 shots, 6 months apart
- Both shots are needed for long - term protection

Protect Yourself

- How do I stop the spread?
 - Wash hands thoroughly after using bathroom, changing diapers, before preparing or eating food, after contact with animals or their living area
 - Adults and children, with diarrhea or loose stools, should not be in childcare facilities until their diarrhea has resolved



Protect Yourself

- Wash work surfaces with soap and water immediately after diaper changing or contact with raw meat or chicken
- Prepare foods carefully for infants, the elderly, and those with health problems

Influenza (Flu)

- What is influenza (also called flu)?
- Flu is a contagious respiratory illness caused by influenza viruses that infect the nose, throat, and lungs
- There are two main types of influenza (flu) virus:
 - Types A and B

Influenza (Flu)

- The influenza A and B viruses that routinely spread in people (human influenza viruses) are responsible for seasonal flu
- How flu spreads
 - Flu viruses spread mainly by droplets made when people with flu cough, sneeze or talk

Influenza (Flu)

- These droplets can land in the mouths or noses of people who are nearby
- You may be able to pass on the flu to someone else before you know you are sick, as well as while you are sick

Influenza (Flu)

- Most healthy adults may be able to infect others beginning 1 day before symptoms develop and up to 5 - 7 days after becoming sick

Signs and Symptoms of Flu

- Fever or feeling feverish / chills
- Cough
- Sore throat
- Runny or stuffy nose
- Muscle or body aches
- Headaches
- Fatigue (very tired)

Signs and Symptoms of Flu

- Some people may have vomiting and diarrhea, though this is more common in children than adults
- Certain people are at greater risk for serious complications if they get the flu
 - This includes older people, young children, pregnant women and people with conditions like asthma, diabetes, or heart disease, and persons who live in nursing homes

Protect Yourself

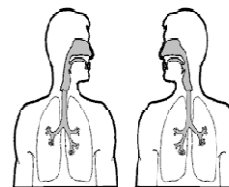
- Get vaccinated - ideally by October
- Wash your hands
- Cover your cough and sneezes
- Stay home with fever
- Clean and disinfect
- Call your doctor if symptoms get worse

Cover the Cough and Sneeze



TB (Tuberculosis)

- A disease caused by **BACTERIA**
- Usually affects the **LUNGS**
- Spread in the **AIR**
- Can be cured with **MEDICINE**



How is TB spread ?

- TB germs can be spread when a person with TB disease:
 - Coughs
 - Sneezes
 - Speaks
 - Sings
- Sending TB germs in to the air for someone to inhale



Sneezing and Coughing



TB Disease Symptoms (Respiratory)

- Cough
- Feel weak / fatigue
- Unexplained fever
- Unexplained weight loss
- May cough up blood
- Sweat a lot at night
- Abnormal Chest X - Ray



Vibriosis

- What is Vibrio?
 - Type of Bacterium: usually *vulnificus* and *parahaemolyticus*. Rare cases of cholera in the U.S.
- Symptoms are watery diarrhea often with abdominal cramping, nausea, vomiting, fever and chills
 - Usually these symptoms occur within 24 hours of ingestion

Vibriosis

- If in a wound, it can cause skin breakdown and ulceration
- Naturally found in warm seawater
- Ill people usually live or have visited the Gulf Coast

Protect Yourself

- Cook shellfish (oysters, clams, mussels) thoroughly
- For shellfish in the shell, either
 - Boil until the shells open and continue boiling for 5 more minutes
 - Steam until the shells open and then continue cooking for 9 more minutes



Protect Yourself

- Do not eat those shellfish that do not open during cooking
- Boil shucked oysters at least 3 minutes, or fry them in oil at least 10 minutes at 375°F

Protect Yourself

- Avoid cross - contamination of cooked seafood and other foods with raw seafood and juices from raw seafood
- Eat shellfish promptly after cooking and refrigerate leftovers

Protect Yourself

- Avoid exposure of open wounds or broken skin to warm salt or brackish water, or to raw shellfish harvested from such waters
- Wear protective clothing (e.g., gloves) when handling raw shellfish



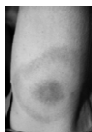
Tick - borne Diseases

- What are tick - borne diseases?
 - A disease passed to humans by a tick bite
- In Alabama, ticks can cause anaplasmosis, babesiosis, ehrlichiosis, Lyme disease, rickettsiosis, Rocky Mountain spotted fever, southern tick - associated rash illness (STARI), and tularemia



Tick - borne Diseases

- What are the symptoms?
 - Symptoms include fever / chills, aches and pains, and rash
 - Rashes may appear as circular, “bull’s eye,” skin ulcer, general rash, or non-itchy spots depending on the disease
- After being bitten by a tick, symptoms may develop a few days to weeks later



Protect Yourself

- Ticks live in wooded, bushy fields (high grass and leaf litter), and around homes, so avoid wooded and bushy areas
 - Walk in the center of trails
- Use insect repellants that contain 20% or more DEET on exposed skin and permethrin on clothing



Protect Yourself

- After outdoor activity, bathe within 2 hours, conduct full - body check with mirror, and inspect children, pets, clothing, and outdoor gear, such as backpacks
- Tumble dry clothes on high heat setting one hour to kill missed ticks


Protect Yourself

- Parents should check their children for ticks under the arms, in and around the ears, inside the belly button, behind the knees, between the legs, around the waist, and especially in their hair



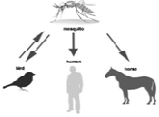
West Nile Virus and Fever

- Mosquitoes carry and transmit several diseases that infect humans and animals, like dogs, birds, and horses
- 1 in 5 people who are infected by a mosquito will develop fever, headache, body aches, joint pain and / or weakness



West Nile Virus Transmission Cycle

- West Nile virus cycles between mosquitoes and birds.
- Birds can develop high levels of the virus in their bloodstream and mosquitoes can become infected by biting these infected birds.




West Nile Virus Transmission Cycle

- Mosquitoes with West Nile virus also bite and infect people, horses and other mammals.
- However, mammals do not develop high levels of virus in their bloodstream, and cannot pass the virus on to other biting mosquitoes.

West Nile Virus and Fever

- In rare cases, it can be severe and cause high fever, stiff neck, disorientation, coma seizures and paralysis
- Mosquitoes do not carry AIDS / HIV, leukemia, or hepatitis



Best Ways to Avoid Exposure

- Stay indoors, especially during dusk and dawn, when mosquitoes are most active
- If you must go outside wear tightly woven loose fitting clothing and insect repellent
- Wear enough insect repellent to cover skin and clothes that contains one of the following DEET, Picaridin, Oil of Lemon Eucalyptus/PMD, or IR3535



Best Ways to Avoid Exposure

- Do not use repellents under clothing
 - Never use repellents over cuts, wounds, or irritated skin
- Spray repellent on hands first and then apply to face and do not apply to eyes, mouth, and apply sparingly around ears

Best Ways to Avoid Exposure

- For children, apply repellent to your own hands first and then put it on the child
- After returning indoors, wash treated skin and clothes with soap and water

Control of Mosquitoes Around Your Home

- Keep window and door screens shut and in good condition repair holes.
- Dispose of containers that collect water, like buckets, cans, and bottles
- Repair leaky pipes and outside faucets, unclog drains and gutters



Control of Mosquitoes Around Your Home

- Empty and scrub birdbaths, pet bowls, and animal troughs to get rid of mosquito eggs
- Discard unused tires, wheelbarrows, tubs, wading pools, or store them under covers when not in use



Control of Mosquitoes Around Your Home

- Keep weeds, vines, and grass trimmed
 - Fill tree holes with sand or mortar
- Change water in vases and pots holding flowers twice weekly



Rabies

- Rabies is a disease caused by a deadly virus that can infect all warm-blooded animals, including humans
- Prevention is considered the only treatment, since once symptoms occur the disease is always FATAL



Rabies

- How is rabies spread?
 - Rabies is mainly spread by the saliva of an infected animal
 - This usually involves a scratch, bite, or exposure of fresh cuts to the saliva or brain tissue from an infected animal
 - In Alabama, raccoons, bats, and fox are the main carriers of rabies

Protect Yourself

- Have your veterinarian vaccinate all your animals, like dogs, cats, ferrets, and horses, and keep them up-to-date on their rabies vaccines
- Do not touch or feed wild or stray animals
- Do not allow your pets to run free, keep them secure on your property



Protect Yourself

- If your animal is attacked by a wild, stray, or unvaccinated animal, avoid potential rabies infected saliva
- Wear gloves to check for injuries on your animal and wash the wounds with soap and water

Protect Yourself

- Keep your animal separate from people and other animals until you call your vet, animal control, and county health department



Scabies

- What is scabies?
 - Scabies is an infestation of the skin by the human itch mite
 - The microscopic mite burrows into the upper layer of the skin to live and lay its eggs
 - Scabies mites generally do not survive more than 2 to 3 days away from human skin

Scabies

- How does scabies spread?
 - Usually spread by prolonged skin - to - skin contact with a person who has scabies
 - Spread by contact with surfaces touched by a person infected with scabies such as clothing, towels, bedding, and furniture

Scabies

- Scabies can spread rapidly under crowded conditions, nursing homes, extended - care facilities, and prisons, where close body contact is frequent



What Are The Symptoms?

- The most common symptoms of scabies are intense itching and a pimple - like skin rash
- The rash is caused by an allergic reaction to mites' proteins and feces
- The head, face, neck, palms, and soles often are involved in infants and very young children, but usually not adults and older children

What Are The Symptoms?



How To Treat Scabies?

- Medications used to treat scabies are called scabicides because they kill scabies mites; some also kill mite eggs
 - Available only with doctor's prescription
- Treatment is recommended for the infested person, their household, sexual, and close contacts (anyone with prolonged direct skin - to - skin contact within the preceding month)



How To Treat Scabies?

- All persons should be treated at the same time
- Apply scabicides to clean body, from the neck down to feet and toes
- All bedding, clothing, towels and toys used up to 3 days before treatment should be cleaned by washing in hot water; drying in hot dryer; dry-cleaning; or by sealing in a plastic bag for at least 72 hours



Foodborne Outbreak Definition

- An incident in which two or more persons from different households experience a similar illness resulting from the ingestion of a common food

– Exceptions:

- Botulism
- Chemical poisoning

–1 case = outbreak

Where Do Most Foodborne Outbreaks Happen?

- Restaurants
- Church potluck suppers
- Fund raising food (BBQ sale)
- Receptions or large gatherings
- Catered events



Where Do Most Foodborne Outbreaks Happen?

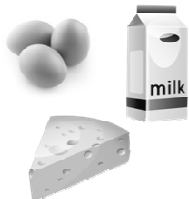
- Holiday parties
- #1 - When people do not follow proper food preparation, storage or temperature control

Why Does It Happen?

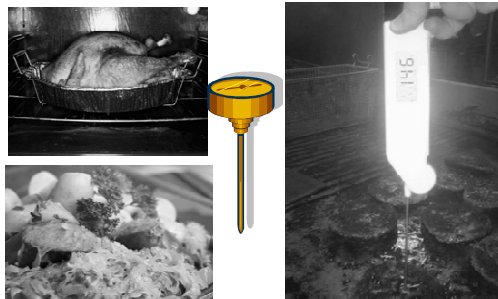
- Improper holding temperatures
- Inadequate cooking
- Cross contamination
- Poor personal hygiene

Improper Holding Temperature

Hot Foods Hot 135° F ↑	Cold Foods Cold 41° F ↓
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Improper Cook Temperature



Control Time & Temperature

- 165°F Reheat for holding within 2 hours**
- 165°F Cook for 15 seconds**
 - Poultry, stuffed meats, stuffed fish, and stuffed pasta
 - Stuffing containing meat, poultry or fish
 - Ground poultry or turkey
 - Any entire food cooked in a microwave
- 155°F Cook for 15 seconds**
 - Ground meats (beef and pork)
 - Spiced meats, concentrated fish and meats
 - Game meats
 - Raw, poached shell eggs
- 145°F Cook for 15 seconds**
 - Fish, veal/veal, pork, beef (roast, steaks, etc.), veal, lamb, mutton
 - Raw shell eggs for a single order
- 145°F Cook for 4 minutes**
 - Whole roast beef, whole pork roasts and corned beef roasts
- 135°F Hold**
 - All hot foods
- 135°F to 70°F Cool all foods**
 - within 2 hours
- 70°F to 41°F**
 - within 4 hours
- 41°F**
 - Hold all cold food

Cross Contamination

- Wash
- Rinse
- Sanitize

Poor Hygiene

- Exclusion of sick employees or any person preparing food
- Hand washing
- No bare hand contact with ready to eat food

Do Not Go to Work or School with . . .

- Vomiting
- Diarrhea
- Jaundice (yellowing of skin or eyes)
- Sores with pus
- Fever
- Constant cough
- Sore throat with fever
- Go to your doctor

What is Cross Contamination and How Does it Spread Disease?

- Cross contamination occurs anytime harmful germs, like bacteria, viruses toxin-producing organisms, or parasites are transferred from one food to another food in homes, restaurants, and other places where people prepare and eat food such as work or church gatherings

What is Cross Contamination and How Does it Spread Disease?

- Cross contamination can occur through indirect spread from raw food to ready - to - eat food by equipment, food handlers, cook utensils, or surfaces
- Refrigerator handles, knives, or preparation areas

What is Cross Contamination and How Does it Spread Disease?

- Germs can be spread by hands, cutting boards, utensils, counter tops, and food



What are the Symptoms of Foodborne Illness?

- People with a foodborne illness may have symptoms such as fever, vomiting, diarrhea (sometimes bloody), nausea, chills, and abdominal cramps
- People at a higher risk for developing food borne illness, include pregnant women, young children, older adults, and people with medical conditions

How Do I Stop Food Cross Contamination?

- Wash hands (running water and soap for 20 seconds) before and after going to the bathroom, changing diapers, and handling and feeding pets
- Wash all surfaces with hot soapy water before and after preparing each food item

How Do I Stop Food Cross Contamination?

- Use paper towels to clean up kitchen surfaces
 - If cloth towels are used, select the hot cycle on washing machine to clean

How Do I Stop Food Cross Contamination?

- Rinse all fresh fruit and vegetables, including those with skins and rinds, under running water
- Rub firm-skin fruits and vegetables under running water or scrub with a clean brush
- Clean the lids of canned foods before opening

How Do I Stop Food Cross Contamination?

- Avoid direct contact between raw food and ready - to - eat food during transport, storage, and preparation

Best Prevention . . .



Hand Washing

- Hand washing is always better
 - Clean hands save lives
- Hand gel is only recommended when soap and running water is not available
 - Hand gel reduces number of germs
 - Does not eliminate all types of germs, like norovirus
 - Potential to misuse, get high or sick

<http://www.cdc.gov/handwashing>

Right Way to Wash Hands

- Wet your hands with clean, running water (warm or cold) and apply soap
- Rub your hands to make a lather and scrub the backs of hands, between fingers, and under nails
- Continue rubbing your hands for at least 20 seconds

Right Way to Wash Hands

- Hum "Happy Birthday" from beginning to end twice
- Rinse your hands well under running water
- Dry your hands using a clean towel or air dry them

<http://www.cdc.gov/handwashing>

When Should You Wash Hands

- Before, during, and after preparing food
- Before eating food
- Before and after caring someone who is sick
- Before and after treating a cut or wound
- After using the toilet
- After blowing your nose, coughing, or sneezing



When Should You Wash Hands

- After touching an animal or animal waste
- After handling pet food or pet treats
- After touching garbage



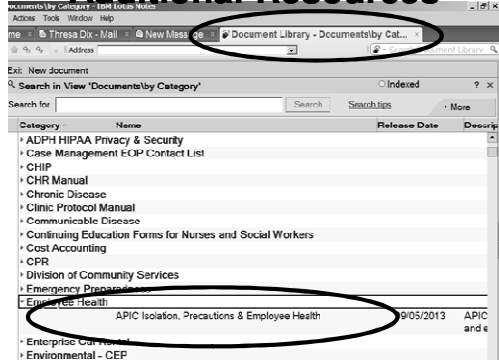
Additional Resources

- ADPH also offers additional guidance on Employee Health, Isolation, and Precautions
- This information can be found in:
 - “Document Library”
 - Employee Health Tab

Additional Resources

- (APIC) Association of Professionals in Infection Control and Prevention – Isolation, Precautions and Employee Health section

Additional Resources



Epidemiology Outbreaks 2013

- Funeral Meal - Sumter County
- Legionella in a nursing home rehabilitation center – Lauderdale County
- MRSA infections after joint injections at an orthopedic facility - Colbert County

Investigation at a Healthcare Facility in Jefferson County

- EPI notified by physician on 5/10/2013 that nine clients of a full-service spa, fitness, wellness, rehabilitation, and diagnostic center became ill following Cardiolite stress tests on 5/7 and 5/9

Investigation at a Healthcare Facility in Jefferson County

- All individuals developed fever, “severe chills”, headache, rigors, and nausea within 1 - 2 hours of the procedure

What is a Cardiolite / Technetium Stress Test?

- This test determines if the coronary arteries are supplying the heart with enough blood
- The cardiolite / technetium is injected through a vein in the arm
- Blood carries the tracer to heart muscle through the coronary arteries

What is a Cardiolite / Technetium Stress Test?

- The technetium is a radioactive tracer, and a nuclear medicine camera is able to detect its distribution in the heart



Immediate Response: Assessment for Contaminated Medication

- ADPH and Cardinal Health contacted all twelve healthcare facilities who received the same six lots
 - No other adverse events were reported
- Alabama Board of Pharmacy visited Cardinal Health

Immediate Response: Assessment for Contaminated Medication

- Office of Radiation Control assessed the procedures for producing the Cardiolite

Immediate Response: Assessment for Contaminated Medication

- EPI staff visited the facility; conducted staff and patient interviews, reviewed procedures, policies, and protocols; examined the medical records; and assessed the notes recorded during the procedures

Immediate Response: Assessment for Contaminated Medication

- EPI staff interviewed 15 patients that had the Cardiolite stress test at the Healthcare Facility's main campus the same week

Investigation Findings

- Many patients from the main campus reported similar symptoms to those at outbreak site
- Individuals whose stress test was performed at outbreak site were 2.5 times more likely to report nausea following the procedure than patients having the same procedure at main campus

Investigation Findings

- The frequency of other symptoms was not significantly different between the two groups
- Lack of sufficient documentation during the procedure, e.g., times / intervals of injections and co-morbid conditions, prohibited more in-depth analysis

Demographics and Symptoms

	119 Health and Wellness Clinic N=9		Main Campus N=15		Relative Risk	p-value
Male	5	55.6%	5	33.3%		
Age (mean (SD))	64 (6.9)		67 (9.0)			0.54
Complained of Symptoms prior to test*	1	11.1%	4	26.7%		
Reported Signs/Symptom after test began	8	100.0%	7	63.6%	1.5	0.04
Nausea	8	100.0%	4	36.4%	2.5	0.002
Headache	4	50.0%	7	63.6%	0.8	0.59
Chills/Rigors	4	50.0%	2	18.2%	2.8	0.19
Fatigue	3	37.5%	6	54.5%	0.7	0.51
Vomiting	2	25.0%	3	27.3%	0.9	0.93
Abdominal Pain	0	0.0%	4	36.4%	0.2	0.30
Reported fever	1	12.5%	2	18.2%	0.7	0.79
Measured fever (>100.4)	0	0.0%	2	18.2%	0.3	0.78
Night Sweats	0	0.0%	2	18.2%	0.3	0.78
Diarrhea	0	0.0%	1	9.1%	0.4	0.86

* excluded from analysis

Testing of Specimens

- Eight used and one unused Cardiolite syringes from dates 5/7 and 5/9 were submitted to the CDC for testing
- Two of the unused saline syringes were submitted
- Tests on all eight of the used syringes of Cardiolite revealed *Pseudomonas oryzihabitans* contamination

Testing of Specimens

- The unused syringe and saline showed no growth

Results from CDC Testing

Lab ID	Description	Manufacturer, Lot #, Expiry	Condition	Growth Results	Endotoxin
01	Cardiolite	Cardinal Health, Rk 574560	Used, Empty	<i>Pseudomonas oryzihabitans</i> , 58% by Vitek 2	n/a
02	Cardiolite	Cardinal Health, Rk 574564	Used, Empty	presumptive <i>Pseudomonas oryzihabitans</i>	n/a
03	Cardiolite	Cardinal Health, Rk 574556	Used, Empty	presumptive <i>Pseudomonas oryzihabitans</i>	n/a
04	Cardiolite	Cardinal Health, Rk 574585	Used, Empty	presumptive <i>Pseudomonas oryzihabitans</i>	n/a
05	Cardiolite	Cardinal Health, Rk 574614	Used, Empty	<i>Pseudomonas oryzihabitans</i> , 58% by Vitek 2	n/a
06	Cardiolite	Cardinal Health, Rk 574558	Used, Empty	presumptive <i>Pseudomonas oryzihabitans</i>	n/a
07	Cardiolite	Cardinal Health, Rk 574559	Used, Empty	presumptive <i>Pseudomonas oryzihabitans</i>	n/a
08	Cardiolite	Cardinal Health, Rk 574588	Used, Empty	<i>Pseudomonas oryzihabitans</i> , 91% by Vitek 2	n/a
09	Cardiolite	Cardinal Health, Rk 574586	Unused	No growth	<0.391 EU
10	10 mL saline	BD, 921177, 07/01/2012	Unused	No growth	<0.039 EU
11	10 mL saline	BD, 2083050, 03/02/2015	Unused	No growth	<0.039 EU

Discussion and Conclusion

- **Pseudomonas is an opportunistic pathogen of humans and is found in several environmental sources, from soil to extremely wet conditions and could explain some of the symptoms reported by patients**

Discussion and Conclusion

- **On 6/27/2013, EPI re-interviewed the IP**
- **During this subsequent call, it was revealed that the nuclear pharmacy technician, after delivering the Cardiolite dosage would reuse the Cardiolite syringe and needle to draw up sterile saline from the 10mL syringe and flush the line to insure all the Cardiolite was delivered**

Discussion and Conclusion

- **The nuclear pharmacy technician would follow-up with sterile saline directly from the saline syringe**
- **The technician has since been educated this was not proper procedure and was educated to discontinue his practice immediately**

Discussion and Conclusion

- **Although the source of the contamination remains unclear, improper practice / technique is likely how the contamination to the used syringes occurred**

Public Health Partners

- **Epidemiology Division**
- **Local EPI staff and Environmentalists**
- **Bureau of Environmental Services**
- **Bureau of Clinical Laboratories**
- **Office of Radiation Control**
- **Board of Pharmacy**
- **Healthcare Facilities**
- **Pharmacy Manufacturer**
- **Centers for Disease Control and Prevention**

Observations and Lessons Learned

- **Thorough documentation is a must**
- **All new employees should complete an orientation process of proper procedures for patient care**
- **Quality Improvement procedures should be in place to identify improper employee practices**

Funeral Meal Outbreak

- **Where:** Church in Rural County
- **What:** Meal following a funeral
- **When:** July 6, 2013 around noon
- **Who:** ~100 family and friends

EPI Surveillance

- **Notified Monday, July 8, 2013** of surge in gastrointestinal illnesses (GI) at emergency departments
- **Symptoms** included fever, diarrhea, vomiting
- **All 25** presenting to ED had attended meal following funeral at a Baptist Church

EPI Surveillance

- **Attendees from 11 states identified:** Alabama, California, Colorado, Florida, Georgia, Illinois, Kansas, Michigan, Mississippi, Missouri, and Oklahoma

EPI Investigation

- **80** reportedly ill with many admitted to hospital
- **43 attendees** interviewed with outbreak-specific questionnaire
 - 38 ill
- **1 attendee** died in sleep, found Tuesday morning
 - Friends report that he complained of GI symptoms on Sunday
 - UAB autopsy results – positive for Salmonella

EPI Investigation

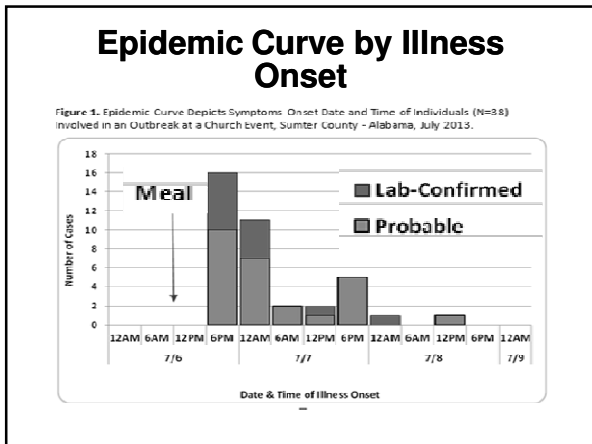
- **Clinical specimens** submitted for testing to BCL and CDC
- **Environmental samples** from church kitchen collected Friday, July 12

Characteristics of Ill

- **Age range:** 4 to 75 years
 - Median 35 years
 - 37% male
 - 79% AA, 5% White, 92% Non-Hispanic
- **Symptoms**
 - Incubation range 2.5 to 42.5 hrs (median 5.5 hrs)

Characteristics of Ill

– Diarrhea	100%
– Abdominal	95%
– Fever >101°F	82%
– Headache	79%
– Muscle aches	79%
– Vomiting	76%



- ### Environmental Assessment
- Public Health County Environmentalist visited the site Tuesday, July 9
 - Meal prepared on site by three individuals
 - Menu included baked / fried chicken, potato salad, macaroni and cheese, green beans, and creamed corn

- ### Environmental Assessment
- Additional items brought in included:
 - Pulled pork BBQ
 - Potato salad
 - Dressing
 - Beverages

- ### Environmental Assessment
- Refrigerator temperature noted to be 46° F
 - Baked chicken cooked on Friday (176 pieces), cooled for 1 hour before storage in fridge
 - Raw chicken (176 pieces), stored in bottom of fridge
 - Some raw chicken sat next to the prepared macaroni and cheese

- ### Environmental Assessment
- Cooked potatoes were drained in the same sink where raw chicken was prepared

Laboratory Testing

- 23 clinical specimens => Salmonella Heidelberg PFGE patterns matched
- Blood and stool from deceased individual isolated identical S. Heidelberg
- *Staphylococcus aureus* coagulase (+) enterotoxin D in one clinical sample
- Norovirus, shiga toxin, and campylobacter negative

Laboratory Testing

- Among 28 environmental samples, the potato preparation counter tested positive for Staph aureus coagulase (+) and Staph aureus coagulase (+) enterotoxin D
- Samples from faucet, faucet handles, stove handle and knobs were culture positive for Bacillus cereus

Epidemiologic Analysis

- Food item analysis indicated individuals who ate green beans were 27% more likely to become ill than individuals who did not eat green beans
- However, only 61% of the ill reported eating green beans
- The lowest attack rate associated with any consumed food was 90%

Discussion / Conclusion

- The epidemic curve depicted a common point source of infection
- Although the green beans exhibited the only statistically significant association at 95% confidence level, the findings from the environmental assessment indicate that the culprit of the outbreak was unlikely only one food item

Discussion / Conclusion

- Contributing factors associated with this outbreak were likely a mixture of cross contamination, contaminated equipment and / or utensils, improper holding temperatures, and improper food storage placement
- Usage of gloves while preparing food was not reported