



City of Virginia Beach Department of EMS OSHA Refresher Program

Bloodborne Pathogens and Tuberculosis
Exposure Control Plan



Refresher Program Goal:



- To reduce the occupational transmission of infections caused by microorganisms that may be found in human blood and other potentially infectious materials.
- This is accomplished by continuing to inform, educate and update the EMS provider on infectious disease, infection control, and methods that may prevent or reduce exposure.

Program Notes:

This is a refresher program, and is designed to provide an annual update to our members who have already taken our Initial OSHA program. Taking notes is suggested. A post test will follow.

Develop a question? Resources are at the end of the program.
Also, access and review our full Initial OSHA online program.

Have a question about this update?

- If you have additional questions that you aren't able to answer, please contact:
 - Normal Business hours: (8AM-5PM)
 - The VBEMS Headquarters (757) 385-1999
 - Attention: Division Chief Kevin Lipscomb
 - or
 - The VBEMS Training Center (757) 385-2970
 - Attention: Instruction Supervisor Eric de Forest
Edefores@vbgov.com Office 385-2975
 - After hours*: (5PM-8AM)
 - EMS-1 (Duty Field Supervisor) - (757) 274-2946
 - EMS-2 (Duty Field Supervisor) – (757) 635-7695
 - * In the event that your call is not answered, please do not leave a message – try back in a few minutes.

Update in Focus:

- Essentials Review

- Standard Precautions
- Exposure?
- Prevention

- What to protect myself from (Care provider)

- Provider Health



Essentials Review: Transmission Based Precautions

- Standard Precautions for the pre-hospital provider, all exposures to body fluids, under any circumstance are potentially infectious.
- Contact precautions: Blood and body fluid - gloves for contact, mask & utilize eye protection for splatter/cough
- Airborne and Droplet precautions : Surgical Mask for patient or provider* & utilize eye protection (CDC identifies masking patient within 3 feet for droplet diseases)
- Gross body fluid protection : Personal fluid resistant gown and contamination precautions
- *Providers should use a surgical mask for the patient when needed, and if patient refuses...utilize a surgical mask yourself.

Essentials Review: Masks

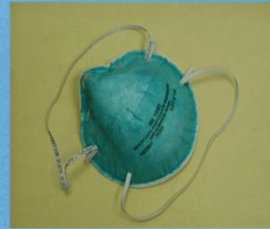
We use Surgical Masks

- Filters infectious particles during inhalation & exhalation
- Limits spread of respiratory secretions
- Good external droplet protection
- Some masks have face shield visors
- Much less expensive than N-95 masks



N-95 mask

- Filters incoming infectious particles from the air a provider breathes
- N-95 particulate respirators are minimum level of protection “for emergent settings, where there is a need for emergency intubation and open suctioning of airway.” (CDC, 9/16/2010)
- We use closed canister suctioning in pre-hospital EMS
- There is no science to show N-95s are more protective than surgical masks



Essentials Review: Prehospital Housekeeping

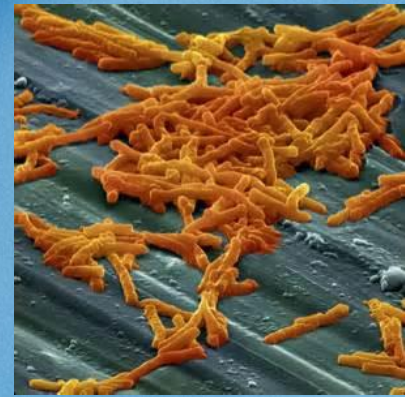


● Decontamination / Disinfection

- Clean up gross contamination first (Fluids)
- OSHA recommends primary use of 1:10 dilution of bleach and water (must be mixed fresh daily)
- May also use appropriate cleaning solution (EPA approved germicide)
 - “Sani-Cloths or germicidal wipes”
 - Rinse (If recommended)
 - Air dry
- For metal and electronic equipment
 - 70% isopropyl alcohol
 - Allow to air dry



Essentials Review: Prehospital Housekeeping



Reminder:



- When cleaning unit and equipment for **c-diff** and **norovirus**, a chlorine based cleaning agent is needed
- Hand washing post care of a patient with **c-diff*** is with warm water and soap
 - *Waterless alcohol-based cleaners are not effective

Essentials Review: Uniforms & Clothing

- **Always carry a change of clothing with you on duty
- For small fluid spot/stain:
 - Remove article of clothing
 - If soaked through to skin, clean skin with soap and water
 - Clean spot with soap and water
 - Hydrogen peroxide may help lift blood stains
 - Pat dry
- Larger exposures
 - Remove soiled clothes and place in red bag
 - Take to dedicated decontamination site for washing
 - Can take clothes home to dry
- **DO NOT TAKE UNWASHED, CONTAMINATED CLOTHING HOME**

Essentials Review: What is an exposure?

- An “exposure incident” is defined as:
 - A specific eye, mouth, other mucous membrane, non-intact skin, or parenteral contact with blood or other potentially infectious materials that results from the performance of an employee’s duties.



Essentials Review:

I think I Have an Exposure



- Clean/flush the affected area
- Contact EMS 1, EMS 2, or EMS 3 immediately and they will meet you at the hospital
 - EMS 1 (Duty Field Supervisor) – (757) 274-2946
 - EMS 2 (Duty Field Supervisor) – (757) 635-7695
 - EMS 3 (Duty Field Supervisor) – (757) 284-7247
- They will make contact with Occupational Health during business hours (or the contracted consultant after hours) who will determine if an exposure occurred and what the next steps are.
- If an exposure did not occur:
 - The situation is treated as an injury (assaults, etc.)
 - No exposure paperwork is completed

Essentials Review: I Have an Exposure



- If an exposure did occur:
 - EMS 1, 2, or 3 will provide a standardized form to the hospital for blood to be drawn on the source patient
 - The EMS Supervisor will also complete the rest of the required paperwork such as a DF75 and other standardized forms for exposures
 - You will need to complete a written statement of the events
 - You will be directed to Occupational health for your baseline lab testing:
 - If after hours, this could mean tomorrow morning
 - There are instances in which you will be directed to VBGH (Virginia Beach General Hospital) or Now-Care for baseline lab testing if it is determined to be necessary

Exposure: Occupational Health & Follow up



- An Occupational Health/Exposure Control Consultant will counsel you and determine your course of action (Monitoring, medication, etc.)
- All result notifications and follow up will be conducted and coordinated by Occupational Health
- **Your privacy is very important.....**EMS starts the process and that is the end of our involvement, unless you contact us.

Essentials Review: The Common Cold vs. Flu

Cold	Both	Flu
Sneezing	Virus	Muscle aches
Fever	Sore throat	Severe cough
	Runny nose	High fever
	Cough	GI symptoms
	Headache	

- Treatment of Colds and Flu
 - Supportive – Rest – plenty of Fluids
 - Minimize contact with others
 - Antibiotics do not treat viruses
 - Repetitive exposure to antibiotics may decrease their effectiveness

Essentials Review: Influenza – Prevention

EMS Providers should get the vaccine annually

- Everyone 6 months and older should get a flu vaccine by the end of October each year. (CDC as of 9/1/16)
- Vaccine comes as injection or nasal mist
- The viruses in the flu shot are killed (inactivated), so...
you cannot get the flu from a flu shot.
- Some minor side effects that could occur are:
 - Soreness, redness, or swelling where the shot was given, fever (low grade), ache

Treatments: Anti-viral drugs Tamiflu and Relenza

Patient Contact:

- Good hand hygiene is beneficial
- Gloves and mask when within 3 feet of patient
- Keep patient area well ventilated

The CDC recommends all HealthCare Workers (Including EMS) get the annual flu shot before the end of October.

Who should not get a Flu Vaccination? (CDC)

Persons or providers who/with:

- Experienced a severe life threatening allergy to a prior dose of seasonal flu vaccine
- a history of Guillain-Barre Syndrome (GBS)
- children younger than 6 months
- an active fever

Most egg allergic patients can safely receive the type IIV vaccine. Immune-suppressed/transplant patients, typically receive inactivated vaccines.

The ability to receive a vaccination may be delayed if additionally:

- 1) If the person seeking vaccination is not feeling well
- 2) If they have received another live vaccination in the last 4 weeks
- 3) If anti-viral Influenza medication has been taken in the last 48 hours
- 4) the Person has a very “Stuffy nose”

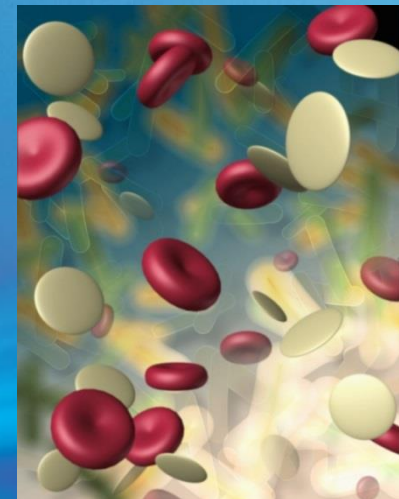
Essentials Review:

Hepatitis B (HBV) Testing & Treatment

- Titer is done if an exposure occurs
 - Once you have a positive titer, you never have to titer test again, even if an exposure occurs
- Medications include:
 - Baraclude (anti-viral medication)
 - Interferon
 - For chronic Hepatitis B
 - Does not prevent spread of infection

Essentials Review: Rapid HIV Testing

- Virginia HIV Testing = Random testing for HIV unless declined by patient, except if a health care worker has a possible exposure (patient then can't decline test)
- RAPID HIV TESTING on source patient is the STANDARD OF CARE
- Results available in as little as 5 minutes
 - Test for virus, not antibodies
 - Testing is done on the patient
 - If source patient is negative
 - No more testing
 - If source patient positive
 - Further testing for provider



Essentials Review:

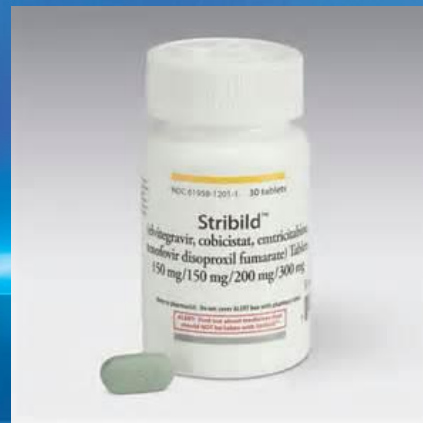
Post Exposure Prophylaxis (PEP) *(If source patient is HIV+)*

- Specialist physician may prescribe anti-viral drugs based on circumstances
- Start PEP ASAP after exposure
 - Regard as a medical emergency
 - Begin PEP within hours if possible
- Pregnancy not a contraindication
 - Make an informed decision with physician
- PEP FOLLOW UP / MONITORING
 - Extremely important & Mandatory
 - Tolerating the treatment?
 - Report any side effects... Treatments may change...

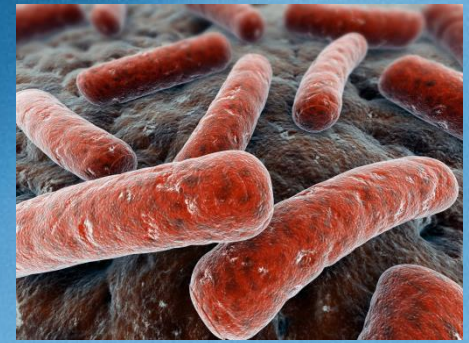
HIV/Aids Treatments

- AIDS “cocktail” drugs have improved outcomes and 96% of patients are unable to transmit the disease
- HIV/AIDS patients are living from time of diagnosis to end-of-life – 50 years now (NIH, May 2011)
- Relatively new triple drug therapy used together (48 weeks) reduces the virus to **0%** in body (CDC, 10/2012)

- Atripla
- Stribild
- Truvada



Tuberculosis



- Caused by strains of mycobacteria
- Transmitted through the air by patients with an active TB infection (cough, sneeze, etc.)
- Signs & Symptoms: chronic cough, blood-tinged sputum, fever, night sweats, weight loss
- Most infections do not have symptoms (latent TB)
- About 1 in 10 latent infections eventually progresses to active disease (If left untreated, kills more than 50% of those so infected.)



Essentials Review:

Tuberculosis



- **Tuberculosis**, caused by strains of mycobacteria
- Transmitted through the **air** by patients with an active TB infection (Cough, sneeze, etc.)
- **Signs & Symptoms:** Chronic Cough, Blood Tinged sputum, fever, night sweats, weight loss
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Tuberculosis -

Virginia Beach is low a low risk area

- Provider Risk Assessment Tool*:

Low Risk: Transported less than 3 confirmed TB Patients within last 12 months

Medium Risk: Transported more than 3 confirmed TB patients within the last 12 months

~ About 80% of the population in many Asian and African countries tests positive in tuberculin tests, while only 5–10% of the United States population tests positive

Essentials Review: Tuberculosis Exposure Risk

- Depends on:
 - Time spent with untreated individual
 - Not contagious 14 days after treatment started in most cases
 - Ventilation present during time with patient?
 - 2 -10 hours in confined, non-ventilated space = possible infection exposure
- Prevention measures used: Masking patient, good hand washing, good provider health and immune system, good ventilation of care space

VBEMS and TB Testing



- Annual testing of TB is no longer required. However, all members must be trained annually in TB risk factors and all members must be offered the opportunity for a risk assessment screening and evaluation.
- ***The Department of EMS offers all VBEMS providers the opportunity to complete Virginia Department of Health recommended TB Risk Assessment Screening with the consultation of Registered Nurses.
- Any provider wishing to complete an annual TB Risk Assessment form should contact:
Division Chief Lipscomb at klipscom@vbgov.com
or call (757)385-1999

What should I protect myself from?

~ Bloodborne pathogens

- Hepatitis B
- Hepatitis C
- Hepatitis D
- HIV
- Zika & West Nile Virus
- Viral Hemorrhagic Fevers

~ Droplet

- Influenza
- N. Meningitis
- Mumps
- Enterovirus D68
- Pertussis
- SARS-Corona Virus
- Ebola

~ Airborne

- Measles
- Chicken Pox
- Tuberculosis

~ Additional/Contact

- Hepatitis A
- MRSA
- CA-MRSA
- VRE - Norovirus
- Common Cold - Rhinovirus
- Syphilis
- CRE

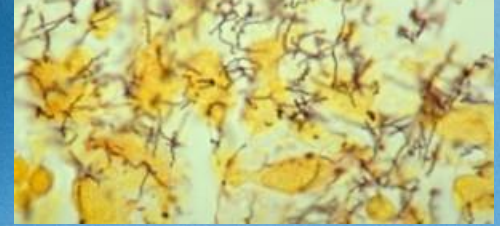


VBEMS Exposures* in 2016

- **Bloodborne?**
 - **1 Exposure:** Accidental incision of both patient tissue and provider tissue with a scalpel
- **Airborne/droplet?**
 - **0 Exposures:** (1 case was reported, but was determined not to constitute a legitimate exposure)
- **TB? 0 Exposures** VBEMS Risk Assessment for TB: Low

*The exposures reported here is the number of potential exposures reported to occupational health and does not represent whether or not the source patient tested positive or whether or not the provider contracted the disease

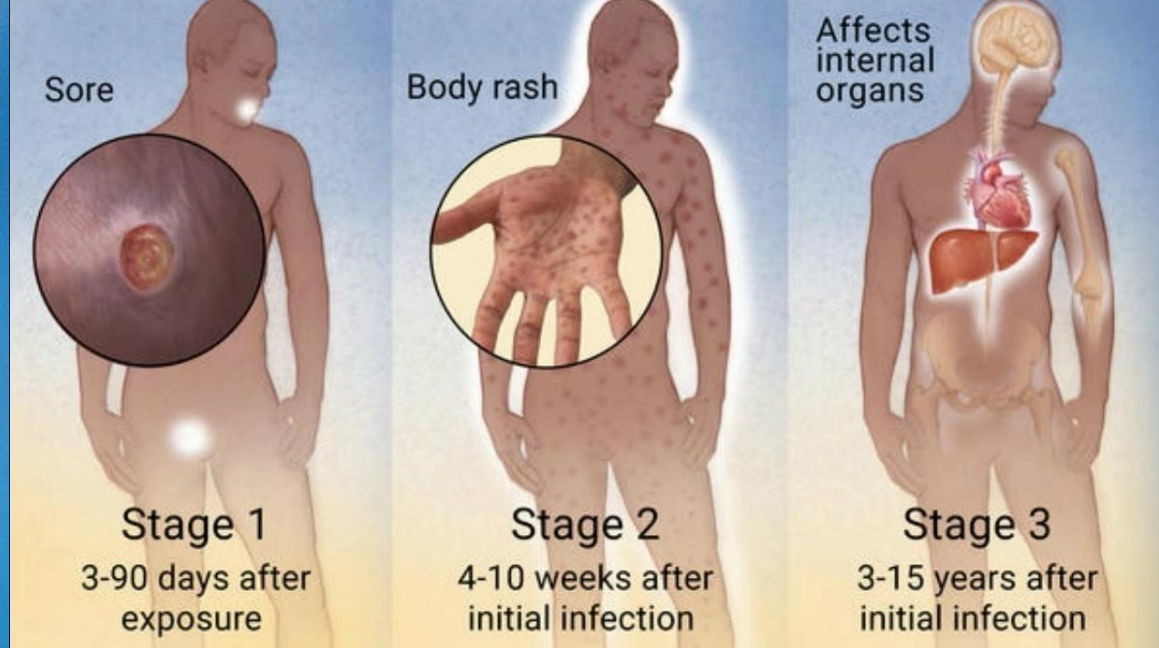
Syphilis



- Syphilis is a contagious **S.T.D.** (Sexually Transmitted Disease) which is on the rise in the U.S. and Virginia. It is spread through direct contact with a person who is infected with open sores.
- **Use contact precautions**
- **Progression:** Presents about 10 -90 days after the first sore appears, however may not show for up to
 - Syphilis will progress through 3 stages if left untreated. The 3rd stage is called Late, and will involve illness in the skin , bones, central nervous system, and heart and can cause disability or death.
- **Transmission:** A) Any Sexual contact with infected fluids
 - B) Pregnant women who are infected can spread the disease before or during birth
 - C) Men having sex with Men (highest Risk group and most prevalent)
 - D) Patients are considered infectious until bacteria is thoroughly eliminated.

Treatment: When discovered and or tested for, antibiotics work well .

Syphilis



First few years

- No signs and symptoms are observed

Primary stage

- Sore/chancere found in genital area; inner part of vagina in women, penis for men
- Chancres do not result in pain and will disappear without treatment

Secondary stage

- Skin rash - rough, red or reddish brown spots on palms of hands and bottoms of feet.
- Mucous membrane lesions throughout body without ichiness
- Fever, sore throat, headache, swollen gland, weight loss, muscle ache, fatigue

Tertiary stage

- Blood vessels, cardiac, nerve system problems
- Damaged internal organs
- Death cases

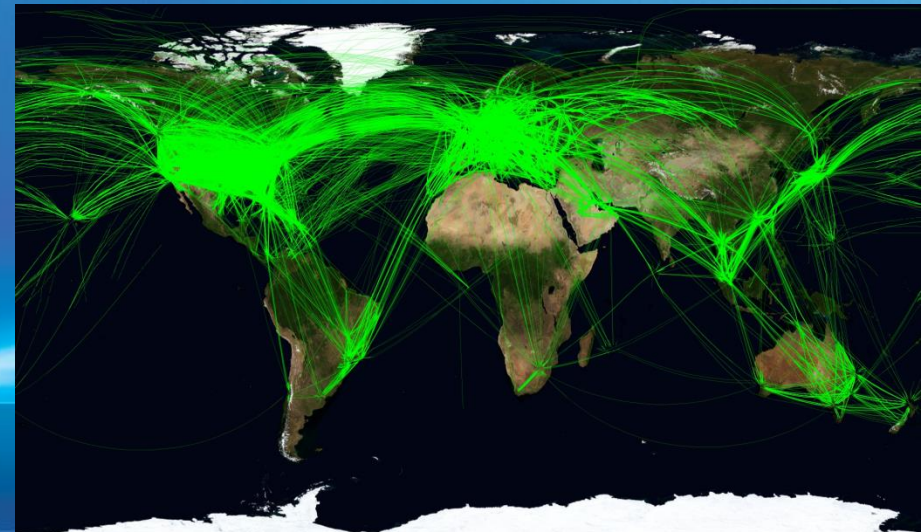
Latent stage

- Symptoms disappear for 1-20 years
- Diagnosis through blood testing
- Relapse symptoms

Global Awareness: Travel History



- **Travel history** now **required** for all patients (CDC)
- If patient is ill after returning from overseas, find out when they arrived, what airline and flight number
- “**Medical Tourism**” - Commonly people are traveling out of country for cheaper medical procedures and bringing back diseases
 - CRE – (Antibiotic resistant disease in immune suppressed patient populations, contact precautions, presents with sepsis)
- **Travel History is especially important** with patients who have **respiratory Symptoms:**
 - SARS – (Severe Acute Respiratory Syndrome) Coronavirus Co-Virus
 - MERS – (Middle Eastern Respiratory Syndrome)
 - Bird Flu
 - Ebola
 - H1N1



CRE - (Carbapenem-resistant Enterobacteriaceae)

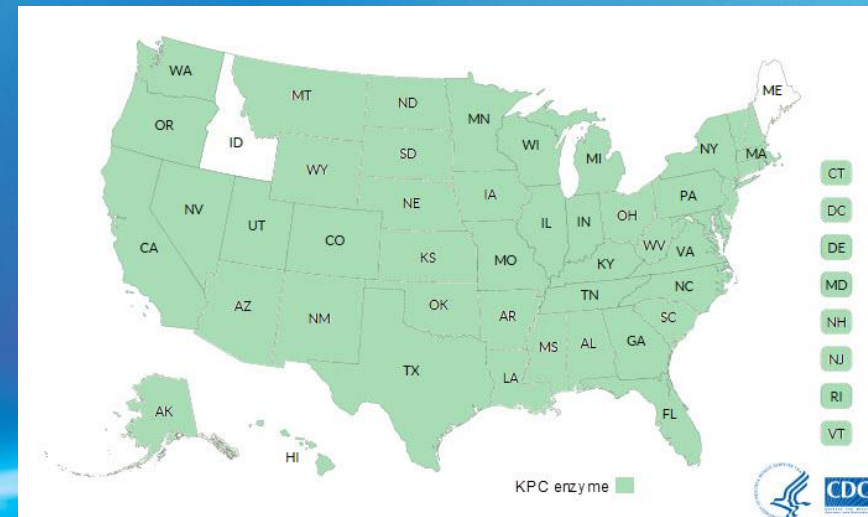
- **CRE** are a family of germs that are difficult to treat because they have high levels of resistance to antibiotics. Some of our normal gut bacteria can develop resistance.

Healthy People don't usually get CRE infections. They occur typically in patients in the hospital, nursing homes, and healthcare settings. Those who are on ventilators, or have urinary or venous catheters, or those who take long courses of antibiotics are at greatest risk.

Some CRE bacteria have become resistant to most available antibiotics. **Mortality may reach up to 50%.**

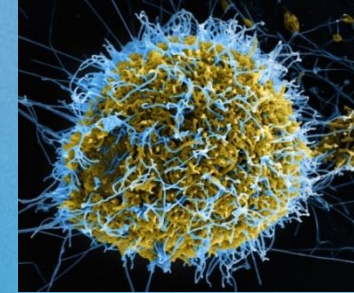
Providers use Contact Precautions & Good Hand Hygiene

*3 patients in Virginia



States reporting NDM- producing CRE = 175 total patients
***As of Jan. 16, 2017 (CDC)**

EBOLA



- The 2014 West Africa Ebola Epidemic (Hemorrhagic Fever Virus)
 - Thought to have started from a single case in Guinea 12/2013
 - 4 total cases & 1 death in U.S. through 7/2017
 - Total Suspected cases in Africa 28,388
 - Total deaths in Africa 11,296 from this event (CDC, 9/27/15)

Ebola Information for EMS Providers – VA OEMS

2017 Democratic Republic of Congo (DRC) EBOLA outbreak - (May – July)

- May 11, 2017, the 1st case reported of a limited outbreak of EBOLA
- Probable cases: 8
- Laboratory confirmed: 5
- Deaths: 4
- DRC has had 8 outbreaks since 1976

Democratic Republic of Congo



CDC - Detailed EMS Checklist for EBOLA Preparedness

Zika Virus

Fever
Rash
Joint pain
Red eyes



- Also known as Zika Fever

- When present, symptoms are mild and last less than a week.
- **Symptoms include:** Fever, rash, joint pain, and conjunctivitis.
- Most don't get sick enough to go to the hospital and very rarely die.
- **Can have no symptoms or may experience:**
 - **Pain** in the back of the eyes, joints, or muscles
 - **Whole body** fatigue, fever, chills, loss of appetite, or sweating
 - **Also common:** eye redness, headache, skin rash, or vomiting
- **Treatment:** There is no specific treatment for Zika virus infection, other than supportive care. (Rest, fluids, and use of over-the-counter medicine for aches)

Zika Virus

Transmission:

- Zika virus is transmitted to people primarily through the bite of an infected mosquito
- Returning travelers infected with Zika can spread the virus through mosquito bites obtained the first week back. The disease passes from the person's blood into the mosquito who then transmits the disease with new bites.
- Sexual transmission from a person who has Zika to sex partner
- From a pregnant woman to her fetus.
- Zika infection during pregnancy can cause fetuses to have a birth defect of the brain called microcephaly.



Summary:

How can I protect myself?

- **Engineering and work practice controls**
 - Good hand hygiene – before & after each patient
 - Use Standard Precautions
 - Contact Precautions
 - Droplet precautions
 - Use Appropriate PPE (personal protective equipment)
 - Be alert for hazards
 - Avoid cross contamination between patient and unit equipment, door handles, overhead bar...etc.
 - Clean unit & equipment thoroughly at the start of your shift and after each call
- **Good personal health care**
 - Eat right/healthy choices
 - Stay well hydrated (Improves memory, and decision making)
 - Getting plenty of rest boosts immune system
 - Good physical fitness helps lower stress and prevents injury
 - Avoid friends and co-workers who are sick
 - Stay home if you are sick



Virginia Line of Duty Act



- The **Virginia Line of Duty Act (LODA)** , established in:
- Title 9.1 of the Code of Virginia
- Provides benefits to eligible family members of eligible **employees and volunteers** killed in the line of duty and to those eligible employees and volunteers disabled in the line of duty and their eligible family members.
- To be eligible for Line of Duty Act (LODA) benefits:
 - Employee or volunteer must serve in an eligible position with a state or local government in Virginia.
 - Qualifying death or disability must occur in the line of duty as the direct or proximate result of performance of duty, including presumptions as applicable.

(Respiratory diseases, hypertension, infectious diseases, certain cancers and heart disease)

Virginia Line of Duty Act (LODA)



Who is eligible for LODA benefits?

- Law enforcement officers
 - Members of recognized fire companies and **rescue squads**
 - Correctional officers
 - See a full list in the [Virginia Line of Duty Act Participant Guide](#)
-
- For More Information: <http://www.valoda.org/about/>

OSHA Online Refresher Course

Infection Control and Compliance:



- Division Chief Kevin Lipscomb, NRP
 - Virginia Beach Department of Emergency Medical Services
 - Designated Infection Control Officer
- Captain Christi Budy, RN, NRP
 - Virginia Beach Department of Emergency Medical Services
 - Assistant Designated Infection Control Officer

Training Support & Development:

- Eric de Forest, NRP
 - Instruction Supervisor, VBEMS Training Division
 - OSHA ICO
- Lani de Forest, NRP
 - Instruction Supervisor, VBEMS Training Division
 - OSHA ICO



Resources & References:

- [Occupational Safety & Health Administration](#)



- [Centers for Disease Control and Prevention](#)



- [www.VBEMS.com](#)



- [http://www.vdh.virginia.gov/](#)



- [http://www.valoda.org/about/](#)



- [http://www.webmd.com/](#)



- [Venngage – infograph/human-microbiome](#)



Image graphics

- [http://stdtestoptions.info/syphilis-test-options/](#)



Image graphics

- YouTube – Images & Webmedcentral - Images

Congratulations!

You have finished reviewing our OSHA Refresher update.
To complete the program, please take our online post test.

- The person most responsible for your safety and awareness of hazards is...**you!**



- To access the post-test, exit this program and click on the link at the Refresher Course home page.

