

# **Mesa County EMS System Infectious Disease FAQs**

## **Purpose**

**This project came together in the spring of 2014. It was born out of deficiencies I noted in general knowledge of infectious diseases while studying for the EMS Subspecialty Boards Exam. It is my hope that this list of FAQs will continue to be monitored and added to as time goes on.**

**The following pages contain information about some of the most common pathogens which may be encountered in EMS operations. The goal is to provide a resource for EMS medical directors, agency managers, and providers who may be called upon to treat and/or transport patients with one of these infections.**

**This list would not have been possible without the assistance of numerous persons. Chief among them are Dan Flinn, EMT-I of Lower Valley FPD helped put together the initial list, and Sheila Neese, MD of the Infectious Disease service at St. Mary's Hospital who graciously proofed our recommendations. Thank you.**

**While we have tried to keep this information up to date and current, it is still no substitute for following up with the Emergency Department in the event of significant exposures.**

# Mesa County EMS System Infectious Disease FAQs

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# Mesa County EMS System Infectious Disease FAQs

**Common Name:** C-dif

**Pathogen:** Clostridium difficile

**Organism Type:** Bacteria

**Transmission methods:** Direct contact, contaminated surfaces, excreted in stool

**Lifespan outside of host:** Up to 5 months on surfaces, not airborne

**EMS Provider Precautions during transport:** Contact precautions. Alcohol based sanitizers are not sufficient to kill spores.

**Procedures which should be avoided:** None

**Recommended post-exposure treatment for providers:** No, only treat if proven infection.

**Recommended decontamination for ambulance:** Chlorine bleach

**Vaccine available:** No

**Recommendations (requirements?) for vaccinating EMS personnel:** N/A

**Duration of immunity and recommended update schedule for vaccine:** N/A

**Implications for providers who may be pregnant:** None

# Mesa County EMS System Infectious Disease FAQs

**Common Name:** Chicken pox / Shingles

**Pathogen:** Varicella zoster virus (VZV)

**Organism Type:** Virus

**Transmission methods:** Airborne, contact with fluid from blisters

**Lifespan outside of host:** Unknown

**EMS Provider Precautions during transport:** Respiratory precautions (simple mask), contact precautions with blisters/rash.

**Procedures which should be avoided:** Any which will rub open blisters.

**Recommended post-exposure treatment for providers:** Unvaccinated VZV-susceptible healthcare personnel are potentially contagious from days 8 to 21 after exposure and should not have patient care activities during this period. Exposed healthcare personnel without evidence of VZV immunity should receive postexposure vaccination as soon as possible.

**Recommended decontamination for ambulance:** Chlorine bleach, heat, detergents

**Vaccine available:** Yes, varicella

**Recommendations (requirements?) for vaccinating EMS personnel:** Yes, but not mandated. Not needed if documented previous infection.

**Duration of immunity and recommended update schedule for vaccine:** Repeat dosing in 5 years. Still evaluating length of immunity.

**Implications for providers who may be pregnant:** Varicella is dangerous to fetus in first six months. Antibodies cross placenta and immunity conferred to fetus if present. For unvaccinated VZV-susceptible healthcare personnel at risk for severe disease and for whom varicella vaccination is contraindicated (e.g., pregnant healthcare personnel), varicella-zoster immune globulin after exposure is recommended.

# Mesa County EMS System Infectious Disease FAQs

**Common Name:** HAV

**Pathogen:** Hepatitis A virus

**Organism Type:** virus

**Transmission methods:** fecal-oral

**Lifespan outside of host:** Months on surfaces unless treated with very high heat (185 degrees). Not airborne.

**EMS Provider Precautions during transport:** Contact precautions, good hand washing after contact.

**Procedures which should be avoided:** Avoid eating after exposure prior to complete hand washing.

**Recommended post-exposure treatment for providers:** Can consider immune globulin depending on level of exposure. Hep A vaccine within two weeks of exposure.

**Recommended decontamination for ambulance:** High temperature, chlorine bleach.

**Vaccine available:** Yes

**Recommendations (requirements?) for vaccinating EMS personnel:** Highly recommended.

**Duration of immunity and recommended update schedule for vaccine:** protective at least 25 years in adults, no updates needed once series completed

**Implications for providers who may be pregnant:** infection may increase systemic complications of pregnancy, no transmission known to affect fetus

# Mesa County EMS System Infectious Disease FAQs

**Common Name:** HBV

**Pathogen:** Hepatitis B virus

**Organism Type:** Virus

**Transmission methods:** Direct contact with host blood through needle stick, (percutaneous injury) saliva, infected body fluids (amniotic fluid, semen, vaginal secretions, pleural, pericardial fluid, synovial fluid, CSF)

**Lifespan outside of host:** Up to 7 days

**EMS Provider Precautions during transport:** Contact, face shields, avoid needle sticks/ injuries

**Procedures which should be avoided:** Invasive procedures which could result in provider injury and blood contact.

**Recommended post-exposure treatment for providers:** HBIG, HBV vaccine

**Recommended decontamination for ambulance:** Chlorine bleach?

**Vaccine available:** Yes, series of 3 injections

**Recommendations (requirements?) for vaccinating EMS personnel:**  
Required for most services as condition of employment, OSHA requires.

**Duration of immunity and recommended update schedule for vaccine:**  
Unknown, may last > 20 years

**Implications for providers who may be pregnant:** Vaccination not contraindicated in pregnancy. Infection during pregnancy may cause chronic infection in neonate, HBIG + HBV vaccine at delivery if mother is infected

# Mesa County EMS System Infectious Disease FAQs

**Common Name:** HCV

**Pathogen:** Hepatitis C virus

**Organism Type:** Virus

**Transmission methods:** Direct contact of blood. Not airborne.

**Lifespan outside of host:** Up to 4 days?

**EMS Provider Precautions during transport:** Contact, avoid needle sticks

**Procedures which should be avoided:** Invasive procedures which would injure provider and expose to direct blood contact.

**Recommended post-exposure treatment for providers:** Interferon is investigational

**Recommended decontamination for ambulance:** Chlorine bleach

**Vaccine available:** No

**Recommendations (requirements?) for vaccinating EMS personnel:** N/A

**Duration of immunity and recommended update schedule for vaccine:** N/A

**Implications for providers who may be pregnant:** Has been reported transmission to fetus rate of 4/100

# Mesa County EMS System Infectious Disease FAQs

**Common Name:** HIV

**Pathogen:** Human immunodeficiency virus

**Organism Type:** Virus

**Transmission methods:** Direct contact of bodily secretions into mucous membranes or broken skin, needle stick.

**Lifespan outside of host:** A few hours on surfaces, not airborne.

**EMS Provider Precautions during transport:** Contact precautions including mucous membranes. Needle stick precautions.

**Procedures which should be avoided:** Utmost precautions should be taken when doing invasive procedures which may cause blood exposure.

**Recommended post-exposure treatment for providers:** Post-exposure prophylaxis as recommended by ED. Current therapy changes, and recommendations for use vary according to level of exposure.

**Recommended decontamination for ambulance:** Common detergents

**Vaccine available:** No

**Recommendations (requirements?) for vaccinating EMS personnel:** N/A

**Duration of immunity and recommended update schedule for vaccine:** N/A

**Implications for providers who may be pregnant:** Virus is transmitted to fetus upon infection.

# Mesa County EMS System Infectious Disease FAQs

**Common Name:** Flu

**Pathogen:** Influenzae A and B (Flu), Swine Flu, Avian Flu

**Organism Type:** Virus

**Transmission methods:** airborne transmission, chance of contact transmission with respiratory secretions.

**Lifespan outside of host:** hours

**EMS Provider Precautions during transport:** Respiratory, simple mask

**Procedures which should be avoided:** Any respiratory procedures which are not required for patient improvement.

**Recommended post-exposure treatment for providers:** No

**Recommended decontamination for ambulance:** Chlorine bleach

**Vaccine available:** Yes

**Recommendations (requirements?) for vaccinating EMS personnel:** Highly recommended but not required by EMS. Most hospitals do require now for employees.

**Duration of immunity and recommended update schedule for vaccine:** Need yearly updates.

**Implications for providers who may be pregnant:** Vaccine recommended for those who may be pregnant during influenza season. Infection during pregnancy may have more severe disease/ hospitalizations.

# Mesa County EMS System Infectious Disease FAQs

**Common Name:** MRSA

**Pathogen:** Methicillin Resistant Staphylococcus aureus

**Organism Type:** Bacteria

**Transmission methods:** Direct contact, may be transmitted in respiratory droplets in case of MRSA pneumonia

**Lifespan outside of host:** unknown

**EMS Provider Precautions during transport:** Contact, simple mask if PNA

**Procedures which should be avoided:** None

**Recommended post-exposure treatment for providers:** None unless signs of infection develop

**Recommended decontamination for ambulance:** EPA approved MRSA cleansers

**Vaccine available:** No

**Recommendations (requirements?) for vaccinating EMS personnel:** N/A

**Duration of immunity and recommended update schedule for vaccine:** N/A

**Implications for providers who may be pregnant:** Antibiotic choice may be more important during treatment than skin infection.

# Mesa County EMS System Infectious Disease FAQs

**Common Name:** Mumps

**Pathogen:** Mumps virus

**Organism Type:** virus

**Transmission methods:** airborne or droplet transmission, direct contact with infected saliva

**Lifespan outside of host:** Unknown

**EMS Provider Precautions during transport:** Respiratory / contact (simple mask)

**Procedures which should be avoided:** Advanced airway if possible

**Recommended post-exposure treatment for providers:** vaccinate non-immune providers; exclude susceptible personnel from duty from day 9-26 after exposure;

ACTIVE infection: restrict from work nine days after onset of parotitis.

**Recommended decontamination for ambulance:** Heat, bleach, UV light, virucidal wipes

**Vaccine available:** Yes, MMR

**Recommendations (requirements?) for vaccinating EMS personnel:** No, but usually received in general childhood immunizations recommended if not previously vaccinated

**Duration of immunity and recommended update schedule for vaccine:** lifelong immunity in vaccination

**Implications for providers who may be pregnant:** No data on vaccine during pregnancy. Pregnancy should be avoided for at least 28 days after MMR vaccine

# Mesa County EMS System Infectious Disease FAQs

## **Pathogen:** Neisseria meningitidis

**Organism Type:** Bacteria

**Transmission methods:** Respiratory and throat secretions, contact with oral secretions.

**Lifespan outside of host:** Limited lifespan outside of host. Does not stay in air beyond initial expulsion from patient.

**EMS Provider Precautions during transport:** Respiratory contact, simple face mask. Normal contact precautions otherwise.

**Procedures which should be avoided:** airway procedures should only be attempted if potentially life saving, this includes nebulizers and advanced airway placement.

**Recommended post-exposure treatment for providers:** Ciprofloxacin for those who were in direct contact with the patient. This should be given as soon as possible after confirmed exposure. Exclude from duty x 24h after prophylaxis given

**Recommended decontamination for ambulance:** standard decontamination

**Vaccine available:** Yes, meningococcal conjugate vaccine is recommended for those 18 – 55 years of age. Two doses 8 weeks apart.

**Recommendations (requirements?) for vaccinating EMS personnel:** None currently.

**Duration of immunity and recommended update schedule for vaccine:** Unknown. No recommendations for updates at this time.

**Implications for providers who may be pregnant:** Ciprofloxacin is pregnancy class C. Ceftriaxone 250 mg IM x 1 can be an alternative. Infection with meningococcus is primarily dangerous for host. Unknown effects on fetus. Unknown how effective vaccine is on protecting fetus. Avoid transport with pregnant providers if possible.

# Mesa County EMS System Infectious Disease FAQs

**Common Name:** Meningitis - Strep

**Pathogen:** Streptococcus pneumoniae (most common)

**Organism Type:** Bacteria

**Transmission methods:** Respiratory droplets and oral secretions. Meningitis usually from direct spread of other infection.

**Lifespan outside of host:** may last up to 4 weeks on surfaces (1)

**EMS Provider Precautions during transport:** Respiratory and contact precautions (simple mask)

**Procedures which should be avoided:** Respiratory procedures unless patient unstable

**Recommended post-exposure treatment for providers:** none

**Recommended decontamination for ambulance:** standard

**Vaccine available:** Yes, pneumovax

**Recommendations (requirements?) for vaccinating EMS personnel:** No. Mostly used in elderly at higher risk for complications from pneumonia.

**Duration of immunity and recommended update schedule for vaccine:**  
Updates every 5 years?

**Implications for providers who may be pregnant:** Vaccine has not been tested in pregnancy. Unknown effects of infection on fetus.

(1) <http://mbio.asm.org/content/2/3/e00092-11.full> *Streptococcus pneumoniae* Is Desiccation Tolerant and Infectious upon Rehydration

## Mesa County EMS System Infectious Disease FAQs

**Common Name:** Meningitis – Viral (aseptic)

**Pathogen:** Usually an enterovirus, can also occur from herpes viruses

**Organism Type:** Virus

**Transmission methods:** Fecal – oral, direct contact with respiratory secretions, mucous membrane secretions.

**Lifespan outside of host:** Depends on virus

**EMS Provider Precautions during transport:** Contact precautions

**Procedures which should be avoided:** None

**Recommended post-exposure treatment for providers:** None

**Recommended decontamination for ambulance:** Chlorine bleach

**Vaccine available:** No

**Recommendations (requirements?) for vaccinating EMS personnel:** N/A

**Duration of immunity and recommended update schedule for vaccine:** N/A

**Implications for providers who may be pregnant:** Depends on the viral cause

# Mesa County EMS System Infectious Disease FAQs

**Common Name:** Whooping cough

**Pathogen:** Bordatella pertussis

**Organism Type:** Bacteria

**Transmission methods:** Respiratory droplets

**Lifespan outside of host:** 1-2 hours on surfaces, 3-5 days on plastic

**EMS Provider Precautions during transport:** Respiratory precautions (simple mask)

**Procedures which should be avoided:** Advanced airway procedures

**Recommended post-exposure treatment for providers:** Antibiotics may be indicated depending on exposure. Erythromycin.

**Recommended decontamination for ambulance:** bleach, alcohol based

**Vaccine available:** Yes, in conjunction with tetanus and diphtheria (TDP) or with acellular pertussis (TDaP)

**Recommendations (requirements?) for vaccinating EMS personnel:** No, but is usually obtained with childhood immunizations

**Duration of immunity and recommended update schedule for vaccine:** Need updates every ten years.

**Implications for providers who may be pregnant:** Vaccine after 20 weeks OB, similar disease state as in nonpregnant providers. Infection in infants can be severe.

# Mesa County EMS System Infectious Disease FAQs

**Common Name:** Plague

**Pathogen:** Yersinia pestis

**Organism Type:** Bacteria

**Transmission methods:** Infected animal bites, infected fleas, contact with infected fluid/secretion, respiratory droplets in pneumonic variety (not bubonic variety)

**Lifespan outside of host:** hours on surfaces

**EMS Provider Precautions during transport:** Droplet precautions. Pneumonic variety quite rare.

**Procedures which should be avoided:** Intubation, nebulizers unless potentially lifesaving

**Recommended post-exposure treatment for providers:** Antibiotics depending on exposure (doxycycline 100 mg bid x 7 days or Levaquin 500 mg x 10 days)

**Recommended decontamination for ambulance:** X

**Vaccine available:** No

**Recommendations (requirements?) for vaccinating EMS personnel:** N/A

**Duration of immunity and recommended update schedule for vaccine:** N/A

**Implications for providers who may be pregnant:** TMP- SMX can be alternative agent for post exposure

# Mesa County EMS System Infectious Disease FAQs

**Common Name:** Rotavirus

**Pathogen:** Same

**Organism Type:** Virus

**Transmission methods:** fecal – oral. contact or respiratory spread

**Lifespan outside of host:** Weeks to months if not decontaminated

**EMS Provider Precautions during transport:** Contact precautions, respiratory precautions, and good hand hygiene after call (hand washing, use of 70% alcohol hand sanitizer)

**Procedures which should be avoided:** Contact with fecal material

**Recommended post-exposure treatment for providers:** No

**Recommended decontamination for ambulance:** Chlorine bleach

**Vaccine available:** Yes

**Recommendations (requirements?) for vaccinating EMS personnel:** No

**Duration of immunity and recommended update schedule for vaccine:** Re-dose in 8 weeks?

**Implications for providers who may be pregnant:** unknown, affects infants most severely

# Mesa County EMS System Infectious Disease FAQs

**Common Name:** SARS  
(Severe acute respiratory syndrome)

**Pathogen:** Coronavirus

**Organism Type:** Virus

**Transmission methods:** Respiratory droplets, close personal contact

**Lifespan outside of host:** on surfaces up to 48 hours

**EMS Provider Precautions during transport:** High risk to healthcare workers. Need full gown contact precautions, N95 mask, eye protection, and wash hands after patient contact.

**Procedures which should be avoided:** Nebulizers may actually increase transmission, mechanical ventilation as well.

**Recommended post-exposure treatment for providers:** Close follow up and monitoring for symptoms. *Active surveillance for 10 days & voluntary isolation at home with daily temperature monitoring. Fevers are most consistent first symptom.*

**Recommended decontamination for ambulance:** Clean and disinfect using EPA registered products with antiviral activity.

**Vaccine available:** No

**Recommendations (requirements?) for vaccinating EMS personnel:** N/A

**Duration of immunity and recommended update schedule for vaccine:** N/A

**Implications for providers who may be pregnant:** Risk of spontaneous abortions or preterm births in pregnant providers.

# Mesa County EMS System Infectious Disease FAQs

**Common Name:** TB (tuberculosis)

**Pathogen:** Mycobacterium tuberculosis

**Organism Type:** mycobacteria

**Transmission methods:** Respiratory droplets

**Lifespan outside of host:** May last in air for hours

**EMS Provider Precautions during transport:** Respiratory, N95 masks, HEPA filtration if possible

**Procedures which should be avoided:** Respiratory

**Recommended post-exposure treatment for providers:** PPD testing at baseline and 6 weeks

**Recommended decontamination for ambulance:** Clean and disinfect using EPA registered products with tuberculocidal activity.

**Vaccine available:** Yes, BCG vaccine in geographically prevalent areas. (not available in USA)

**Recommendations (requirements?) for vaccinating EMS personnel:** No

**Duration of immunity and recommended update schedule for vaccine:** N/A

**Implications for providers who may be pregnant:** No increased risk of developing TB compared to nonpregnant providers.

# Mesa County EMS System Infectious Disease FAQs

**Common Name:** VRE

**Pathogen:** Vancomycin resistant enterococcus

**Organism Type:** Bacteria

**Transmission methods:** contaminated surfaces, fecal-oral

**Lifespan outside of host:** can survive on surfaces for >90 days

**EMS Provider Precautions during transport:** Contact precautions

**Procedures which should be avoided:** None

**Recommended post-exposure treatment for providers:** None, monitor for signs of infection

**Recommended decontamination for ambulance:** EPA approved cleaning solution

**Vaccine available:** No

**Recommendations (requirements?) for vaccinating EMS personnel:** N/A

**Duration of immunity and recommended update schedule for vaccine:** N/A

**Implications for providers who may be pregnant:** N/A

# Mesa County EMS System Infectious Disease FAQs

**Common Name:** West Nile

**Pathogen:** West Nile virus

**Organism Type:** Virus

**Transmission methods:** Blood from infected animals via mosquitos that have fed on infected animals and then bitten human hosts.

**Lifespan outside of host:** unknown

**EMS Provider Precautions during transport:** Avoid blood exposure

**Procedures which should be avoided:** Needle sticks

**Recommended post-exposure treatment for providers:** Contact

**Recommended decontamination for ambulance:** standard cleaning

**Vaccine available:** No

**Recommendations (requirements?) for vaccinating EMS personnel:** N/A

**Duration of immunity and recommended update schedule for vaccine:** N/A

**Implications for providers who may be pregnant:** Pregnancy does not increase risk of infection. Low risk of transmission of virus to fetus. Only a few case reports known. Prevention is key.