

## SAFE & INFECTIVE CARE ENVIRONMENT HOMEWORK

### Biological Weapons

Using the below example, create a chart summarizing some known biological weapons

Name	Exposure	Signs and Symptoms	Treatment
<b>Anthrax (Bacillus anthracis)</b>	Integumentary system: direct contact Respiratory: inhalation GI: consuming undercooked (or raw dairy products Endotracheal	Integumentary: pruritus, papular and vesicular lesions turns to eschar a week later Resp: fever, cough, malaise, myalgia, diaphoresis, respiratory distress, shock and death within 1-2 days	Decontamination: remove all clothing, do not pull anything over the head Flush eyes with water for 15 minutes Outside area needs to be decontaminated with soap and water Antibiotics: ciprofloxacin, penicillin, doxycycline
<b>Plague (Yersinia pestis)</b>	A bacteria which lives its lifecycle through rodents and fleas Transmitted to humans through flea bites, contaminated tissue or fluids (handling infected animals or infected humans) and infected droplets	Bubonic Plague: Fever, headache, chills, malaise, swollen lymph nodes  Septicemic Plague: Fever, chills, weakness, abd pain, shock, hemorrhage, developing necrotic of tissue  Pneumonic Plague: Fever, headache, weakness, pneumonia, SOB, chest pain, cough, increased mucous	Treatment: Antibiotics (aminoglycosides, tetracyclines and fluoroquinolones)
<b>Smallpox</b>	A viral infection. Transmitted from face-to-face contact with an infected individual. Contact generally needs to be "prolonged" through direct contact or indirectly with contaminated objects (bedding). May be transmitted via airborne methods as well.	Fever, malaise, headache, myalgia, vomiting  Rash starts in the mouth and progresses to body (most infectious time). Rash becomes pustules and scabs.  Once scabs are gone the individual is no longer contagious	No treatment if symptoms develop (supportive treatment only)  Preventative: Vaccine not routinely given in Canada or the USA. The US CDC has some vaccine in case of a bioterrorism attack or the re-emergence of smallpox

<b>Viral Hemorrhagic Fevers</b>	A group of different viral infections that generally belong to one of 4 groups: arenaviruses, filoviruses, bunyaviruses and flaviviruses. Transmitted via contact with an infected host (animal or insect)	Fever, fatigue, dizziness, myalgia, weakness, hemorrhage, renal failure, hemorrhage may progress to shock	Supportive treatment only
<b>Mustard Gas (Sulfur Mustard)</b>	This is a chemical weapon only and is not found in a natural form. Transmission can be formed via gas, through contaminated water, or in liquid form.	Exposure is usually not fatal. Symptoms include blistering of the skin and mucous membrane on contact, itchy, watery eyes, runny nose, sneezing, hoarseness, bloody noses, sinus pain, SOB, cough, abdominal pain, diarrhea, fever, nausea, vomiting.	There is no antidote. Goal is to remove individuals from the exposure. Supportive treatment.
<b>Sarin Nerve Gas</b>	This is a chemical weapon only and is not found in a natural form. Sarin is a "nerve agent" and extremely toxic. Transmission through skin or eye contact, as well as airborne. Can contaminate water & food sources and be transmitted on infected clothing.	Sarin produces a toxic effect which prevents glands and muscles from being turned "off". This results in continual stimulation of muscles and glands, leading to extreme fatigue, paralysis and loss of consciousness. Immediate exposure: Runny nose, watery eyes, constricted pupils, pain, visual changes, drooling, hyperhidrosis, cough, SOB, chest pain, diarrhea, nausea & vomiting, polyuria	Antidotes do exist but need to be used shortly after exposure. Remove any infected clothing. Wash skin and eyes as soon as possible
<b>Strychnine</b>	Developed from a plant and has been historically used in pill form to treat a variety of health	Signs of poisoning occur in 15-60 minutes. Include: Agitation, fear, restlessness, muscle	If you have been exposed, washing any poison from skin or eyes for 10-15 minutes. In hospital treatment is

	<p>conditions (unsuccessfully). Currently used as a rat poison.</p>	<p>spasms, fever, renal or liver damage, neck and back aching (severe), rigidity, SOB, dark urine. Initially clients are conscious and aware of their symptoms. High doses or ongoing doses = respiratory failure, death</p>	<p>supportive, including IV fluids, prevention of seizures and cooling temperatures.</p>
<b>Ricin</b>	<p>Poison found in castor beans. Ricin is part of the waste produced when castor oil is made. Can be used as a poison through air, food or water. Ricin enters the individual cells and inhibits the body from producing various proteins. This causes cellular death.</p>	<p>Symptoms depend on route of exposure and doses. 4-8 hours after exposure = initial symptoms. Symptoms may include: respiratory distress, fever, cough, nausea, chest tightness, vomiting, diarrhea, bloody diarrhea, seizures, renal or liver failure, splenic dysfunction, erythema, pruritus. Death generally occurs within 72 hours.</p>	<p>There is no antidote. Supportive medical care, dependent on the route in which the Ricin was delivered to the individual. Example: Respiratory support, GI support etc.</p>
<b>Radiation Exposure</b>	<p>Radiation exposure can be internal-swallowing or inhaling radioactive materials, or external-radioactive materials coming into contact with the skin, hair or clothing.</p>	<p>Early symptoms: Nausea &amp; vomiting, diarrhea, headache, fever, dizziness, disorientation, weakness/ fatigue, hair loss, immune suppression.</p>	<p>Remove source of radiation as soon as possible and wash with soap and water. (Decontamination). For severe exposure, individuals may receive: Granulocyte Colony-Stimulating Factor (promotes growth of white blood cells). Internal exposure treatment includes: Potassium Iodine, Prussian Blue (dye, which binds to radioactive elements), Diethylenetriamine Pentaacetic Acid (DTPA): Binds to metals and some radioactive particles.</p>

<p><b>Ebola Hemorrhagic Fever</b></p>	<p>A virus causing severe hemorrhagic fever, organ failure and death. Virus lives in animal hosts, and humans contract it from exposure from an infected animal. Person to person transmission through body fluids.</p>	<p>Symptoms occur 2-21 days after exposure (Average is 8-10 days). Include: Fever, headache, muscle pain, weakness, fatigue, diarrhea, vomiting, abdominal pain, hemorrhage,</p>	<p>Treatment is supportive and includes: Providing IV fluids, managing electrolytes, maintaining O<sub>2</sub> status and blood pressure, managing other concurrent infections.</p>
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