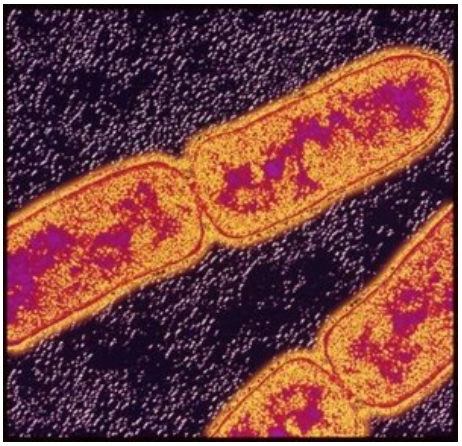
Patient Profile -- Mystery Illness

LT: I can use evidence from each of the fact sheets in order to identify the correct pathogen and suggest the best course of treatment for the patient. 4.5.2b

Help! A patient has been admitted into the hospital. After taking the patient profile, you submit all information into HealthCare® Database. Fact sheets for all possible pathogens causing the patient's illness have been pulled from the database.

Review the information found in each pathogen fact sheet and compare it to the patient profile. For each pathogen, identify both supportive and contradictory evidence that the pathogen has caused this illness in the patient. Then, evaluate all of the available evidence and identify the correct pathogen in order to suggest the best course of treatment for the patient.

Patient Profile: 289006	
Age	68
Occupation	Health care worker
Recent travel	Southeast Asia
Temperature	102°F
Symptoms	• Bad cough • Pain in the chest • Weakness and fatigue • Chills and night sweats
Micrograph of the Pathogen	 ** **each individual pathogen is 2 - 4 microns in length**

Mystery Illness: Comparing Evidence

Review the information found in each pathogen fact sheet and compare it to the patient profile. For each pathogen, identify both supportive and contradictory evidence that the pathogen has caused this illness in the patient. Then, evaluate all of the available evidence and identify the correct pathogen. Use this information to suggest the best treatment for the patient.

Virus

Supportive evidence (evidence that the pathogen has caused the illness)	Contradictory evidence (evidence that the pathogen did not cause the illness)
1. _____ 2. _____ 3. _____	1. _____ 2. _____ 3. _____

Fungus

Supportive evidence (evidence that the pathogen has caused the illness)	Contradictory evidence (evidence that the pathogen did not cause the illness)
1. _____ 2. _____ 3. _____	1. _____ 2. _____ 3. _____

Bacteria

Supportive evidence (evidence that the pathogen has caused the illness)	Contradictory evidence (evidence that the pathogen did not cause the illness)
1. _____ 2. _____ 3. _____	1. _____ 2. _____ 3. _____

Parasite

Supportive evidence (evidence that the pathogen has caused the illness)	Contradictory evidence (evidence that the pathogen did not cause the illness)
1. _____ 2. _____ 3. _____	1. _____ 2. _____ 3. _____

Evaluate all of the available evidence and complete the following:

Patient: 289006
Based on the evidence, the pathogen that caused the patient's illness is the _____.

I made this diagnosis because: _____.

Based on this diagnosis, the recommended treatment is _____.

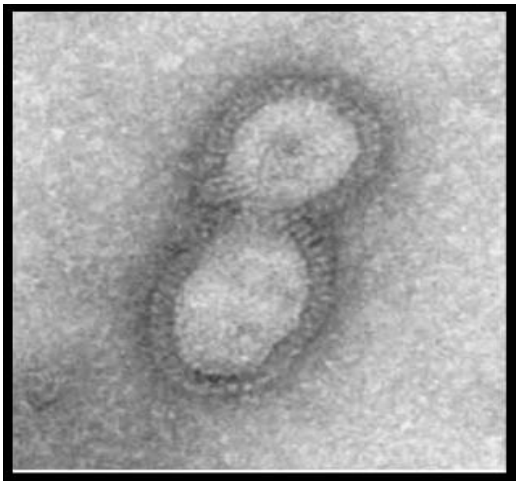
Describe Additional Info: _____.

a. Is the disease deadly? Contagious?

b. Describe the series of events that occurred in the mystery patient when he/she became infected. (Describe the events/actions of the pathogen and of the patient's 1st, 2nd, and 3rd lines of defense).

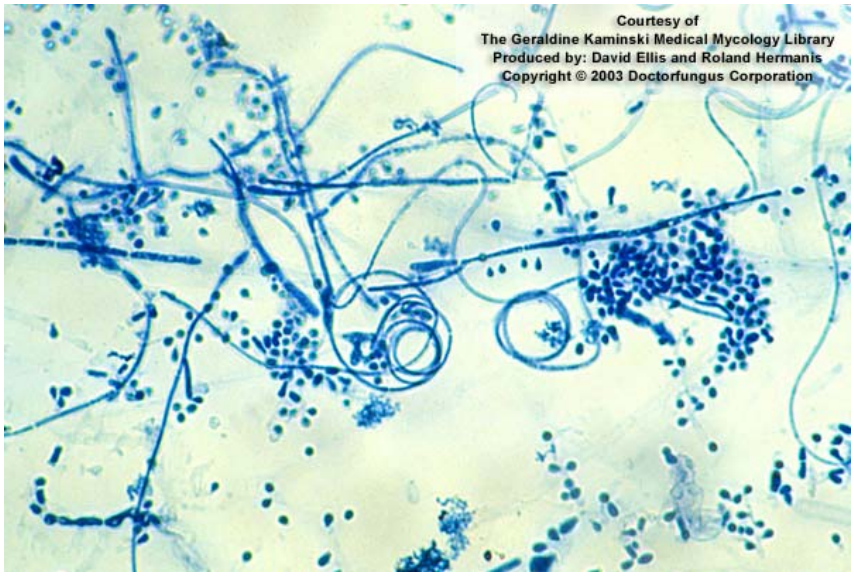
Pathogen Fact Sheet: Virus

A virus is a very small infectious agent that typically consists of a nucleic acid molecule in a protein coat. It can only reproduce itself inside of the cells of living organisms. Viruses can infect all forms of life.

Pathogen	Influenza virus (Seasonal Flu)
Symptoms of infection	• Fever, chills • Runny or stuffy nose • Weakness and fatigue • Cough • Headache
Geographic Distribution	Found worldwide in temperate regions - most infections occur in the winter and in early spring.
Risk factors for infection	The influenza virus can infect anyone. The elderly, pregnant women, children, and those with weakened immune systems may be especially vulnerable.
Micrograph of virus	 Influenza type A virus: 0.08 - 0.12 microns in diameter source: http://www.wadsworth.org/divisions/infdis/virology/fluab.htm
Treatment	The virus that causes most seasonal flu can be **prevented** through a vaccination. Antiviral drugs can be used to **treat** influenza. Drinking plenty of fluids and resting can also speed up recovery.

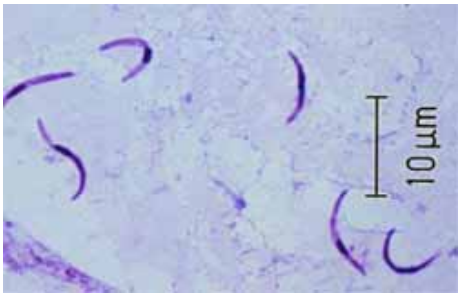
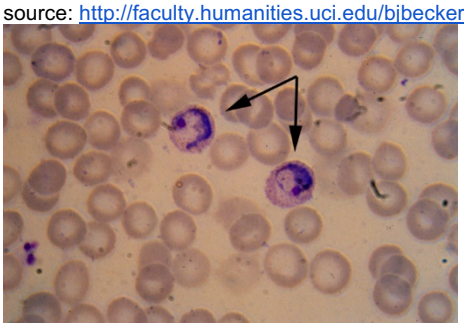
Pathogen Fact Sheet: Fungus

A fungus is a eukaryotic organism and may be either unicellular (such as yeast) or multicellular (such as mushrooms). Fungi are found worldwide, and many have specialized structures that allow them to live off other organisms by breaking down and ingesting their tissues as a source of nutrients.

Pathogen	*Trichophyton rubrum* - the fungus that causes athletes foot (tinea pedis)
Symptoms of infection	• Dry, crusty, flaky skin (usually found between the toes) • Skin is red or off-color • Itchy
Geographic Distribution	Found worldwide but more common in warm, tropical regions
Risk factors for infection	Athlete's foot can infect anyone. Walking barefoot or sharing towels in communal areas may increase the risk of infection.
Micrograph of fungus	 Size: 4 - 50 microns source: http://www.doctorfungus.org/imageban/index_query.php?&start=965
Treatment	Antifungal creams rubbed into the affected skin treat athlete's foot.

Pathogen Fact Sheet: Parasite

A parasite is an organism that lives in or on another organism, called the host. Parasites benefit by obtaining nutrients at the host's expense. Most of the parasites that cause disease in humans belong to a group of eukaryotic organisms, called protists.

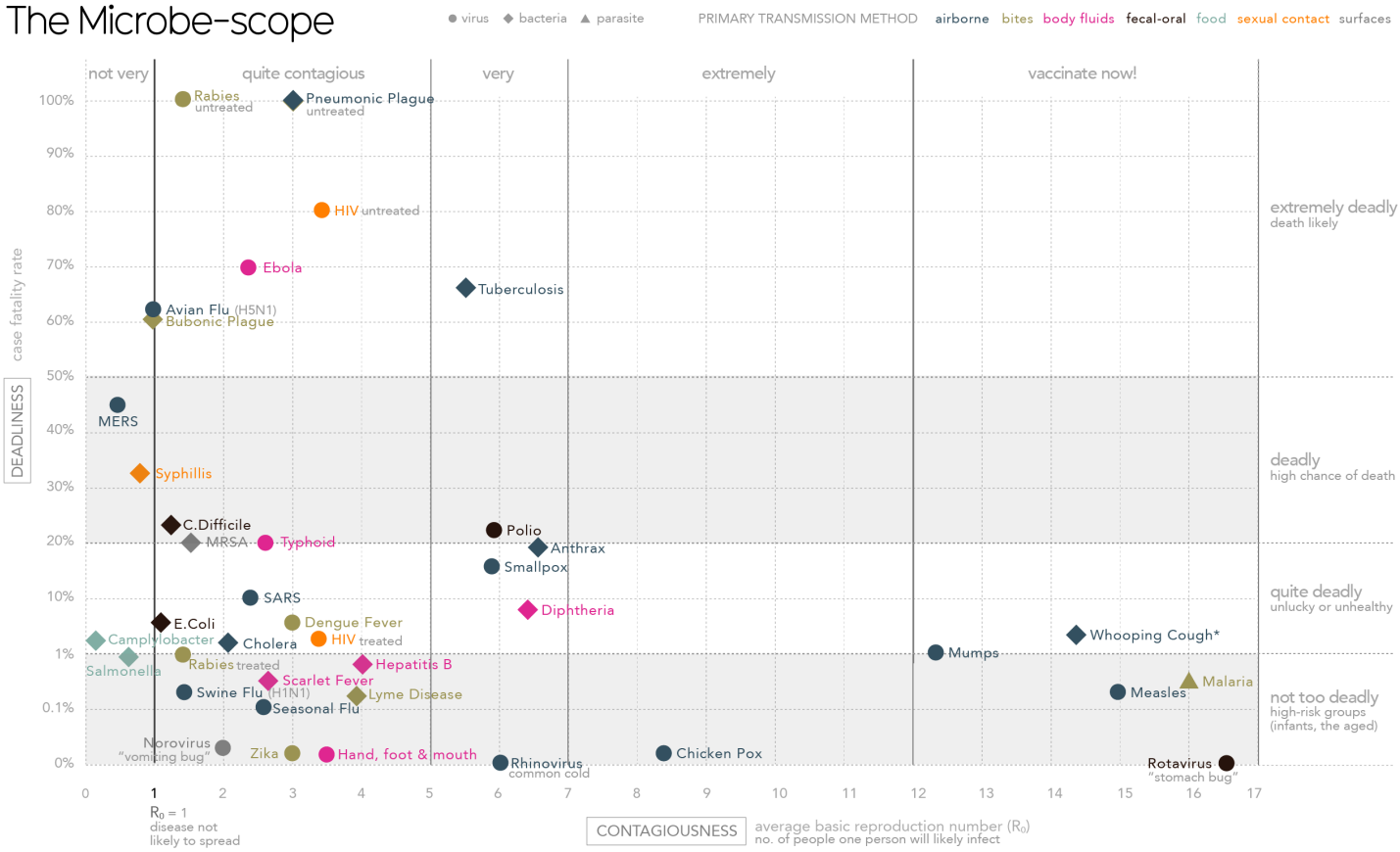
Pathogen	*Plasmodium vivax* - the parasite that causes malaria
Symptoms of infection	• High fever • Moderate to severe shaking and chills • Sweating • Headache
Geographic Distribution	Found mostly in Southeast Asia, Latin America, and some parts of Africa
Risk factors for infection	Anyone can become infected with malaria, but the elderly, pregnant women and children are especially vulnerable. The parasite is transmitted by mosquito bites, so anyone traveling through affected areas is at risk.
Micrograph of parasite	 *Plasmodium* parasite: 10 microns in length source: http://faculty.humanities.uci.edu/bjbecker/PlaguesandPeople/lecture14.html  *Plasmodium* parasite inside of red blood cells source: http://polconsultant.com/conteduc/malaria/Aslide1.jpg
Treatment	There are several drugs that treat malaria including chloroquine and mefloquine

Pathogen Fact Sheet: Bacteria

Bacteria are single celled prokaryotic organisms. Bacteria are very diverse and live just about everywhere, including hydrothermal vents and inside our digestive systems. Most bacteria are harmless, and many may be beneficial partners with other organisms. Pathogenic bacteria cause disease by infecting cells and using the host cells for nutrients. Some bacteria also release toxins that damage or destroy the host cells and surrounding tissues.

Pathogen	*Mycobacterium tuberculosis* - the bacterium that causes Tuberculosis (TB)
Symptoms of infection	• Fever and chills • Loss of appetite and weight loss • Weakness and fatigue • Bad cough that lasts 3 weeks or longer • Coughing up blood
Geographic Distribution	TB is found worldwide, but is becoming increasingly more common in developing and highly populated countries such as India and China.
Risk factors for infection	Individuals with weakened immune systems, are malnourished, elderly, or live in crowded, unsanitary conditions are the most at risk for TB. Health care providers that work with vulnerable populations are also at risk.
Micrograph of bacteria	 *Mycobacterium tuberculosis* is 2 - 4 microns in diameter Source: http://www.wadsworth.org/databank/bacteria.htm
Treatment	Tuberculosis is treated with an extensive course of antibiotics.

The Microbe-scope



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sources: Centers for Disease Control, World Health Org, CIDRAP, studies
fatality rate for healthy adult in developed nation, * = infants

data: bit.ly/KIB_Microbescope
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