

Activity 3.1.2

Agents of Disease

DATE	PORTAL DAY	LESSON	TURN IN
Tuesday 2026-11-16	Chain of infection notes	Lesson 3.1 Nosocomial Nightmare	Notebook

Where this sits. Single day. Day 2 of the seven-part Lesson 3.1 case.

01 Why today matters

Six different kinds of things can make a person sick, and they are treated in six different ways, so getting the category wrong means getting the treatment wrong.

By the end of today you will have ruled some categories out for your eleven patients and written a hypothesis you can defend from their symptoms.

02 What you already know

- From last class: eleven patients, overlapping stays, symptoms that have nothing to do with why they were admitted.
- From Unit 2: some diseases are inherited and run in families. Those are not caught from anyone.
- You already know that antibiotics exist and that they do not work on everything.

WHAT THIS SHEET WILL NOT TELL YOU

- This sheet does not tell you which category is causing the outbreak. You build that from the patient summaries.
- It does not name any organism from the hospital case.

03 Vocabulary

TERM	WHAT IT MEANS, PLAINLY
pathogen	Any organism or particle that gets inside a host and causes disease.
host	The living thing a pathogen invades and lives in or on. Here, a person.
infection	A pathogen has gotten in and is growing inside the host.
disease	The infection has grown enough to break something the body needs to do. You can be infected without being diseased.
infectious	Able to be passed from one living thing to another.
normal flora	The enormous population of harmless and helpful bacteria that lives on your skin and inside your gut all the time. Also called normal microbiota.
microbe	Any living thing too small to see without a microscope.
prion	A misfolded protein that forces normal proteins to misfold too. Not alive, no DNA, no RNA.

virus	A packet of genetic material in a protein coat. Not alive on its own; it has to hijack a host cell to copy itself.
bacterium	A single-celled living organism with no nucleus. Most are harmless. Plural: bacteria.
protist	A single-celled organism that does have a nucleus. Malaria is caused by one.
fungus	A group that includes yeasts and moulds. Athlete's foot is a fungal infection. Plural: fungi.
helminth	A parasitic worm. Big enough to see. Tapeworms and roundworms.
macroscopic	Big enough to see without a microscope.

Every term on this list is flagged for the illustrated glossary, scoped to this activity only. Terms are not shared forward or backward between activities, because a definition from a later activity can hand you an answer you were supposed to derive.

04 How to do the work

- 1 Write one paragraph in your notebook that uses disease, infection, infectious, host, and pathogen correctly, and underline each of the five words. The point is to show you know the difference between infection and disease, not to sound impressive.
- 2 Open the Hospital Hub app, go to the Info menu, and open Agents of Disease.
- 3 Build one table with six rows, one per category: prions, viruses, bacteria, protists, fungi, helminths. Give it six columns: what the agent is, how you catch it, what damage it does inside a host, how a lab diagnoses it, how it is prevented and treated, and one named example disease.
- 4 Fill the table in as you work through the app. Do not copy sentences. Put each cell in your own words and keep it short enough to read at a glance.
- 5 Practice on a case you are given. Symptoms: throat pain, hard to swallow, red swollen tonsils with white patches, tiny red spots on the roof of the mouth, swollen tender glands in the neck, fever, headache, rash, tiredness. Diagnosed by lab test. Spread by droplets from coughs and sneezes, by shared food and drinks, and by touching a surface then your own nose or mouth. Treated with antibiotics.
- 6 From that case, name the category and then write the single line of evidence that settles it. There is one clue in the list that rules out four of the six categories on its own. Find it.
- 7 Go back to your eleven patients. Re-read your table from last class, especially the where-in-the-body column and the timeline.
- 8 As a team, work down the six categories and argue each one in or out. For each category you rule out, write the specific patient evidence that rules it out. 'It just does not seem likely' is not evidence.
- 9 Write your hypothesis: which category, or categories, you think is causing the infections, and why. Then write what would have to be true for you to be wrong.
- 10 Answer one more in your notebook: could more than one agent be responsible? What would the patient data look like if it were?

05 Where students get stuck

- Assuming microbe means enemy. Most microbes are harmless and a lot of them are keeping you alive. You are carrying more bacterial cells than you have thoughts about, and only a small number of bacterial species are known to cause disease in people. Your own normal flora is going to matter enormously later in this lesson, so do not file it under 'trivia'.
- Mixing up infection and disease. They are two different events, and the gap between them is where the immune system lives. A person can be infected, fight it off, and never get sick.

- Reversing the antibiotic clue. 'It is treated with antibiotics, therefore it is bacterial' is good reasoning. 'It is an infection, therefore antibiotics will fix it' is not. Antibiotics do nothing to a virus, and that mistake is one of the biggest problems in medicine right now.
- Ruling a category out because it sounds exotic. Rule categories out with patient evidence, and write the evidence down. If you cannot write the evidence, you have not ruled it out, you have just decided.

06 What you turn in

NOTEBOOK

Notebook check. Three things must be in it: your five-term paragraph with the terms underlined, your six-row agent table filled in completely, and your written hypothesis with the ruling-out evidence for every category you eliminated.

07 Check yourself

- ☐ Explain the difference between being infected and having a disease, using one example. (Vocabulary)
- ☐ Which two of the six categories are not made of cells? Say what each one is made of instead. (Vocabulary)
- ☐ A friend says 'I have a cold, I need antibiotics.' Using today's vocabulary, explain in two sentences why that will not help. (Where students get stuck)