

Required response record

MI / Genetics of Disease - September 22, 2026

Your False-results CER record

Parts A to C in one record: definitions and the 2x2 layout, your claim, evidence and reasoning, and your partner exchange with a rebuttal

Everything in the scenario is practice: a made-up infection (Infection Q), a made-up rapid screen and supplied counts for a practice group of 1,000 people. No real disease, test, clinic or person is involved. No lab work is used. A screening result is never a confirmation. Your position is a classroom position about a practice scenario. It is not medical advice, and it does not describe any real clinic.

Use your period and code, not your name. Record the point, not the person: no names on the record.

Period and code

Date

Parts included: A, B, C

Route: paper handed in, or one PDF

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R1. Your one CER record

Today you write one False-results CER record with three parts. Part A defines the four ways a screen result can land and places four supplied counts in a 2x2 layout. Part B is your claim, evidence and reasoning. Part C is a partner exchange: the strongest point against your claim, your rebuttal, and your claim now. One record, submitted once.

CER means Claim, Evidence, Reasoning. A claim answers the question. Evidence is the supplied information you point to. Reasoning explains why that evidence supports the claim. Today adds a rebuttal, because an argument you have not tested against its strongest opponent is only half finished.

Everything in the scenario is practice. The infection, the test, the clinic and the numbers are made up for this lesson. Nothing here describes a real disease, a real test or a real person. Your September 17 and 18 records are not test data for today; they were paper models with supplied labels.

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R2. The practice scenario

Read this as given. Each line marked stipulation is a rule of the scenario, not a fact about the world.

A clinic in this scenario uses a rapid screen for a made-up infection called Infection Q. The screen gives a positive or negative result. Stipulation: it returns a result in about 15 minutes at low cost.

The clinic screened a practice group of 1,000 people. The scenario's reference standard, a confirmatory laboratory test treated as the best available answer, says that 100 of them have Infection Q and 900 do not.

Here is what the rapid screen said, as practice numbers:

	Screen positive	Screen negative	Row total
Has Infection Q (100 people)	95 true positives	5 false negatives	100
Does not have Infection Q (900 people)	90 false positives	810 true negatives	900
Column total	185	815	1,000

Here is what the rapid screen said, as practice numbers:

What happens next in the scenario. Stipulation: after a positive screen, the person is asked to take the confirmatory laboratory test and to stay home until its result returns, about three days later. Stipulation: after a negative screen, nothing further happens unless symptoms appear. Stipulation: Infection Q can be passed to others while a person has it, and it is treatable once confirmed.

The scenario stipulations, listed

S1. The screen returns a result in about 15 minutes at low cost.

S2. After a positive screen, the person is asked to take the confirmatory laboratory test and to stay home until its result returns, about three days later.

S3. After a negative screen, nothing further happens unless symptoms appear.

S4. In this scenario, Infection Q can be passed to others while a person has it, and it is treatable once confirmed.

S5. A screening result is never a confirmation; only the confirmatory test settles the question in this scenario.

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R3. Four ways a result can land

A screen result is compared with what is actually true for that person. That gives four possibilities. In the language of the StatPearls chapter on diagnostic testing accuracy (NCBI Bookshelf, section Issues of Concern):

- A true positive is a person who has the condition and gets a positive result.
- A false positive is a person who does not have the condition and gets a positive result.
- A false negative is a person who has the condition and gets a negative result.
- A true negative is a person who does not have the condition and gets a negative result.

Rows of the table are what is true; columns are what the screen said. Notice that the scenario can only fill this table because its reference standard tells us who actually has Infection Q. A screening test is assessed by how well it agrees with a recognised gold standard method of establishing the diagnosis (NCBI Bookshelf, Methods of assessing diagnostic test accuracy). Without that standard, no one could sort the 1,000 people into these cells. Keep that in mind on Friday.

Write A1 in your own words, naming the scenario. Then place the four counts in A2 and check that the rows add to 100 and 900.

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R4. Why both errors cannot be pushed to zero at once

You might ask why the clinic does not simply demand a screen with no false results. The StatPearls chapter puts the general pattern this way: "Sensitivity and specificity are inversely related: as sensitivity increases, specificity tends to decrease, and vice versa." Those two words, sensitivity and specificity, are the names of the two rates that describe a test's true positives and true negatives. You will define and compute them on Friday. For today, take the pattern in plain words: tuning a screen to catch more of the people who have the infection tends to flag more of the people who do not, and the reverse. The word tends matters; it is a common pattern, not a law for every test.

So the clinic's real choice is not "perfect or nothing." It is which error the clinic can better afford, given what happens next.

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R5. How to weigh the two errors

Your reasoning in B3 weighs a false positive against a false negative. Use only what the scenario states.

- Who is affected. In the practice group, 90 people without Infection Q got a positive screen; 5 people with it got a negative screen.

- What happens next. A false positive, by stipulation, means a confirmatory test and about three days at home for a person who did not need either. A false negative, by stipulation, means a person who has Infection Q is told nothing further and continues normal activity; the scenario says the infection can be passed to others and is treatable once confirmed.

- What conditions could change the answer. Whether a confirmatory test exists and how fast it returns. How common the infection is in the group. What the clinic tells people about a positive screen. What a missed case costs, in the scenario's terms.

A claim with a condition sounds like: "The clinic should use the screen as long as every positive is followed by the confirmatory test," or "The clinic should not use the screen unless it can reach the people it misses." Your position is a classroom position about a practice scenario. It is not medical advice, and it does not describe any real clinic.

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R6. Exchange, rebut, submit once

Find a partner whose claim differs from yours. Each of you states your claim and reasoning. Each records the other's strongest point in C1. Record the point, not the person: no names on the record. A strong opposing point names a harm your claim did not weigh or a condition your claim did not state. If you are absent, write the strongest opposing point yourself.

Write C2 as a rebuttal that answers C1 directly: say what the point gets right, then say why your claim still holds or how your condition changes. Restating your own claim is not a rebuttal. Write C3, your claim now, and leave your original B1 readable. Changing your mind after a good point is part of the work.

Hand the paper record to Mr. Mendoza before leaving, or submit one PDF to Wk5 CER: Bioethics debate, false results by the due time shown in Schoology. Use your period and code. Do not submit twice, and do not post it anywhere. The paired Wk5 PLTW item takes no separate upload unless Mr. Mendoza says otherwise. Friday's data table uses this same scenario, so keep the record.

This is local John Hay practice connected by title to PLTW Medical Interventions Activity 1.1.5, ELISA. It does not complete that official activity and it uses no laboratory work.

References opened for this lesson: StatPearls, Diagnostic Testing Accuracy: Sensitivity, Specificity, Predictive Values and Likelihood Ratios, section Issues of Concern; Methods of assessing diagnostic test accuracy, NCBI Bookshelf. They are background, not extra assignments.

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F1. Four cells, two errors, what happens next

Practice layout for a fictional screen, and the blank layout you fill in for A2. This is a teaching diagram, not data from any real test, clinic or person.

	SCREEN POSITIVE	SCREEN NEGATIVE	
HAS INFECTION Q (by the scenario's reference standard)			row total ____
DOES NOT HAVE INFECTION Q			row total ____
	column total ____	column total ____	all ____

This is the blank A2 layout. The four practice counts are printed in R2; you place them.

WHAT HAPPENS NEXT (scenario stipulations)

positive screen --> confirmatory laboratory test + stay home about three days
negative screen --> nothing further unless symptoms appear

A SCREENING RESULT IS NEVER A CONFIRMATION.

YOUR WORK

A1 define the four cells -> A2 place the counts -> B1 claim + condition
-> B2 two named numbers -> B3 weigh the two errors -> C1 strongest opposing point
-> C2 rebuttal -> C3 claim now -> submit once

Full text equivalent. The layout is blank and has two rows and two columns. The rows say what is actually true for a person in the scenario, decided by its reference standard: the person has Infection Q, or does not. The columns say what the rapid screen reported: positive or negative. That gives four cells: a true positive has the infection and screens positive; a false negative has the infection and screens negative, which is a missed case; a false positive does not have the infection and screens positive, which is a false alarm; a true negative does not have the infection and screens negative. R2 prints the four practice counts and the totals; in A2 you place each count in its cell and fill the two row totals, the two column totals and the overall total. By the scenario's stipulations, a positive screen leads to a confirmatory laboratory test and about three days at home, and a negative screen leads to nothing further unless symptoms appear. A screening result is never a confirmation. Your work runs A1 to C3 in order and ends with one submission.

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Part A. The four cells and the 2x2 layout

A1. In your own words, define true positive, false positive, false negative and true negative for the scenario's rapid screen. Each definition names who the person is (has Infection Q or does not) and what the screen said.

Space: Four labeled lines. Start each with 'A person who ...'. The screen result is what the test said; the reference standard is what is actually true in the scenario.

True positive:

False positive:

False negative:

True negative:

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Part A. Place the counts in the blank layout

Place the four supplied practice counts (95, 5, 90, 810) in the 2x2 layout. Check that the has-Infection-Q row adds to 100 and the no-Infection-Q row adds to 900. Write the column totals 185 and 815.

Space: The printed 2x2 layout. Rows are what is true (has it or does not). Columns are what the screen said (positive or negative). A false positive sits in the no-Infection-Q row, positive column.

	SCREEN POSITIVE	SCREEN NEGATIVE	
HAS INFECTION Q (by the scenario's reference standard)			row total ____
DOES NOT HAVE INFECTION Q			row total ____
	column total ____	column total ____	all ____

This is the blank A2 layout. The four practice counts are printed in R2; you place them.

WHAT HAPPENS NEXT (scenario stipulations)

positive screen --> confirmatory laboratory test + stay home about three days
negative screen --> nothing further unless symptoms appear

A SCREENING RESULT IS NEVER A CONFIRMATION.

YOUR WORK

A1 define the four cells -> A2 place the counts -> B1 claim + condition
-> B2 two named numbers -> B3 weigh the two errors -> C1 strongest opposing point
-> C2 rebuttal -> C3 claim now -> submit once

Use the blank layout above. Place each supplied count in its cell, then fill the two row totals, the two column totals and the overall total.

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Part B. Claim, evidence, reasoning

B1. Claim: should the clinic in the scenario use this rapid screen, and under what conditions? Write one or two sentences. Your claim must state at least one condition.

Space: Three writing lines. A condition is something that must be true for your answer to hold, for example what happens after a positive, or how common the infection is.

Claim with condition:

B2. Evidence: name at least two supplied practice numbers with their labels, for example '90 of the 185 positive screens are false positives' or '5 of the 100 people with Infection Q get a negative screen'.

Space: Three writing lines. Use the numbers as given. Do not compute a rate or percent today; Friday does that.

Evidence sentences:

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Part B. Your reasoning

B3. Reasoning: in four to six sentences, say which error your claim protects against, what happens next to a person in each kind of error according to the scenario, and why that weighing supports your claim and its condition.

Space: Seven writing lines. Use only the scenario's stated next steps: confirmatory test and staying home after a positive; nothing after a negative unless symptoms appear. Do not add facts about any real disease.

Reasoning paragraph:

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Part C. Exchange, rebuttal, claim now

C1. Partner exchange: record the strongest point made by a partner whose claim differs from yours, in one or two sentences. Record the point, not the person. If you are absent, write the strongest opposing point yourself.

Space: Three writing lines. A strong opposing point names a harm your claim did not weigh, or a condition your claim did not state.

Strongest opposing point:

C2. Rebuttal: answer C1 directly in two to four sentences. Say what the point gets right, then say why your claim still holds or how your condition changes.

Space: Five writing lines. Restating your own claim is not a rebuttal. Name the point and respond to it.

Rebuttal:

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Part C. My claim now

C3. My claim now: one line. Revised or unchanged. Leave your original B1 readable.

Space: One writing line. Changing your mind after a good point is part of the work. Keeping your claim after answering the point is also fine.

Claim now:

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Before you submit

Read the record once as a stranger would

- ☐ I define true positive, false positive, false negative and true negative using the scenario.
- ☐ I place the four supplied counts correctly and keep them labeled as practice numbers.
- ☐ I state a claim with a condition and back it with two named numbers.
- ☐ I weigh the harm of one error against the other using what the scenario says happens next.
- ☐ I answer the strongest opposing point directly and submit one record once.

Complete one False-results CER record, Parts A to C. Hand the paper record to Mr. Mendoza before leaving, or submit one PDF to Wk5 CER: Bioethics debate, false results by the due time shown in Schoology. Use your period and code; do not write your partner's name. Do not submit twice. The paired Wk5 PLTW item takes no separate upload unless Mr. Mendoza says otherwise.

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Wk5 CER: Bioethics debate, false results

<https://clevelandmetro.schoology.com/assignment/8520302911>

Today's portal lesson

<https://mendozabiomed.org/learn/pltw-gend/day/2026-09-22>

Guided notes are optional and are not a submission.