Borrowed or Built?

Trace where protection comes from and how long it may last.

HAP.11.6 "Investigate various forms of acquired and passive immunity (e.g., fetal immunity, breastfed babies, vaccinations, and plasma donations)."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline each way the baby receives ready-made antibodies, circle the treatment that prompts the baby to make its own immune response, and number the two treatments given after hepatitis B exposure in order of how quickly they can begin protecting the baby.

Protection for a Newborn

1. At a newborn checkup, a nurse asks how a baby can be protected before its immune system has practiced fighting many germs. During pregnancy, some of the mother's antibodies cross the placenta into the fetus. These ready-made antibodies can protect the baby for a limited time after birth. A baby who receives breast milk also takes in antibodies, especially ones that help guard surfaces in the gut. These are two routes of passive immunity: antibodies come from another person rather than being made by the baby's own immune system. The protection fades because transferred antibodies break down.

2. The same nurse explains a different route when the baby receives a hepatitis B vaccine. A vaccine presents a harmless piece of a germ, prompting the baby's immune system to respond without causing hepatitis B. Over time, the baby makes its own antibodies and memory cells that can help it respond to future exposure. This is active acquired immunity, and building it takes time. Unlike transferred antibodies, immune memory may last much longer, although some vaccines need additional doses to build or maintain protection. Vaccination does not simply pour protective antibodies from another person into the body.

3. If a mother has hepatitis B at delivery, her newborn faces a specific exposure. Clinicians give the baby a hepatitis B vaccine and hepatitis B immune globulin, usually within 12 hours of birth. The immune globulin is a preparation of hepatitis B antibodies collected from screened human plasma donations. It supplies ready-made antibodies for prompt, temporary passive protection, while the vaccine starts the baby's slower active response. Plasma donors do not pass immune memory cells to the baby. Using both measures combines short-term help with the chance to build longer-lasting protection. Routine follow-up testing checks whether the baby is protected.

2 ANSWER WITH EVIDENCE

Use the passage

1. How do antibodies from the placenta and antibodies in breast milk each reach the baby? Why are both routes passive immunity?

2. A classmate says the hepatitis B vaccine gives the baby passive immunity because a nurse gives it. Use the passage to correct the classmate.

3. Why might a newborn exposed to hepatitis B receive both immune globulin and a vaccine?

4. A friend claims antibodies from donated plasma give the baby the donor's immune memory. What in the passage shows why this is incorrect?

3 YOUR TURN

Your own words

A school health newsletter says, “Breast milk, vaccines, and antibodies from donated plasma all teach immune memory.” Write four sentences correcting the claim. Sort the three methods into passive or active immunity, explain what happens to ready-made antibodies, and state why timing matters after an exposure.

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PART 1 · READ AND MARK

Underline each way the baby receives ready-made antibodies, circle the treatment that prompts the baby to make its own immune response, and number the two treatments given after hepatitis B exposure in order of how quickly they can begin protecting the baby. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	How do antibodies from the placenta and antibodies in breast milk each reach the baby? Why are both routes passive immunity?	**Some maternal antibodies cross the placenta before birth, while the baby takes in others through breast milk. Both are passive because the antibodies come from the mother rather than being made by the baby.**
2	A classmate says the hepatitis B vaccine gives the baby passive immunity because a nurse gives it. Use the passage to correct the classmate.	**The vaccine produces active acquired immunity because it prompts the baby's own immune system to make antibodies and memory cells.**
3	Why might a newborn exposed to hepatitis B receive both immune globulin and a vaccine?	**Immune globulin supplies ready-made antibodies for prompt, temporary protection. The vaccine starts a slower response that can build longer-lasting immune memory.**
4	A friend claims antibodies from donated plasma give the baby the donor's immune memory. What in the passage shows why this is incorrect?	**The plasma-derived immune globulin supplies antibodies, not the donor's memory cells. Those transferred antibodies eventually break down.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Breast milk and antibodies purified from donated plasma provide passive immunity because they deliver ready-made antibodies. A vaccine builds active immunity by prompting the recipient to make antibodies and memory cells. Ready-made antibodies can help promptly, but they break down and do not give the recipient immune memory. After an exposure, donated antibodies may offer short-term help while a vaccine takes time to build a longer-lasting response.

Accept answers that distinguish the source of ready-made antibodies from the recipient's own immune response. Students should not claim that breast milk or plasma-derived antibodies give the recipient immune memory.