



To Vaccinate, or Not to Vaccinate: That is the Question

by

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Paula Highsmith was quite distraught. She had returned from a routine checkup for her four-week-old daughter Jennifer. The pediatrician, Dr. Feiller, had informed Paula that he would begin giving Jennifer her DTP shots at her next appointment in a month.

Paula phoned her mother, Marion Johnson. “Oh, Mother, I don’t know what to do.”

“You were vaccinated as a child and you didn’t have any problems,” replied Mrs. Johnson.

“You know my friend Julie? Her oldest son Sam had a seizure after getting the DTP shot when he was Jennifer’s age. And what about that couple on television that said the rubella vaccine was responsible for their son’s autism?”

“I don’t know about that couple,” replied Mrs. Johnson, “but Sam was vaccinated ten years ago. If the vaccine was really the problem, I’m sure they would have a different vaccine now.”

“But now there are so many shots and, besides, the diseases they prevent have practically disappeared, so why do I have to have Jennifer vaccinated?”

“Jennifer will be required to show evidence of vaccination before she’ll be allowed to go to school and perhaps even some daycare centers. Don’t you remember the article in the *Buffalo News* about the couple whose son wasn’t allowed to register for school because he hadn’t had his vaccinations? His parents said they had refused to have him vaccinated for religious reasons.”

This case presents many of the issues facing parents when they need to begin the vaccination series for their child. Paula wants to do what is best for her child and she wants to make her decision based on scientific fact not emotional rhetoric.

What are the issues raised about vaccination by this case study and what kind of information will help Paula make an informed decision about vaccinating her daughter?

1. Is vaccination necessary? What are the consequences of natural infection?
 - o Do microorganisms cause asymptomatic infections or disease?

- What are the symptoms of the major vaccine preventable diseases?
 - What are the possible sequelae of the infections?
 - What groups of individuals are particularly susceptible to serious disease consequences?
 - How are infections transmitted?
2. What kinds of vaccines are available?
 3. (a) What are the advantages (e.g., efficacy and duration of immunity) of the different kinds of vaccines?
(b) What are the disadvantages (e.g., side-effects) of the different kinds of vaccines?
 4. What is the purpose of vaccination (i.e., prevent infection and/or disease)?
 5. Are there reasons for not being vaccinated?
 - Are there beneficial effects of acquiring an infection naturally?
 - Are religious concerns justifiable?

ASSIGNMENT

In order to address the general questions posed by this case study, you will individually research information on the disease(s) caused by a particular microbe and the vaccine that is used for it. Address the following questions for the microbe and vaccine that you have been assigned:

1. (a) Describe the typical symptoms of the disease(s) caused by the agent.
(b) What are the serious sequelae (complications) caused by the agent and how common are they?
(c) Is serious disease primarily a problem only in certain individuals? Explain.
2. (a) What kind of vaccine preparation is used (live attenuated; killed or inactivated; toxoid)?
(b) Are there different kinds vaccine preparations available?
(c) How long has the current vaccine been available?
3. (a) What side-effects are associated with the vaccine and what is the reported frequency for these side-effects?
(b) What is the reported efficacy of the vaccine?
 - What proportion of vaccinated persons are protected from infection (or disease)?
 - What proportion of vaccinated persons are protected from serious disease?
 (c) What is the duration of immunity? Are booster shots necessary?
(d) How does the latest number of reported cases compare with the number before the vaccine was available?
4. (a) Does the vaccine prevent infection?
(b) Does the vaccine prevent the usual symptoms of disease or primarily the more serious complications of infection?

Image Credit: *Polio Vaccine Developed*, U.S. stamp (3187a) from “Celebrate the Century,” a series of fifteen 33¢ commemorative stamps for the years 1950-59 issued in 1999.

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