

Varicella Outbreak in a Daycare

Jennifer is a 4 year old, healthy-looking girl with a rash of small flat red spots on her chest and back and blister-like vesicles on her face. She weighs 42 pounds and is 34 inches tall. She is scratching her head and face and whimpering about the itching. Her mother says the rash appeared this morning. Prior to that, Jenny had been fussy and tired with a low-grade fever (100-101 F) for about two days.

Her mom suspects that little Jenny had chicken pox, because three other children at Jenny's daycare center had it a couple weeks ago. Mom has never treated chicken pox before, so she has been relying on advice from a kindly older neighbor lady. This neighbor suggested baby aspirin to reduce the fever and avoid febrile seizures. Since the mom did not have any aspirin, she decided to give Jenny one teaspoonful of children's liquid Advil every six hours. (Jenny receives her midday Advil dose while at daycare.) Now, Jenny has an itchy rash, so she is wondering if she should use Caladryl® lotion or some hydrocortisone cream. She has both of these products in her medicine cabinet.

Jenny lives at home with her mother (Sally 32yr), father (Bill 31yr), brother (William 14yr) and sister (Lucy 8 yr). All four are in good health with no underlying disease. None of the family members ever received the *Varicella* vaccine and only Bill recalls having chicken pox as child. Sally's sisters had chicken pox when they were all in grade school, but she doesn't think she got sick.

Tertiary Prevention:

Individual (patient)-level

1. The physician confirms that Jenny has chicken pox and wants you to recommend a treatment and monitoring plan for Jenny. (Hint: Include information about indicated and contraindicated products, doses specific to Jenny, and signs/symptoms of disease or therapy complications that the mother should watch for in the next couple of weeks.)
2. Describe how you will know if the therapy is successful (i.e., what should you monitor)?

Population-level

1. What is the risk of death from chicken pox for an otherwise healthy child like Jenny? Which populations have an increased risk of death? Complications?
2. What risks are associated with giving aspirin to a child with a viral illness? What kind of epidemiological study would be used to study whether an association existed between exposure to aspirin and that specific complication?

Secondary Prevention:

Individual-level

1. List the people in the case description who were most likely exposed to the varicella virus. Explain why you chose them – define “close contact” as part of your answer. Of those who were likely exposed, which ones do you believe have the greatest risk of developing chicken pox?
2. What sort of post-exposure chemoprophylaxis should you use in these people to prevent the development of chicken pox? How long after a probable exposure can a person use post-exposure prophylaxis and benefit from it? [NOTE: post-exposure prophylaxis is started before symptoms appear.]

3. For Varicella infections, there are also early treatments available to reduce length and severity of illness. What can a person who has begun showing early signs of an infection take? How long after the appearance of symptoms is it still effective?
4. Another group at risk is Jenny's own family. What would you recommend for them for post-exposure prophylaxis (PEP) and why?

Population-level

1. Describe how the day care can reduce the spread of disease to others?
2. If there is a shortage of post-exposure prophylaxis medications, how will you prioritize who gets it and which medication they get?

Primary Prevention:

Individual-level

1. Are there any specific actions students and other members of the campus community can take to reduce the likelihood that they will develop meningococcal disease? Is there a vaccine available for this disease?
2. Are there any general actions students and the rest of the campus community can take to improve their overall health so they can fight off illness?

Population-level

1. Describe information you would include in an education campaign about chicken pox and vaccination, and list who you would target. Who should NOT receive the varicella vaccine and why?
2. Describe the characteristics of populations with increased risk of exposure to varicella. Are there specific segments of the community that have increased risk?

ADDITIONAL DISCUSSION TOPICS

One of the long-term consequences of having a Varicella infection is the development of shingles. Which populations are at increased risk of developing shingles? How can it be prevented? If the vaccine used to prevent chicken pox in children contains a mild, live strain of varicella, can it increase the risk of shingles later in life (cite studies not opinion here)?

Requirements for case assignments 2-4:

- 1. Prepare responses with word processing program.**
- 2. Required format:**
 - a. 1 inch margins on all sides**
 - b. print on only one side of the paper**
 - c. Use 11 or 12 pt font**
 - d. May use single space, just leave a line space between paragraphs**
 - e. Use complete sentences unless asked to list items.**
 - f. Must paraphrase information from sources**
 - g. If appropriate, may use a table to answer a question. (Just be sure you answer the question!)**
 - h. Length – limit your answers to 2-3 pages.**
- 3. References**
 - a. If told to list source, you may simply give informative title (e.g., DiPiro, CDC website)**
 - b. If told to provide full citations, use the current CHPBS style**
 - c. Find and cite current, preferably published sources of information**
- 4. Recommended approach to writing responses:**
 - a. Use assignment outline to create subheadings for your responses**
 - b. When asked for a recommendation, be as specific as possible given the amount of information you have in the case.**
 - c. When asked for a recommendation briefly justify your selection (e.g., drug of choice, first line agent is contraindicated in this patient)**
 - d. Be succinct, but provide complete answers**
 - e. Include additional details if they are of importance**