

Infectious Rashes of Interest to Infection Control and Occupational Health

Dr. Justin Graham

A Webber Training Teleclass

Spot That Spot!

Infectious Rashes of Interest to Infection Control and Occupational Health

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Webber Training Teleclass 2005
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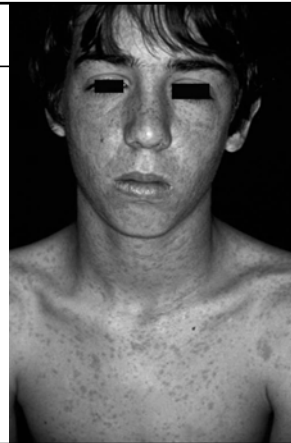
It's Friday at 5:31 pm....

Everyone else has left.
You're locking the door and savoring the
weekend.
The pager goes off.

"Could you just drop by and look at this rash?
We're a little worried...."

Rash #1

- 15 year old Brazilian boy presents to the ER with a new rash after a few days of fever and severe URI symptoms
- He had just attended an international summer camp in the Sierras
- Rash began on face, spread downward



www.dermnet.com/



Hong Kong Dept. of Health
<http://www.info.gov.hk/dh/diseases/CD/?htm>

Rash #1 - Question #1

If you had seen this patient on the first day of his rash, where might you have looked to confirm the diagnosis?

- a) on the palms of his hands
- b) in his mouth
- c) on his genitalia
- d) in his ears

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Rash #1 - Question #2

What infection control measures need to be taken?

- a) None
- b) Contact precautions
- c) Droplet precautions
- d) Airborne precautions

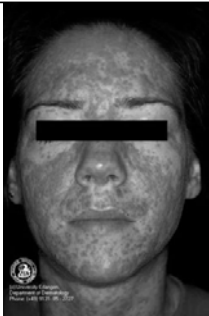
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Rash #1 - Question #3

The patient sat in the waiting room for an hour before being seen. What post-exposure prophylaxis should be offered those who are susceptible?

- a) None
- b) Ribavirin
- c) Vaccine or IG
- d) Vaccine or IG and airborne precautions (starting in 5 days)

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Dermatology Online Atlas
<http://www.dermis.net/doia/>

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Rash #1 - Question #1

If you had seen this patient on the first day of his rash, where might you have looked to confirm the diagnosis?

- a) on the palms of his hands
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- d) in his ears

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Koplik's spots

<http://www.dermatologylectures.com/dermnet/dermnetpictures/exanthems/pictures/measles122.jpg>

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Measles

- Caused by measles virus
- 8th leading cause of death in the world
 - 40 million cases/year
 - 1 million deaths/year
 - ~100 cases/year in US (mostly imported)
- 2-6 day prodrome before rash
 - Cough
 - Conjunctivitis
 - Coryza
 - Koplik's spots
 - Fever

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Rash #1 - Question #2

What infection control measures need to be taken?

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- c) Droplet precautions
- d) Airborne precautions

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Measles

- Highly contagious by airborne droplets and nasal secretions
- Droplets can remain in the air for hours
- Incubation 7-18 days
- Most contagious from 3-5 days before to 2-4 days after rash appears

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Rash #1 - Question #3

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- a) None
- b) Ribavirin
- c) Vaccine or IG
- d) Vaccine or IG and airborne precautions

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Measles

- Susceptible:
 - born after 1957 and
 - no serologic evidence of immunity and
 - no history of 2 doses of vaccine
- Prophylaxis
 - MMR Vaccine within 3 days or
 - gamma-globulin within 6 days
 - can still develop "modified measles" after prophylaxis -- still contagious!

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Rash #2

A respiratory therapist presents to Occupational Health complaining of a painful rash on her thumb for the past few days, associated with axillary lymphadenopathy.

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herpetic whitlow



<http://www.nlm.nih.gov/medlineplus/ency/imagepages/1373.htm>

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Rash #2 - Question #1

This rash was most likely acquired from

- a) an infected patient's secretions
- b) a pet Gambian pocket rat or prairie dog
- c) contaminated mail or goat hides
- d) gardening with roses or other thorny plants

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Rash #2 - Question #2

What infection control measures need to be taken? Should she be allowed to work?

- a) No precautions
- b) Can work as usual, but with gloves
- c) Probably shouldn't see patients
- d) Admit with airborne precautions

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Rash #2 - Question #3

What treatment should the therapist be offered?

- a) Valacyclovir
- b) Vaccine
- c) Ciprofloxacin
- d) Interferon

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Rash #2 - Question #1

This rash was most likely acquired from

- a) an infected patient's secretions
- b) a pet Gambian pocket rat or prairie dog
- c) contaminated mail or goat hides
- d) gardening with roses or other thorny plants

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Herpetic whitlow

- Herpes simplex virus infection of a finger
- Direct inoculation from primary oral herpes through a break in the skin
- Occupational hazard of respiratory therapists, dentists, anesthesiologists

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Rash #2 - Question #2

What infection control measures need to be taken? Should she be allowed to work?

- a) No precautions
- b) Can work as usual, but with gloves
- c) Probably shouldn't work until resolved
- d) Admit with airborne precautions

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Herpetic whitlow

- Virus shedding through open lesions
- Especially dangerous to infants and immunocompromised
- Risks of transmission, even with gloves, are not well studied

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Rash #2 - Question #3

What treatment should the therapist be offered?

- a) Valacyclovir
- b) Vaccine
- c) Ciprofloxacin
- d) Interferon

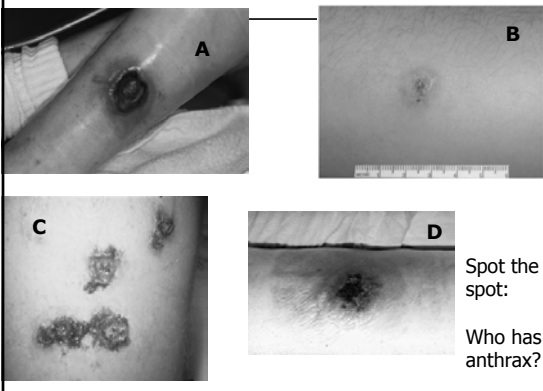
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Herpetic whitlow

- Can treat with anti-herpes antivirals x 7-10 days
 - acyclovir
 - valacyclovir
 - famcyclovir
- No documented evidence of benefit of treatment
- Nearly all cases resolve in 2-3 weeks
- Lesions can recur

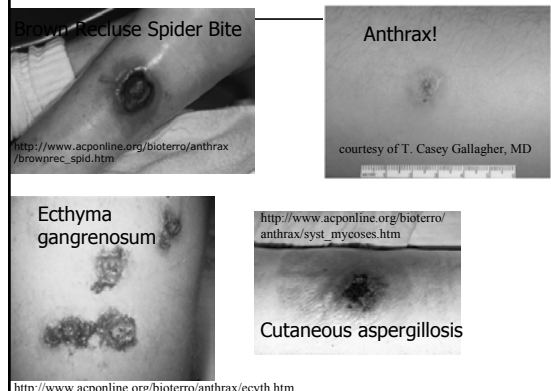
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Bioterrorism break!



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Bioterrorism break!



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Rash #3

A 27 year old woman is brought to the ER in shock with an unusual rash that developed after one day of fever and myalgias without headache.

She works in a local restaurant that was just shut down for public health violations.

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Rash #3



<http://www.nlm.nih.gov/medlineplus/ency/images/ency/fullsize/2912.jpg>

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Rash #3 - Question #1

Among all patients, which of the following is not a known risk factor for acquiring this infection?

- a) food service industry employment
- b) military boot camp
- c) travel to the Middle East
- d) living in a freshman college dormitory

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Rash #3 - Question #2

What infection control measures are needed until the diagnosis is ruled out?

- a) None
- b) Contact precautions
- c) Droplet precautions
- d) Airborne precautions

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Rash #3 - Question #3

The laboratory identifies the causative organism and finds it is susceptible to penicillin, which is the first line drug for treatment. What drug should you use for post-exposure prophylaxis for the infectious disease consultant who made the diagnosis?

- a) None
- b) Penicillin VK 500mg for three days
- c) Ciprofloxacin 500mg, one dose
- d) Rifampin 600mg BID for 2 days

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Meningococccemia



Image by Justin Graham, MD MS

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Meningococccemia



Image by Justin Graham, MD MS

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Meningococccemia



Image by Justin Graham, MD MS

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Meningococccemia

- Neisseria meningitidis sepsis
- Does not have to cause meningitis
- Very high mortality
- Survivors often have severe sequelae
 - amputations
 - adrenal hemorrhage
 - congestive heart failure

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Rash #3 - Question #1

Among all patients, which of the following is not a known risk factor for acquiring this infection?

- a) food service industry employment
- b) military boot camp
- c) travel to the Middle East
- d) living in a freshman college dormitory

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Meningococccemia

- Sporadic and epidemic cases
- Many asymptomatic carriers
- Risk for epidemics linked to close crowding of people from different geographic locales
 - exposure to unfamiliar serotypes?

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Rash #3 - Question #2

What infection control measures are needed until the diagnosis is ruled out?

- a) None
- b) Contact precautions
- c) Droplet precautions
- d) Airborne precautions

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Meningococccemia

- Respiratory pathogen spread by aerosol
- Transmission within the hospital is rare
 - Meningococcal pneumonia presents highest risk of transmission
- Patients are no longer infectious after 24- 48 hours of therapy

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Rash #3 - Question #3

The laboratory identifies the causative organism and finds it is susceptible to penicillin, which is the first line drug for treatment. What drug should you use for post-exposure prophylaxis for the infectious disease consultant who made the diagnosis?

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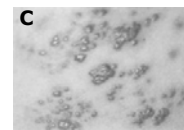
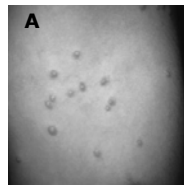
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Meningococccemia

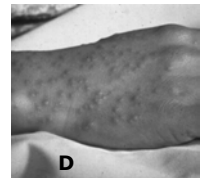
- Antibiotic prophylaxis should be reserved for those with direct contact with respiratory secretions (intubation, suctioning) or household contacts who spent > 4 hours with patient
- Recommended drugs
 - rifampin 600mg PO q12 x 4 doses
 - ciprofloxacin 500mg PO x 1dose
 - ceftriaxone 250mg IM x 1 dose
- Penicillin treats patient, but not carrier state

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Bioterrorism break!



Spot the spot:
Who has smallpox?



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Bioterrorism break!

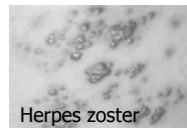


Molluscum Contagiosum



Chickenpox

http://www.aconline.org/bioterro/smallpox_mimics.htm



Herpes zoster



Smallpox!

http://infectioncontrol.ucsfmedicalcenter.org/Bioterrorism_Info/

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Rash #4

Chemotherapy nurse presents to occupational health complaining of an itchy rash on her hands.

She has just returned from a 2 week vacation to the Philippines.

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scabies



<http://www.dermnet.com>

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scabies



<http://www.dermnet.com>

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Rash #4 - Question #1

She recalls treating a cancer patient with a dry crusted rash on his hands. It was 4 weeks earlier & it didn't itch. Your first thought is:



<http://www.dermnet.com>

- a) This was the probable index case
- b) This patient also traveled to East Asia
- c) There are contaminated meds
- d) The two cases are similar but unrelated

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Rash #4 - Question #2

What can be done right now to prevent others in the hospital from getting this rash?

- a) Send the nurse home with appropriate treatment
- b) Change soaps to non-reactive formulations
- c) Change to non-latex gloves
- d) Require pre-travel immunization for all staff traveling to Asia

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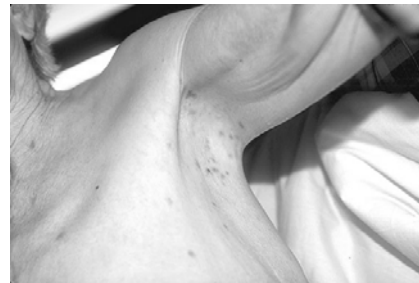
Rash #4 - Question #3

What is the appropriate treatment for the nurse?

- a) None
- b) Hydrocortisone cream
- c) Trimethoprim-sulfamethoxazole
- d) Permethrin

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scabies



http://medlib.med.utah.edu/kw/derm/pages/ni12_3.htm

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Scabies

- Cutaneous infestation by *Sarcoptes scabiei*
- Transmitted by skin-skin contact
- Incubation is 2-6 weeks after first exposure; 1-4 days after repeated exposure
- Immunocompromised patients can get scabies crustosa (Norwegian scabies)
 - extensive crusting
 - minimal itching
 - highly contagious

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Rash #4 - Question #1

She recalls treating a cancer patient with a dry crusted rash on his hands. It was 4 weeks earlier & it didn't itch. Your first thought is:



- a) This was the probable index case
- b) This patient also traveled to East Asia
- c) There are contaminated meds
- d) The two cases are similar but unrelated

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Rash #4 - Question #2

What can be done right now to prevent others in the hospital from getting this rash?

- a) Send the nurse home with appropriate treatment
- b) Change soaps to non-reactive formulations
- c) Change to non-latex gloves
- d) Require pre-travel immunization for all staff traveling to Asia

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Rash #4 - Question #3

What is the appropriate treatment for the nurse?

- a) None
- b) Hydrocortisone cream
- c) Trimethoprim-sulfamethoxazole
- d) Permethrin

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Thank you!



(Broad Street pump, London England)
Justin Graham, MD MS

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