

# Vaccines for Travel 101

Dane County Immunization Coalition

Elaine Rosenblatt APRN, BC

Clinical Professor

University of WI-Madison

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# EMPORIATRICS

- Definition: the study of diseases in travelers. From the Greek word Emporos (one who goes shipboard as a passenger) + iatrics (medicine)
- Travel Medicine is an interdisciplinary specialty concerned with the prevention and management of health problems associated with travel.

# QUIZ

- What is the most frequent vaccine-preventable disease among travelers going to countries of lower hygiene standards?
  - A. Hepatitis A
  - B. Influenza
  - C. Malaria
  - D. Diarrhea

# QUIZ

- What is the most common clinical illness in travelers to tropical and semi-tropical regions?
  - A. Diarrhea
  - B. Hepatitis A
  - C. Typhoid
  - D. Dengue fever

# QUIZ

- What is the most common cause of morbidity and mortality in travelers 50 years and older?
  - A. Malaria
  - B. Rabies
  - C. Cardiovascular disease
  - D. Accidents

# QUIZ

- What is the most common cause of morbidity and mortality in travelers under 50 years of age?
  - A. Malaria
  - B. Rabies
  - C. Cardiovascular disease
  - D. Accidents

# CAUSES OF DEATH WHILE TRAVELING

- Cardiovascular (heart attack, stroke) • 49%
- Accidents (auto, motorcycle) • 22%
- Medical illnesses • 13.7%
- Infectious diseases • 1.0%

# Mainstays Of Pre-travel Medicine

- **Information**, with the goal of behavior modification: food/beverage, mosquitoes, safety issues and unprotected sex
- **Immunizations**: required and recommended vaccines
- **Chemoprophylaxis**: mainly suppressive therapy against malaria
- **Self-treatment**, especially for travelers' diarrhea
- **Special precautions/travelers with special needs**: (e.g., chronic diseases, pregnancy, +HIV)

# REQUIRED VACCINATIONS

- Yellow Fever (Live)
- Meningococcal

# Vaccinations For Specific Diseases

- Typhoid (Inactivated and Live)
- Hepatitis A
- Hepatitis B
- Meningococcal
- Japanese Encephalitis
- Rabies
- (Plague)

# ROUTINE VACCINATIONS

- Diphtheria/Tetanus/Pertussis (Td/Tdap)
- Pneumovax
- Influenza
- MMR (Live)
- Hemophilus Influenza b (Hib)
- Varicella (Live)
- Meningococcal
- Hepatitis A and B
- Polio

# Yellow Fever

- Required if going to at risk areas and for administrative purposes (crossing at risk borders)
- Administered at official yellow fever centers
- Need to have a officially validated WHO yellow book
- Effective 10 days after administration
- Duration of immunity: 10 years
- No longer needs to be stored in freezer but needs to be administered within 30 minutes after carefully drawing it up

# Yellow Fever, cont.

- Live, attenuated vaccine
- .5 ml SQ in arm
- Side effects: sore arm, flu-like sx
- Wait 30 minutes after vaccination before leaving clinic
- Contraindications: pregnancy, +HIV, anaphylactic allergy to eggs, < 9 months of age, history of thymus problems
- Use caution with elderly and immunosuppressed
- Use personal protection measures
- Carried by a daytime mosquito

# Meningococcal Meningitis Vaccine

- Highly efficacious and well tolerated. The new conjugated vaccine has longer immunity
- Effective 10 days after vaccination
- Menomune (MPSV4): polysaccharide: age 2 and older
  - .5 ml **SC** in arm. Booster dose at 3-5 years
  - Good for 35 days once reconstituted
- Menactra (MCV4): conjugated: preferred vaccine ages 11-55
  - .5 ml **IM** in deltoid. Booster not yet determined

# Meningococcal Vaccine, cont.

- Required for:
  - Saudi Arabia during the Hajj in March
- Recommended for:
  - international travel to endemic areas (Sub-Saharan Africa)
  - anyone with a damaged spleen or asplenia
  - anyone who has terminal complement component deficiency
  - college students (especially freshmen who live in dorms)

# Hepatitis A

- Transmission
  - Contaminated food and water; Person to person
- Risk
  - From 1 in 1,000 per week of stay in a tourist area to 5 in 1,000 per week of stay off usual tourist routes

# Hepatitis A vaccine

- Havrix and Vaqta--both equally effective and are interchangeable
- 1 ml IM preferably given at least 2 weeks before at risk
- Adult formulation: Havrix and Vaqta age 19 and older
- Shake well before administering
- Booster 6 to 12 months later
- Side effects: sore arm

# Hepatitis B Vaccine for Travelers, Recommend If:

- Long-term traveler (>6 months, ?> 3 months)
- Frequent short-term traveler
- High-risk behaviour profile (sex, drugs)
- Occupational exposure: healthcare worker, military, aid worker, missionary
- Close contact with locals (e.g., VFR children)
- Adventure traveler
- Accident prone

# Hepatitis B cont.

- Schedule
  - First 2 doses 1 month apart, 3rd dose 5 months after 2nd
  - Accelerated: 0, 7, 21 days or 0, 14, 28 days with booster at 1 year; or 0, 1, 2 months with booster at 1 year
- Adult dosage (1 ml) begins age 20
- Dialysis and immunosuppressed patients require more vaccine
- Education on preventing risks essential

# Twinrix: Hepatitis A&B

- Recommended for at risk who are age 18 or older
- 0, 1, 6 months
- Accelerated schedule 0, 7, 21 days with a booster at 1 year, or other schedules similar to hepatitis B accelerated schedules
- Became available in 2001

# Typhoid

- Transmission
  - Contaminated food and water
- Risk
  - Highest risk for those going off the usual tourist routes and those returning to visit family and friends
  - Rates higher in travelers to Indian subcontinent, Peru, Northwest Africa (excluding Tunisia), Mexico

# Typhoid Vaccine: Live Oral

- 1 pill every other day for 4 doses
- Duration of protection 5 years
- Refrigerate
- Side effects: gi, flu-like sx
- Avoid if pt HIV+, immunosuppressed, gi disease or children <6 years of age
- Complete at least 1 week before trip
- Antibiotic use before, during and after will interfere with effectiveness

# Typhoid Vaccine, cont.

- Killed injectable
  - .5ml IM
  - Duration of protection 2 years
  - Side effects: local reaction, flu-like sx
  - Takes 2 weeks to obtain immunity
- Both vaccines approximately 50-80% effective

# Polio Vaccine

- Oral (live, Sabin, OPV) vaccine no longer used since January 2000
- Use injectable (inactivated, Salk, IPV)
- Booster (.5ml) recommended for adults for international travel (no polio in the Americas)
- Assess if primary series was done. IPV primary series: .5ml SQ or IM at 0, 6-8 weeks later, 6-12 months after the second

# Rabies: Human Diploid Cell Vaccine (HDCV)

- High risk groups should receive pre-exposure series (veterinarians, animal handlers, trappers, those visiting and living in endemic countries for >30 days, certain lab workers)
- Controversy re need for titers. Traditionally high risk groups get titer drawn every 6-24 months depending on risk. Boosters given if titer <1:5
- Side effects: local reaction, fever

# Rabies: Pre-exposure

- IM
  - 1 ml IM day 0, 7, 21 to 28
- Still need to avoid contact with animals and get post-exposure treatment after cleaning the wound (2 injections day 0, 3)

# Rabies: Post-exposure

- If the patient didn't receive pre-exposure treatment:
  - Rabies immune globulin (HRIG) 20 IU/kg with as much at the injury site as is possible
  - 1 ml IM day 0, 3, 7, 14, 28

# Japanese Encephalitis

- Mosquito borne viral encephalitis
- If in endemic rural areas for > 30 days
  - Mostly Asia and India
- Still need to use good personal protection measures
- 1 ml SQ day 0, 7, 30
- Accelerated schedule: 0, 7, 14 or 0, 7, 28

# Japanese Encephalitis, cont.

- Observe for 30 minutes after
- Side effects: can range from local reaction, flu-like sx to generalized urticaria, respiratory distress and anaphylaxis
- Need to stay by good health care for 10 days after administration
- Contraindications: pregnancy, anaphylactic allergy to gelatin
- Caution if history of multiple allergies

# References

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- \_\_\_\_\_ General Recommendations on Immunization: Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR December 1, 2006; 55(RR-15).
- \_\_\_\_\_ Guidelines for Vaccinating Pregnant Women. CDC Sep 2006.
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# QUESTIONS

**“A vaccine not  
given is  
100%  
ineffective!”**

