Protecting Yourself
Traveler’s Health

Diane La May, BSN
University of Colorado Hospital
International Traveler’s Clinic
Outline

• Traveler vaccines
• Protection from food-borne illness
• Insect Precautions
• Safety
• Altitude Considerations
• Occupational exposure/blood borne transmission
Illness Statistics

• 50 million people travel to developing countries yearly
• Up to 64% experience a travel related health issue
• 8% are ill enough to seek medical care

CDC Yellow Book
Pre-Travel Risk Assessment

- Type of trip
- Location
- Season
- Length
- Traveler experience
- Risk adversity
Information

• CDC
  www.cdc.gov

• WHO
  www.who.int

• U.S. State Department
  www.travel.state.gov

• World Organization for Animal Health
  www.oie.int/eng/en_index.htm
Preventable Illnesses
<table>
<thead>
<tr>
<th>Vaccination</th>
<th>Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis A</td>
<td>2 dose series</td>
</tr>
<tr>
<td>Japanese Encephalitis</td>
<td>2 dose series</td>
</tr>
<tr>
<td>Meningococcal</td>
<td>1 dose</td>
</tr>
<tr>
<td>Polio</td>
<td>1 adult dose</td>
</tr>
<tr>
<td>Rabies</td>
<td>3 dose series</td>
</tr>
<tr>
<td>Typhoid</td>
<td>Oral or IM</td>
</tr>
<tr>
<td>Yellow Fever</td>
<td>Every 10 years</td>
</tr>
</tbody>
</table>
**Additional Vaccines**

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis B</td>
<td>3 dose series</td>
</tr>
<tr>
<td>Influenza</td>
<td>Seasonal</td>
</tr>
<tr>
<td>MMR</td>
<td>Childhood vaccine</td>
</tr>
<tr>
<td>Pneumococcal</td>
<td>&lt;65 years</td>
</tr>
<tr>
<td>TDAP/TD</td>
<td>Every 10 years</td>
</tr>
<tr>
<td>Twinrix</td>
<td>Hepatitis A &amp; B</td>
</tr>
<tr>
<td>Zostivax</td>
<td>&lt;60</td>
</tr>
</tbody>
</table>
Prevention of Food-borne Illness
Hepatitis A Virus

- Foreign travel is the #1 risk factor in U.S.
- Contaminated food, water, ice, shellfish
- Heat water to >185°F (85°C) for 1 minute
- Chlorination inactivates the virus
World-Wide Hepatitis A Distribution
Hepatitis A Vaccine

- 2 dose series (0, 6 to 18 months)
- 80% to 98% seroconvert after 1st dose
- Considered life-time protection with completed series
- 15 days for immunity
Typhoid

World-wide occurrence including industrialized nations

Contracted by ingestion of contaminated food and water

Prevalence in warm climates with poor sanitation

Highest risk in South Asia
Typhoid Vaccine

- 2 options
- Vivotif (Oral – live vaccine)
  - 5 years immunity
- Typhim Vi – (Parenteral)
  - 2 years immunity
- Need to complete 1 week before exposure
- 80% effective
Polio

- Remains endemic in Afghanistan, India, Nigeria, and Pakistan
- Angola, Chad, Congo and Sudan re-established transmission in 2009
- 2010 large outbreak in Tajikistan, followed by Kazakhstan, Russia, and Turkmenistan
Polio Vaccine

- Immunity thought to wane over time
- 1 time adult booster recommended if traveling to endemic country or surrounding country
Food and Water Safety
Water

• Boiling – most effective
  – pathogens killed at 131^0 F
• Iodine
  – does not kill cryptosporidium
• Chlorine dioxide
  – 30 minute wait time
• Filters
• UV pen
If using bottled water, ensure source is reliable.
Food Precautions

• Peel it, boil it, cook it, or leave it
• Fresh fruits and vegetables must be peeled
• Food should be hot
• E-coli killed at 160°F
• Avoid soft cheeses / unpasturized dairy products
Travelers Diarrhea

- 55% of travelers report some degree of illness
- Most common cause is e-coli
- Followed by campylobacter, shigella, salmonella
Treatment

• Antimotility drugs (loperimide)
• Ciprofloxacin
  – Campylobacter resistance developing in Thailand and India
• Azithromycin
  – For quinolone resistance and pregnancy
• Rifaximin
  – For non-invasive e-coli strains
TD Prophylaxis

- **Rifaximin**
  - Manufacture recommended
  - CDC does not advise
- **Pepto bismol**
  - two 262mg tabs 4 times a day
- **Probiotics**
  - Colonize the gut and prevent pathogens from infecting
  - No definitive proof of effectiveness
Mosquitoes
Yellow Fever

- Illness can range from Flu-like to hepatitis and hemorrhagic fever
- >50% fatal in non-immune travelers
- Transmitted from person to person via mosquito vector

*Aedes aegypti*
the yellow fever mosquito
Yellow Fever Map Africa

Yellow Fever Vaccination

- **Recommended**
- **Generally Not Recommended**
- **Not Recommended**

* Yellow fever (YF) vaccination is generally not recommended in areas where there is low potential for YF virus exposure. However, vaccination might be considered for a small subset of travelers to these areas who are at increased risk for exposure to YF virus because of prolonged travel, heavy exposure to mosquitoes, or inability to avoid mosquito bites. Consideration for vaccination of any traveler must take into account the traveler’s risk of being infected with YF virus, country entry requirements, and individual risk factors for serious vaccine-associated adverse events (e.g., age, immune status).
Yellow Fever Vaccine

- Internationally regulated
- Documentation of vaccine may be required
- Need to receive from a licensed provider
- Required every 10 years
- Must be given 10 days prior to exposure
Japanese Encephalitis

- Transmitted between mosquitoes and domesticated pigs/wading birds
- Human are incidental hosts
- Rare with international travelers
- Usually asymptomatic
- 30% fatal if progress to encephalitis
- 50% with residual neurological deficits
Japanese Encephalitis Risk Area

- **Japanese Encephalitis Risk Areas**
- **Areas with No Known Japanese Encephalitis Risk**
JE Vaccine

- 2 doses (0, day 28)
- Need both doses for immunity
- Complete 1 week prior to exposure
- Recommended for adventure travel and those with rural destinations
- Usually seasonal
Malaria

- 225 million cases worldwide with 781,000 deaths
- In Africa, 1 child dies every 45 seconds
- Natural immunity develops over years of exposure
- Western traveler’s are at great risk
Chemoprophylaxis

• Atovaquone/proguanil (Malarone)
  – Take daily
  – Most expensive
  – Best for short trips
  – Cannot be used in pregnancy

• Mefloquine (Lariam)
  – Take weekly
  – Vivid dreams
  – Resistance in SE Asia
Chemoprophylaxis

• Doxycycline
  – Take daily
  – Cheap
  – Increases sun sensitivity

• Chloroquine
  – Take weekly
  – Resistance is common
  – OK in Central America
Insect Precautions

• Mosquito repellent with Deet (30% to 50%)
• Premetherin
• Mosquito nets
• Long sleeves/ long pants
• Avoid evening and night time exposures
• Avoid perfumes/scents
Meningococcal
Meningococcal Vaccine

- 1 dose
- Offers protection for 2 to 3 years
- Required for pilgrimage to Mecca
- Indicated for African meningitis belt during dry season
- African or other countries with current epidemic or epidemic prone
Rabies
Rabies Vaccine

• 3 dose series (0, day 7, day 21 or 28)
• Need all 3 for immunity
• Will still need to seek treatment if exposed
• Travelers not typically at risk
Rabies Exposure

- 90% of human exposure is from dogs
- Need to begin treatment within 24 hours
- If vaccinated, will need 2 doses of vaccine (0, day 3)
- Unvaccinated, will need RIG and 4 doses of vaccine (0, 3, 7, and 14)
Injury Statistics

• Traveler’s 10x more likely to die from injury than infectious disease
• 32% traffic deaths
• 18% homicide
• 14% drowning
• 2% infectious disease
State Department Tips

• Leave copies of itinerary, passport, credit cards with family member
• Check medical insurance for overseas coverage
• Consider evacuation insurance
• Make yourself inconspicuous
• Know the nearest source of health care
High Altitude
Acclimatization

• Rarely occurs below 8,000 ft (2500m)
• Increased breathing/urination critical in acclimatization
• Avoid anything that will depress respiration
• Avoid stimulants and caffeine
• Increase fluid intake/stay hydrated
AMS

- Everyone is at risk
- Headache (not normal)
- Loss of appetite
- Dizziness
- Insomnia
- HACE
- HAPE
Body Fluid Exposures

• Hepatitis B
  – Check antibody for hepatitis B
  – HBIG if not immune
• Hepatitis C
  – No option for prophylaxis
  – Treatment after sero converting
• HIV
Exposure to HIV

- Begin PEP within 4 hours for optimal prophylaxis
- Can start up to 72 hours after
- Monitor toxicity labs throughout course
- Contact PCP/occupational health clinic immediately upon return
Conclusion

• Take necessary precautions before departing
• Be informed of your risk
• Be safe
• Have fun
Plan your next trip before you get home