

Travel Vaccines: Know Before You (Or Your Patients) Go

Thursday, December 13, 2018
12:00 PM ET



Agenda

Welcome and Introductions

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Travel Vaccines: Know Before You (Or Your Patients) Go

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Questions and Answers

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Disclosures

- **Wilbur Chen** (presenter) served as an advisor or consultant for Medicago, Valneva, Janssen, and Lumen Biosciences, and received grants for research from GlaxoSmithKline and Serum Institute of India Private Limited
- **Marla Dalton** (NFID staff, content reviewer) owns stock, stock options, patent, or other intellectual property from Merck & Co., Inc.
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Learning Objectives

At the conclusion of this activity, participants will be able to:

- Discuss the geographic epidemiology and clinical manifestations of certain pathogens encountered during travel
- Summarize current ACIP recommendations for common travel vaccines
- Identify strategies for implementation of recommendations into clinical practice



About NFID

Non-profit 501(c)(3) organization dedicated to educating the public and healthcare professionals about the burden, causes, prevention, diagnosis, and treatment of infectious diseases across the lifespan

- Reaches consumers, healthcare professionals, and media through:
 - Coalition-building activities
 - Public outreach initiatives
 - Professional educational programs (ACCME accreditation with commendation)
 - Scientific meetings, research, and training
- Longstanding partnerships to facilitate rapid program initiation and increase programming impact
- Flexible and nimble organization



Poll Question

Approximately how many patients do you see for travel-related vaccinations each year?

1. 1-5
2. 6-25
3. 26-100
4. 101-500
5. 501-1,000
6. More than 1,000



Travel Vaccines: Know Before You (or Your Patients) Go



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Protection During Travel



National
Foundation for
Infectious
Diseases

Licensed Travel Vaccines in US

- Yellow Fever
- Typhoid
- Hepatitis A
- Japanese Encephalitis
- Cholera
- Meningococcal
- Rabies
- Poliovirus
- Influenza
- Tetanus
- Measles, Mumps, Rubella
- Hepatitis B
- Pneumococcal
- Varicella
- ~~Tick-borne encephalitis~~
- ~~Anthrax~~
- ~~Smallpox~~
- ~~Tularemia~~



National
Foundation for
Infectious
Diseases

Yellow Fever (YF)

- Caused by a flavivirus
- Transmitted by mosquito bite (*Aedes aegypti*)
- Yellow fever causes 200,000 cases and 30,000 deaths each year
- Geographic Hotspots:
 - Tropical South America
 - Sub-Saharan Africa
- Seasonality:
 - South America–January-May
 - West Africa–July-October



WHO YF Risk Maps, Feb 2011

Yellow Fever: Risk & Prevention

Risk to Traveler

2-week stay for unvaccinated traveler:

- West Africa
 - 50 illnesses per 100,000¹
- South America
 - 5 illnesses per 100,000¹

Prevention

- Clothing barrier
- Insect repellent (DEET)
- Vaccination

Treatment

- There is no specific treatment, limited to supportive care

CDC Yellow Book 2014



Globally Available Yellow Fever Vaccines

Manufacturer:

- Sanofi Pasteur, France
- Institut Pasteur de Dakar, Senegal
- Bio-Manguinhos, Brazil
- FSUE Chumakov, Russia

WHO prequalify:

- 1987
- 1999
- 2001
- 2009

- **YF-Vax® (Sanofi Pasteur)**
 Live, attenuated 17D-204 strain
 Single parenteral dose, 0.5 mL
 Approved: age ≥9 months



Current Recommendations

A single primary dose is adequate for most travelers (no booster)

Booster, every 10 years:

- HIV-infected persons
- Lab workers routinely handling YF virus (if cannot measure YF-neutralizing antibodies)

Booster dose, prior to travel for:

- Women who were pregnant (regardless of trimester) when they received their initial dose of yellow fever vaccine
- Immunocompetent persons with history of Hematopoietic Stem Cell Transplantation (HSCT)
- Consider booster every 10 years:
 - High-risk (prolonged duration in highly endemic area)

CDC. MMWR. 2015;64(No. 23):647-650.



Yellow Fever Vaccine: Safety & Adverse Effects

- 10-30% mild systemic reactions
 - low-grade fever, headache, myalgia
- Hypersensitivity
 - 1.8 cases/100,000 doses
- Vaccine-associated Neurologic Disease (YEL-AND)
 - 3-28 days post-vaccination: Meningoencephalitis, Guillain- Barre Syndrome (GBS), bulbar/Bell's palsy
 - Overall: 0.8 cases/100,000 doses
 - Age 60-69: 1.6 cases/100,000 doses
 - Age ≥70: 2.3 cases/100,000 dose
- Vaccine-associated Viscerotropic Disease (YEL-AVD)
 - Viremia with multi-organ involvement (63% case fatality)
 - Overall: 0.4 cases/100,000 doses
 - Age 60-69: 1.0 cases/100,000 doses
 - Age ≥70: 2.3 cases/100,000 doses

CDC Yellow Book 2014



Typhoid

- Human host-restricted bacterial pathogen
- *Salmonella enterica* subspecies *enterica* serovar Typhi (*S. Typhi*)
 - 22 million illnesses and 200,000 deaths per year
- Associated with poor sanitation and lack of access to clean water
- **World-wide distribution**
 - **High Incidence** >100 cases / 100,000 person years
 - **Medium** 10-100 cases / 100,000 person years
- **Highest risk: Southern Asia (6-30x > than other regions)**
- **No seasonality**



Bull WHO 2004; 82:346-353



Typhoid: Prevention & Treatment

Prevention:

- Safe food and water
- Vaccination

Treatment:

- Rehydration
- Prompt antibiotics
 - First line: fluoroquinolones (FQ), 3rd generation cephalosporins, azithromycin
 - Beware: FQ resistance in SE Asia!
- Surgery-ileal perforation
- Corticosteroids



Globally Available Typhoid Vaccines

Parenteral vaccine:

- **Typhoid Vi capsular polysaccharide**
 - Typherix[®] (GSK), Typhim Vi[®] (SP), Typbar[®] (Bharat), Shantiph (Shanta), Typho-Vi[®] (Bio-Med), Zerityph[®] (Boryung), Typhevac[®] (Shanghai)
- **Typhoid Vi conjugates**
 - Peda-Typh[™] (Bio-Med, India), Typbar-TCV[®] (Bharat, India)
- **Combination: ViCPS+Hepatitis A**
 - Hepatyrix[®] (GSK), Vivaxim[®] (SP)

Oral vaccine:

- Live Attenuated
 - Vivotif[®] (PaxVax, Inc.)



Typhoid Vaccines Available in US

Typhim Vi® (Sanofi Pasteur)

- Purified Vi capsular polysaccharide (Vi PS)
- Single parenteral dose, 0.5 mL
- Approved: age ≥2 years
- Booster: every 2-3 years



Vivotif® (PaxVax, Inc.)

- Live, attenuated bacterial strain (Ty21a)
- 4 oral doses, spaced alternating days
- Approved: age ≥6 years
- Booster: every 5-6 years



Typhoid Vaccine: Protection

Typhim Vi®

- Nepal field trial (1986-1988):¹
75% protection against typhoid fever
- South Africa field trial (1985-1988):²
55% protection against typhoid fever
- India field trial (2004-2006):³
61% protection

Meta-Analysis (2007):⁴
55% cumulative efficacy at 3 years

Vivotif®

- Egypt field trial (1978-1981):⁵
96% protection
- Chile field trials (1982-1987):
59% protection, two-doses⁶
67% protection, three-doses⁷
- Indonesia field trial (1986-1989):
79% protection, three-doses⁸

Meta-Analysis (2007):⁴
51% cumulative efficacy at 3 years

Protection in US travelers using either vaccine (2008-11):⁹
80% vaccine efficacy

1. NEJM 1987; 317: 1101-4
2. Lancet 1987; 2:1165-9
3. NEJM 2009; 361: 335-44

4. Vaccine 2007; 25: 7848-57
5. JID 1982; 145: 292-5
6. Vaccine 1990; 8: 81-4

7. Lancet 1987; 1: 1049-52
8. Lancet 1991; 338: 1055-9
9. Vaccine 2014; 32: 3577-9



Typhoid Vaccine: Safety & Adverse Effects

Typhim Vi®

- 70-77% injection site pain, mild
- 42% headache
- 35% fatigue
- 1% fever

Vivotif®

- 6% abdominal pain
 - 6% nausea
 - 5% headache
 - 3% fever
 - 3% diarrhea
 - <2% vomiting
 - 1% skin rash
- No transmission recorded
 - No vaccinemia or reversion events reported



Hepatitis A Virus (HAV)

- Positive-stranded RNA virus
Picornaviridae family, *Heparnavirus* genus
- Primarily human host-restricted pathogen
- Transmission: fecal-oral
- **World-wide distribution**
Highest risk: Sub-Saharan Africa, South Asia
Intermediate risk: Central and South America
- No seasonality



Globally Available HAV Vaccines

Inactivated vaccines:

- Monovalent
Avaxim® (SP), Havrix® (GSK), Vaqta® (CSL/Merck)
- Combination: HAV+ViCPS
Hepatyrix® (GSK), Vivaxim® (SP)
- Combination: HAV+HBV
Twinrix® (GSK)

Live attenuated vaccine:

- H2 & LA-1 strains (China)



HAV Vaccines Available in US



Havrix® (GSK)	Vaqta® (Merck)	Combined A/B Twinrix® (GSK)
<ul style="list-style-type: none"> ▪ Inactivated ▪ Approved since 1995 	<ul style="list-style-type: none"> ▪ Inactivated ▪ Approved since 1996 	<ul style="list-style-type: none"> ▪ Inactivated ▪ Approved since 2001
Adults: 1 mL intramuscular (IM) at 0 & 6-12 months	Adults: 1 mL IM at 0 & 6-18 months	Adults (≥18 years of age): 1 mL IM Children: not "approved"
Children (1-18 years): 0.5 mL IM at 0 & 6-12 months	Children (1-18 years): 0.5 mL IM at 0 & 6-18 months	Standard Dosing: 0, 1, 6 months Accelerated Dosing: 0, 7, 21-30 days; 12 months

- Since 2006, routine vaccination of children age ≥1 year¹
- Hepatitis A vaccine should be administered to infants age 6-11 months traveling outside the US when protection against hepatitis A is recommended²

¹ CDC. MMWR. 2006;55(No. RR-7):1-23. ² ACIP Meeting February 2018.



HAV Vaccines: “Off Schedule”

Delayed second dose:

- Adults, two doses, 18 months apart: 100% protective antibody after second dose¹
- Children, two doses, 4-8 years apart: 100% protective antibody after second dose²

1. Vaccine 2003; 21: 3208-11
2. J Travel Med 2004; 11:120-1



Japanese Encephalitis (JE)

- Caused by a flavivirus
- Transmitted by mosquito bite (*Culex* species)
- ~68,000 clinical cases each year¹ (underreporting²)
- Most important cause of viral encephalitis in Asia and Western Pacific
- **Geographic: Asia and Western Pacific**
- **Seasonality: rainy and monsoon season**



1. Bull WHO 2011; 89:766-74
2. Vaccine 2000; 18: 1-25



JE: Risk & Prevention

Risk to Traveler

- Endemic incidence, 1.8 cases per 100,000 residents
- Estimated incidence among unvaccinated travelers to Asia <1 case per 1 million travelers
- 7 documented US traveler cases (1973-2011)

Prevention

- Clothing barrier
- Insect repellent (DEET)
- Vaccination

Treatment

- There is no specific treatment, limited to supportive care

Bull WHO 2011; 89:766-74
CDC Yellow Book 2014



Globally Available JE Vaccines

Inactivated vaccine:

- Vero cell, alum-adsorbed (Intercell) – North America, Australia, and Europe
- Vero cell (Beijing-1 strain)-Japan

Live attenuated vaccine (Chengdu Institute of Biological Products):

- SA₁₄-14-2 strain-China, India, Nepal, Korea, Sri Lanka, and Thailand

Live chimeric vaccine:

- YF 17D backbone-Australia and Thailand



JE Vaccine in US

Ixiaro® (Intercell)

- Inactivated, whole-virus
- Vero cell culture-derived
- SA₁₄-14-2 attenuated strain



10/05/2018 FDA approval
of accelerated schedule

▪ Approved (2009):

Age 2 months to <3 years

Two intramuscular doses, 0.25 mL, spaced 28 days

Age ≥3 years

Two intramuscular doses, 0.5 mL, spaced 28 days

For adults age 18-65 years, two doses may be spaced 7 days

Booster dose after 12-24 months

JE-Vax (inactivated mouse brain-derived vaccine) is no longer produced, expired
May 2011



JE Vaccine: Adverse Effects

Adults:

- Injection site pain (25%)
- Headache (20%)
- Myalgia (10%)

Better tolerated than JE-Vax

Children (1-3 years):

- Fever (20%)

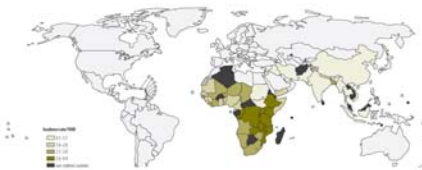
Infants (1-11 months):

- Injection site redness (15%)
- Fever (20%)
- Irritability (15%)
- Diarrhea (10%)



Cholera

- Caused by *Vibrio cholerae*
- Rapidly dehydrating diarrhea
- 1.4-4.3 million cases and 28,000-142,000 deaths annually¹
- **Transmission: sewage contamination**
- **Responsible for: pandemics, epidemics, and endemics**



¹ WHO, July 2015



Globally Available Cholera Vaccines

Oral inactivated monovalent

- Dukoral® (Valneva)

Oral inactivated bivalent

- ShanChol® (Shantha)
- Euvichol® (Eubiologics)

Oral, live monovalent

- Vaxchora™ (PaxVax, Inc.)



Cholera Vaccine in US

Vaxchora® (PaxVax, Inc.)

- Live, attenuated O1 classical Inaba strain (CVD 103-HgR)
- Single-dose
- Approved age 18-64 years
- Licensed June 10, 2016
- Advisory Committee on Immunization Practices (ACIP) Recommendation (June 22, 2016)¹
 - Cholera vaccine (CVD 103-HgR, Vaxchora®) is recommended for adult (18-64 years old) travelers to an area of active cholera transmission
 - No booster recommended at this time



¹ CDC. MMWR. 2017;66(No. 18):482-485.

Cholera: High Risk Populations

- Travelers visiting friends and relatives
- Long-term travelers (e.g., expatriates)
- Travelers who do not follow safe food and water precautions and personal hygiene (e.g., adventure backpacking)
- Healthcare, aid, relief, and response workers with direct contact with cholera patients

Risk of poor outcome with cholera:

- Travelers without ready access to rehydration therapy and medical care
- Blood type O
- Pregnant
- Immunocompromised
- Chronic cardiovascular or renal disease



Meningococcal Meningitis

- Caused by *Neisseria meningitidis*
- 6 major serogroups: A, B, C, W-135, X, and Y
- Incidence: (cases/100,000 population)
 - Americas, Europe, Australia 0.3-3/100K
 - Sub-Saharan Africa **10-1,000/100K**

“Meningitis Belt”

Dry season (December–June)
5-10% of population are carriers
Serogroup A >> C, X, W



CDC Yellow Book 2016



Meningococcal Vaccines in US

- Quadrivalent conjugate (Menactra®, Menveo®)
- Monovalent, group B (Bexsero®, Trumenba®)



Meningococcal Vaccines for Travel

To Saudi Arabia (within 3 years of travel)

- Age >2 years 1 dose, quadrivalent meningococcal conjugate vaccine
- Age 3 m–2 years 2 doses, Men A containing vaccine

To endemic & hyperendemic area, during dry season

- Age ≥2 m quadrivalent meningococcal conjugate vaccine
- Booster dose after 5 years
- Children 9-23 months, two doses 8-12 weeks apart

CDC. MMWR Surveill Summ. 2013; 62:1-22
CDC Yellow Book 2016



ACIP References

- Yellow Fever: MMWR 2015;64(No. 23): 647-650
- Typhoid: MMWR 2015; 64 (No. 11): 305-308
- Hepatitis A: MMWR 2007; 56(No. 41): 1080-1084
- Japanese Encephalitis: MMWR 2013; 62(No. 45): 898-900
- Cholera: MMWR 2017; 66(No. 18): 482-485
- Meningococcal: MMWR 2013; 62(No. 2): 1-27



Safe Travels!

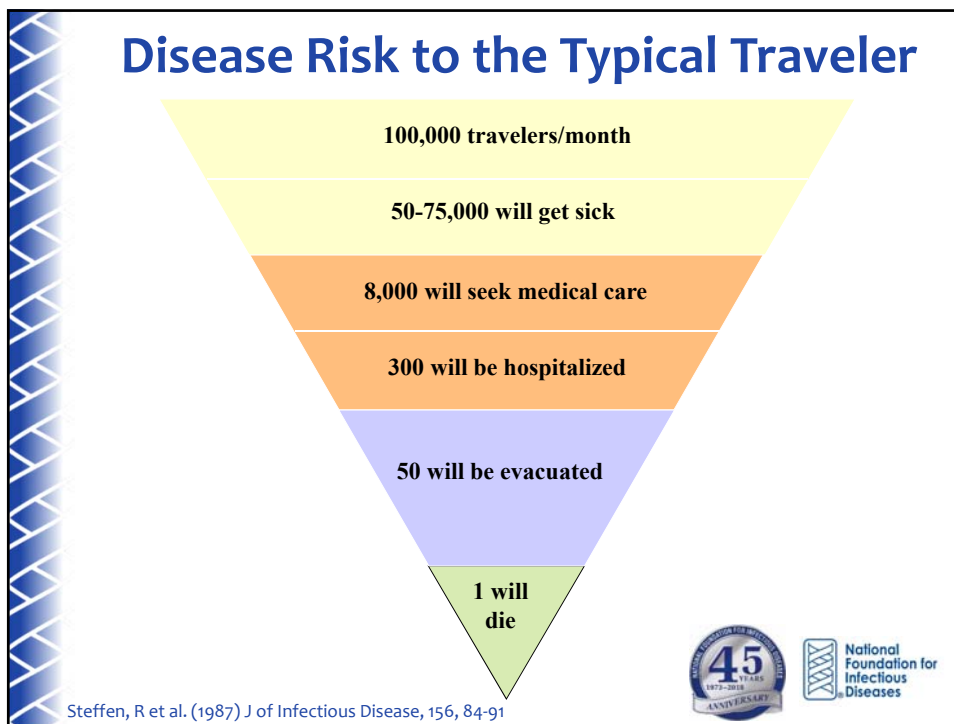


Travel Vaccines: Know Before You (or Your Patients) Go



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Travel-Related Diseases

Route of Transmission	Disease/Condition
Animals	Rabies , Avian influenza, Leptospirosis
Coughing/sneezing	Influenza, Measles, Meningococcal meningitis , Tuberculosis
Food and/or water	Cholera, Hepatitis A, Polio , Travelers' diarrhea, Typhoid fever
Insect bites	African trypanosomiasis, American trypanosomiasis (Chagas disease), Chikungunya, Crimean-Congo fever, Dengue fever, Filariasis, Japanese Encephalitis , Leishmaniasis, Malaria, Mayaro virus, Onchocerciasis, Oropouche fever, Ross River fever, Tick bite fever, West Nile virus, Yellow fever , Zika
Sex/blood/needles	HIV, Hepatitis B , Hepatitis C, STIs
Soil	Cutaneous Larva migrans
Swimming/bathing	Schistosomiasis
Environmental/other	Altitude illness, Jet lag, Motion sickness, Thromboembolism

Insert organization logo/letterhead Patient ID: _____
Date: _____

Travel History Form

Name: _____ DOB: _____ Marital Status: _____ Sex (tick): M F
 Telephone Home: _____ Work: _____ Mobile: _____
 Home Address: _____
 City: _____ State: _____ ZIP: _____ Email: _____
 Who is your primary care physician? _____ Telephone: _____
 Employer: _____ Primary Insurance: _____
 Does your insurance cover Health care overseas? Yes No Not sure Medical evacuation? Yes No Not sure

Travel Plans
(List additional information on back of form if needed)

Purpose of Trip (check all that apply) Vacation Business Study Other: _____
 Planned activities: _____
 Will you be: Yes No
 Visiting ONLY urban areas? If no, explain: _____
 Visiting friends and/or family?
 According to high altitude?
 Working with potential exposure to bodily fluids (e.g., medical or dental work)?
 Working with exposure to animals?
 Potentially having new sexual partners?

Countries and Cities in order of visits	Arrival Date	Departure Date

Accommodations: (Check all that apply)
 _____ Resorts or large hotels _____ Small hotels _____ Cruise Ship _____ Private Home _____ Camp _____ Dormitory
 _____ Youth Hostel _____ Other (list): _____
 Have you traveled outside the United States before? Yes No
 If yes, when and where? _____

Health History

Medical Conditions (such as heart disease, stroke, cancer, arthritis, diabetes, hypertension, psychiatric illness) _____

 Surgical History: _____
 Allergies (include medications, foods (incl. egg), environmental allergens such as ragweed): _____

 Intolerances or other reactions (include side effects from previous medications, such as nausea, constipation, sleepiness, dizziness, stomach upset, etc.): _____

Adapted from Jeffrey A. Goad, PharmD, University of Southern California School of Pharmacy

Insert organization logo/letterhead Patient ID: _____
Date: _____

Vaccination History

Were you born in the United States? Yes No If no, where? _____

Have you received the following immunizations?

Hepatitis A	<input type="checkbox"/> Yes	When? _____	<input type="checkbox"/> No	<input type="checkbox"/> Not sure
Hepatitis B	<input type="checkbox"/> Yes	When? _____	<input type="checkbox"/> No	<input type="checkbox"/> Not sure
Meningococcal Meningitis	<input type="checkbox"/> Yes	When? _____	<input type="checkbox"/> No	<input type="checkbox"/> Not sure
Mumps/Mumps/Rubella	<input type="checkbox"/> Yes	When? _____	<input type="checkbox"/> No	<input type="checkbox"/> Not sure
Polio	<input type="checkbox"/> Yes	When? _____	<input type="checkbox"/> No	<input type="checkbox"/> Not sure
Tetanus	<input type="checkbox"/> Yes	When? _____	<input type="checkbox"/> No	<input type="checkbox"/> Not sure
Typhoid	<input type="checkbox"/> Yes	When? _____	<input type="checkbox"/> No	<input type="checkbox"/> Not sure
Yellow Fever	<input type="checkbox"/> Yes	When? _____	<input type="checkbox"/> No	<input type="checkbox"/> Not sure
Japanese Encephalitis	<input type="checkbox"/> Yes	When? _____	<input type="checkbox"/> No	<input type="checkbox"/> Not sure
Other				

Have you ever had an adverse reaction to an immunization? Yes Explain: _____ No

Medications

Are you currently using corticosteroids, receiving cancer treatment, or other immunosuppressive therapy? Yes No

Prescription medications: List all current prescription medications and condition treated. (include birth control pills):

Prescription Medication	Reason for Use/Medical Condition

Nonprescription products: List all over-the-counter, herbal, homeopathic products, vitamins, supplements etc.)

Nonprescription medications	Reason for Use/Medical Condition

Women Only

Are you pregnant now, or do you suspect that you might be pregnant? Yes No
 Do you have plans to become pregnant in the next 6 months? Yes No
 Date of your last menstrual period: _____

Questions/Concerns:
 List any additional questions or concerns you have about your travel: _____

Adapted from Jeffrey A. Goad, PharmD, University of Southern California School of Pharmacy

History Form Used to Gather Information About Travel

- Evaluation of risk and hazards associated with:
 - **Who** will be traveling (age, gender, health/medical and vaccination history)?
 - **Where** (country(ies), urban/rural)?
 - **What** will they be doing when they get there?
 - **Why** are they traveling?
 - **When** (departure date, duration and season of travel)?
 - **How** will they be traveling and living while there?



Content of Pre-Travel Health Consultation

- Immunizations needed
- Chemoprophylaxis needed
- Destination planning-Education
 - Food/water precautions
 - Travelers' diarrhea management
 - Vector-borne diseases prevention
 - Sexual activity/needles/tattoos-STIs/HIV
 - Motion and altitude sickness prevention
- General travel info
 - Visa and passport requirements
 - Embassy locations, political and social environment
- Medical Evacuation information
- Travel supplies
- Travel first aid kits
- Vaccine Information Statements
- Document intervention in the medical record
- Update the patient's vaccine record or international certificate of vaccination



What if Traveler Cannot Locate an Immunization Record?

- Ask previous provider(s), day care, schools
- Check immunization information system(s)
- Reconstruct history
 - Childhood vaccination?
 - What were common vaccines at the time?
 - Traveler may have had some diseases, such as chickenpox
 - Born before 1957 for measles and 1980 for Varicella-Zoster Virus (VZV)
 - Recent immunizations
 - Influenza, Tdap, other
- Do titers if time allows
 - Hepatitis A and B, VZV, Measles, Mumps, and Rubella (MMR), Rabies
- When in doubt, vaccinate
 - Duplicated doses might mean a sore arm, but that is preferable to being susceptible to fatal diseases



Anatomy of a Travel Consult

5 min

- Review Travel History Form
- Review vaccines: Routine, Recommended, Required
- Discuss medical evacuation insurance, Smart Traveler Enrollment Program (STEP), safety/security, and fit for travel

10 min

- Basic preventative measures
- Food/water and vector borne
- Special itineraries: altitude, motion sickness, or jet lag

15 min

- Itinerary specific disease prevention by route of transmission
- Travelers' diarrhea
- Malaria (if applicable)



Itinerary Variables

- **Where and when**
 - Countries/Regions
 - Urban vs. rural
 - Season
 - Length of time in each area
 - Departure date




For example:

Neisseria meningitidis transmitted from December-June in Sub-Saharan Africa





Itinerary Variables




- **What and Why**
 - Purpose and nature of the trip
 - Visiting friends and family
 - Adventure/backpacking
 - Humanitarian work
 - Tourism
 - Business
 - Study abroad
- Activities
 - High altitudes
 - Working in the medical or dental field
 - Working with animal exposure
 - Potential new sexual contacts



For example:
Volunteer in a South African HIV clinic may need hepatitis B vaccine


Itinerary Variables

- **How**
 - Modes of transportation
 - Type of accommodations
 - Air conditioning/screens in “good” hotels
 - Dorm, home-stay, camping
 - Adventurous behavior








Settings




- Medical Clinics
 - Family Medicine, Internal Medicine, etc.
 - Student health center
 - Employee health
 - Public health
- Community Pharmacies







Immunization





Medication



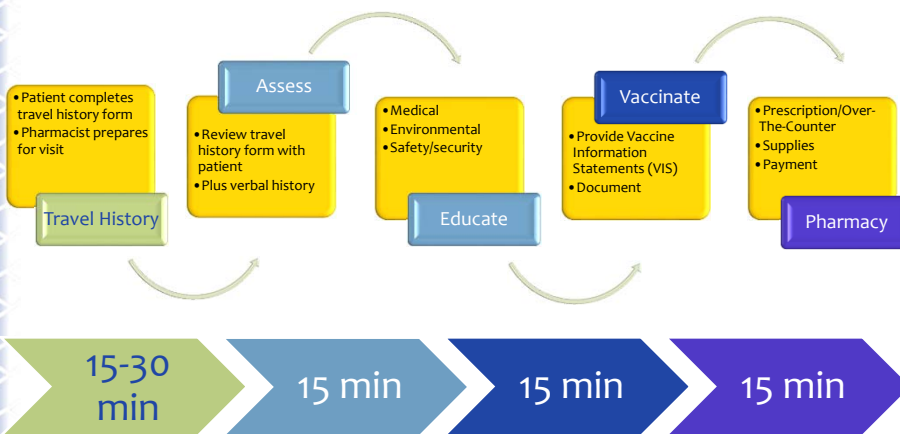
Supplies





Consultation

Travel Clinic Flow



Total Time = ~1 hour/patient

Post-Graduate Training/Credentialing

- Credentialing exams
 - Certificate of Knowledge in Travel Health (CTH®)¹
 - First offered in 2003, given every year
 - Currently over 2,500 CTH holders from 67 countries
 - Physicians, Pharmacists, and Nurses
 - Certificate of Knowledge in Clinical Tropical Medicine and Travelers' Health (the CTropMed® program)
- Body of Knowledge
 - Scope and extent of knowledge required for professionals working in the field of travel medicine
 - Serves as template for education and training courses
- Education
 - International Society of Travel Medicine (ISTM) Travel Medicine Review and Update Course
 - American Pharmacists Association (APhA) Pharmacy-Based Travel Health Services Training
 - NFID Clinical Vaccinology Course (11/16-17/19 www.nfid.org/cvc)
- Diploma programs

¹ Landry P. 2018. *J Trav Med.* 25(1)



Becoming a Yellow Fever Vaccination Center

- CDC maintains a registry of authorized YF vaccination centers
 - Vaccine manufacturer will only ship to authorized centers
- YF vaccination documentation
 - International Health Regulations (IHR) of the World Health Organization (WHO)
 - International Certificates of Vaccination or Prophylaxis (ICVP)
 - Must use the official “uniform stamp”
- The state health department determines the process for becoming an authorized center and who can administer
 - CDC does NOT authorize providers
 - The state health department decides what professionals can or cannot apply and/or administer the vaccine

CDC. wwwnc.cdc.gov/travel/page/yellow-fever-registry-faq.htm#notcert



Documentation

- Immunization Record
 - Update patient's yellow card
 - Enter into immunization information system if possible
- Travel Clinic Encounter
 - Progress note
 - Template more efficient
 - Send to healthcare provider if known

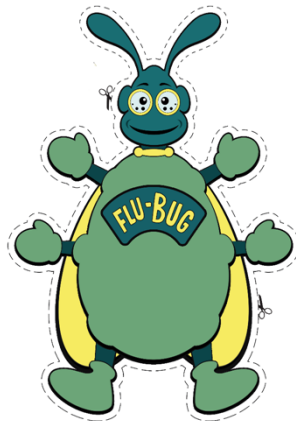


Resources

- Government
 - CDC (The Yellow Book): wwwnc.cdc.gov/travel/page/yellowbook-home
 - WHO: www.who.int/ith/en/
- Travel warnings and consular information
 - US State Department: <https://travel.state.gov/content/travel/en/international-travel.html>
- Vaccines
 - ACIP, Immunization Action Coalition (IAC)
- Commercial
 - GIDEON, Travelcare, Travax, TropiMed, etc.
- Outbreaks and surveillance
 - ProMED: www.promedmail.org
 - WHO: www.who.int/csr/don/en/
 - GeoSentinel Alerts: myistm.istm.org/memberonlyresources/geosentinelalerts



Questions & Answers



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