

Packing Prevention

The 411 on Travel
Vaccines

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Objectives

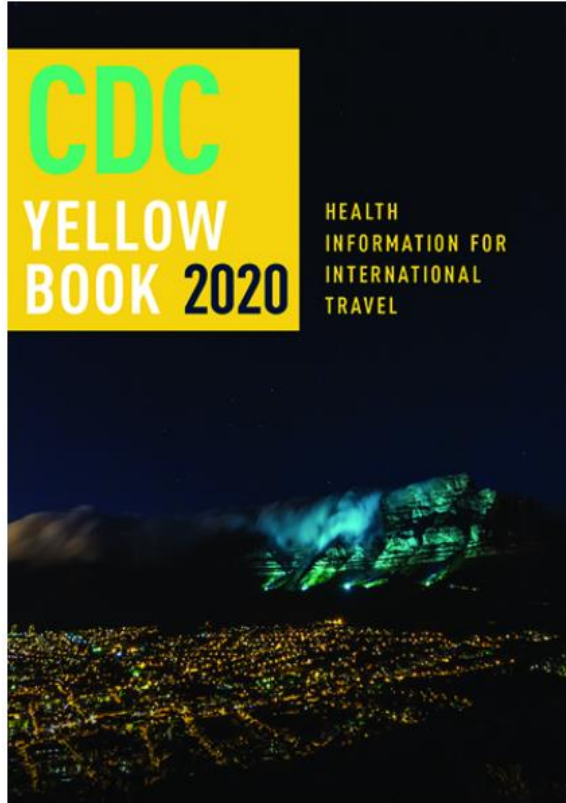
- List 2 recommended travel vaccines
- Identify how Typhoid is contracted
- Identify the meningitis belt

Pre Travel Considerations

- Important considerations:
 - Prior immunizations
 - Itinerary
 - Exposure
 - Refer to appropriate Travel Clinic



How do you know what vaccines are needed for travel?



- The CDC Health Information for International Travel (AKA-The Yellow Book)
<https://wwwnc.cdc.gov/travel/page/yellowbook-home>
- www.cdc.gov/travel
- www.Michigan.gov/immunize
- www.who.int

Travel Vaccines



Recommended:

- Tdap/Td
- Hep A/B
- MMR
- Polio
- Influenza
- Typhoid
- Japanese Encephalitis
- Rabies
- Cholera
- Dengue Fever

Required:

- Yellow Fever
- Meningococcal

Tdap/Td



- Omnipresent in the environment worldwide
- 38,000 people died from tetanus in 2017.
 - Most in Asia and Africa
- Worldwide, there are an estimated 24.1 million cases of pertussis and about 160,700 deaths per year
- Vaccination provides 10 years of protection
- Booster
 - >10 years since last dose or if wound occurs and vaccination is greater than 5 years old

Hepatitis A

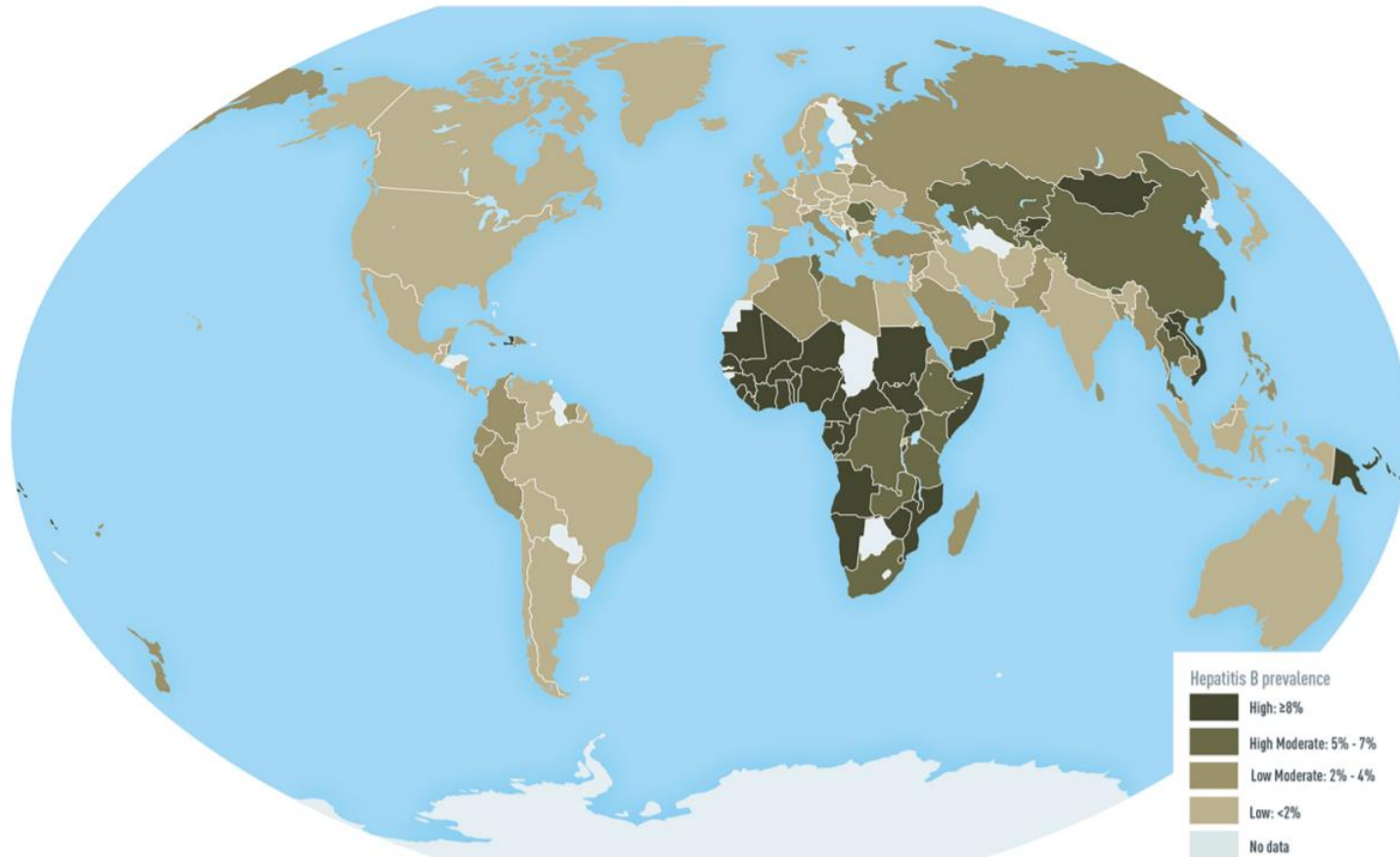


- Worldwide prevalence
- Fecal/oral transmission
 - Associated with poor hygiene or sanitation
- Given IM in 2 doses
 - 6-11 months of age traveling to countries outside of the US for which protection against Hep A is recommended
 - Doesn't count towards primary series
 - Covered by the VFC program for eligible infants
 - >12 months old – 2 doses

Hepatitis B



- Transmitted by blood and body fluids
- Travelers generally low risk except:
 - Injuries that occur while traveling
 - Sexual contact
 - Drug injection
 - Piercings or tattoos
- Recommended for travel to intermediate/high risk areas
- Given IM, 3 doses
- Twinrix is the combination Hep A/Hep B vaccine



MAP 4-4. Prevalence of hepatitis B virus infection¹

Boundary representation is not necessarily authoritative.

¹ Disease data source: Schweitzer A, Horn J, Mikolajczyk R, Krause G, Ott J. Estimations of worldwide prevalence of chronic hepatitis B virus infection: a systematic review of data published between 1965 and 2013. www.thelancet.com. 2015.Vol 386.

Measles



- Almost every country
- Travel guidelines closely match general immunization guidelines
 - Immunity for travel:
 - 6-11 months old – 1 dose required (does not count in U.S.)
 - >12 months old – 2 doses required
 - Laboratory evidence of immunity
 - Born before 1957
 - Physician-diagnosed case of measles

Polio



- Fecal-oral or oral transmission
- Global Polio Eradication Initiative (GPEI)
 - Goal to eradicate polio
 - Wild polio virus: Pakistan, Afghanistan
 - Most cases of polio from these countries
- 2 vaccines worldwide: IPV and OPV
 - Only IPV in U.S.
 - Still OPV in other parts of the world
 - Rare cases of vaccine associated paralytic poliomyelitis
 - Vaccine recommended if traveling to endemic area, incomplete series

Influenza



- Every person 6 months and older, Every year
- Travelers may enter a hemisphere where there is an active influenza season occurring opposite of our Northern hemisphere season
- Give influenza vaccine through the expiration date to all
- Given IM or IN



Typhoid Fever



- Typhoid fever – acute life-threatening illness
- Caused by *Salmonella typhi*
- Humans – only source
- Acquired through fecal contamination of food and water
- An estimated 11–20 million people get sick from typhoid and between 128,000 and 161,000 people die from it every year
 - <https://www.who.int/news-room/fact-sheets/detail/typhoid>

Typhoid Vaccine

Typhim Vi®

- Capsular polysaccharide (IM)
- Ages 2 yrs. and older
- 50-80% protection
- Single 0.5ml injection
- 2 weeks before exposure
- Booster every 2 years



Typhoid Vaccine

Vivotif®

- Oral, live-attenuated
- Ages 6 yrs. and older
- 50-80% protection
- 4 pills – one every other day
- Completed 1 week before potential exposure
- Revaccination every 5 years



Japanese Encephalitis Virus (JEV)

- Most common cause of encephalitis in Southeast Asia
- Carried by mosquitoes
- Risk
 - Little risk in urban areas
 - Mostly rural areas
 - Not recommended for short-term travel to urban area



JEV Vaccine



- 1 vaccine in U.S. (Multiple vaccines available in Southeast Asian countries)
 - Inactivated Vero cell culture (JE-VC)- IXIARO
 - IXIARO is given as a two-dose series, 0, 7-28 days
 - The last dose should be given at least 1 week before travel.
 - A booster dose (third dose) should be given if a person has received the two-dose primary vaccination series one year or more previously and there is a continued risk for JE virus infection or potential for reexposure.
 - For adults and children aged 3 years or older, each dose of IXIARO is 0.5 mL. For children aged 2 months through 2 years, each dose is 0.25 mL.

Rabies

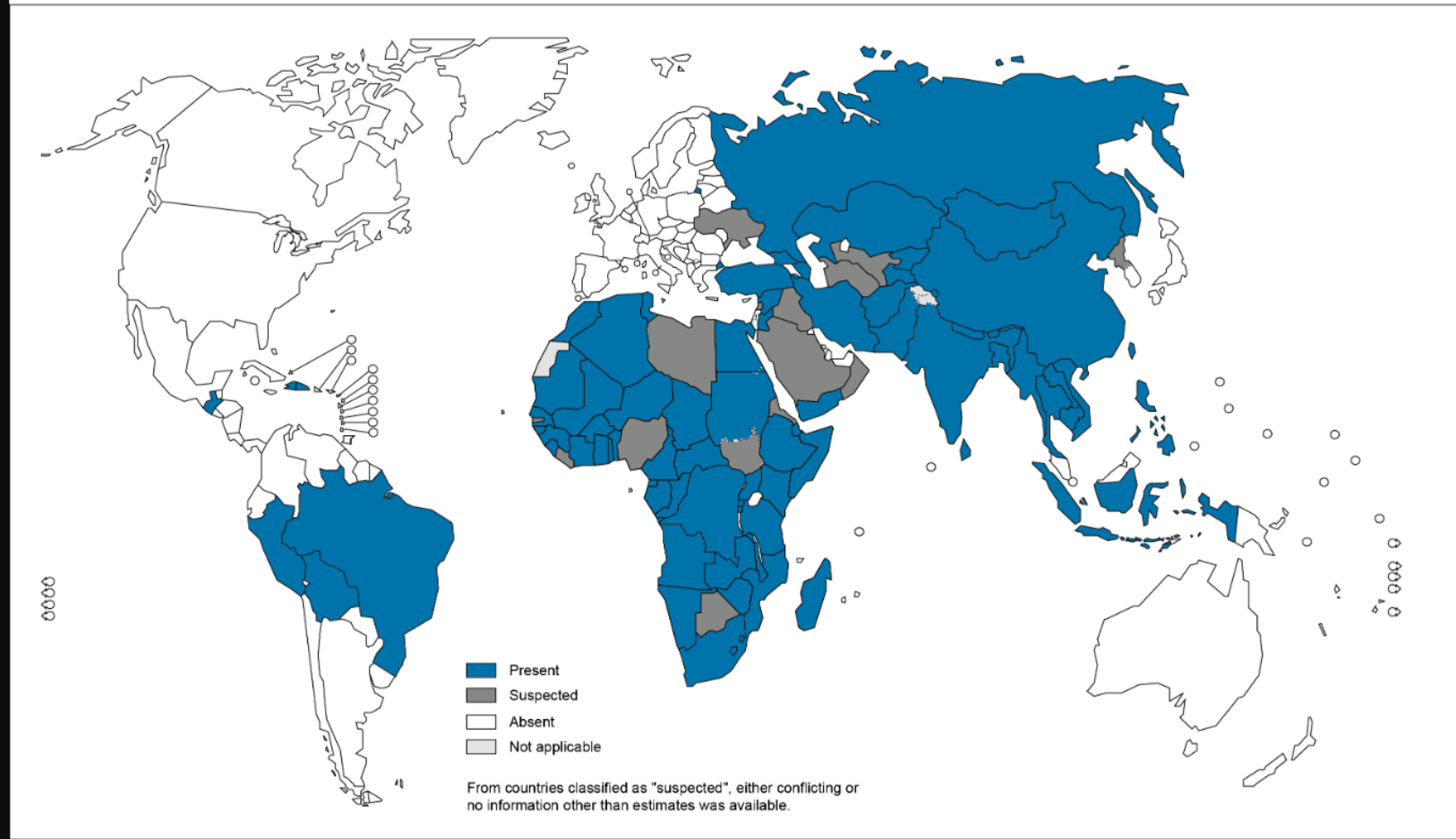


- Found globally
- Consider vaccination
 - If potential exposure to wild animals (especially dogs)
 - Prolonged exposure where endemic

Rabies Vaccine

- Pre-exposure prophylaxis
 - Series of 3 at 0, 7 and 21-28 days
 - 2 vaccines available in U.S.
 - Imovax[®]
 - RabAvert[®]
- Outside U.S. many other vaccines
 - Expense limits use

Presence of dog-transmitted human rabies based on most recent data points from different sources, 2010-2014



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement. © WHO 2015. All rights reserved

Data Source: World Health Organization
 Map Production: Control of Neglected
 Tropical Diseases (NTD)
 World Health Organization



Cholera



- Cholera is a disease spread by drinking water or eating food contaminated with cholera bacteria. Severe cholera is characterized by large amounts of watery diarrhea
- Areas with cholera:
 - **Africa:** Angola, Burundi, Cameroon, Democratic Republic of the Congo, Ethiopia, Kenya, Malawi, Mozambique, Niger, Nigeria, Somalia, Sudan, Tanzania, Uganda, Zambia and Zimbabwe
 - **Asia:** Bangladesh, India and Yemen
 - **Americas:** Haiti

Cholera Vaccine



- Licensed cholera vaccine (Vaxchora, PaxVax Corporation) is available in the United States, and is recommended by CDC for adults traveling to areas with active cholera transmission; most people do not travel to areas of active cholera transmission.
- Vaxchora prevents severe diarrhea caused by the most common type of cholera bacteria.
- Oral suspension taken at least 10 days prior to travel.
- 100 ml dose after preparation, should be disposed of as medical waste

Dengue Fever



- Vector borne – Mosquitoes
- Dengue outbreaks are occurring in many countries of the world in the Americas, Africa, the Middle East, Asia, and the Pacific Islands
- A pregnant woman already infected with dengue can pass the virus to her fetus during pregnancy or around the time of birth
- **Vaccine - Dengvaxia**
 - FDA approved in May 2019, for use in children 9-16 years of age living in high risk areas, with laboratory confirmed prior dengue virus infection
 - 3 doses
 - No ACIP recommendations currently

Meningococcal

- Meningitis Belt”
 - Sub-Saharan Africa
- Greatest risk: dry season (Dec. - June)
- Hajj pilgrimage to Saudi Arabia associated with outbreaks



Meningococcal Vaccine (MenACWY)



- Menactra[®]
- Menveo[®]
- Can be given to children as young as 2 months of age if travel is to a high-risk area, such as the Meningitis Belt
- Adults that have received a meningococcal vaccine in the past may be required to have a booster dose every 5 years if they are at continued risk
- Vaccination is required to attend the Hajj (annual pilgrimage to Mecca)

Yellow Fever

- Mosquito-borne hemorrhagic fever
- ~200,000 cases per year, 90% in Africa
- Rare fatalities in travelers since vaccine introduction
- Disease prevention: avoid mosquito bites, use of DEET, long shirt sleeves and pants and use of mosquito netting



Yellow Fever Vaccine



- Travelers must be seen at an approved Yellow Fever vaccination site
- Numerous countries will **require** proof of vaccination, at least 10 days prior to entry into the country
- Travelers itinerary should be reviewed thoroughly during the vaccination consult
- Given subcutaneously, one dose is good for life. Although, continued travel to countries with risk of Yellow Fever transmission should be reviewed with an appropriate YF clinic prior to travel
- Certain high-risk health conditions will warrant a dose every 10 years

International Certificate of Vaccination or Prophylaxis (ICVP)

INTERNATIONAL CERTIFICATE OF VACCINATION OR PROPHYLAXIS
Certificat international de vaccination ou de prophylaxie

This is to certify that ^① Jane Mary Doe ^② 22 March 1960 F United States
 Nous certifions que [name - nom] [date of birth - date de naissance] [sex - sexe] [nationality - et de nationalité]

[passport number] whose signature follows ^③ Jane Mary Doe
 [national identification document, if applicable - document d'identification nationale, le cas échéant] dont la signature suit

has on the date indicated been vaccinated or received prophylaxis against ^④ Yellow Fever in accordance with the International Health Regulations
 a été vacciné/ ou a reçu une prophylaxie à la date indiquée [disease or condition - nom de la maladie ou de l'affection] conformément au Règlement sanitaire international.

Vaccine or prophylaxis Vaccin ou agent prophylactique	Date	Signature and professional status of supervising clinician Signature et titre du professionnel de santé responsable	Manufacturer and batch no. of vaccine or prophylaxis Fabricant de vaccin ou de l'agent prophylactique et numéro du lot	Certificate valid from: until: Certificat valable à partir du: jusqu'à:	Official stamp of the administering centre Cachet officiel du centre national
^④ Yellow Fever	^⑤ 15 June 2018	^⑥ John M. Smith, MD	[Batch (or lot) #]	^⑦ 25 June 2018, life of person vaccinated	[(B)]

Current U.S. Supply of YF-Vax



- YF-Vax, the licensed U.S. vaccine, continues to be unavailable in the US.
- Sanofi Pasteur has worked with the US FDA to get Stamaril, their European produced YF vaccine approved for use in the US at selected YF vaccination sites.
- Seven sites have been offered participation in Michigan
- To find these sites, once they have been approved, please visit <https://wwwnc.cdc.gov/travel/page/search-for-stamaril-clinics>

Other Travel Considerations





Malaria

- No vaccine
- Providers must prescribe appropriate chemoprophylaxis for clients, dependent of area of travel
- <https://wwwnc.cdc.gov/travel/yellowbook/2020/travel-related-infectious-diseases/malaria>



Travelers' Diarrhea

- Travelers Diarrhea
 - Frequent handwashing and safe eating practices will reduce risk
 - Providers can prescribe an antibiotic
 - Use of anti-diarrheal products: Imodium or Lomotil

Getting Care After Travel

- Most post-travel infections present soon after travel, but incubation periods vary from weeks to years, and some are asymptomatic
- Common post-travel symptoms include
 - Fever
 - Skin and soft tissue infections
 - Persistent travelers' diarrhea



THANK YOU!

