



Travel Medicine

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Community Medicine

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Objectives

- Define travel medicine and identify its components
- List the groups of travelers who are at a special risk (infant's children, pregnant women, elderly, pre-existing illnesses, diabetics)
- State the responsibilities of travelers to prevent ill-health
- List the risk associated with international travel and related health problems
- Outline the specific preventive measures for international travelers in relation to the destination
- Enlist contents of travel kit
- Outline how to take travelers history and give advice regarding vaccination and other health precautions related to the travel destination

Define travel medicine and identify its components

What is travel medicine?

An interdisciplinary specialty concerned with prevention, early detection, and research of health problems associated with travel.

What does travel medicine do?

- Seeks to prevent illnesses and injuries occurring to **travelers** going abroad
- Manages problems arising in travelers **coming back** or coming from abroad
- Assesses impact of **tourism** on health and improve health and safety services to tourists
- Concerns about refugee and migrant health

Concerns

- International travel carries a risk for travelers, community of origin and community of destination
- The risk for travelers includes diseases, injuries and death

Types of travelers

- Tourists
- VFRs (visiting friends and relations)
- Business travellers
- Migrant workers
- Military
- Aid and Development workers
- Students
- Gap Year travel
- Asylum seekers
- Refugees
- Pilgrims

List the groups of travelers who are at a special risk

Special populations

- Elderly travellers
- Infants and children
- Pregnant women
- Travellers with chronic diseases
- Travellers with disability
- Immunocompromised traveller

Special itineraries

- Cruise ship travel
- Diving
- Extended stay
- Extreme travel
- Mass gatherings (eg. The Hajj)
- Wilderness/remote regions travel

❖ Risk depends on destination

State the responsibilities of travelers to prevent ill-health

Responsibilities of traveler

- Decide on the travel destination and timing
- Recognize and accept risk
- Visit the general practitioner prior to traveling
- Obtain travel insurance
- Adhere to the preventive precautions
- Carry medical kits and understand its use
- Assume the responsibility of the health and safety of children
- Respect people and culture in country of destination
- Visit the general practitioner upon return

Responsibility of traveler: check status of destination

Warning level 1: Practice usual precautions

Presence of usual risk for infectious diseases as diarrheal diseases and malaria

Warning level 2: Practice enhanced precautions

Presence of MERS-CoV in Arabian Peninsula

Exercise increased caution in Denmark due to terrorism (June 2019).

Warning level 3: Avoid non-essential travel

Presence of outbreak (Ebola) and adverse security situation

What level of warning do you think going to
china fall in? February 2020

Travelers' Health

Travelers Health > Travel Notices > Novel Coronavirus in China



 Travelers Health

Destinations

Find a Clinic +

Travel Notices -

Novel Coronavirus in China

Travel Advice and Resources +

Disease Directory +

Yellow Book +

Novel Coronavirus in China

Warning - Level 3, Avoid Nonessential Travel

Alert - Level 2, Practice Enhanced Precautions

Watch - Level 1, Practice Usual Precautions

Warning - Level 3, Avoid Nonessential Travel—Widespread Community Transmission

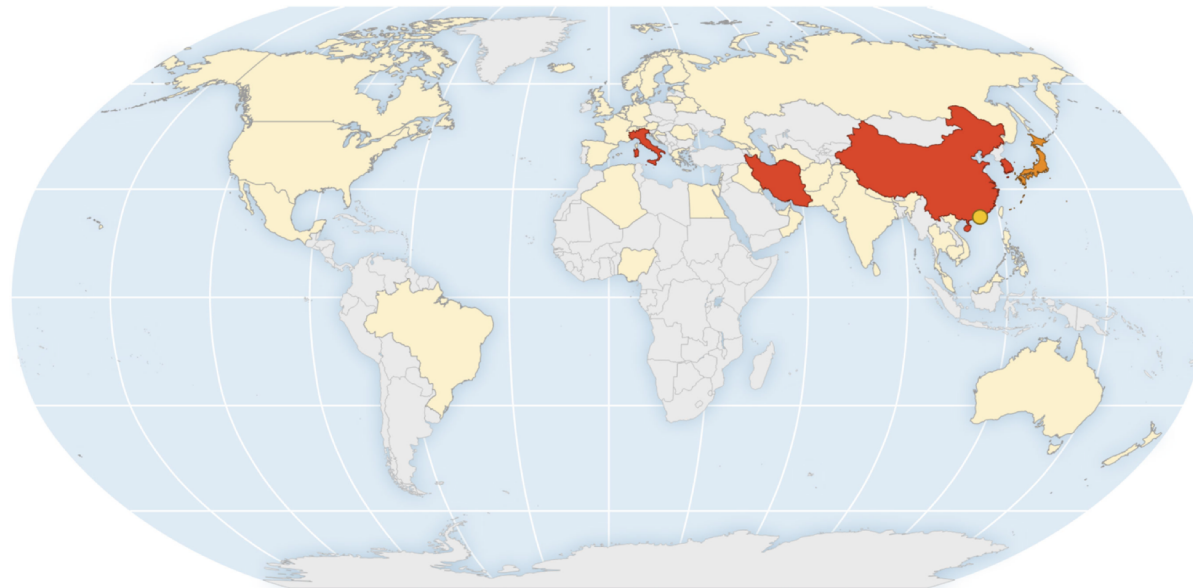
Key Points

- CDC recommends that travelers avoid all nonessential travel to the People's Republic of China (this does not include Hong Kong, Macau, or the island of Taiwan).

- Japan?
- Italy?

Coronavirus: Where The CDC Says To Avoid Travel Or Take Precautions

WARNING LEVEL 3	ALERT LEVEL 2	WATCH LEVEL 1
RECOMMENDATION Avoid Nonessential Travel	RECOMMENDATION Practice Enhanced Precautions	RECOMMENDATION Practice Usual Precautions
AFFECTING China, South Korea, Iran, Italy	AFFECTING Japan	AFFECTING Hong Kong



□ All other countries with confirmed cases

Notes

Data as of Feb. 29

Responsibility of traveler: consult general practitioner

Before departure

Timing: **4 to 6 weeks**

Purpose

- Medical evaluation
- Risk assessment
- Receive preventive interventions
- Travel advice

After arrival

- Have chronic diseases
- Spent >3 months in a developing country
- Received treatment for malaria while travelling
- Exposed to a serious infectious disease while travelling
- Experienced illness in the weeks following return (fever, persistent diarrhea, vomiting, jaundice, urinary disorders, skin disease or genital infection)

Responsibility of traveler: issue travel insurance

- Required in case of
 - Illness
 - Accident
 - Death
- Covers
 - Changes to the itinerary
 - Emergency repatriation for health reasons
 - Medical care (illness and accidents)
 - Hospitalization
 - Repatriation of the body in case of death.

Travel emergency kit

Responsibility of traveler: carry emergency medical kits

- Usual prescription medications in sufficient quantities
- Essential over the counter medicines to meet common illnesses
 - Analgesics
 - Decongestant, cold medicine, cough suppressant
 - Antibiotic/antifungal/hydrocortisone creams antacid
- First aid kits
 - Band-Aids, gauze bandages, tape, Ace wraps
 - Tweezers, scissors, thermometer
- Special items according to destination
 - Insect repellent, sunscreen, lip balm

List the risk associated with international travel
and related health problems

Risk factors and health problems facing international travelers

RISK

- Overcrowding
- Low sanitation
- Climatic change
- Vector of diseases
- Stray animals
- Unsafe roads
- Security problems

HEALTH PROBLEMS

- Aggravation of existing problem
- Food and water borne infections
- Air borne infections
- Unintentional & intentional Injuries
- Vector borne diseases
- Zoonotic diseases

Common diseases associated with international travel

Gastrointestinal

- Traveler's diarrhea
- Typhoid fever
- Hepatitis A
- Cholera
- Poliomyelitis

Respiratory diseases

- Influenza
- Meningitis
- Mers-Cov
- COVID19
- Tuberculosis

Vector borne diseases

- Yellow fever
- Malaria
- Dengue fever
- Leishmaniosis
- Japanese encephalitis

Behavior related

- Sexually transmitted diseases

Zoonotic diseases

- Rabies

Blood borne

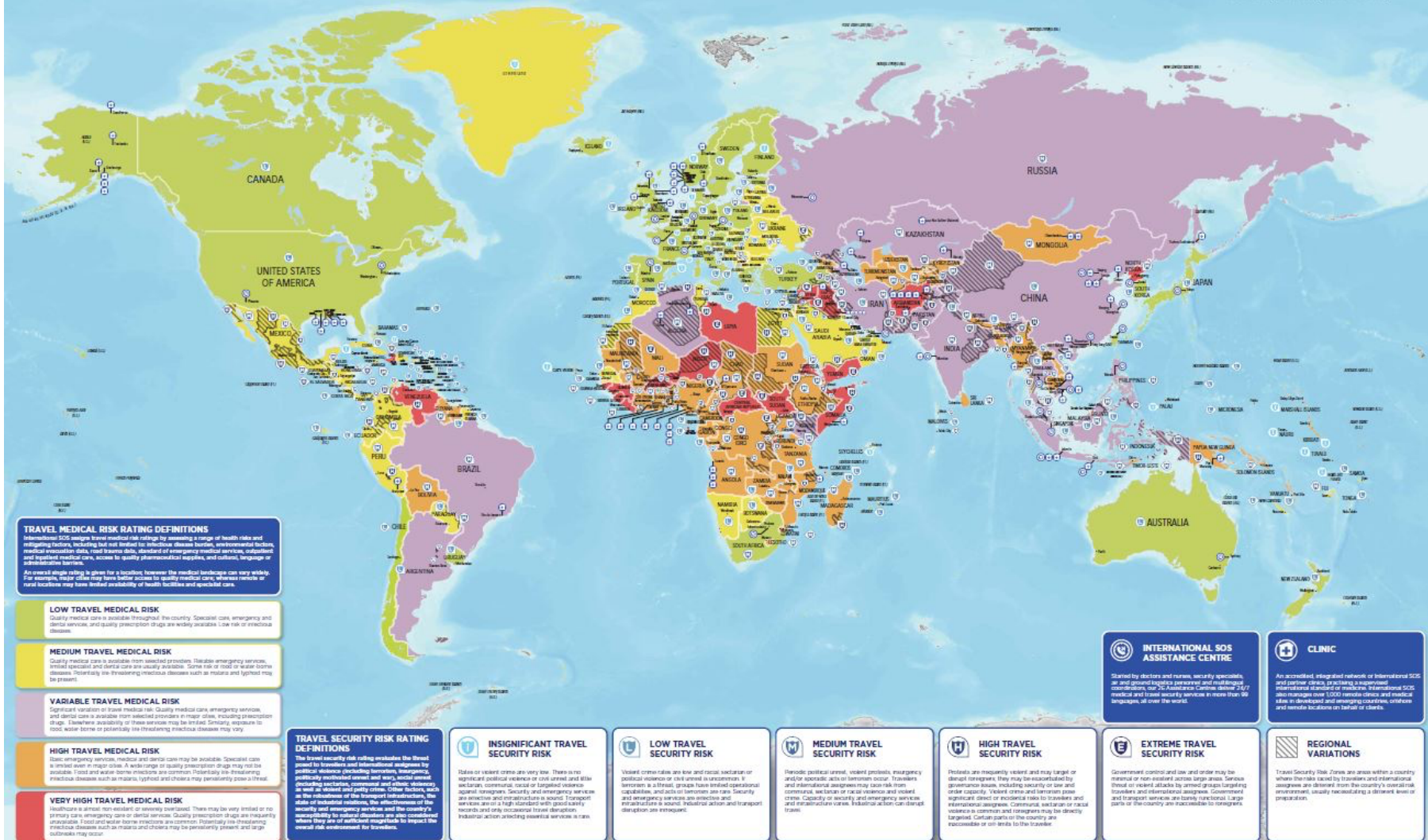
- Hepatitis B

Soil borne

- Tetanus

TRAVEL RISK MAP 2020

Global health and travel security risks review



TRAVEL MEDICAL RISK RATING DEFINITIONS
International SOS assigns travel medical risk ratings by assessing a range of health risks and mitigating factors, including but not limited to: infectious disease burden, environmental factors, medical evacuation costs, road trauma data, standard of emergency medical services, infrastructure and hospital medical care, access to quality pharmaceutical supplies, and outbreak, longevity of epidemics and pandemics.

An overall single rating is given for a location however the medical landscape can vary widely. For example, major cities may have better access to quality medical care, whereas remote or rural locations may have limited availability of health facilities and specialist care.

LOW TRAVEL MEDICAL RISK
Quality medical care is available throughout the country. Specialist care, emergency and dental services, and quality prescription drugs are widely available. Low risk of infectious diseases.

MEDIUM TRAVEL MEDICAL RISK
Quality medical care is available from selected providers. Basic emergency services, limited specialist and dental care are usually available. Some risk of food or water borne diseases, particularly life threatening infectious diseases such as malaria and typhoid may be present.

VARIABLE TRAVEL MEDICAL RISK
Significant variation in travel medical risk. Quality medical care, emergency services, and dental care is available from selected providers in major cities, including prescription drugs. Elsewhere availability of these services may be limited. Secondary exposure to food, water borne or potentially life threatening infectious diseases may vary.

HIGH TRAVEL MEDICAL RISK
Basic emergency services, medicine and dental care may be available. Specialist care is limited even in major cities. A wide range of quality prescription drugs may not be available. Food and water borne infections are common. Potentially life threatening infectious diseases such as malaria, typhoid and cholera may occasionally pose a threat.

VERY HIGH TRAVEL MEDICAL RISK
Medicine is almost non-existent or severely overstated. There may be very limited or no primary care, emergency care or dental services. Quality prescription drugs are infrequently available. Food and water borne infections are common. Potentially life threatening infectious diseases such as malaria and cholera may be persistently present and large outbreaks may occur.

TRAVEL SECURITY RISK RATING DEFINITIONS
The travel security risk rating evaluates the threat posed to travellers and international assignees by political, religious, ethnic, terrorism, kidnapping, politically motivated unrest and other social unrest, domestic terrorism, civil unrest, violence as well as organized and petty crime. Other factors, such as the treatment of the foreigner community and the stability and emergency services and the country's accessibility to international destinations are also considered where they are of sufficient importance to impact the overall risk environment for travellers.

INSIGNIFICANT TRAVEL SECURITY RISK
Stable or violent crime are very low. There is no significant political violence or civil unrest and little sectarian, communal, racial or targeted violence against foreigners. Security and emergency services are effective and infrastructure is sound. Transport services are of a high standard with good safety records and only occasional travel disruption. Industrial action affecting essential services is rare.

LOW TRAVEL SECURITY RISK
Violent crime rates are low and racial, sectarian or political violence or civil unrest is uncommon. If terrorism is a threat, groups have limited operational capabilities, and acts of terrorism are rare. Security and emergency services are effective and infrastructure is sound. Industrial action and transport disruption are occasional.

MEDIUM TRAVEL SECURITY RISK
Periodic political unrest, violent protests, emergency and/or sporadic acts of terrorism occur. Travellers and international assignees may face risk from communal, sectarian or racial violence and violent crime. Capacity of security and emergency services and infrastructure varies. Industrial action can disrupt travel.

HIGH TRAVEL SECURITY RISK
Protests are frequently violent and may target or disrupt foreigners. They may be exacerbated by government issues, including security or law and order capacity. Violent crime and terrorism pose significant direct or incidental risks to travellers and international assignees. Communal, sectarian or racial violence is common and foreigners may be directly targeted. Certain parts of the country are inaccessible or un-safe to the traveller.

EXTREME TRAVEL SECURITY RISK
Government control and law and order may be minimal or non-existent across large areas. Serious threat of violent attacks by armed groups targeting travellers and international assignees. Government and transport services are heavily restricted. Large parts of the country are inaccessible to foreigners.

REGIONAL VARIATIONS
Travel Security Risk Zones are areas within a country where the risks faced by travellers and international assignees are different from the country's overall environment, usually necessitating a different level of preparation.

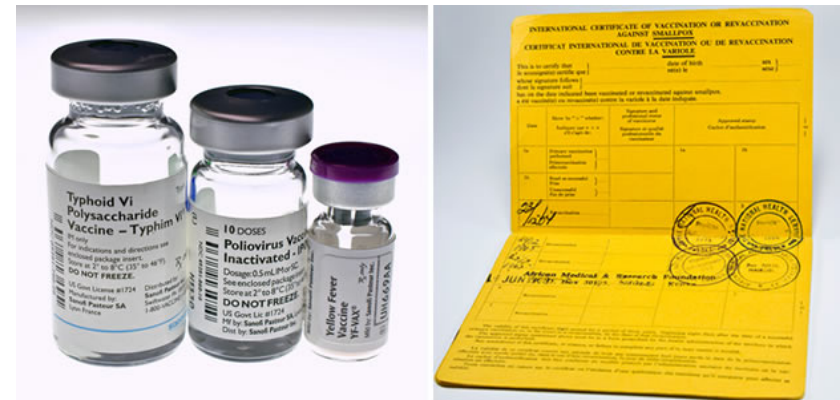
INTERNATIONAL SOS ASSISTANCE CENTRE
Staffed by doctors and nurses, security specialists, and ground support personnel and multilingual coordinators, our 24/7 Assistance Centres deliver 24/7 medical and travel security services in more than 95 languages, all over the world.

CLINC
An accredited, integrated network of International SOS and partner clinics, practicing a supervised international standard of practice. International SOS also manages over 1,000 remote clinics and medical hubs in developed and emerging countries, and medical hubs in developed and emerging countries, and remote locations on behalf of clients.

Outline the specific preventive measures for international travelers in relation to the destination

Immunization

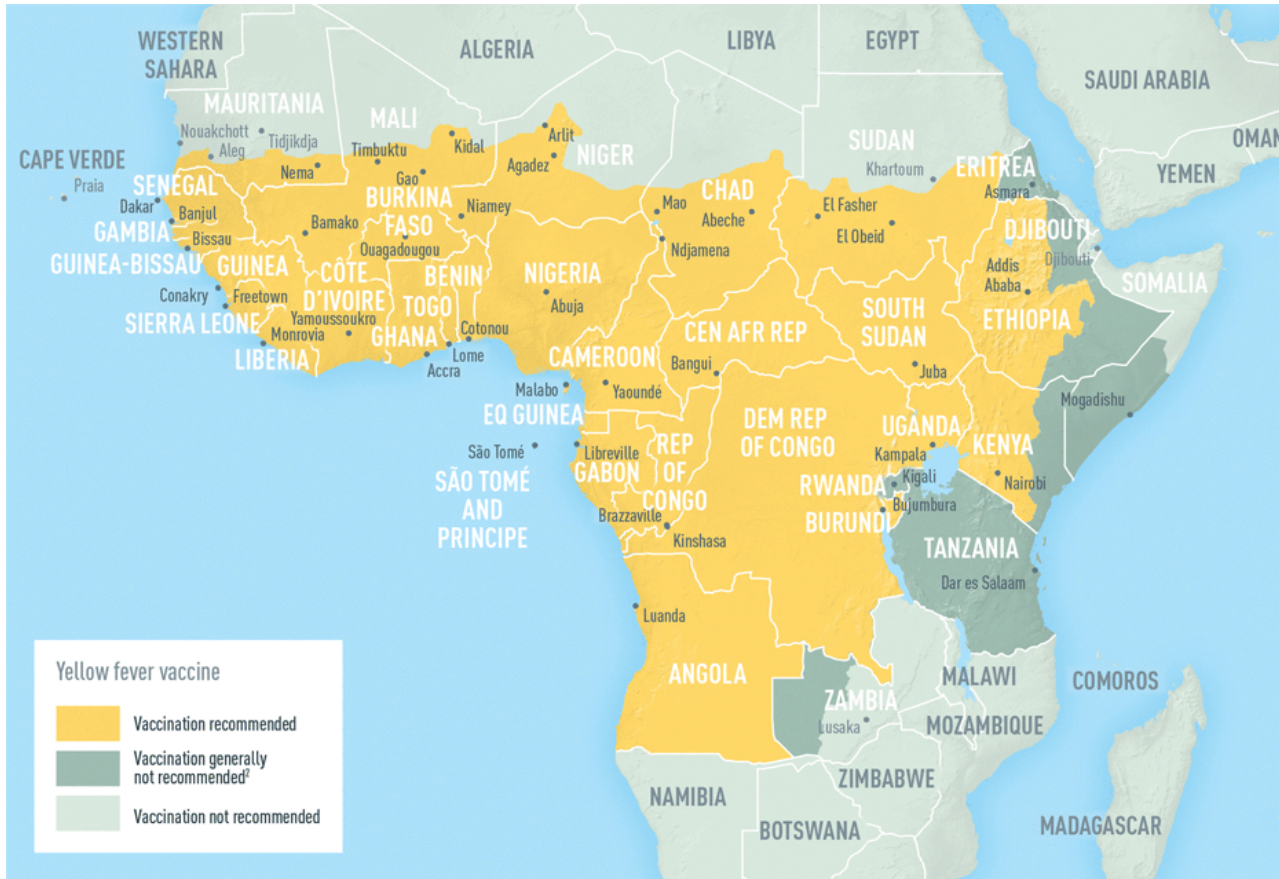
- Routine
 - Childhood immunizations
- Recommended
 - According to risk of infection
- Required
 - For entry



Required immunizations

- Yellow fever (international health regulation)
- Meningococcal meningitis: by Saudi Arabia for Hajj and Umrah and seasonal workers.
- Polio: by Pakistan and Afghanistan

Yellow fever



Yellow fever vaccine

Required for travelers to a country under the **International health regulations**.

Recommended: for travelers to **endemic** area.

Table 3-25. Countries that require proof of yellow fever vaccination from all arriving travelers¹

Angola	Gabon
Benin	Ghana
Burundi	Guinea-Bissau
Cameroon	Liberia
Central African Republic	Mali
Congo, Republic of the	Niger
Côte d'Ivoire	Rwanda
Democratic Republic of Congo	Sierra Leone
French Guiana	Togo



Yellow fever vaccine

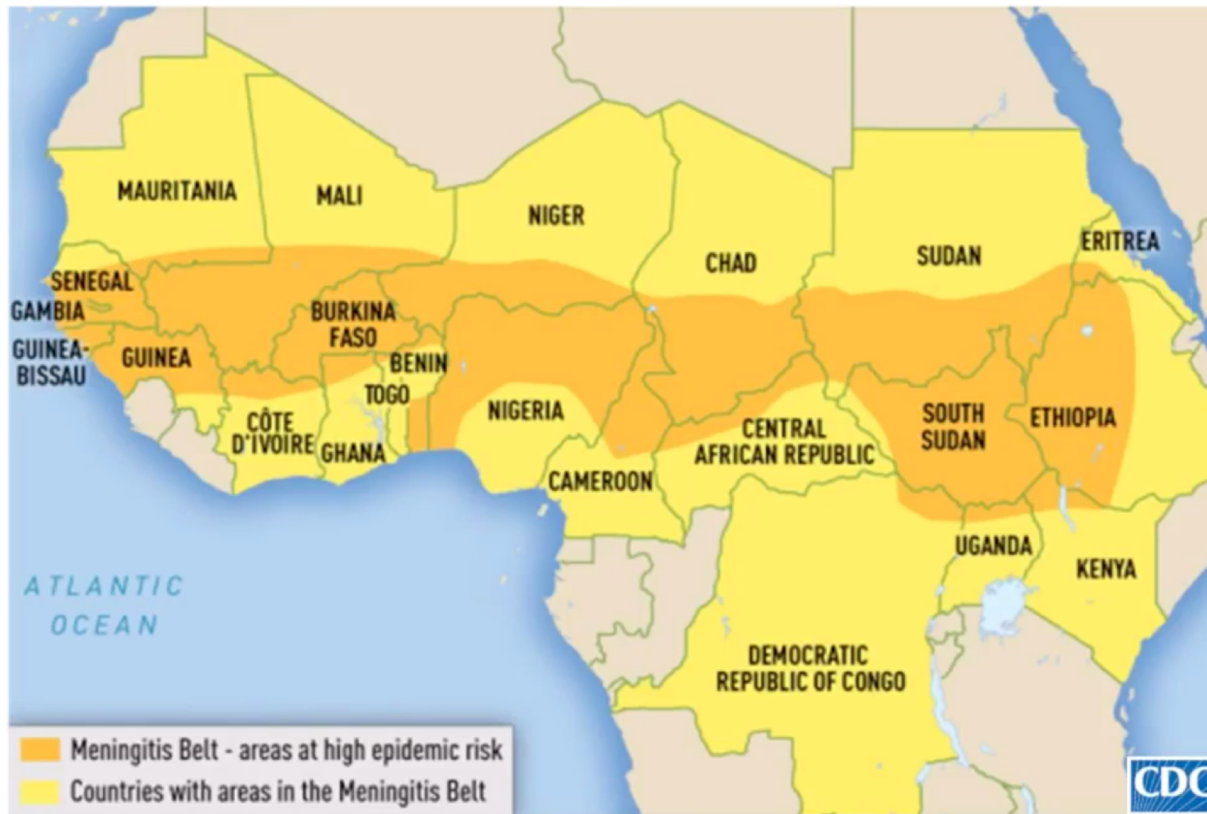
- Live attenuated virus vaccine
- Single subcutaneous injection
- Immunity starts after 10 days
- Valid for 10 years

Not recommended for

- Infants < 9 months
- Immune compromised patients
- Pregnant women
- Egg allergies
- HIV-positive individuals

Meningitis belt

Meningococcus



Meningococcal meningitis

- **Required:** by Saudi government for **Hajj** or Umrah.
- **Recommended:** for travelers to **endemic** area.

Risk:

- Sub-Saharan Africa (seasonal)
- Saudi Arabia (Hajj)
- Crowded student dormitory situations

Meningococcal vaccine

- Single dose (injection)

Protection

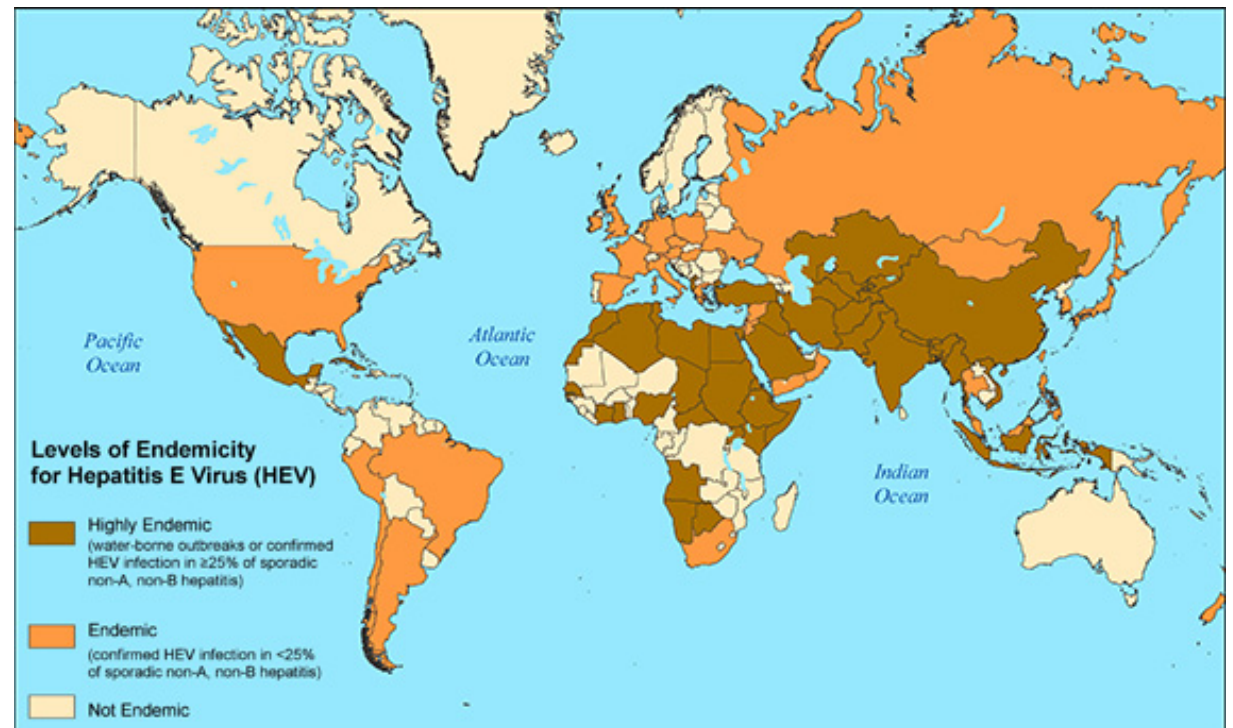
- Protection is for 3–5 years in adults and older children
- Not effective for children below 2 years

Recommended immunizations (according to risk)

- Hepatitis A, B
- Typhoid
- Cholera
- Poliomyelitis
- Japanese encephalitis
- Rabies

Hepatitis A

- Endemic in many developing countries
- High mortality in elderly and pregnant women.
- Prevention by food, water, personal hygiene and immunization



Hepatitis A vaccine

- **Two** doses of **inactivated** vaccines

Protection

- 14 – 20 years in children
- 25 years among adults

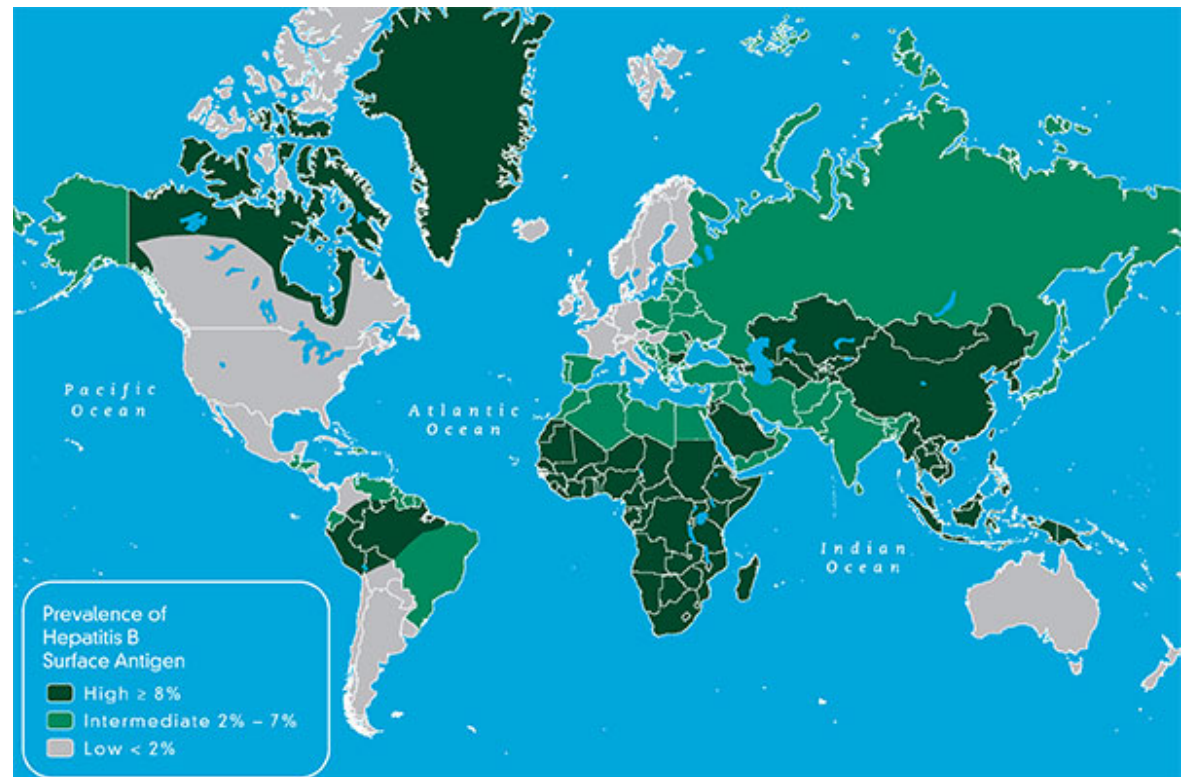
Recommended

- Travelers to the developing countries
- 2 years and older

Hepatitis B

Transmission: Blood-borne, sexual contact

Prevention: Avoid risk factors, immunization

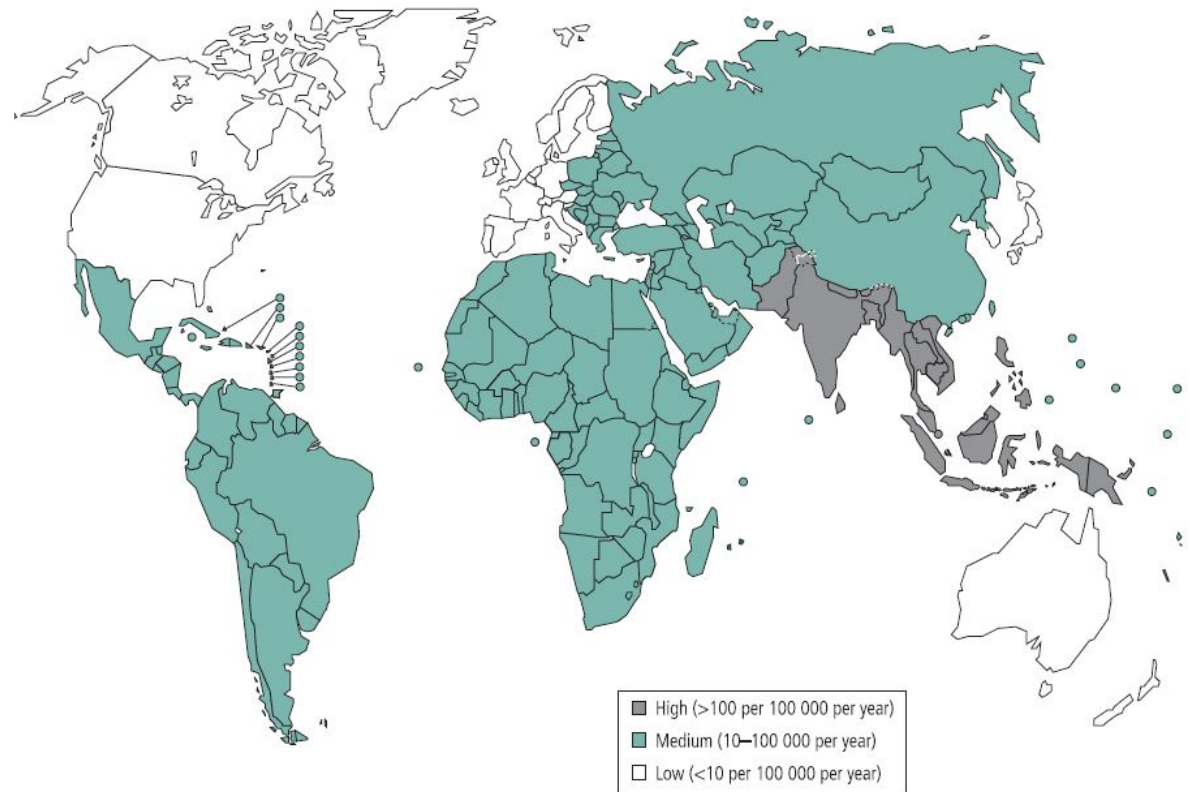


Hepatitis B vaccine

- **Recombinant** vaccine given by intramuscular **injection**
 - Monovalent or combined with hepatitis A (for those ≥ 18 years)
 - Regular schedule: 0, 1, and 6 month with no booster dose
 - Accelerated schedule for the combined vaccine only (FDA)
 - 0-, 7-, and 21- days
 - Booster dose at 1 year
- ❖ Recommended for travelers to endemic areas and travelers with special risk

Typhoid

- Transmission: by contaminated food and water
- Prevention: food, water, personal hygiene and vaccination



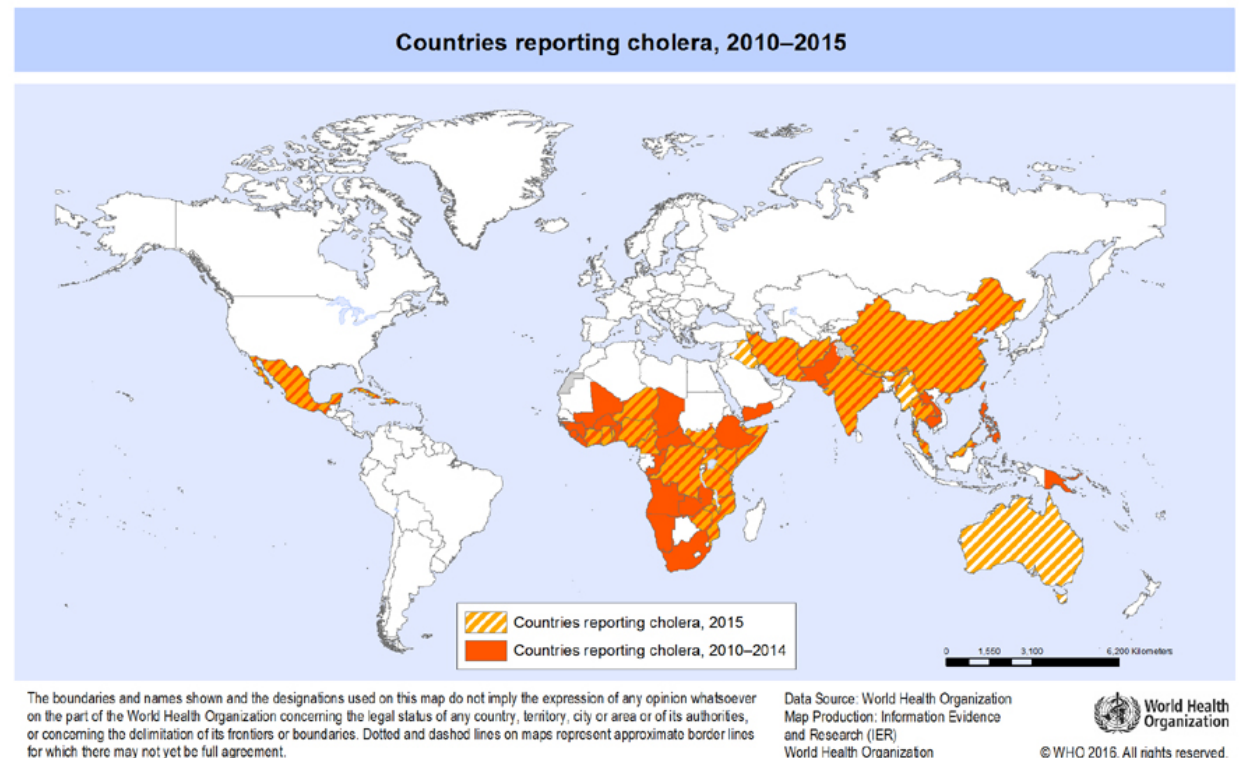
Typhoid vaccine

Live attenuated (Ty21a)

- **Oral** vaccine
 - **Four** doses (One capsule on alternating days not with antibiotics)
 - Schedule should be completed at **least one week** before traveling
 - **Booster** every 5 – 7 years
-
- Vi capsular polysaccharide vaccine (ViCPS)
 - **Single** dose **intramuscular** injection
 - At **least two weeks** before traveling
 - **Booster** at 2 years interval
-
- Both vaccines are effective but differ in duration of immunity
 - Recommended to travelers to developing countries

Cholera

- Transmission by contaminated food or water
- Prevention:
 - food, water and Personal hygiene
 - Vaccination (oral)

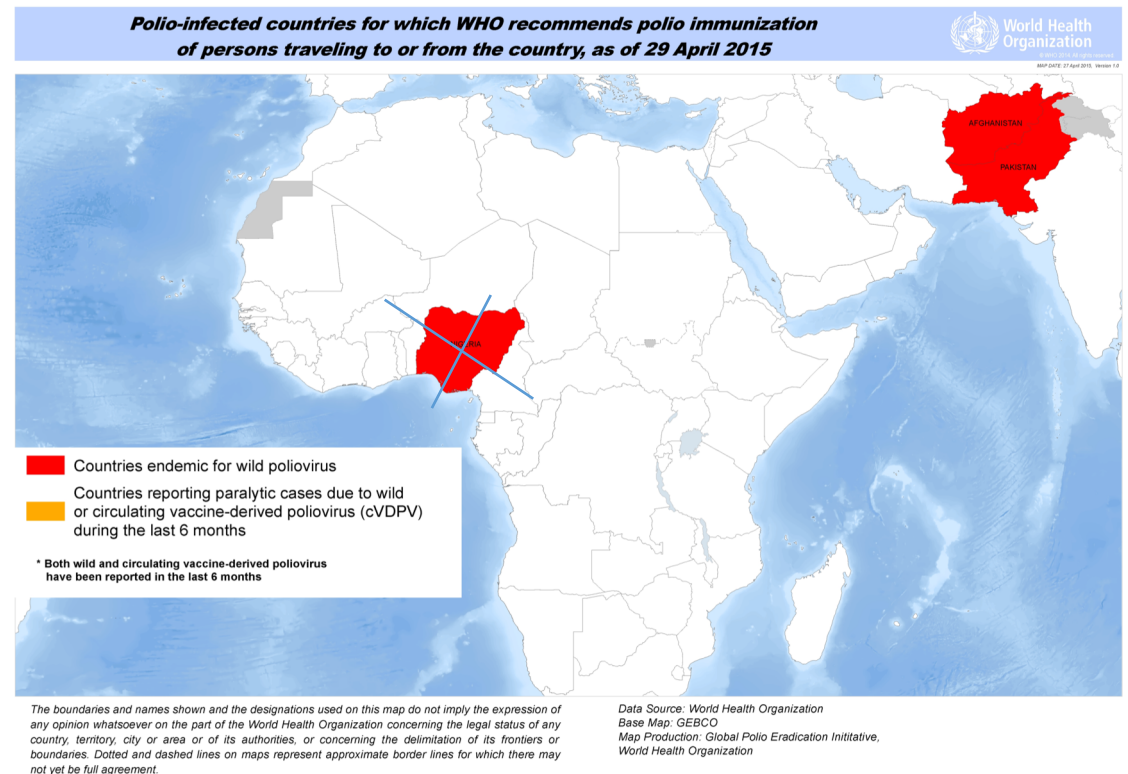


Cholera vaccine

- **Live** attenuated **oral** vaccine
- Result in 60–80% protection for 6 to 12 months
- Not effective against the new serotype O139 (spread rapidly through Asia in mid 90s)

Polio

- Transmission: contaminated food and water.
- Prevention:
 - Food, water, personal hygiene
 - Vaccination (injectable, oral)



Polio in Saudi Arabia



- In Saudi Arabia, proof of receipt of polio vaccine is **required** from travelers from endemic countries or countries vulnerable to infection or re-infection.
- (within the previous 12 months and at least 4 weeks prior to departure)
- All travelers from these countries will also receive 1 dose of OPV at border points on arrival in Saudi Arabia

Japanese encephalitis

- Transmission: by mosquito bite
- Risk increases in travelers to rural Asia or long stay travelers.
- Prevention: vector control and vaccination



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 and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Health Organization/CDC
Map Production: Public Health Information
and Geographic Information Systems (GIS)
World Health Organization



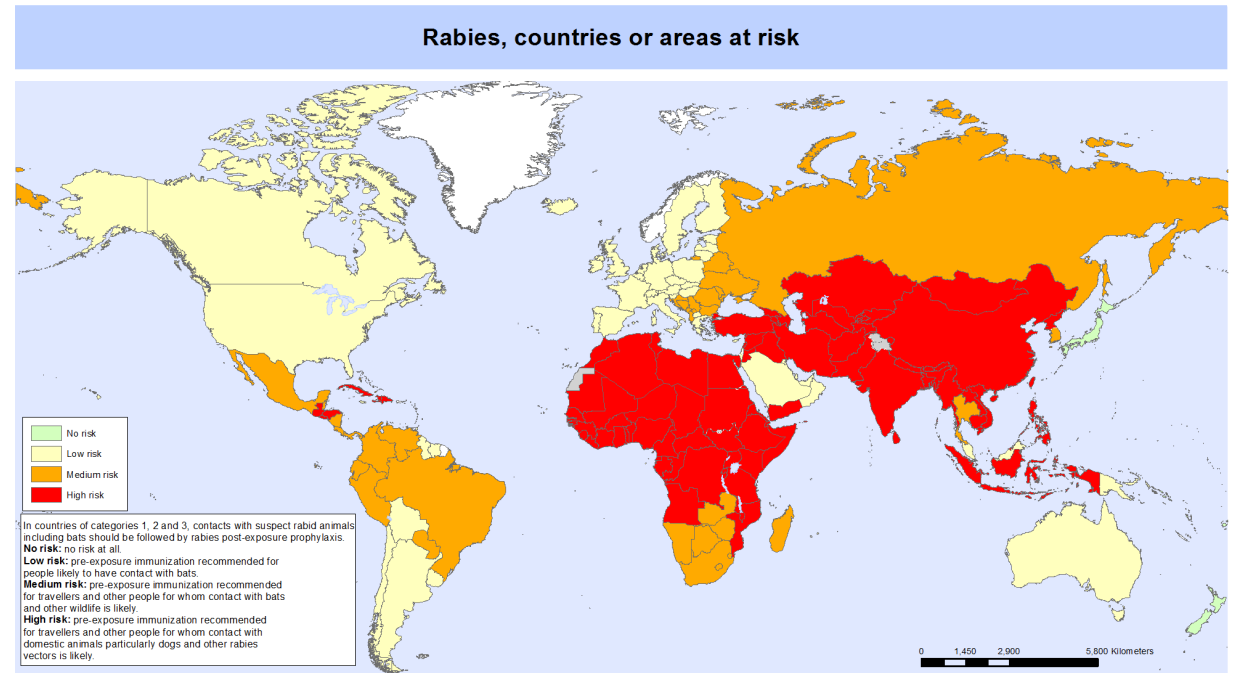
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Japanese encephalitis vaccine

- Two available vaccines
 - Given as **three** doses: 0, 7 and 30 days
 - Accelerated schedule of two doses at 0 and 7 days (80% conversion)
 - The last dose should be at **least 10** days before departure
 - Booster dose at 24 months if the risk continues
- ❖ Vaccine should be given at **least 10 days** prior to departure because of the possible **serious adverse** reactions

Rabies

- Transmission: animal bite or scratch
- Risk: occupational , travel to rabies risk countries
- Prevention; immunization
 - Preexposure
 - Post exposure
 - Immunoglobulin



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Data Source: WHO Control of Neglected Tropical Diseases (NTD)
Map Production: Health Statistics and Information Systems (HSI)
World Health Organization



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Rabies vaccine

- Inactivated vaccine
- Three doses on 0, 7, and 21 or 28 (intramuscular)

Note:

- Pre-exposure vaccine eliminates the need for rabies immune globulin (RIG) after exposure, but does not eliminate the need for additional post exposure rabies vaccinations.

Other vaccines – influenza

The risk

- Risk of exposure to the virus is **throughout the year in tropical and subtropical** areas
- The attack rate is 1.2–2.8% in travelers of **all age groups**

The vaccine

- Inactivated parenteral vaccine
- live attenuated vaccine administered by nasal spray (for healthy persons 5–49 years)

Recommended to travelers to

- tropics and subtropics at risk of serious related complications
- Southern Hemisphere from **April through September**

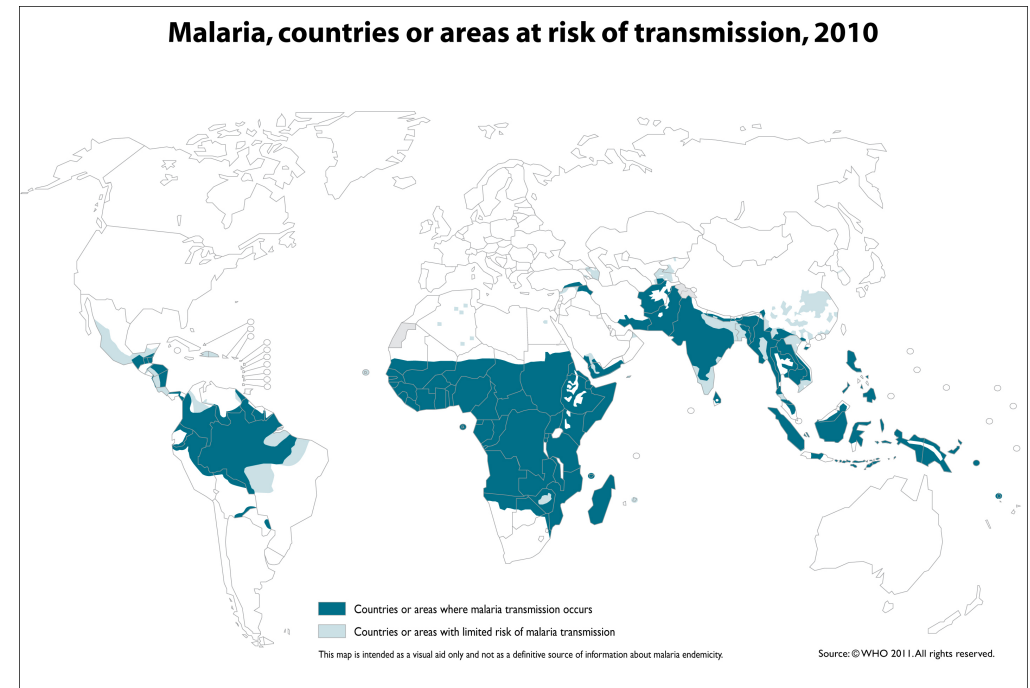
Other vaccines - Tuberculosis

- Recommended to long stay in developing countries
- Baseline tuberculin before travel with a follow up every 1 year

Chemoprophylaxis

Malaria

- Transmission by mosquito bite
- Prevention:
 - Awareness
 - Bite avoidance
 - Chemoprophylaxis
- Fever in returned traveler is a medical emergency considered malaria until proven otherwise



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Malaria chemoprophylaxis

- Proguanil (all areas)
 - 1 – 2 days before departure, daily during the journey and 7 days after return
- Doxycycline 100 mg (all areas)
 - 1 – 2 days before departure, daily during the journey and 4 weeks (prevent some additional infections e.g., Rickettsiae and leptospirosis)

Malaria chemoprophylaxis

- Chloroquine 300 mg (chloroquine sensitive areas)
1 – 2 weeks before departure, weekly during the journey and 4 weeks after return (long-stay travelers, pregnancy)
- Primaquine 30mg (predominant vivax areas and ovale)
1 – 2 days before departure, daily during the journey and 7 days after return
- Mefloquine 228mg (mefloquine sensitive areas)
2 weeks before departure, weekly during the journey and 4 weeks after return

- Mefloquine resistance has been confirmed on the Borders of Thailand with Burma (Myanmar), and Cambodia, in the western provinces of Cambodia, and eastern States of Burma between Burma and China



Other infections

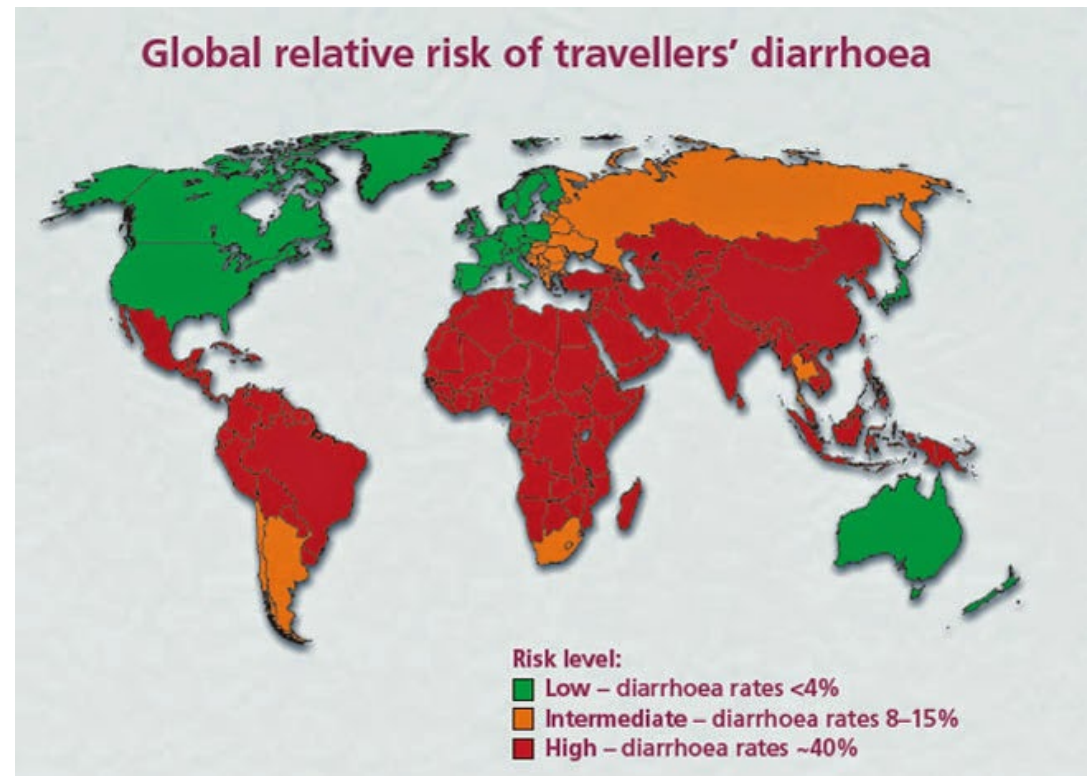
COVID19

- Transmission?
- Risk?
- Prevention?

Traveler's diarrhea

Cause:

- Bacterial (60-80%)
- Viral (10-20%)
- Parasitic (5-10%)



Traveler's diarrhea

Prevention:

- Wash It, Peel It, Cook It, or Forget It
- Only Drink Bottled Water
- Wash hands frequently



Precautions

Food and Water Precautions

- Bottled water
- Selection of foods
 - well-cooked and hot
- Avoidance of
 - salads, raw vegetables
 - unpasteurized dairy products
 - street vendors
 - ice



Environmental Precautions

- Air Travel
- Jet Lag
- Sun Protection
- Extreme Heat and Cold
 - dehydration, heat stroke
 - hypothermia, frostbite
- Altitude
- Water recreation
 - Drowning, boating & diving accidents
 - Risk of schistosomiasis or leptospirosis
 - Biological and chemical contamination



Vector Precautions

- Covering exposed skin
- Insect repellent containing DEET 25 – 50%
- Treatment of outer clothing with permethrin
- Use of permethrin-impregnated bed net
- Use of insect screens over open windows
- Air conditioned rooms
- Use of aerosol insecticide indoors
- Use of pyrethroid coils outdoors
- Inspection for ticks



Animal Precautions

- Animal avoidance
- Rabies
 - Specific animal threats
 - Medical evaluation of bites/scratches
 - Post exposure immunization and immunoglobulin
- Envenomations
 - Snakes, scorpions, spiders
 - Maritime animals



Outline how to take travelers history and give advice regarding vaccination and other health precautions related to the travel destination

Components of travel medicine

- Pre-travel
- During travel
- Post-travel (visit upon return)

Pre-travel consultation

(4-6 weeks before departure)

- Risk assessment (potential hazards)
- Risk management (advice to reduce exposure to health risks)
- Service delivery: immunization, prophylaxis or self-medications
- Empower traveler to manage their health

Risk assessment

Information about travelers

Age and sex

Medical history

Medications

Allergies

Immunization
history

Special health
needs

Information about trip

Destination

Length of stay

Mode of travel

Purpose of trip and planed
activities

Financial budget,
accommodation, insurance

Healthcare in destination

Risk management (give advise)



Food and water safety and hand hygiene



Insect bite prevention



Immunization



Malaria prevention

Risk management (give advise)



Personal safety (RTA, fall, drowning, fire, robbery, STD)



Environmental risks (sun exposure, heat, high altitude, motion sickness, DVT)



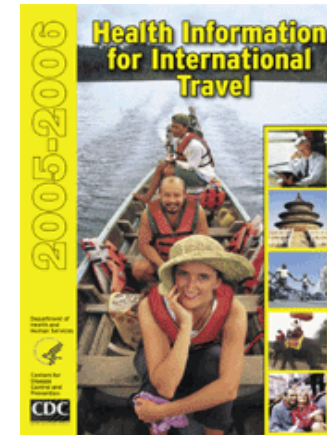
Travelers with special needs (chronic disease, children, pregnant)



Traveler's medical insurance

Travel Health Resources

- CDC Travelers' Health Website
 - www.cdc.gov/travel
- World Health Organization
 - www.who.int/int
- State Department
 - travel.state.gov
- International Society of Travel Medicine
 - www.istm.org
- Health Information for International Travel
 - CDC "Yellow Book"
- International Travel and Health
 - WHO "Green Book"



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