



Travel Medicine

● Objectives :

“Important for OSCE”

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

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● Resources:

Slides.

Doctor's notes.

Travel Medicine

● 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 travelers come from endemic areas and bring diseases with them to another destination*
- The risk for travelers includes diseases, injuries and death. *Travel medicine is not mainly about diseases only, it includes injuries and accidents*

● Types of travelers:

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

It concerns you to ask two main questions:

- *Where you are going*
- *Why you are going*

*Because people travel for a different goals , Tourists are more exposed to crowded areas
Advice hunters to get Rabies vaccine*

Travel Medicine

List the group of travelers who are at a special risk

- **Who are the Special populations:** You need to advise before traveling to get vaccinated
 - 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 We are not only concerned about the final destination, but also if they stopped at certain country and for how long and why

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 is the responsibility of the traveler
- Obtain travel insurance some countries put this as a condition to get the Visa
- 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 this is their responsibility too (travelers)

Responsibilities of Travelers to Prevent Ill-health

Check status of destination

- **Warning level 1:** Practice usual precautions **then he can travel**
 - Presence of usual risk for infectious diseases as diarrheal diseases and malaria
- **Warning level 2:** Practice enhanced precautions **can travel but be careful**
 - Presence of MERS-CoV in Arabian Peninsula
 - Exercise increased caution in Denmark due to terrorism (June 2019) **this example shows you that travel medicine isn't only about diseases.**
- **Warning level 3:** Avoid non-essential travel **don't go unless necessary**
 - Presence of outbreak (Ebola) and adverse security situation

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



CDC Centers for Disease Control and Prevention
CDC 24/7: Saving Lives. Protecting People™

Travelers' Health

Travelers Health > Travel Notices > Novel Coronavirus in China

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).

China **LEVEL 3**

Japan? **LEVEL 2**

Italy? **LEVEL 3**

S.korea? **LEVEL 3**

Iran? **LEVEL 3**

Responsibilities of Travelers to Prevent Ill-health

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).

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.

Carry emergency medical kits responsibility of the traveler, **مو على عدد الايام لازم ياخذ اكثر**

- 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

Some one travel to area endemic for malaria , what he should get with him ?

International Travel

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
- Leishmaniasis
- Japanese encephalitis

Behavior Related

- Sexually transmitted diseases

Zoonotic Diseases

- Rabies

Blood Borne

- Hepatitis B

Soil Borne

- Tetanus

Preventive Measures for International Travelers

Immunization

- **Routine:**
Childhood immunizations
- **Recommended:**
According to risk of infection
- **Required:**
For entry you have to take it before entering the country



Red , orange :are recommended to visit the travel medicine clinics

Required Immunizations

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

For the next diseases Important to know :

- the root of transmission
- Is there a vaccine or not
- What advice should I give

1-Yellow Fever

- **Required** for travelers to a country under the International health regulations.
- **Recommended:** for travelers to endemic area.
- **Vaccination:**
 - **Type:** Live attenuated virus vaccine
 - **Dose:** **Single subcutaneous injection**
 - **Immunity:** starts after 10 days **this is important to know how many days you should give the vaccine before traveling**
 - **Protection:** Valid for 10 years
- **Vaccine Not recommended for:**
 - Infants < 9 months
 - Immunocompromised patients
 - Pregnant women
 - Egg allergies
 - HIV-positive individuals

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

CDC

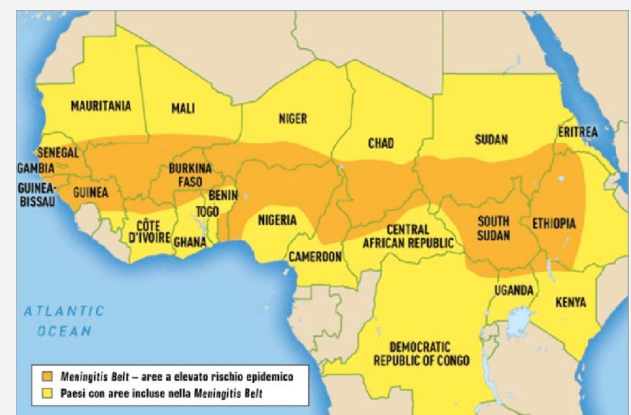


When you take history you should ask for allergy
If he has an egg allergy he can't take the vaccine

Required Immunizations

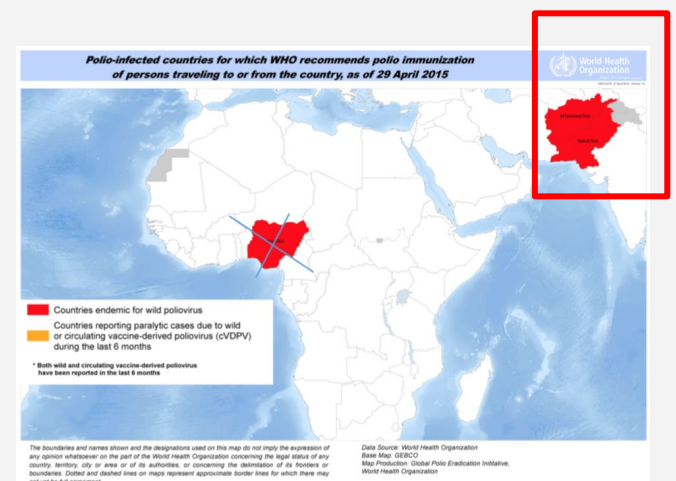
2-Meningococcal Meningitis

- **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 **schools**
- **Vaccination:**
 - **Dose:** **Single dose (injection)**
 - **Protection:** for **3–5 years** in adults and older children
 - **Not effective:** for children below 2 years



3-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.



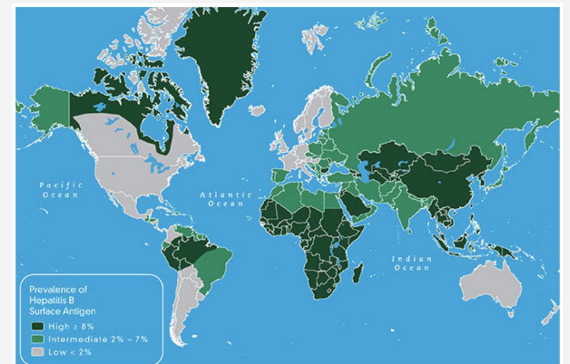
- **Where is the area in which the polio vaccine is required? Pakistan Afghanistan**
- **Is it required in Saudi Arabia? Yes**

Recommended immunizations

1-Hepatitis A

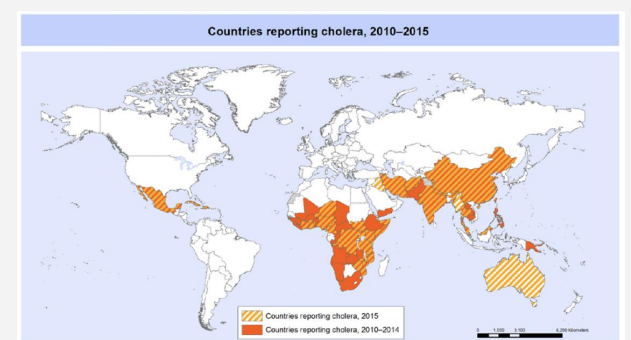
- **Endemic** in many **developing countries** & **High mortality** in **elderly** & **pregnant women**
- **Transmission:** faecal-oral route **what is the root of transmission?**
- **Prevention:** Food, water, personal hygiene & immunization **what are the precautions?**
- **Vaccination**
 - **Type:** Inactivated vaccines
 - **Dose (2 doses)**
 - **Protection:** 14 – 20 years in children | 25 years among adults
 - **Recommended for:** Travelers to the developing countries (≥ 2 years)
 - **Hepatitis A is in the Saudi national vaccine program**

2-Hepatitis B



- **Transmission:** Blood- borne, sexual contact
- **Prevention:** Avoid risk factors & immunization
- **Vaccination**
 - **Type:** Recombinant vaccine, **IM injection**, Monovalent or combined with hepatitis A (for those ≥ 18 years).
 - **Dose (3 doses):**
 - **Regular schedule:** 0, 1 & 6 month with **No** booster dose
 - **Accelerated schedule** for the combined vaccine only (FDA): 0-, 7- & 21-days, Booster dose at 1 year
 - **Recommended for:** travelers to **endemic** areas and travelers with special risk

3-Cholera

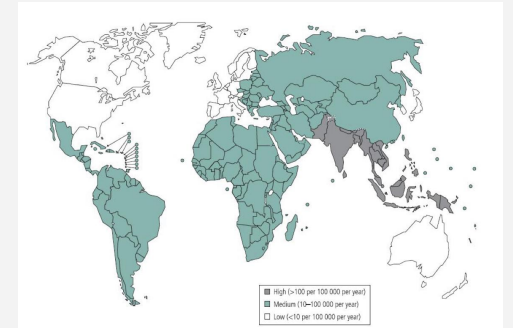


- **Transmission:** Contaminated food or water
- **Prevention:** Food, water & personal hygiene
- **Vaccination**
 - **Type:** **Oral** vaccine (Live attenuated)
 - Result in **60–80% protection** for **6 to 12 months**
 - Not effective against new serotype O139 (spread through Asia in mid 90s)

Recommended immunizations

4-Typhoid

- **Transmission:** contaminated food and water
- **Prevention:** Food, water, personal hygiene & vaccination
- **Vaccination**
- **Both vaccines Ty21a & ViCPS are effective but differ in duration of immunity**



Live attenuated (Ty21a)

- **Type:** Oral vaccine
- **Dose:** 4 doses (One capsule on alternating days not with antibiotics)
- **Booster dose:** every 5 – 7 years
- Schedule should be completed at least **1 week before** traveling
- **Recommended for:** travelers to developing countries

Vi capsular polysaccharide vaccine (ViCPS)

- **Type:** IM injection
- **Dose:** Single dose
- **Booster dose:** at 2 years interval
- Schedule should be completed at least **2 weeks before** traveling
- **Recommended for:** travelers to developing countries

5-Japanese encephalitis

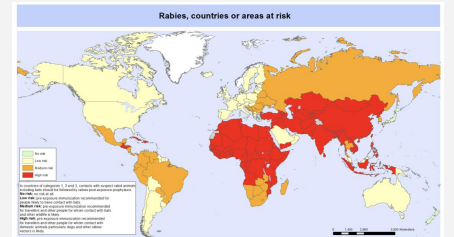
- **Transmission:** By mosquito bite same as malaria
- **Prevention:** vector control & vaccination
- Risk increases in **travelers to rural Asia** or **long stay travelers**
- **Vaccination:** 2 available vaccines
 - **Dose:**
 - **Regular schedule (3 doses): 0, 7 & 30 days**
 - **Accelerated schedule (2 doses): 0 & 7 days** (80% conversion)
 - The last dose should be at least **10 days before** departure because of the **possible serious adverse reactions**
 - **Booster dose:** 24 months (2 years) if the risk continues



Recommended immunizations

6-Rabies

- **Transmission:** Animal bite or scratch
- **Prevention:** Immunization (Preexposure • Post exposure • Immunoglobulin)
- **Risk:** occupational , travel to **rabies risk countries**
- **Vaccination**
 - **Type:** Inactivated vaccine (**IM** injection)
 - **Dose (3 doses):** 0, 7 & 21 or 28 days
 - **Pre-exposure** vaccine eliminates the need for rabies immune globulin (RIG) after exposure, but does not eliminate the need for additional post exposure rabies vaccination
 - If the person get his pre-exposure vaccine and goes hunting in the endemic area, and he got scratched by an animal I don't have to give him immunoglobulins with the antibiotics, but if he didn't do the vaccine he has to take the immunoglobulin with the antibiotics



Other vaccines

Influenza

- **Risk:** Exposure to the virus is throughout the year in tropical & subtropical areas
- **Attack rate:** is 1.2–2.8% in travelers of all age groups
- **Vaccination**
 - **Type:** Inactivated parenteral vaccine, live attenuated vaccine,
 - **Administered by:**
 - live attenuated vaccine as **nasal spray** (for healthy persons 5–49 years)
 - Inactivated parenteral vaccine as **injection**.
- **Recommended to:** to travelers to **Southern Hemisphere** from **April** through **September** & **areas at risk of serious related complications**

Tuberculosis

- **Recommended to:** long stay in developing countries
- **Baseline tuberculin before travel with a follow up every 1 year**
- A foreign person or coming from outside Saudi Arabia should take it

Chemoprophylaxis

Malaria

What disease doesn't have vaccine and has chemoprophylaxis only?

Malaria ●

- **Transmission:** Mosquito bite
- **Prevention:** Awareness | Bite avoidance | Chemoprophylaxis
- **Fever in returned traveler is a medical emergency considered malaria until proven otherwise**
- **Malaria chemoprophylaxis: very important Duration for each one as-well**
 - **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 after return (prevent some additional infections e.g. *Rickettsiae* and leptospirosis)
 - **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 & 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

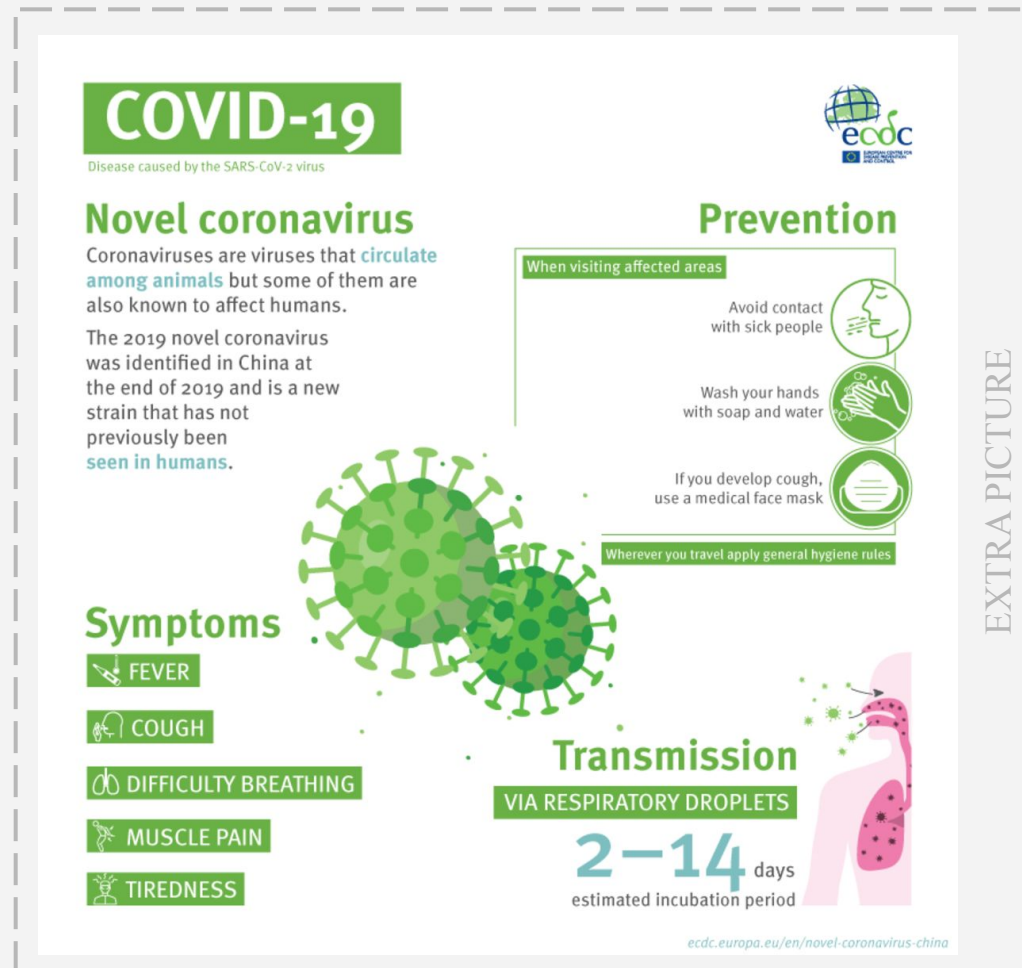
Mefloquine resistance has been confirmed on the borders of Thailand with Burma (Myanmar), Cambodia & eastern states of Burma between Burma & China



Other infections

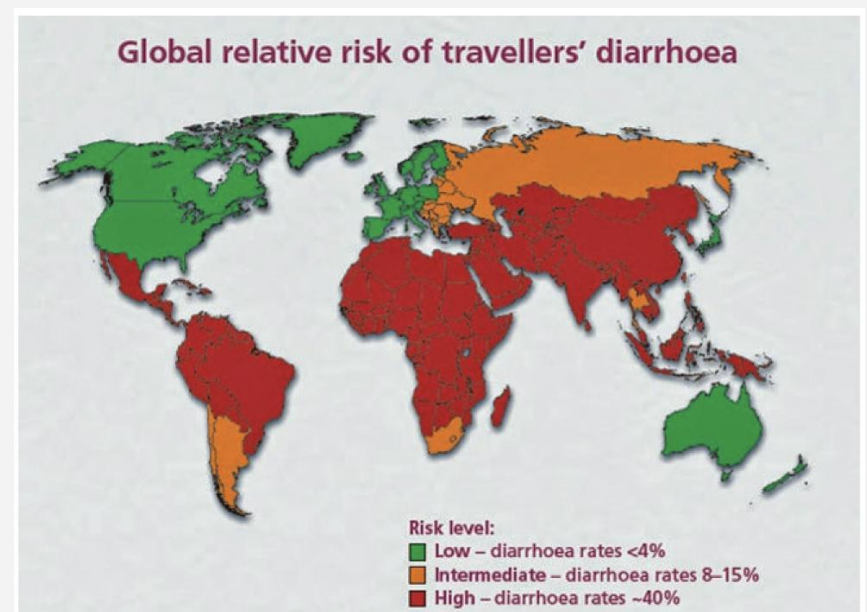
COVID19

- **Transmission:** Large droplet | Airborne
- **Prevention:** Wash hands properly with soap & water, wearing a mask
- **Risk? Comorbidities**



Traveler's diarrhea

- **Cause:**
 - **Bacterial** (60-80%)
 - Viral (10-20%)
 - Parasitic (5-10%)
- **Prevention:**
 - **Wash It, Peel It, Cook It, or Forget It**
 - Only Drink Bottled Water
 - Wash hands frequently



Precautions

Food & Water

- Bottled water | Selection of foods (well-cooked and hot)
- Avoidance of:
 - Slads, raw vegetables & Street vendors
 - Unpasteurized dairy products & Ice

Environmental

Again ,Travel medicine is not mainly about diseases

- **Air travel | Jet Lag | Sun protection | Altitude**
- **Extreme Heat & Cold** (Dehydration, heat stroke, hypothermia & frostbite)
- **Water recreation:**
 - Drowning, boating & diving accidents
 - Risk of schistosomiasis or leptospirosis
 - Biological and chemical contamination

Vector precautions

This came on OSCE last year and no one answered it

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

Examples: Malaria, Japanese encephalitis

Animal

- **Animal avoidance**
- **Envenomations** (Snakes, scorpions, spiders | Maritime animals)
- **Rabies:**
 - Specific animal threats
 - Medical evaluation of bites/scratches
 - Post exposure immunization & immunoglobulin

Outline how to take travelers history

Pre-travel consultation (4-6 weeks before departure)

Risk assessment (potential hazards)

What are you going to ask about ?

Information about travelers

- Age & sex
- Medical history
- Medications
- Allergies
- Immunization history
- Special health needs

Information about trip

- Destination
- Length of stay *the longer the higher the risk*
- Mode of travel
- Purpose of trip
- Purpose of planned 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
- 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

Empower traveler

- Immunization, prophylaxis or self-medications

Service delivery

- To manage their health

SUMMARY

Required immunizations

Virus	Type/Dose	Protection	Required for	Recommended for
Yellow fever	Single SC	<u>Starts</u> after 10 days <u>Valid</u> for 10 years	travelers to a country under the International health regulations	for travelers to endemic area
Meningococcal meningitis	Single Injection	for 3–5 years in adults & older children Not effective for children below 2 years	by Saudi government for Hajj or Umrah & seasonal workers	
Polio	Oral & Injection		travelers from endemic countries or countries vulnerable to infection or reinfection & (Pakistan & Afghanistan)	

SUMMARY

Recommended immunizations

Organisms /Diseases	Type	Doses	Booster dose	Recommended for
HAV	Inactivated vaccines	2 Doses		travelers to developing countries (≥ 2 years)
HBV	Recombinant IM injection	3 doses (0, 1, and 6 months)	Without	travelers to endemic areas and travelers with special risk
	Combined IM vaccine (FDA)	Accelerated schedule 3 doses (0-, 7-, and 21-days)	1 year	
Typhoid	Ty21a Oral	4 doses (1 capsule on alternating days) Should be completed at least 1 week before traveling	every 5 – 7 years	travelers to developing countries
	ViCPS IM injection	Single dose Should be completed at least 2 week before traveling	2 years	
Cholera	Oral			
Japanese encephalitis		3 doses (0, 7 and 30 days) Should be completed at least 10 days before departure Accelerated schedule 2 doses (0 and 7 days “80%” conversion)	2 years	
Rabies	Inactivated IM injection	3 doses (0, 7, & 21 or 28)		
Influenza	Inactivated parenteral Nasal spray (healthy 5–49 years)			to travelers to Southern Hemisphere from April through September & areas at risk of serious related complications
TB				long stay in developing countries

MCQs

1- Travel medicine takes care of refugee health:

- A) True
- B) False

2- Who is of the following travellers considered as a high risk population?

- A) A 35 years male with absent limb
- B) A 25 years female known to have SLE and she is on medications
- C) An 18 years male with past medical history of mononucleosis
- D) A and B

3- Traveling to Italy is considered:

- A) Warning level 1
- B) Warning level 2
- C) Warning level 3
- D) No updates regarding this issue

4- One of the following conditions need a medical consultation after arrival:

- A) Having common cold
- B) Developing malaria
- C) Dental infection
- D) None

5- If you were traveling to a country located in africa, which item you should be carrying?

- A) Pain killers
- B) Insect repellent
- C) Tape
- D) Lip balm

6- One of the following is a risk facing international travellers:

- A) High level of sanitation
- B) Racism
- C) Stray animals
- D) Safe roads

6-C
5-B
4-B
3-C
2-D
1-A

ANSWER: