

Travel Medicine

Important lecture

Objectives

- Define travel medicine and its importance
- Levels of travel medicine (pre, during, post)
- Pre-travel consultation (risk assessment, risk management, immunization, prophylaxis, self-medications)
- Immunization (required, recommended, routine)
- Other infections (malaria, zika, traveler's diarrhea)
- Prevention (food, water and personal precautions, environmental precautions, vector and animal precautions, injury precautions)
- Travel emergency kit
- Post-travel care

Color Index

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| ● Main text | ● Important |
| ● Males slides | ● Textbook |
| ● Females slides | ● Golden notes |
| ● Doctor notes | ● Extra |

Editing File

Travel medicine

What is travel medicine?¹



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

What does travel medicine do?

1

Seeks to prevent illnesses and injuries occurring to travelers going abroad.

2

Manages problems arising in travelers coming back or coming from abroad.

3

Impact of tourism on health and to improve health and safety services to tourists

4

Refugee and migrant health

Why travel medicine?

WORLDWIDE

- 1950 - 25 million international tourist arrivals
- 2000 - 664 million international tourist arrivals
- 2010 - 940 million international tourist arrivals (growth rate 7% from 2009)
- 2030 – forecast 1.8 billion

World Tourism Organisation

Importance of travel medicine

Of 100,000 travellers to the developing world for 1 month

- 50,000 will develop some sort of health problem during their trip
- 8000 will see a physician
- 5000 will have to stay in bed
- 300 will have to be admitted to hospital either during their trip or on return
- 50 will need to be air evacuated
- 1 will die

Ref. Spira AM Lancet. Vol 361. April 19, 2003

Concerns:

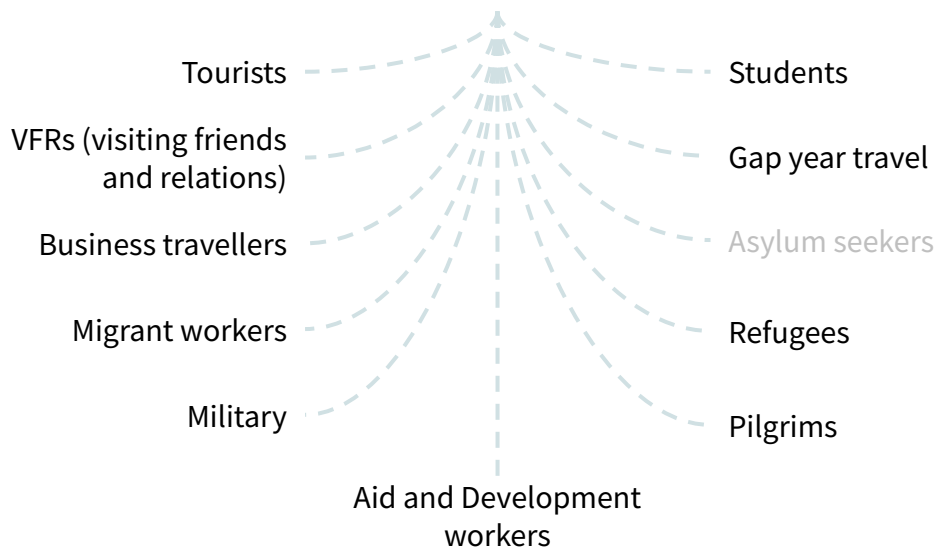
1 | International travel carries a risk for travelers, community of origin and community of destination.

2 | The risk for travelers includes diseases, injuries and death.

¹: Because the numbers of travellers are usually increasing every year, keep in mind that it got affected by the pandemic so the numbers are gonna decrease with the latest updates

Travel medicine

Types of travelers



List the group of travelers who are at a special risk

Special population	
<ul style="list-style-type: none"> Elderly travelers 	<ul style="list-style-type: none"> Travelers with chronic diseases
<ul style="list-style-type: none"> Infants and children 	<ul style="list-style-type: none"> Travelers with disabilities
<ul style="list-style-type: none"> Pregnant women 	<ul style="list-style-type: none"> Immunocompromised travelers
Special journeys “Risk depends on distention”	
<ul style="list-style-type: none"> Cruise ship travel 	<ul style="list-style-type: none"> Extreme travel
<ul style="list-style-type: none"> Diving 	<ul style="list-style-type: none"> Mass gathering (eg. The Hajj)
<ul style="list-style-type: none"> Extended stay 	<ul style="list-style-type: none"> Wilderness/remote region travel

Components of Travel medicine

1

Pre-travel

2

During Travel

3

Post travel

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

1 Risk assessment (potential hazard)

2 Risk management (advice to reduce exposure to health risks)

3 Service delivery: immunization, prophylaxis or self-medications.

4 Empower traveler to manage his health

Risk assessment (potential hazards)

Information about travelers:

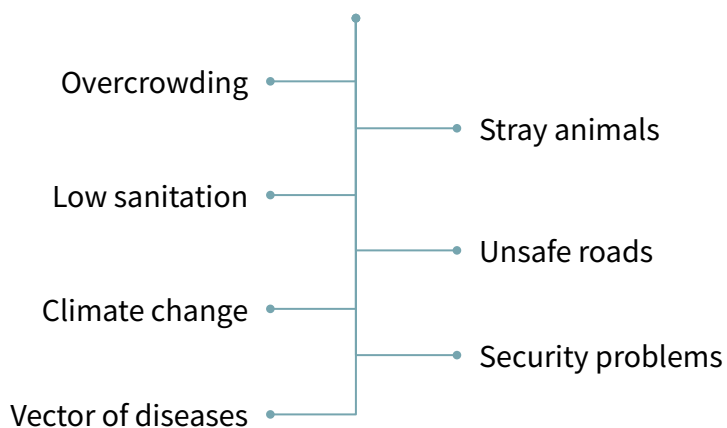
1. Age & sex
2. Medical history
3. Medications
4. Allergies
5. Immunization history
6. Special health needs

Information about trip:

1. Destination
2. Length of stay
3. Mode of travel
4. Purpose of trip
5. Purpose of planned activities
6. Financial budget, accommodation, insurance
7. Healthcare in destination

Risk factors and health problems facing international travelers:

Risk



Health problems

- Aggravation of existing problem (Eg. Cardiac pts going for hiking)
- Food and water borne infections
- Air borne infections
- Unintentional & intentional Injuries
- Vector borne diseases
- Zoonotic diseases

Common diseases associated with international travel:



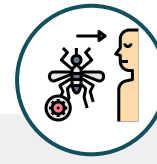
- **Traveler's diarrhea**
- Typhoid fever
- Hepatitis A
- Cholera
- Poliomyelitis

Gastrointestinal



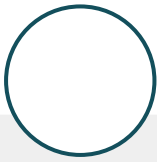
- Influenza
- Meningitis
- MERS-Cov
- COVID19
- Tuberculosis

Pulmonary Disease



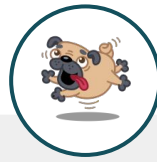
- Yellow fever
- Malaria
- Dengue fever
- Leishmaniasis
- Japanese encephalitis

Vector borne diseases



- Sexually transmitted diseases

Behavior related



- Rabies

Zoonotic diseases



- Hepatitis B

Blood borne



- Tetanus

Soil borne

● Unintentional and intentional injuries:

- Road traffic injuries
- Injury in recreational water
- Interpersonal violence
- Animal bites (domestic and wild animals)

● 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, immunocompromised patients)
- Traveler's medical insurance

● Preventive measures for common diseases among international travelers

- Immunization or/and prophylaxis
- general measures for prevention of infectious diseases.

Preventive Measures for International Travelers

Immunization:

Routine:

- Childhood immunizations.

Recommended:

- According to risk of infection.

Required:

- yellow fever vaccine
- meningococcal vaccine
- COVID-19 vaccine?

Routine immunizations:



1. Hepatitis A
2. Hepatitis B
3. BCG
4. DPT
5. MMR
6. Polio
7. Pneumococcal
8. **Meningococcal**
9. Rota virus
10. Varicella
11. Hemophilus influenzae

Others in other countries

1. Human papilloma virus
2. Tick borne encephalitis
3. Influenza

In KSA

Required immunizations

Yellow fever
(international
health regulation)

Meningococcal meningitis: by
Saudi Arabia for **Hajj and Umrah**
and seasonal workers.

Polio

Preventive Measures for International Travelers

1-Yellow Fever : vector borne disease associated with international travel and addressed by the international health regulation (IHR)

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

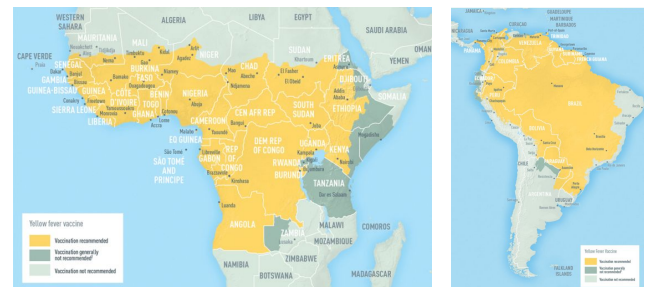
Recommended: for travelers to endemic area. Ex: Brazil

Vaccination:

- **Type:** Live attenuated virus vaccine
- **Dose:** Single subcutaneous injection
- **Immunity:** starts after 10 days
- **Protection:** Valid for 10 years

Vaccine Not recommended for:

1. Infants < 9 months
2. Immunocompromised patients
3. Pregnant women
4. Egg allergies
5. HIV-positive individuals



2- Meningococcal Meningitis:

Required: by Saudi government for **Hajj or Umrah**.

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

Risk:

1. **Sub-Saharan Africa (seasonal)**
2. Saudi Arabia (Hajj)¹
3. Crowded student dormitory situations

Vaccination:

- **Dose:** Single dose (injection)
- **Protection:** for 3–5 years in adults and older children¹
- **Not effective:** for children below 2 years



Meningitis belt

¹: Individuals who had received the vaccine > 3-5 years ago and want to go to Hajj or Umrah, should take the vaccine again (as well as Saudis).

Preventive Measures for International Travelers

Recommended immunizations (according to risk):

1. Hepatitis A, B
2. Typhoid
3. Cholera
4. Poliomyelitis
5. Meningococcal meningitis
6. Japanese encephalitis
7. Rabies
8. Tick-borne encephalitis
9. Covid-19

1- Hepatitis A:

Endemic in many developing countries & High mortality in elderly & pregnant women

Prevention: Food, water, personal hygiene & immunization

Vaccination:

- **Type:** Inactivated vaccines
- **Dose** (2 doses) (HAVRIX® or VAQTA®) (can combine immunoglobulins with the vaccine if needed)
- **Protection:**
 - 14 – 20 years in children
 - 25 years among adults
- **Recommended for:**
 - Travelers to the developing countries
 - 2 years and older

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)
- Recommended for: travelers to endemic areas and travelers with special risk
- Recommended immunizations hepatitis A (for those ≥ 18 years).

3- Cholera “Rare in travelers”

Transmission: Contaminated food or water

Prevention:

- Food, water & personal hygiene
- Vaccination (oral)

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)

Preventive Measures for International Travelers

Recommended immunizations:

4- Typhoid

Transmission: contaminated food and water

Prevention: Food, water, personal hygiene & vaccination

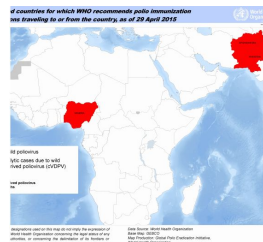


5- polio “Rare in travelers”

Transmission: contaminated food and water.

Prevention:

1. Food, water, personal hygiene
2. 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.

6- Japanese encephalitis

Transmission: By mosquito bite **same as malaria**

Prevention: vector control & vaccination

Risk: increases in travelers to rural Asia or long stay travelers

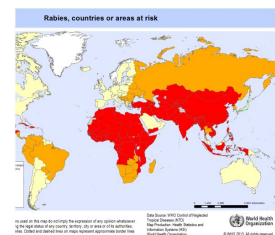


7- Rabies

Transmission: Animal bite or scratch

Prevention: Immunization (Preexposure • Post exposure • Immunoglobulin)

Risk: occupational , travel to rabies risk countries



8- Tick-borne encephalitis:

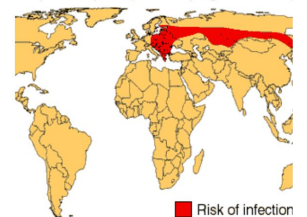
Transmission: 1. Ixodes sp. Ticks. 2. Ingestion of unpasteurized dairy products.

- Rural forested areas of east and Central Europe, Russia and part of Asia.

Prevention:

1. Tick prevention.
2. Avoidance of unpasteurized dairy products.
3. Vaccination.
4. Self check and removal ASAP (tweezers).

TBE - Tick Borne Encephalitis
European Encephalitis, Russian Spring Summer Ence



Preventive Measures for International Travelers

Other vaccines

Influenza

Recommended to: to travelers to Southern Hemisphere from April through September & tropic and subtropic at risk of serious related complications

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:
 1. Nasal spray (for healthy persons 5–49 years)
 2. Inactivated parenteral vaccine as injection.

Tuberculosis

Recommended to: long stay in developing countries

- The vaccine:
 1. BCG
 2. Live attenuated
 3. Single intradermal injection
- Baseline tuberculin before travel with a follow up every 1 year

Preventive Measures for International Travelers

Chemoprophylaxis

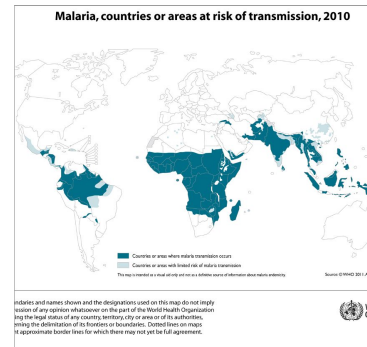
● Malaria

Transmission: Mosquito bite Malaria

Prevention:

- Awareness
- Bite avoidance
- Chemoprophylaxis **before and after traveling**
- Diagnosis of febrile illness

Fever in returned traveler is a medical emergency considered malaria until proven otherwise



Drug	Area	Instructions of use
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
Chloroquine 300 mg	chloroquine sensitive areas	1 – 2 weeks before departure, weekly during the journey and 4 weeks after return
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

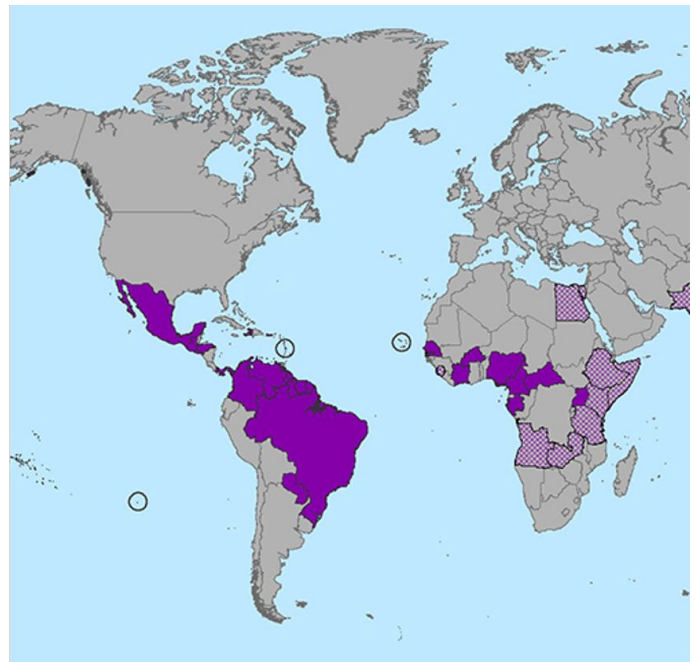
Other infections

● Zika virus

Transmission: mosquito bite

Prevention: preventing mosquito bite

Risk? To pregnant women → microcephaly and other brain abnormalities.



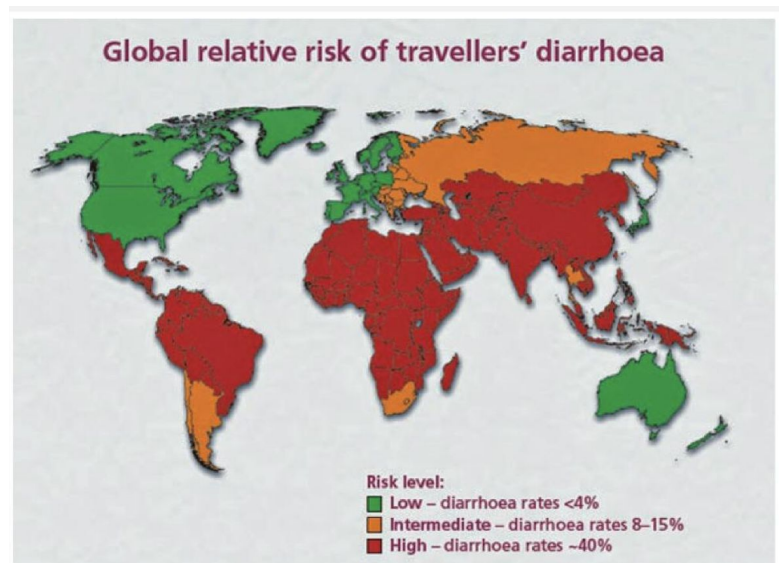
● Traveler's diarrhea¹

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



● Post-Travel care

Post-travel checkup

1. Long term travelers
2. Adventure travelers
3. Travelers in developing world

Post-travel care

1. Fever, chills, sweats
2. Persistent diarrhea
3. Weight loss

¹: One of the most common traveler's incidence.

Responsibilities of Travelers to Prevent Ill-health



Responsibilities of traveler:

1. Decide on the travel destination and timing
2. Recognize and accept risk
3. Visit the general practitioner prior to traveling
4. Obtain travel insurance
5. Adhere to the preventive precautions
6. Carry medical kits and understand its use
7. Assume the responsibility of the health and safety of children
8. Respect people and culture in country of destination
9. Visit the general practitioner upon return



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

Warning level 3

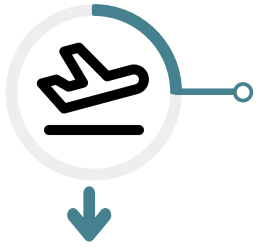
Avoid non-essential travel

- Presence of outbreak (Ebola, COVID-19) and adverse security situation **if returned from and infectious diseased country then the person should quarantine**

Responsibilities of Travelers to Prevent Ill-health



Consultate general practitioner:



Before departure:

Timing: 4 to 6 weeks

Purpose:

- 1- medical evaluation.
- 2- receive preventive intervention .
- 3- travel advice.
- 4- Risk of assessment



After arrival:

- 1- have chronic diseases.
- 2- spent > 3 months in a developing country.
- 3- received treatment for malaria while traveling.
- 4- exposed to a serious infectious disease while traveling.
- 5- experienced illness in the weeks following return (fever, persistent diarrhea, vomiting, jaundice, urinary disorders, skin disease or genital infection).



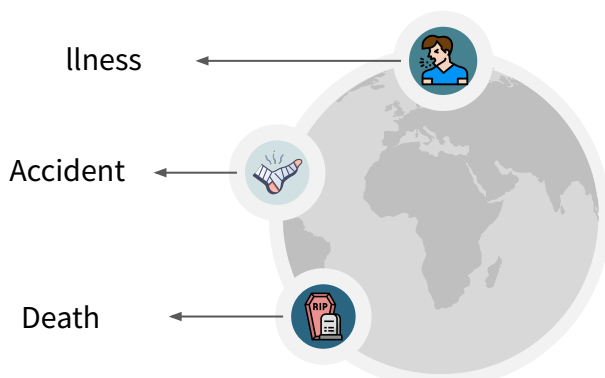
Carry emergency medical kits:

- 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



Issue travel insurance:

Required in case of:



Covers:

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

Precautions



Food & water

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



Environmental

- Jet Lag | Sun protection | Altitude
- Extreme Heat & Cold (Dehydration, heat stroke, hypothermia & frostbite)
- Water recreation:
 1. Drowning, boating & diving accidents
 2. Biological and chemical contamination



Injury and crime

- Vehicles:
 1. Risk of road and pedestrian accidents
 2. Night travel
 3. Seat belts and car seats
- Avoid the use of drugs and alcohol
- Understanding local crime risks:
 1. Scam awareness
 2. Situational awareness
 3. Location avoidance

Quiz

MCQ

1- Which of the following is the main focus of travel medicine?

- A. Control of the growing volume of travelers
- B. Provision of treatment after return
- C. Pre-travel preventive care
- D. Legislation concerning international travel

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- Which of the following vaccines is recommended for someone who is travelling to sub-Saharan Africa?

- A. Meningococcal vaccine
- B. Pneumococcal vaccine
- C. Yellow fever
- D. Rocky mountain fever

4- A man is planning to travel to Brazil for a conference. He visits his family physician to which he advised him to take a vaccine. Which of the following vaccines he's recommended to take? :

- A. Hepatitis B
- B. Yellow fever
- C. Malaria
- D. Meningococcal

5- 135 year-old man is traveling to India and staying around 15 days. What would you advise him to avoid getting "traveler's diarrhea" prior to his departure?

- A. Take prophylactic antibiotic
- B. Avoid using public toilets
- C. Eat peeled fruits and vegetables
- D. Take a vaccine

Answers

Q1	Q2	Q3	Q4	Q5
C	D	A	B	C





Thank You and
Good Luck



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