Preparing for International Travel
For
You and Your Patients

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Objectives
1. Discuss the medical hazards of unsafe eating and drinking when traveling.
2. Identify the importance of avoiding biting insects, such as sand flies, mosquitoes and ticks.
3. Explain the importance and timing of pre-travel immunizations.

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Travel
× In 2015, 1.184 Billion people traveled outside their countries’ borders for at least one night; 50 million more than the year before.**

**UN World Tourism Organization (UNWTO)
Travel

x From outside – in:  Foreign visitors
  – In 2014, there were ≈75 million international arrivals with ≈30 million from overseas markets.**

**National Travel & Tourism Office

Travel

x From outside – in:  Foreign visitors
  – In 2014, there were ≈75 million international arrivals with ≈30 million from overseas markets.

x From inside – out:  U.S. travelers
  – In 2016 there were 131,841,062 U.S. citizens with passports (>1/3 total).

Travel

x From outside – in:  Foreign visitors
  – In 2014, there were ≈75 million international arrivals with ≈30 million from overseas markets.

x From inside – out:  U.S. travelers
  – Some of these will be your patients.
  – Where are they going?
Visited by U.S. citizens in 2013**:

1. Mexico  
2. Canada  
3. U.K.  
4. Dominican Republic  
5. France  
6. Italy  
7. Germany  
8. Jamaica  
9. China  
10. Spain  
11. India  
12. Japan  

**National Travel & Tourism Office

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Travel

- Many Travel Clinic consults are for travel to under-developed countries for missionary work:
  - African countries
  - Central American countries
  - Caribbean islands (mostly Haiti)
  - Many others

- Others visit relatives.
  Many take their young infants, even neonates, with them.
Travel

× The point is, a lot of people travel, and a few will visit their PP beforehand.
× A small number will disagree with recommendations (the “cherry-pickers”).
× The vast majority are not consulting with their physicians prior to leaving, choosing to “wing it”.

Hazards of “Winging It”

× 3 Cases of imported Yellow Fever (WMMR):
  – 1997 – 45-yr-old male (TN); Brazil – admitted w/ 4-d Hx of Sx; died 6-days later; visited 1st for preparation & YF vaccine recommended, but Not Available – closest vaccine – 25 miles away.
  – 1999 – 48-yr-old male (CA); Venezuela – admitted w/2-d Hx of Sx; died 6-days later; received some immunizations from primary, but not offered yellow fever vaccine,
  – 2002 – 47-yr-old male (TX); Brazil – admitted w/ 4-d Hx of Sx; died 4-days later. Took the advise of the travel agent.

Hazards of “Winging It”

× A Local Case:
  – 17-year-old female admitted with 7 days of fever and abdominal pain and a rash that all began on the day she left for home from a missionary trip to India for one month.
  – Diagnosed with Typhoid Fever, and received a 10-day course of Ceftriaxone in the hospital.
  – Had been on several missionary trips before, and did not think Typhoid Fever was a risk because of the trip being “organized” by her church.
Why Not Wing It When Traveling?

It’s like walking across the highway:
Most of the time you get lucky.
Sometimes you get sick.
Rarely, you may die.
With good hygiene, vector avoidance, UTD routine immunizations and common sense, most will do well.

Travel

- General approach:
  - Where
  - What
  - When
  - Basic Principles

Travel

- General approach: Where
  - Specifically – where are they going?
    - Can’t just say Africa (54 countries).
    - Threats & recommendations vary.
  - Where will they stay, and for how long?
    - Hotel; Local family; In the open?
    - Urban or Rural?
Travel

General approach: What
- What will they be doing?
  - Construction?
  - Working with the sick?
    - Refugee Camp or Hospital?
  - Working with animals?
  - Teaching in a classroom?
  - Touring, hunting, hiking, camping, cruising?

General approach: When
- When will they be going?
  - Is there adequate time for recommended immunizations?
  - When will they return?
    - Must give enough recommended medication (Malaria prophylaxis).

General approach: Principles
- Main Idea is Disease Prevention:
  - Chemoprophylaxis (Malaria).
  - Immunizations (routine & country specific).
  - Clean Food & Water & good personal hygiene.
  - Vector avoidance: (insects & sick animals).
  Does Not Have To Be Complicated!
Travel
 ✓ General approach: Principles
   – Main Idea is Disease Prevention:
     • Chemoprophylaxis Malaria.
       – Mainly *Plasmodium falciparum*.
       – Most are chloroquine-resistant, except some areas of Central & South America.

Chemoprophylaxis Regimens vary.
All drugs should:
➢ Begin before travel.
➢ Continue after return.

H&E Stain
Adolescent visiting from Nigeria
Travel
Malaria Chemoprophylaxis
× Atovaquone-proguanil (Malarone) - Daily
× Chloroquine – Weekly (not if G-6-PD def)
× Doxycycline – Daily (2d before – 4 wks. after)
× Mefloquine – Weekly
× Primaquine – Daily (not if G-6-PD def)

Travel
Malaria Chemoprophylaxis
× Atovaquone-proguanil (Malarone) – Daily
  – 2d prior through 7d after.
× Doxycycline – Daily
  – 2d before through 4 weeks after.
× Mefloquine – Weekly
  – 2 weeks before through 4 weeks after.

Travel
Malaria Chemoprophylaxis
× Dosing details:
Travel

Who can tell me who this man is and why he is famous?

Ali Maow Maalin

Last Endemic Smallpox

- 1977 at 23 years of age.
- Merka, Somalia
Ali Maalin

- Had an acute febrile illness & Died a few days later on July 31, 2013 at 59 years of age of a severe case of Malaria

Travel

- General approach: Principles
  - Main Idea is Disease Prevention:
    - Chemoprophylaxis Malaria.

  NEVER ASSUME YOU ARE IMMUNE!

- General approach: Principles
  - Main Idea is Disease Prevention:
    - Malaria Immunity.
      - Partial by repeated infections.
      - Genetic factors, e.g. Sickle Cell.
      - Improved Vaccine in development.
Travel

General approach: Principles

- ALL need routine immunizations & some may also need:
  - Yellow Fever (one dose for life)
  - Japanese Encephalitis (increasing use)
  - Rabies (least common)
  - Typhoid (most common)
  - Meningococcal (mostly Africa & Middle East)
Hajj (pilgrimage) to accomplish the 5th Pillar of Islam
Mecca, SA

Travel

General approach: Immunizations

- May also need Measles:
  - Babies 6 – 12 months should be given a dose off schedule, then the usual 2 doses after 12 months of age.
  - Should babies < 6 mo of age get ISG?
    - No; Count on maternal antibodies.
Travel
× General approach: Principles
  – Clean Food & Water counseling.
  – Most problems result from fecal contamination.

Fecal-Oral Spread
Remember
The world is covered with a thin layer of

STOOL

Rose Spots of Typhoid Fever

Bass collection
Worms

Tapeworms

Neurocysticercosis
TAENIASES (SOLIUM AND SAGINATA)

- Human is reservoir for both (tapeworm in the gut).
- Human is intermediate host (cysticercosis) only for *Taenia solium*.

MRI’S 6 Weeks Apart After One Month of Albendazole.

Travel

- General approach: Principles
  - Clean Food & Water counseling.
    - Remember Hepatitis A prevention
      - Vaccine routine for all > 1 year old.
      - Immune Globulin can still be used.
      - Infants diet should be discussed.
Travel

× General approach: Principles
  – Clean Food & Water counseling.
    • What about Cholera?
      – Notoriously poor vaccines.
      – Recently improved FDA-approved vaccine for adults; stay tuned.

Travel

× General approach: Principles
  – Traveler’s Diarrhea (enterotoxigenic E. coli most common): Cramps, with urgent watery, non-bloody diarrhea.
    • Give Rx for antimicrobial such as, Azithromycin, Cifixime, Rifaximin, or Cipro to have available if needed.

Travel

× General approach: Principles
  – Protection from biting insects: mosquitoes, sand flies, lice, ticks, etc.
  – Use repellant containing 20% - 50% DEET (≥ 2 months) and proper netting.
  – Can pre-treat netting and clothes with Permethrin for added protection.
Leishmaniasis
A Protozoan parasite that can cause:
1. Cutaneous - inoculation – enter into mononuclear phagocytes - erythematous nodule - ulcer w/ raised borders.
3. Visceral (Kala-azar).

Can get through regular mosquito netting.

Early ulcer.
Crusting, ulcerative lesion.
Cutaneous Myiasis

Mostly Central and South America

Thought to have resistant impetigo.
Cutaneous Myiasis

No Mosquito bite
No
Cutaneous Myiasis

Chagas Disease

Increasing Recognition
Various Central & South America Locations
Travel

General approach: What to do?
- Traveler should be seen at least 1 to 2 months prior to travel; most don’t.
- General health assessment.
- Review ALL shot records; catch up & give country-specific immunizations.
- Rx’s for Malaria prophylaxis and treatment of Traveler’s Diarrhea.

Travel

Provide printed handout material to take home; too much to remember.
- All available at CDC Travel site.
Travel

- General approach: What to do?
  - Lastly; they may need to be seen after return for review and a tuberculin skin test (TST / PPD) or Interferon-Gamma release assay if TB exposure likely.
  - IGRA will likely replace TST in few years.

In Summary

Travel Preparation

- Who – details about the health of the pt.
- Where – specific requirements.
- When – dates at risk; Rx enough to last.
- What – activities and associated risks.
**Travel Preparation**

- **Basic Principle = Disease Prevention by:**
  - Avoiding exposure:
    - Vector avoidance.
    - Safe food & water & good hygiene.
  - Immunizations.
  - Drugs: Malaria Chemoprophylaxis; Traveler's Diarrhea antimicrobial.

**Any provider can be a travel expert**

All it takes is:

- Motivation.
- A Yellow Fever Vaccine Permit (= $35 / year).
- The AAP Red Book or CDC Yellow Book.
- Access to the Internet.

**Internet Travel Sites**

- [www.cdc.gov/travel](http://www.cdc.gov/travel)
- Some prefer: [www.mdtravelhealth.com](http://www.mdtravelhealth.com)
Before referring to a Travel Clinic

MUST REMEMBER,
most insurance WILL NOT COVER this.
Warn the parents that they will be required
to clear with the Business Office before
being seen.
The Cost Can Be Shocking!

Cost

- Clinic fee = varies (about $85 – $150)
- Yellow Fever = $150 – $400+ (lifetime)
- JE = $450 – $1100+ (? Duration)
- Typhoid = $85 – $300 (oral 5 yrs., IM 2 yrs.)
- Rabies = $400 – $1000 per shot (3 doses for
  pre-exposure prophylaxis; duration varies,
determined by antibody level after one year).
- Malaria & Diarrhea X 1 mo. Rx’s = $45 - $150.

Cost

BCBS & Tricare (for official travel with
dependents) are the only insurance providers I
have seen cover travel clinic costs (there may
be others), but co-pays can also be high.
Most will not need JE, YF or Rabies.
Most WILL need Typhoid.
There’s no added cost to routine recommended
immunizations.