

Disclosure Information

Vaccines and Medicines for Short-Term Trips Charles Mosler

I have no financial relationship to disclose.

- I will discuss the following off-label use and/or investigational use in my presentation:
 - off-label malaria prophylaxis
 - off-label Travelers' Diarrhea prophylaxis
 - off-label use of antihistamines in pediatrics



 Formulate a plan to provide patient counseling for disease states and medications common for travel medicine

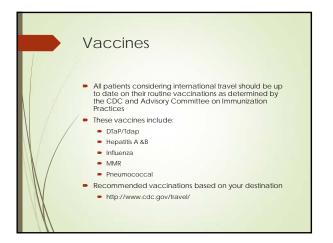
Pre-Trip Thoughts

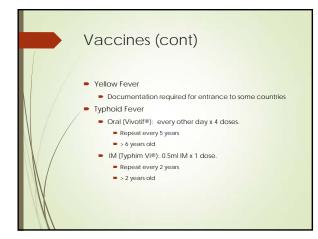
- Reason for Trip
- Destination(s)
- Vaccination requirements
- Prophylactic Medications
- Altitude
- Motion Sickness
- Medications to take with you

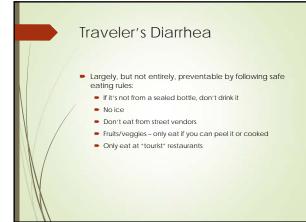
Incidence Rate per Month in Developing Countries

- Traveler's Diarrhea: 20 60%
- Malaria without chemoprophylaxis: 3%
- PPD conversion: 0.4%
- Malaria with chemoprophylaxis: 0.2%
- Hepatitis A, Typhoid: < 0.1%</p>
- Hepatitis B, HIV, fatal accident: < 0.01%</p>
- Cholera, Legionella, Poliomyelitis: < 0.001%</p>

Steffen R, Amitirigala I, Mutsch M. Health risks among travelers – need for regular updates. J. Travel Med. 2008;15(3): 145-6.







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Traveler's Diarrhea (cont)

- Can be caused by bacteria (80-90%), viruses (5-8%), protozoa (8-10%)
- Bacteria
 - E. coli (most), C. jejuni, Shigella, Salmonella
- Viral
 - Norovirus, rotavirus, astrovirus
- Protozoa
 - Giardia
- High Risk areas: most of Asia, Middle East, Africa, Mexico, Central and South America

Traveler's Diarrhea – Presentation

- Bacterial sudden onset; malaise; mild-severe cramping/abdominal pain; urgent, loose stools; ± vomiting. 3-5 days untreated
- Viral fairly similar to bacteria. Increased vomiting possible. 2-3 days untreated
- Protozoal delayed onset (1-2 weeks), gradual onset of symptoms, belching, malaise, foul-smelling, fatty stools. Weeks-months untreated

Traveler's Diarrhea -Treatment

Rehydration

Antimotility agents

- Caution if fever > 101°F or bloody diarrhea
- Bacteria
 empiric treatment with:
 - empine treatment with:
 - ciprofloxacin x 1-2 days or
 - rifaximin 200mg TID x 3 days or
 - azithromycin 1gm x 1 dose or 500mg QD x 3-5 day
- Protozoa
 - Metronidazole, tinidazole, nitazoxanide

Traveler's Diarrhea -Prophylaxis

- Not routinely recommended unless immunocompromised
- Bismuth subsalicylate
 - 2 tabs QID or 60ml QID
- Antibiotics increased resistance limits effectiveness
- Can try ciprofloxacin, doxycycline, trimethoprimsulfamethoxazole, rifaximin
- Remember that early tx w/ antibiotics can limit duration of TD to 24 hours or less

Malaria

- Caused by *Plasmodium* protozoa transmitted by the bite of the female *Anopheles* mosquito
- Roughly 220 million infections per year worldwide with over 400,000 deaths.
- About 1700 cases per year in the US from travelers
- Incidence varies greatly depending on country
- http://www.cdc.gov/malaria/

Malaria – Prophylaxis

- All regimens must be taken for a period of time prior to the trip, while on the trip, and a period of time after the trip
- Some areas of the world show resistance to common antimalarials
- Some areas of some countries may not have malaria present

Country	Areas with Malaria	Estimated relative risk of Malaria for US Travelers ²	Drug Resistance ³	Malaria Species4	Recommended Chemoprophlaxis ⁵	Helpful links for Select Countries
Albania	None	None	Not Applicable	Not Applicable	Not Applicable	
Algeria	None	None	Not Applicable	Not Applicable	Not Applicable	
American Samoa (U.S.)	None	None	Not Applicable	Not Applicable	Not Applicable	
Andorra	None	None	Not Applicable	Not Applicable	Not Applicable	
Antarctica	None	None	Not Applicable	Not Applicable	Not Applicable	
Angola	All	Moderate	Chloroquine	P, falciparum 90% P. ovale 5% P. vivax 5%	Atovaquone/ proguanil, doxycycline, or mefloquine	



Malaria - Prophylaxis

- Atovaquone/Proguanil
- Begin 1-2 days before travel, during travel, and continue for 7 days after travel
- Adults: 250mg/100mg tab QD
- Peds: 62.5mg/25mg tabs available wt based
- Not recommended for pregnant, breastfeeding, or infants < 5kg

Malaria - Prophylaxis

- Atovaquone/Proguanil Contraindications: CrCl < 30ml/min
- Common Adverse Reactions Abdominal pain, N/V, headache
- Caution with warfarin
- Should be taken with food or milk-based product
- Can crush tabs for peds and mix w/ condensed milk

Malaria – Prophylaxis

Chloroquine

- Begin 1-2 weeks before travel, during travel, and continue for 4 weeks after travel
- Adults: 500mg once a week (same day)
- Peds: 8.3mg/kg/week (same day)
- Can use in pregnancy, breastfeeding, and infants
- Widely resistant can use only for travel to Caribbean, Central America, and few areas in Asia

Malaria - Prophylaxis

- Chloroquine Contraindications
 QT prolongation
 - Retinal/visual changes from prior use
 - Psoriasis
- Common Adverse Reactions
 - Gl upset, HA, dizziness
- May take with food to avoid GI upset
- Should monitor eyes and CBC with prolonged use

Malaria - Prophylaxis

Doxycycline

- Begin 1-2 days before travel, during travel, and continue for 4 weeks after travel
- Adults: 100mg once a day
- Peds: > 8 yo: 2.2mg/kg/day
- Do not use in pregnancy, breastfeeding, or < 8 years old

Malaria – Prophylaxis

- Doxycycline Contraindications
 - Pregnancy and peds < 8 years old</p>
- Common Adverse Reactions
- Gl upset, diarrhea, photosensitivity, esophagitisTake with meals if Gl upset occurs
- Remain upright for 30 min to prevent esophagitis
- Sunscreen!!!

Malaria – Prophylaxis

- Mefloquine
- Begin 1-2 weeks before travel, during travel, and continue for 4 weeks after travel
- Adults: 250mg once a week
- Peds: > 6 months old: once a week based on weight
- Caution in pregnancy, breastfeeding, peds < 6 months old
- Increasing resistance in some parts of the world

Malaria - Prophylaxis

- Mefloquine Contraindications
 - History of seizures
 - History of psychiatric disorder
- Common Adverse Reactions to Mefloquine
 - Gl upset, headache, insomnia, vivid dreams, dizziness, visual disturbances
- Take with food and 8oz of water
- Can be crushed and mixed in beverage



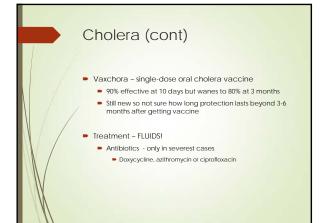
Meclizine

Motion Sickness (cont)

- Contraindications of anticholinergic/ antihistamine therapy:
 - Narrow-angle glaucoma
 - Urinary retentionGl obstruction
 - Myasthenia gravis
- Common Adverse Reactions:
 - Dry mouth, drowsiness, blurred vision, thick respiratory secretions
- Pregnancy/Lactation: Use with caution
 Pediatrics: Not FDA indicated

Cholera

- Bacterial disease spread by drinking water or eating food contaminated with cholera bacteria
- Can lead to severe, watery diarrhea as well as nausea/vomiting
- Prevention is key avoid contaminated foods/drink
- Vaccine



Zika

- Found pretty much everywhere in the tropics
- Transmitted by mosquito, mother to child, sexually, blood transfusion
- Symptoms few people have symptoms and if so it's "flu-like"
- No specific treatment for Zika
- No vaccine

Dika (cont) Inverse regenant: Do not travel to Zika area Inverse regenant:

Travel Med Case

 A 29 year-old female brings a Rx for 10 tablets of Chloroquine 500mg. She is a chaperone on an upcoming missions trip for her church's High School and College age youth group. She would like to have the Rx filed and wonders if there is anything else she chandle have with hone. should have with her.

Travel Med Case

- What questions should you ask her?
- Is her Rx appropriate?
- Is there anything else you'd recommend she take?

Key References

- Steffen R, Amitirigala I, Mutsch M. Health risks among travelers need for regular updates. J. Travel Med. 2008;15(3): 145-6.
- Traveler's Health by the CDC online. <u>www.cdc.gov/travel/</u>. Accessed 10/17/2017.
- Eddleston, Michael, et al. Oxford Handbook of Tropical Medicine, 4th Ed. New York: Oxford UP, 2014.
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- Farrar J, et al. Manson's Tropical Diseases, 23rd Ed. New York: Saunders Ltd., 2014.

