

# Preparing the Traveler

## WRAIR-GEIS Operational Infectious Disease Course

**WRAIR**

Walter Reed Army  
Institute of Research

Soldier Health • World Health



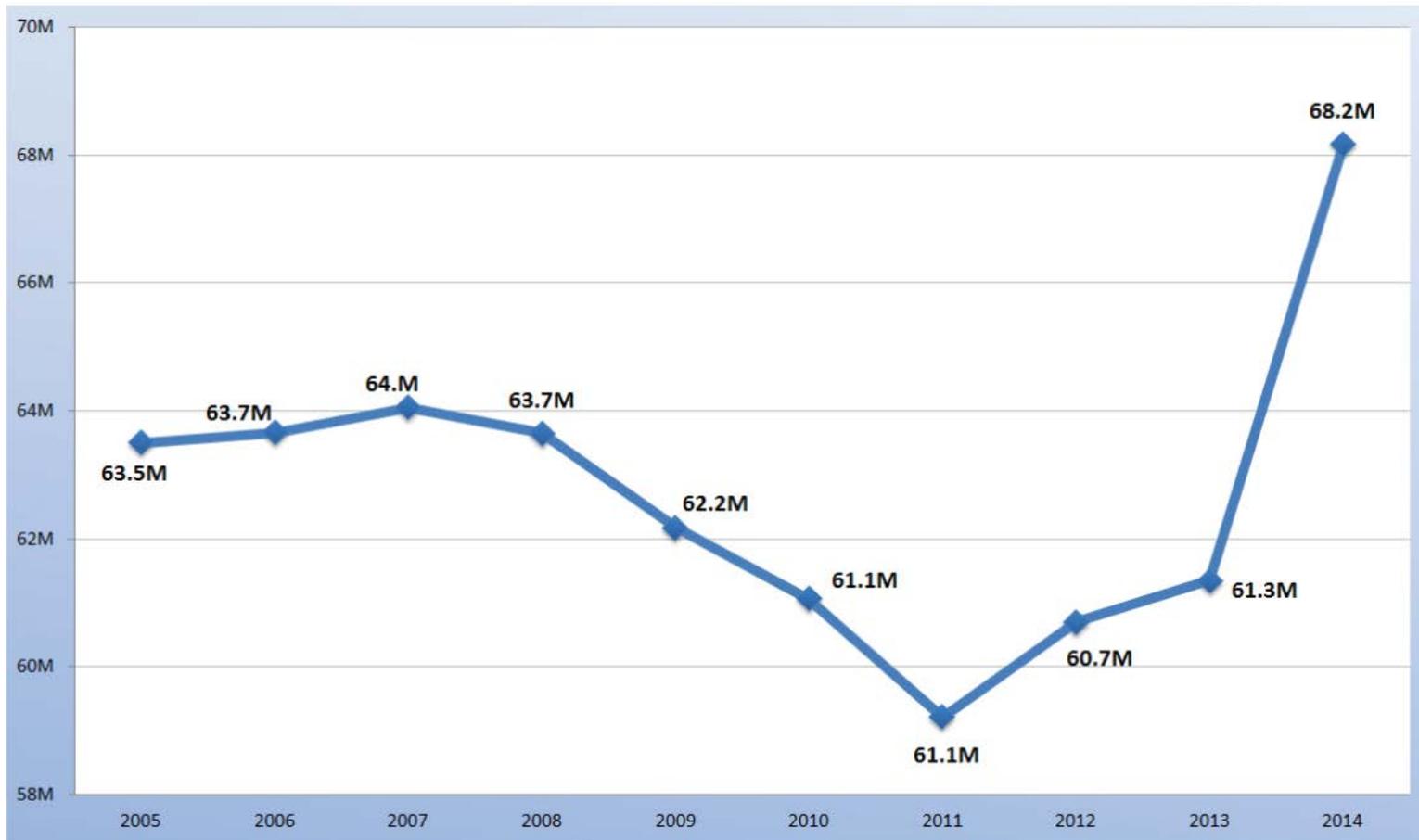
# Objectives

- **DISCUSS THE EPIDEMIOLOGY OF TRAVEL-RELATED ILLNESS**
- **REVIEW KEY ELEMENTS OF THE PRE-TRAVEL ENCOUNTER**
- **IDENTIFY USEFUL ONLINE TRAVEL MEDICINE RESOURCES**

# What Are the Risks?

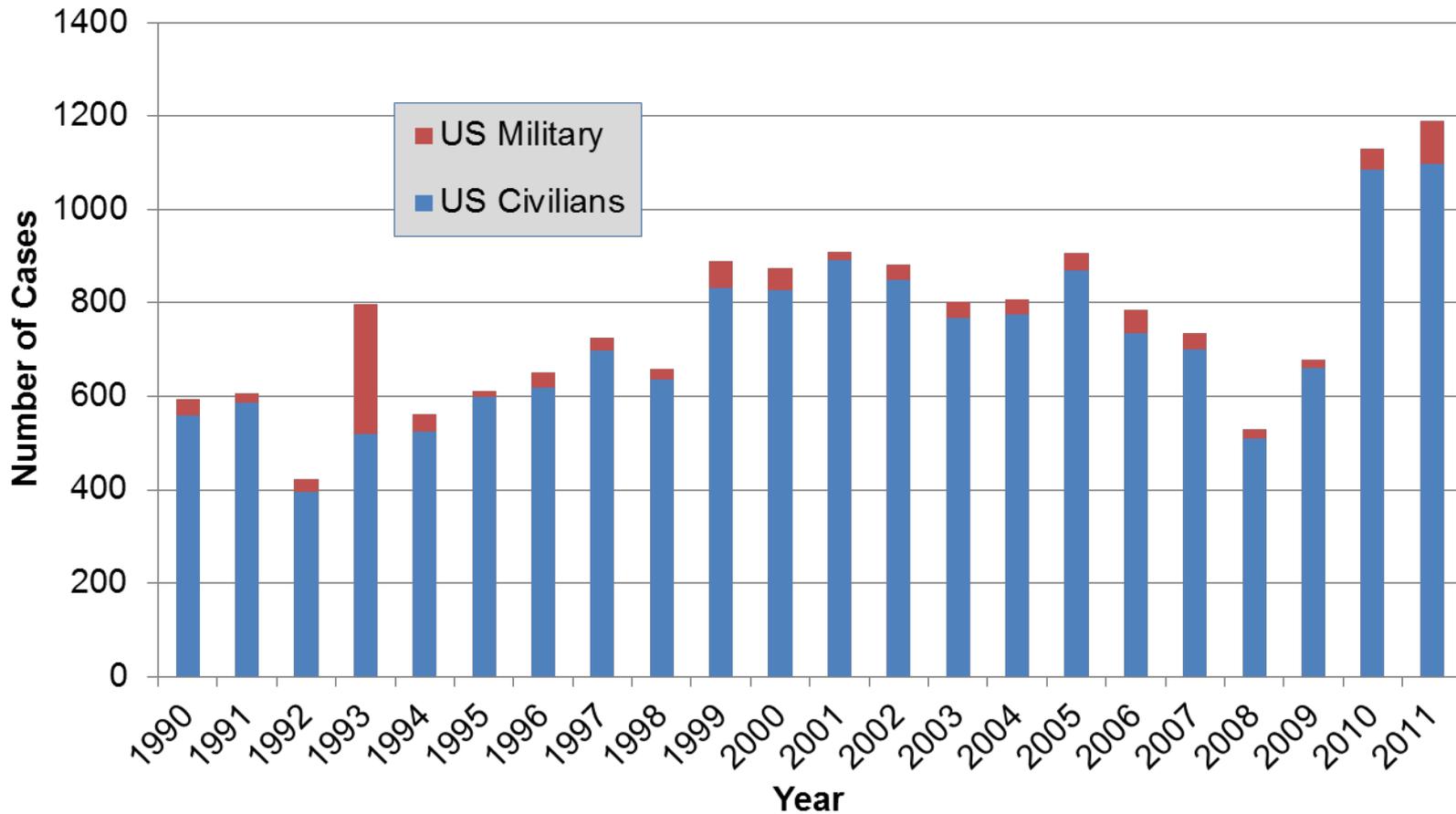


# US Resident Travel Abroad: 2005-2014



Source: "2014 United States Resident Travel Abroad", US Department of Commerce, International Trade Administration, National Travel & Tourism Office

# Malaria Cases in US Citizens



Source: Malaria Surveillance – United States, 2011; MMWR, 1 Nov 2013.

# GeoSentinel Surveillance Sites



Source: Surveillance for Travel-Related Disease – GeoSentinel Surveillance System, United States, 1997-2011; MMWR, 19 Jul 2013



# QUESTION:

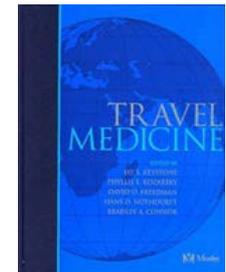
**WHAT IS THE MOST LIKELY CAUSE OF DEATH IN US CITIZENS TRAVELING INTERNATIONALLY?**

# Causes of Death Among International Travelers

Origin of traveler	USA (PCV)	USA	Swiss	Swiss	Foreign	Australia	Scotland
Destination of traveler	Developing country	Anywhere	Europe	Overseas	USA	Overseas	Abroad
Year of travel	1962–1983	1975/1984	1987	1987	1991	1995	1991
Total number of deaths	185	2463	247	68	17,988	421	952
Cardiovascular	8.0	49.0	14.0	15.0	45.0	35.0	68.9
Infection	5.0	1.0	–	3.0	–	2.4	3.6
Other illness	8.0	?	2.0	9.0	–	–	–
Accidents							
Road accident	36.0	7.0	13.0	12.0	37.0	28.3	–
Air crash	5.0	2.0	4.0	12.0	7.0	–	–
Drowning	14.0	4.0	4.0	9.0	15.0	–	–
Other injuries	23.0	12.0	2.0	11.0	23.0	26.0	20.7
Unknown	–	25.0	58.0	29.0	–	17.0	7.0

PCV, Peace Corps Volunteers (US).

Source: Keystone et al. Travel Medicine. 2004



# Objectives

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# Goals of The Pre-Travel Encounter

- **PROTECT TRAVELERS FROM DISEASE AND DEATH ASSOCIATED WITH INTERNATIONAL TRAVEL**
- **MINIMIZE THE IMPACT OF TRAVEL-RELATED ILLNESS THROUGH THE USE OF SELF-TREATMENT**
- **PROTECT THE PUBLIC FROM EMERGING PATHOGENS ASSOCIATED WITH INTERNATIONAL TRAVEL**

# Key Things to Remember

- RISK MAY BE DIFFICULT TO ESTIMATE, BUT RISK ASSESSMENT IS ESSENTIAL NONETHELESS
- GOAL SHOULD BE TO “MANAGE” RISK, NOT “ELIMINATE” RISK
- VACCINES AND CHEMOPROPHYLAXIS ARE WONDERFUL, BUT ONLY GO SO FAR – CONSIDER OTHER PPMS
- ILLNESS CAN OCCUR DURING AND FOLLOWING TRAVEL
- WHAT WE DO FOR THE LEISURE TRAVELER MAY BE DIFFERENT FROM WHAT WE DO FOR THE DEPLOYING INDIVIDUAL OR UNIT

# When is a Travel Health Consultation Needed?

**United  
States &  
Canada**

Travel Outside the  
“Safe” Zones

**Western &  
Northern  
Europe**

**Japan,  
Australia &  
New  
Zealand**

# The Pre-Travel Encounter

- REVIEW OF ITINERARY AND MEDICAL HISTORY
- IMMUNIZATIONS
- MALARIA PROPHYLAXIS
- SELF-TREATMENT MEDICATIONS
- PERSONAL PREVENTIVE MEASURES

# Review of Itinerary

- **WHERE?**
  - Country, region, urban/rural, altitude
- **WHEN?**
  - Length of travel, time of year
- **WHY?**
  - Leisure, work, humanitarian
- **WHO?**
  - Travel companions, visiting friends/relatives (VFR)
- **WHAT?**
  - Basic tourism/sightseeing itinerary vs. adventure travel
- **HOW?**
  - Lodging, meals/water, transportation, medical care

# Review of Current/Past Medical History

## CURRENT MEDICAL CONDITIONS

Heart disease, pulmonary disease, renal disease, MS, thymus disorder, HTN, DM, immune system disorders, malignancy

Pregnancy/breastfeeding

## PAST MEDICAL HISTORY

Psychiatric, cardiac conditions, epilepsy/seizures, DVT, ear/sinus problems

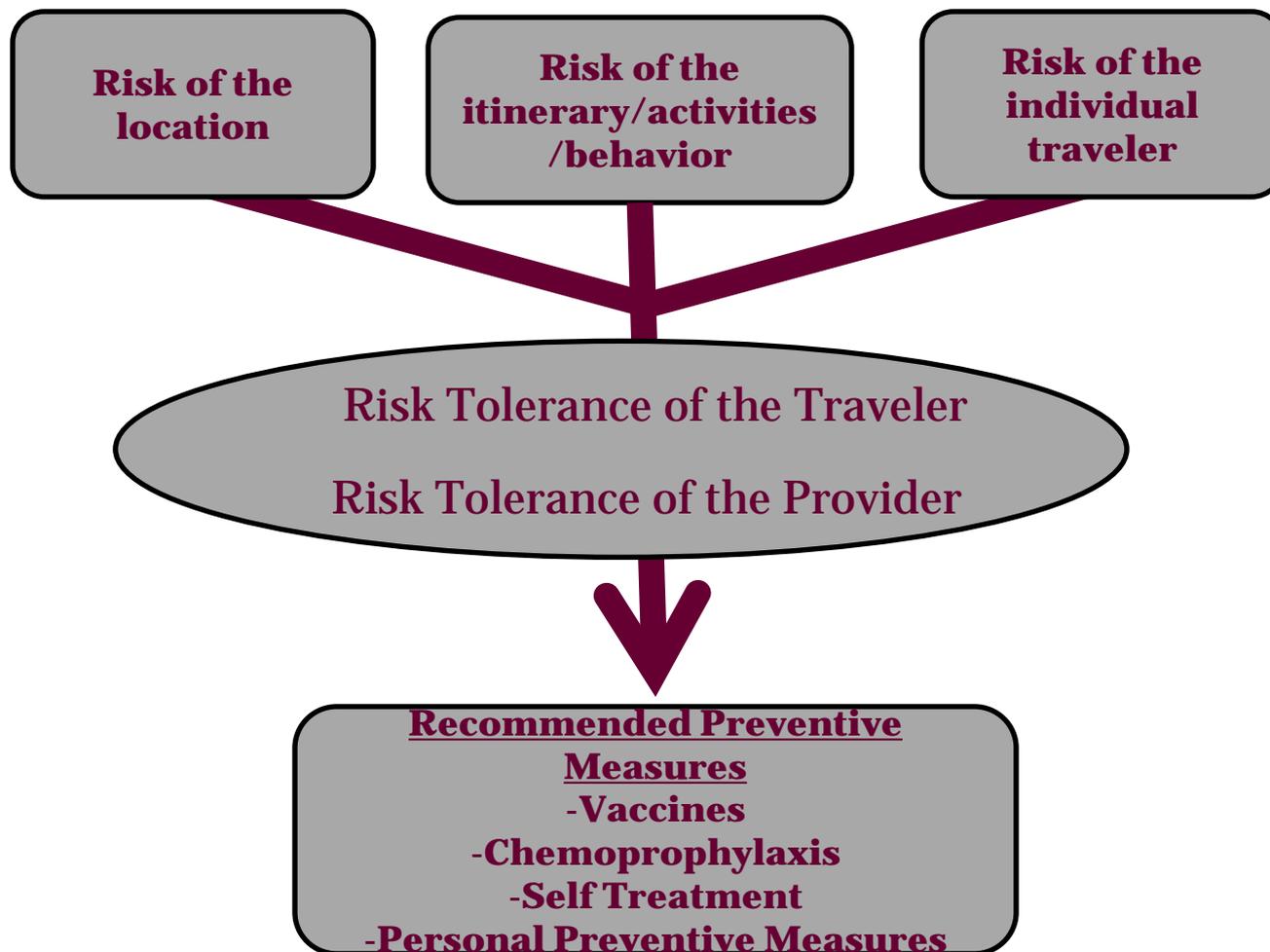
## MEDICATIONS

## ALLERGIES

Medications, vaccines, foods, latex

## VACCINATION HISTORY

# The Art of Travel Medicine: Pre-Travel



# The Pre-Travel Encounter

- REVIEW OF ITINERARY AND MEDICAL HISTORY
- **IMMUNIZATIONS**
- MALARIA PROPHYLAXIS
- SELF-TREATMENT MEDICATIONS
- PERSONAL PREVENTIVE MEASURES

# Immunizations for Travelers

- “TRAVEL” VACCINES

- Widespread Risk
  - Hepatitis A
  - Typhoid
- Geographic Risk
  - Yellow Fever
  - Meningococcal
  - Polio
  - Japanese Encephalitis
- Duration/Activity Risk
  - Hepatitis B
  - Rabies

- “Routine” Vaccines

- Childhood

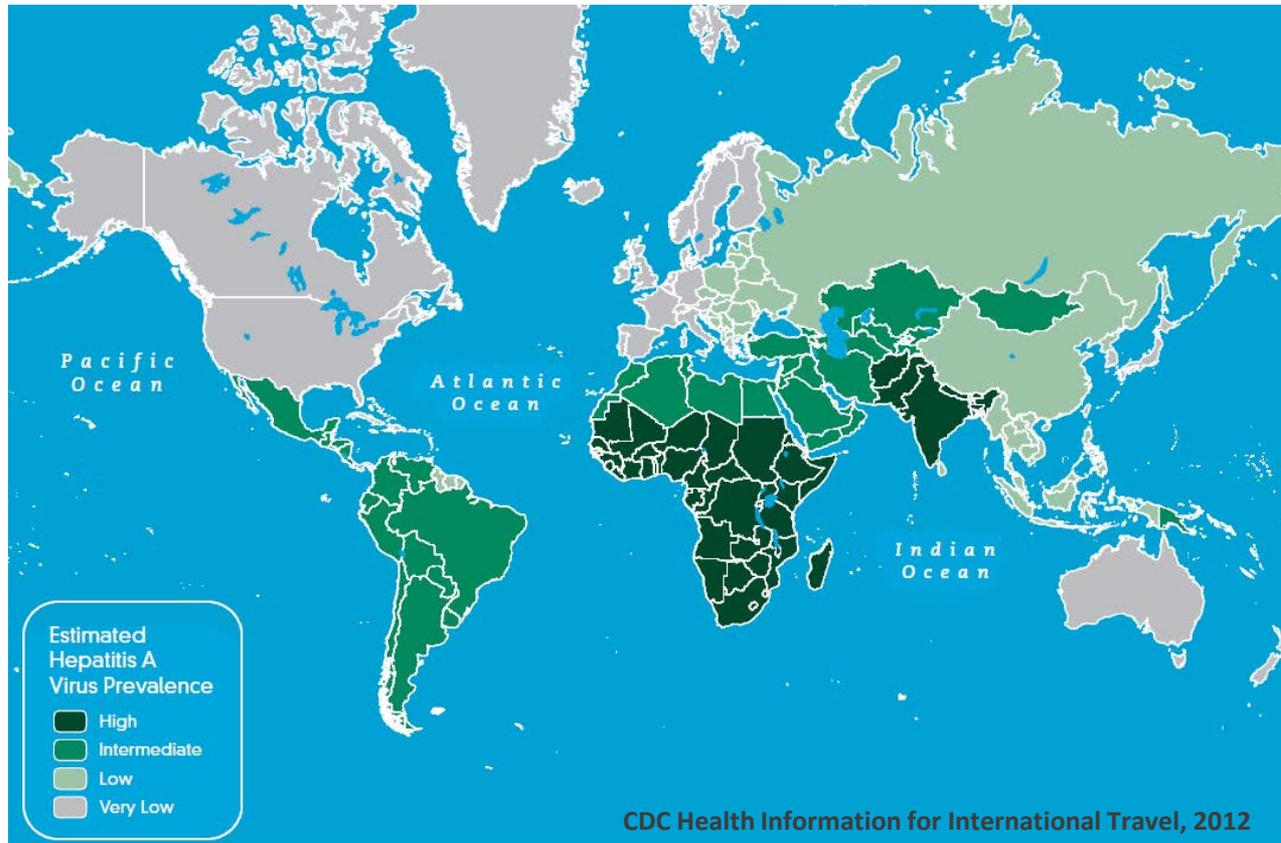
- MMR, Varicella, DTaP, Polio, HiB, Hep A, Hep B, PCV, Rotavirus, Influenza

- Adolescent/Adult

- Tdap
- Meningococcal
- HPV
- Influenza
- Pneumococcal
- Varicella/Zoster
- MMR

# Hepatitis A Immunization

## Geographic Distribution of Hepatitis A



# Hepatitis A Immunization

- **HEPATITIS A VACCINE**

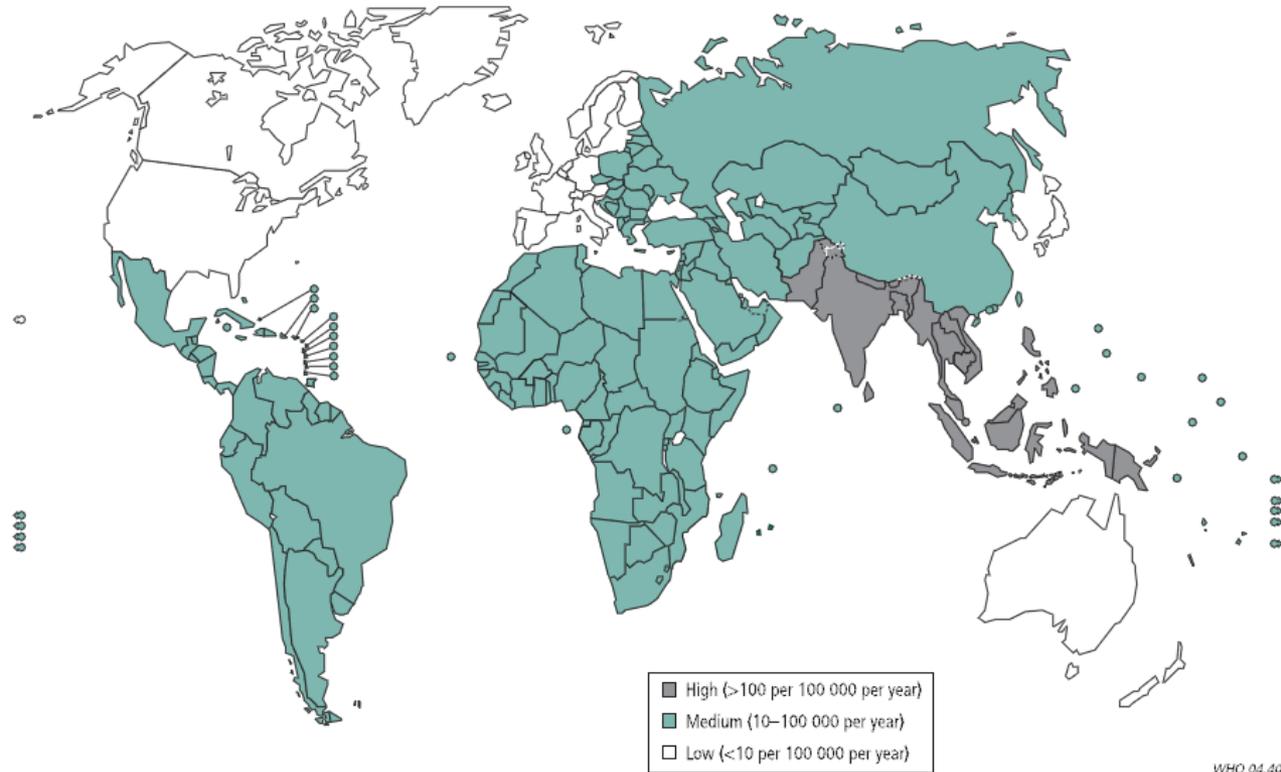
- Inactivated vaccine whole virus vaccine (Vaqta<sup>®</sup>, Havrix<sup>®</sup>)
- 2 dose series (0 & 6 months) provides life-long protection
- Also available as combination Hep A/Hep B vaccine (Twinrix<sup>®</sup>)

- **HEPATITIS A IMMUNE GLOBULIN**

- Rarely necessary; one dose of vaccine anytime pre-travel provides protection in most healthy people
- Consider for travelers departing within two weeks if:
  - Immune compromised
  - Chronic liver disease
  - Unable to receive hepatitis A vaccine

# Typhoid Fever Vaccine

## Geographic Distribution of Typhoid Fever



Bulletin of the World Health Organization,  
2004; 82:346-353

# Typhoid Fever Vaccine

- **INACTIVATED INJECTABLE VACCINE (VICPS, TYPHIM VI®)**
  - Single dose; booster every 2 years
- **LIVE ORAL VACCINE (TY21A, VIVOTIF®)**
  - 4 doses, 1 capsule every 48 hours; booster every 5 years
  - Must be refrigerated, take with cool liquids, avoid antibiotics immediately before and after
- **EFFICACY FOR BOTH : 50-80%**



# Yellow Fever Vaccine

- VACCINE OVERVIEW

- Live virus vaccine (YF-VAX®)
- Single dose; booster every 10 years (but likely to change)
- Required for entry into several countries
  - Consider flight itinerary and transit through YF endemic countries
  - Provide waiver for those with vaccine contraindications
  -

- PRECAUTIONS/CONTRAINDICATIONS

- Caution in travelers > 60 years old
- Avoid in breastfeeding mothers and patients with MS
- Contraindicated in those with egg allergies, immunocompromised, thymus disorders (thymoma or myasthenia gravis), active malignancy

# Yellow Fever Vaccine

- **COMPLICATIONS**

- Vaccine-associated neurotropic disease
  - Meningoencephalitis, bulbar palsies, Bell's palsy, GBS
  - 0.4 – 0.8 cases per 100,000 vaccine doses
- Vaccine associated viscerotropic disease
  - Similar to natural YF infection
  - 0.3 – 0.4 cases per 100,000 vaccine doses
  - 1.6/100,000 in first time vaccine recipients > 60 y/o
- Meningoencephalitis in breastfeeding infants
- 10x increased risk of multiple sclerosis relapse

# Yellow Fever Vaccine

## International Certificate of Vaccination

**INTERNATIONAL CERTIFICATE OF VACCINATION**  
AS APPROVED BY  
**THE WORLD HEALTH ORGANIZATION**

**CERTIFICATE OF VACCINATION OR PROPHYLAXIS**  
AS APPROVED BY  
**THE WORLD HEALTH ORGANIZATION**

**CERTIFICAT INTERNATIONAL DE VACCINATION OU DE PROPHYLAXIE**  
APPROUVÉ PAR  
**L'ORGANISATION MONDIALE DE LA SANTE**

TRAVELER'S NAME—NOM DU VOYAGEUR \_\_\_\_\_

ADDRESS—ADRESSE (Number—Numéro) (Street—Rue) \_\_\_\_\_

(City—Ville) \_\_\_\_\_

(County—Département) \_\_\_\_\_ (State—Pays) \_\_\_\_\_



U.S. PUBLIC HEALTH SERVICE  
HEALTH DEPARTMENT  
PHS-731 (REV. 11-91)



DEPARTMENT OF HEALTH AND HUMAN SERVICES  
CENTERS FOR DISEASE CONTROL AND PREVENTION

CDC 731 (formerly PHS-731) CR113730

**INTERNATIONAL CERTIFICATE OF VACCINATION OR PROPHYLAXIS**  
**Certificat international de vaccination ou de prophylaxie**

This is to certify that (Name - nom) Jane Mary Doe (Date of birth - né(e) le) 22 March 1960 (Sex - de sexe) F (Nationality - et de nationalité) United States

(passport number) [passport number] whose signature follows (date of signature) Jane Mary Doe

(National identification document, if applicable - document d'identification nationale, le cas échéant)

Was, on the date indicated, been vaccinated or received prophylaxis against (Name of disease or condition - nom de la maladie ou de l'affection) Yellow Fever in accordance with the International Health Regulations, (contenuement au Règlement sanitaire international).

Vaccine or prophylaxis Vaccin ou agent prophylactique	Date	Signature and professional status of supervising clinician Signature et titre du professionnel de santé responsable	Manufacturer and batch no. of vaccine or prophylaxis Fabricant du vaccin ou de l'agent prophylactique et numéro du lot	Certificate valid from: until: / Certificat valable à partir de: jusqu'à:	Official stamp of the administering center Cachet officiel du centre habilité
④ Yellow Fever	⑤ 15 June 2012				

**MEDICAL CONTRAINDICATION TO VACCINATION**  
Contre-indication médicale à la vaccination

This is to certify that immunization against (Name of disease—Nom de la maladie) \_\_\_\_\_ for \_\_\_\_\_  
Je soussigné(e) certifie que la vaccination contre \_\_\_\_\_ pour \_\_\_\_\_  
\_\_\_\_\_ (Name of traveler—Nom du voyageur) \_\_\_\_\_ is medically \_\_\_\_\_  
\_\_\_\_\_ est médicalement \_\_\_\_\_

contraindicated because of the following conditions:  
contre-indiquée pour les raisons suivantes:

\_\_\_\_\_

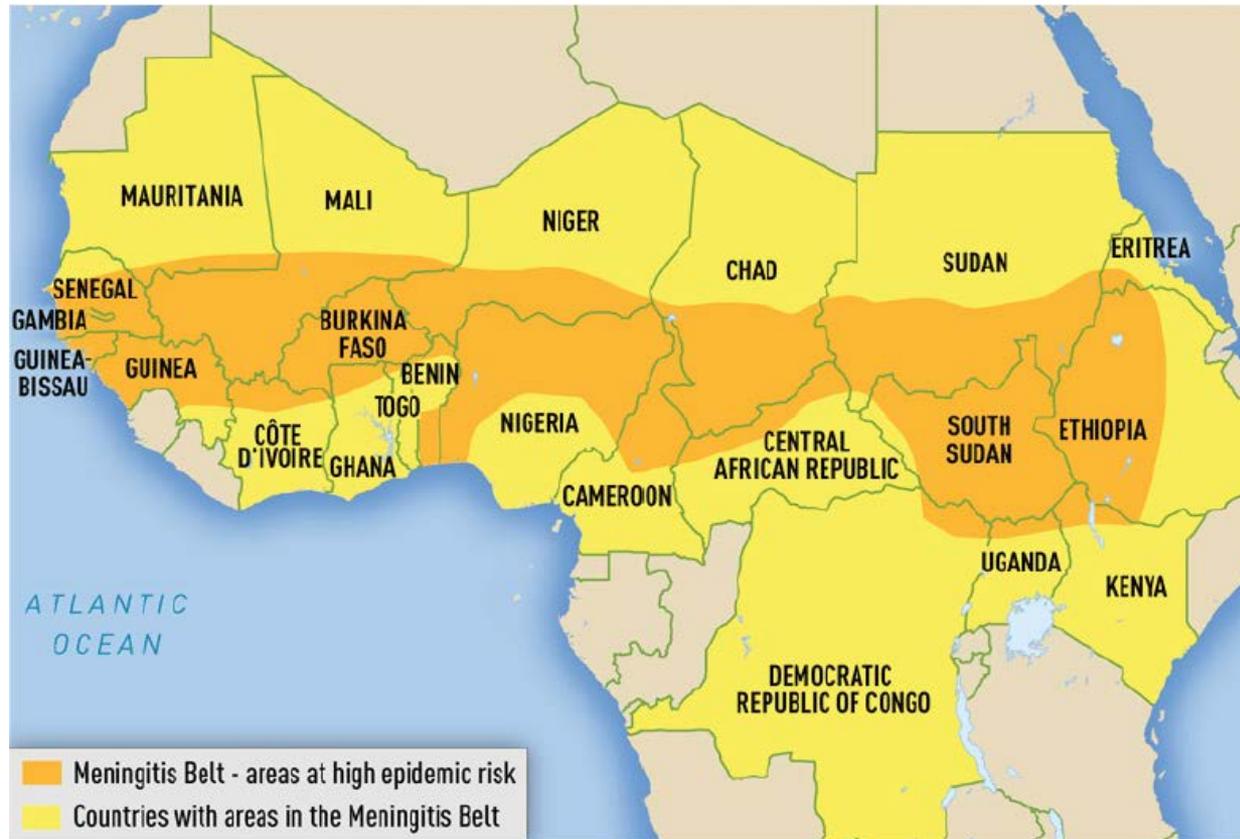
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
(Signature and address of physician)  
(Signature et adresse du médecin)

# Meningococcal Vaccine

## The “Meningitis Belt”



CDC Health Information for International Travel, 2016

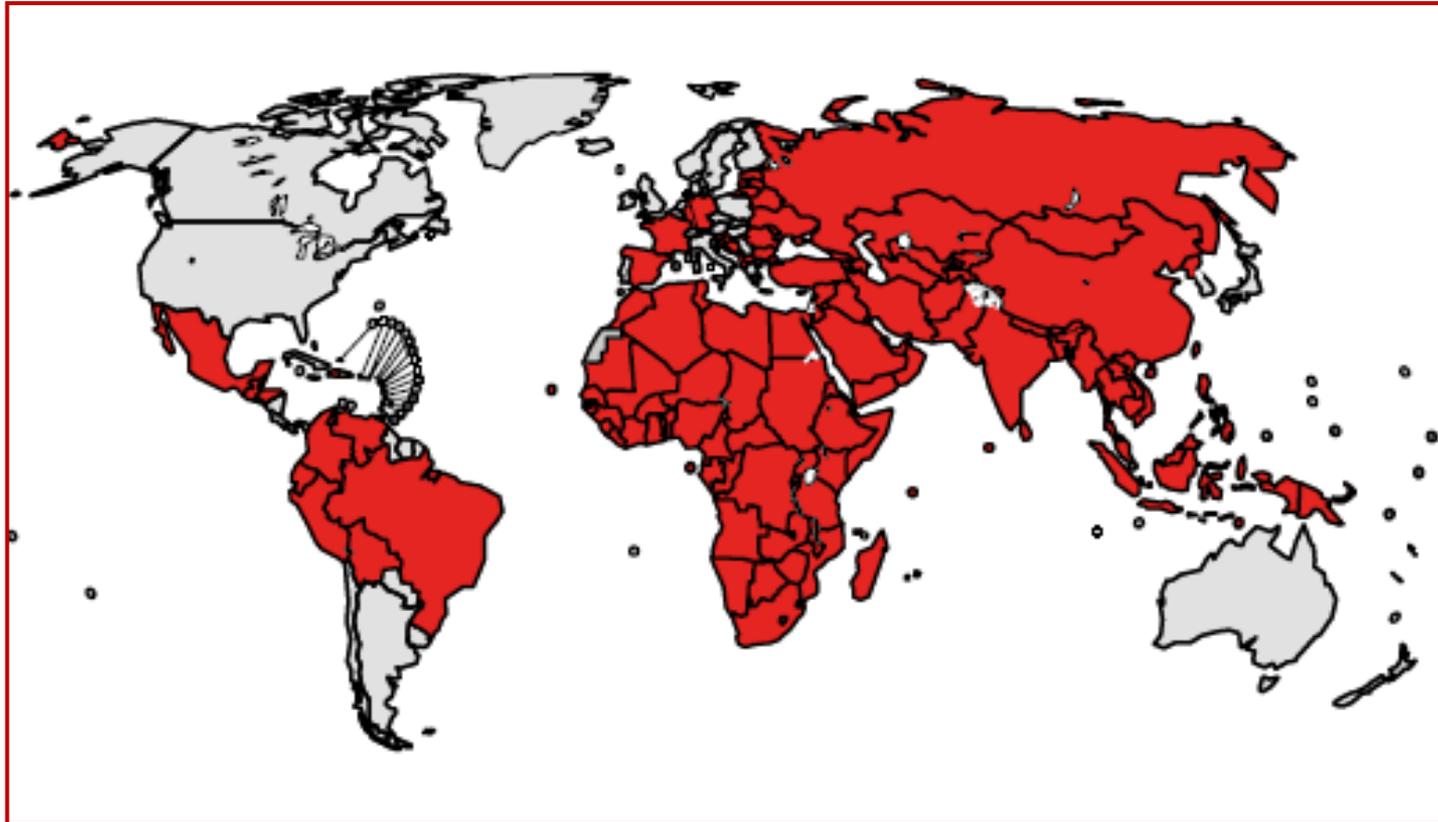
# Meningococcal Vaccine

- QUADRIVALENT (A,C,Y,W-135) VACCINE; BOOSTER EVERY 3-5 YEARS
- AVAILABLE AS POLYSACCHARIDE (MENOMUNE®) AND CONJUGATE VACCINES (MENACTRA®, MENVEO®)
- RECOMMENDED FOR TRAVEL TO THE AFRICAN MENINGITIS BELT
  - During high risk periods (Dec – Jun) for typical travelers
  - Year-round for those engaged in healthcare operations
- REQUIRED BY SAUDI ARABIA FOR THOSE ENTERING THE COUNTRY FOR HAJJ OR UMRAH PILGRIMAGE

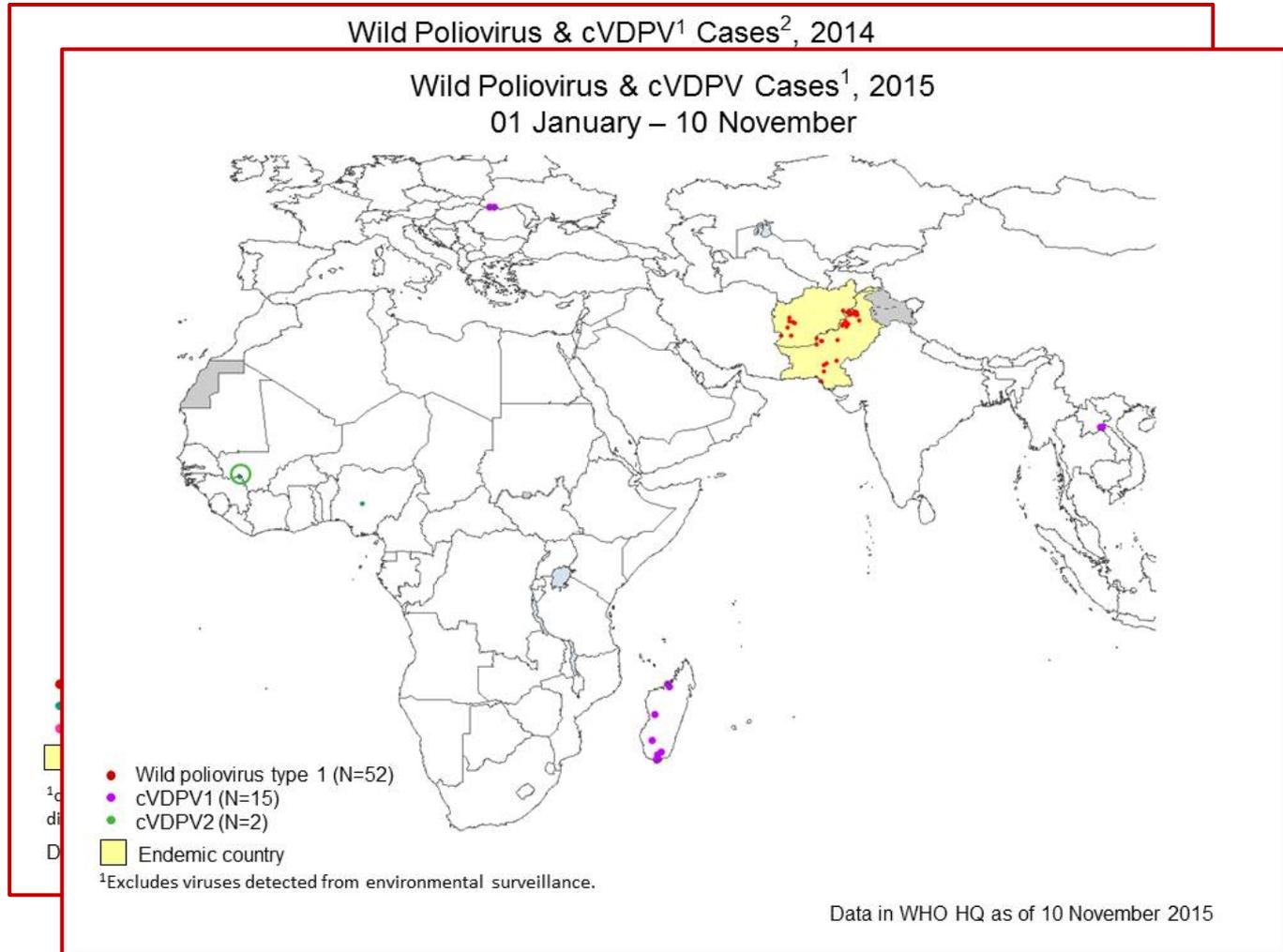
# Polio Vaccine

- **INACTIVATED INJECTABLE VACCINE IS AVAILABLE IN THE US**
- **LIVE ATTENUATED ORAL VACCINE IS STILL USED IN OTHER PARTS OF THE WORLD**
- **SINGLE ADULT POLIO BOOSTER IS A MEDICAL READINESS REQUIREMENT FOR ACTIVE DUTY PERSONNEL**
- **PRIMARY SERIES AND SINGLE ADULT BOOSTER RECOMMENDED FOR TRAVEL TO AREAS WITH RECENT OR ONGOING TRANSMISSION**

# Polio Endemic Countries, 1988



# Total Global Polio Cases, ~~2014~~- 2015



# Japanese Encephalitis Vaccine

- **JE-VAX NO LONGER AVAILABLE; INACTIVATED VERO-CELL DERIVED VACCINE (IXIARO®) LICENSED IN 2009**
- **2-DOSE SERIES: DAY 0 AND 28; BOOSTER AFTER 1 YEAR**
- **LICENSED FOR USE IN AGE 2 MONTHS AND OLDER**
- **RECOMMENDED FOR:**
  - Prolonged exposure in high risk regions (rural farming areas)
    - Duration > 1 month
    - Frequent short stays to high risk areas
    - Significant outdoor exposure (adventure travelers)
  - Rarely necessary for short itineraries or urban environments.

# Geographic Distribution of Japanese Encephalitis



CDC Health Information for International Travel, 2014

# Hepatitis B Vaccine

- **INACTIVATED VIRAL ANTIGEN VACCINE**
- **3-DOSE SERIES: 0, 1, AND 6 MONTHS**
- **RECOMMENDED FOR:**
  - Prolonged exposure in high risk regions
    - Duration > 3 months
    - Frequent short stays to high risk areas
  - High risk activities
    - Possibility of new sexual partner
    - Possibility of needing medical or dental care
    - Tattooing, body piercing, acupuncture
    - Healthcare workers

# Rabies Vaccine

- **INACTIVATED VIRUS VACCINE**
- **3 DOSE SERIES: 0, 7, AND 21-28 DAYS**
- **POST-EXPOSURE VACCINE STILL REQUIRED AFTER EXPOSURE (2 DOSES)**
- **RECOMMENDED FOR:**
  - Prolonged exposure in high risk regions
  - High risk activities
    - Potential exposure to animals (adventure travelers)
    - Occupational exposure
  - Other considerations
    - Young children
    - Limited access to medical care, remote locations

# Routine Childhood Vaccinations

- **INACTIVATED VIRUS VACCINE**
- **3 DOSE SERIES: 0, 7, AND 21-28 DAYS**
- **POST-EXPOSURE VACCINE STILL REQUIRED AFTER EXPOSURE (2 DOSES)**
- **RECOMMENDED FOR:**
  - Prolonged exposure in high risk regions
  - High risk activities
    - Potential exposure to animals (adventure travelers)
    - Occupational exposure
  - Other considerations
    - Young children
    - Limited access to medical care, remote locations

# Routine Adult Vaccinations

## ACIP Recommendations - 2014

If you are this age, talk to your healthcare professional about these vaccines →

If you are this age, ↓	Flu Influenza	Td/Tdap Tetanus, diphtheria, pertussis	Shingles Zoster	Pneumococcal		Meningococcal	MMR Measles, mumps, rubella	HPV Human papillomavirus		Chickenpox Varicella	Hepatitis A	Hepatitis B	Hib Haemophilus influenzae type b
				PCV13	PPSV23			for women	for men				
19 - 21 years													
22 - 26 years													
27 - 49 years													
50 - 59 years													
60 - 64 years													
65+ year													

**Recommended For You:** This vaccine is recommended for you *unless* your healthcare professional tells you that you cannot safely receive it or that you do not need it.

**May Be Recommended For You:** This vaccine is recommended for you if you have certain risk factors due to your health, job, or lifestyle that are not listed here. Talk to your healthcare professional to see if you need this vaccine.

# The Pre-Travel Encounter

- REVIEW OF ITINERARY AND MEDICAL HISTORY
- IMMUNIZATIONS
- **MALARIA PROPHYLAXIS**
- SELF-TREATMENT MEDICATIONS
- PERSONAL PREVENTIVE MEASURES

# Malaria Prevention

- **RISK ASSESSMENT IS IMPORTANT**
  - Risk can vary significantly within regions and countries
  - Risk changes over time
- **NO VACCINE - CHEMOPROPHYLAXIS IS THE KEY!**
  - Consider resistance trends
  - Understand precautions/contraindications
  - Encourage patients to follow dosing/duration
- **OTHER PREVENTIVE MEASURES STILL IMPORTANT**
  - Chemoprophylaxis is not 100% effective
  - Vectorborne diseases other than malaria

# Malaria in US Travelers

**TABLE 6. Number\* and percentage of imported malaria cases among U.S. civilians, by purpose of travel at the time of acquisition — United States, 2011**

Category	No.	(%)
Visiting friends and relatives	607	(55.4)
Tourist	45	(4.1)
Missionary or dependent	96	(8.8)
Business representative	78	(7.1)
Student or teacher	32	(2.9)
Air crew or sailor	10	(0.9)
Other	3	(0.3)
Unknown	224	(20.5)

\* N=1,095

Source: Malaria Surveillance – United States, 2011; MMWR, 1 Nov 2013.

# Malaria Chemoprophylaxis

<b>Medication</b>	<b>Dosing</b>	<b>Begin</b>	<b>End</b>
Atovaquone-proguanil 250mg/100mg	Daily	1-2 days pre-travel	7 days post-travel
Mefloquine 250mg	Weekly	2-3 weeks pre-travel	4 weeks post-travel
Chloroquine 500mg	Weekly	1-2 weeks pre-travel	4 weeks post-travel
Doxycycline 100mg	Daily	1-2 days pre-travel	4 weeks post-travel

\*\*Primaquine can be used off-label for prophylaxis

# Malaria Chemoprophylaxis

<b>Medication</b>	<b>Precautions/Contraindications</b>
Atovaquone-proguanil	Pregnancy; breastfeeding a child < 5kg; severe renal impairment
Mefloquine	Current/recent depression or anxiety; history of SI/II, psychotic disorder or seizures
Doxycycline	Pregnancy; age < 8 y/o; women prone to yeast infections

# DoD Policy on Mefloquine

## HA Policy 13-002 Guidance on Medications for Prophylaxis of Malaria, 15 Apr 2013

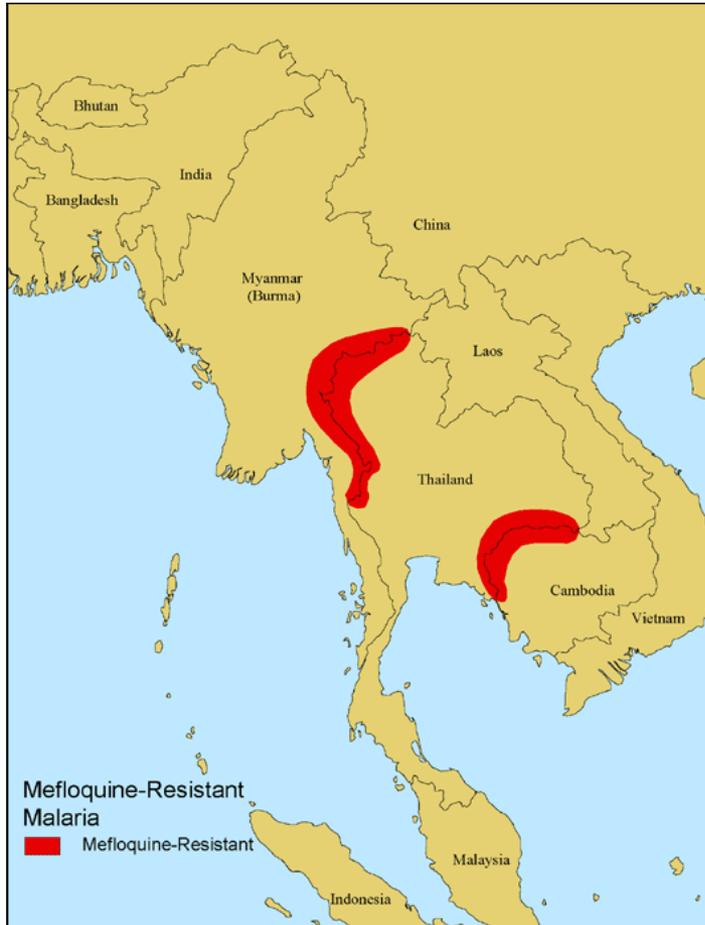
- CHLOROQUINE IS THE DRUG OF CHOICE FOR CHLOROQUINE-SENSITIVE REGIONS
- ATOVAQUONE-PROGUANIL OR DOXYCYCLINE ARE ACCEPTABLE FIRST LINE DRUGS FOR CHLOROQUINE-RESISTANT REGIONS
- MEFLOQUINE SHOULD BE RESERVED FOR INDIVIDUALS WITH INTOLERANCE OR CONTRAINDICATIONS TO BOTH FIRST LINE DRUGS
- BEFORE PRESCRIBING MEFLOQUINE, BE SURE TO IDENTIFY ANY CONTRAINDICATIONS AND ENSURE PATIENT IS PROVIDED FDA-REQUIRED PATIENT INFORMATION HANDOUT

# Chloroquine-Sensitive Regions

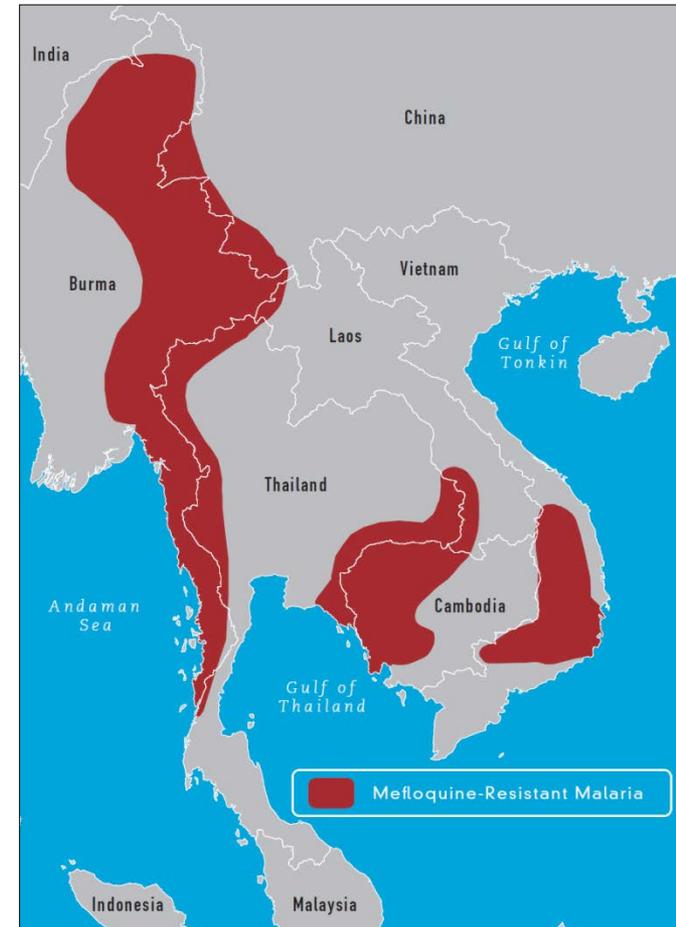
- **CARIBBEAN**
  - Dominican Republic, Haiti
- **CENTRAL AMERICA**
  - Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua

# Mefloquine Resistance

CDC Yellow Book, 2005-2006



CDC Yellow Book, 2012



# The Pre-Travel Encounter

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- IMMUNIZATIONS
- MALARIA PROPHYLAXIS
- **SELF-TREATMENT MEDICATIONS**
- PERSONAL PREVENTIVE MEASURES

# Traveler's Diarrhea - Causes

- **BACTERIA – 80-90%**

- Enterotoxigenic E. coli
- Campylobacter
- Shigella
- Salmonella
- Aeromonas
- Plesiomonas

- Virus – 5-8%

- Norovirus
- Rotavirus

- Protozoan – <3%

- Giardia
- Cryptosporidium
- Entamoeba histolytica
- Cyclospora

# Self-Treatment for Traveler's Diarrhea

- MILD ILLNESS

- Bismuth subsalicylate

- MODERATE TO SEVERE ILLNESS

- Loperamide plus antibiotic
  - Combination treatment is safe and effective
  - Safety with invasive disease (fever, blood) a concern
- Fluoroquinolone: 1-3 days course
- Azithromycin: 1 g single dose or 500mg daily for 1-3 days
  - 1<sup>st</sup> line antibiotic for Southeast Asia and South Asia (India, Nepal) due to fluoroquinolone resistance

# Chemoprophylaxis for Traveler's Diarrhea

- BISMUTH SUBSALICYLATE
  - 2 oz. of liquid or 2 tablets taken 4 times per day
- ANTIBIOTICS
  - Generally NOT recommended
    - Self-treatment often results in rapid improvement
    - May increase risk of side effects (*C. difficile* colitis)
    - May contribute to antibiotic resistance
  - Possible uses
    - Immunosuppressed travelers
    - Medical conditions with risk for complications from TD (Crohn's disease, ulcerative colitis, chronic diarrhea)
    - Critical travel in which illness would have significant impact

# Traveler's Diarrhea Medications

**Table 6. Recommended agents for traveler's diarrhea.**

Use, agent	Dosage
<b>Prophylaxis<sup>a</sup></b>	
Bismuth subsalicylate (Pepto Bismol)	Two tablets chewed 4 times per day
Norfloxacin <sup>b</sup>	400 mg po daily
Ciprofloxacin <sup>b</sup>	500 mg po daily
Rifaximin	200 mg qd or bid
<b>Symptomatic treatment<sup>c</sup></b>	
Bismuth subsalicylate (Pepto Bismol)	1 oz po every 30 min for 8 doses
Loperamide	4 mg po then 2 mg after each loose stool not to exceed 16 mg daily
<b>Antibiotic treatment<sup>d</sup></b>	
<b>Fluoroquinolones</b>	
Norfloxacin	400 mg po bid
Ciprofloxacin	500 mg po bid
Ofloxacin	200 mg po bid
Levofloxacin	500 mg po qd
Azithromycin	1000 mg po once
Rifaximin <sup>e</sup>	200 mg po tid

Hill DR. *Clin Inf Dis* (IDSA Guidelines) Dec 2006; 43:1499-1539

# Altitude Sickness

- $PO_2$  AT 10,000 FEET IS 70% OF SEA LEVEL VALUE
- ILLNESS RESULTS FROM MILD TO MODERATE HYPOXIA
- SYMPTOMS CAN OCCUR AT ALTITUDES ABOVE 8,000 FEET
- ACUTE MOUNTAIN SICKNESS IS THE MOST COMMON
  - Headache
  - Fatigue
  - Loss of appetite
  - Nausea
  - Insomnia

# Altitude Sickness

- **PROPHYLAXIS: ACETAZOLAMIDE 125MG BID, START 24 HRS BEFORE ASCENT, CONTINUE FOR 48 HRS AT HIGHEST ALTITUDE**
- **TREATMENT: ACETAZOLAMIDE 250MG BID**
- **EXPECTED SIDE EFFECTS: NUMBNESS/TINGLING IN EXTREMITIES, INCREASED URINATION**

<b>Patient History</b>	<b>Consider Prophylaxis</b>	<b>Prophylaxis Recommended</b>
Past history of AS	8,000-9,000 ft	>9,000 ft
No history of AS	9,000-11,500 ft	>11,500 ft

# Jet Lag

- **TEMPORARY DISORDER OF THE BODY'S SLEEP-WAKE CYCLE**
- **SYMPTOMS CAN INCLUDE:**
  - Poor sleep, early wakening, fractionated sleep
  - Poor performance of physical and mental tasks
  - Fatigue, headaches, irritability, GI upset
- **STRATEGIES FOR PREVENTION/TREATMENT:**
  - Adjust sleep time pre-travel
  - Use bright light to adjust sleep-wake cycle
  - Avoid long naps
  - Eat meals appropriate to local time
  - Medications: zolpidem (Ambien<sup>®</sup>), temazepam (Restoril<sup>®</sup>)

# Other Self-Treatable Conditions

- **MOTION SICKNESS**
  - Antihistamines, scopolamine (oral or transdermal), meclizine, promethazine
- **RECURRING BACTERIAL/FUNGAL INFECTIONS**
  - Urinary tract infection
  - Vaginal yeast infection
- **COMMON MINOR INJURIES/ILLNESSES**
  - Analgesic, decongestant, antibiotic ointment, mild laxative, antacid, throat lozenges

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- SELF-TREATABLE CONDITIONS
- **PERSONAL PREVENTIVE MEASURES**

# Personal Preventive Measures

- **FOOD/BEVERAGE PRECAUTIONS**
- **HAND HYGIENE**
- **INSECT PRECAUTIONS**
- **ANIMAL BITE PRECAUTIONS**
- **SAFETY/SECURITY**
- **FRESHWATER AVOIDANCE**
- **HEAT/COLD INJURIES**
- **SEXUALLY TRANSMITTED INFECTIONS**

# Food/Beverage Precautions

- **BOIL IT, PEEL IT, OR FORGET IT!.....BUT IS THAT REALLY POSSIBLE?**



## Lower Risk Foods:



Breads



Fully cooked vegetables, beans and rice that are kept and served hot



Boiled or well done meats (lamb, beef, poultry and fish) that are eaten within 2 hours after cooking



Hard-skin fruits and vegetables that you peel yourself (bananas, oranges and limes)



Hot tea



Bottled water or canned carbonated drinks that you open yourself





## Higher Risk Foods:

**X** Milk and other dairy products (cheese, ice cream and butter)



**X** Partially cooked or raw meats or fish



**X** Raw, leafy vegetables



**X** Leftovers, take-home, or doggie bags



**X** Opened/unsealed beverage containers



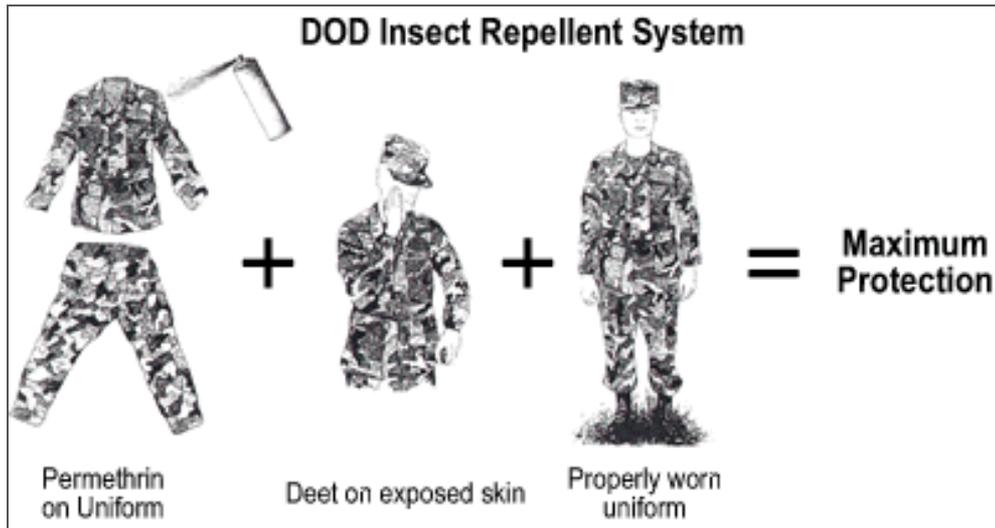
**X** Ice, iced drinks, frozen desserts and juices



**X** Locally canned or packaged products



# Insect Precautions



Best Insect Repellants: DEET (30-40%) or Picaridin (20%)

# Animal Bite Precautions

The screenshot shows the ArmyTimes website interface. At the top, the logo reads "ArmyTimes A GANNETT COMPANY". Below the logo is a navigation bar with links for HOME, NEWS, BENEFITS, MONEY, CAREERS & EDUCATION, COMMUNITY, OFF DUTY, and ENT. The main content area features a "Fort Drum soldier dies of rabies" article. The article is attributed to "The Associated Press" and was posted on "Sunday Sep 4, 2011 15:14:18 EDT". The text of the article states: "FORT DRUM, N.Y. — A Fort Drum soldier has died of rabies believed to have been contracted during service overseas. Officials at the northern New York Army base say Spc. Kevin R. Shumaker died on Wednesday. According to a statement, the decorated 24-year-old soldier from Livermore, Calif., was from the 10th Mountain Division. He was an Army cook, and was deployed with the 615th Military Police Company in Afghanistan for a year that ended in May. Exactly how and where he contracted the illness is under investigation. But military officials say he did not get the rabies in New York. Shumaker is survived by his mother and stepfather." To the left of the article is a sidebar with "Army News" and "Subscribe to RSS" options. At the bottom of the article area, there is an "ADVERTISEMENT" placeholder.

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**Fort Drum soldier dies of rabies**

The Associated Press  
Posted : Sunday Sep 4, 2011 15:14:18 EDT

FORT DRUM, N.Y. — A Fort Drum soldier has died of rabies believed to have been contracted during service overseas.

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Exactly how and where he contracted the illness is under investigation. But military officials say he did not get the rabies in New York.

Shumaker is survived by his mother and stepfather.

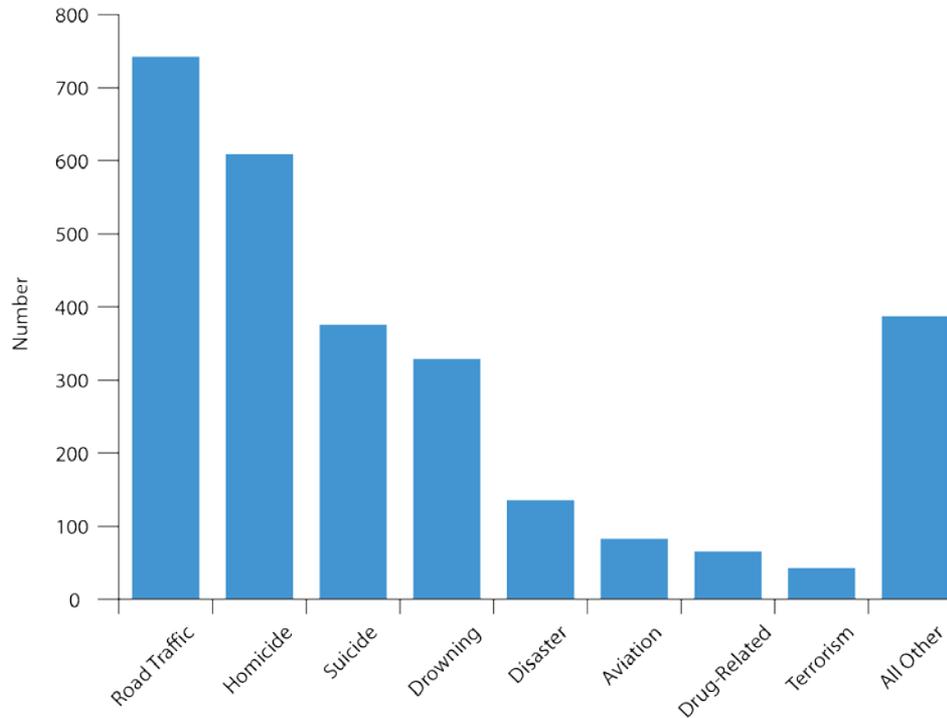
ADVERTISEMENT

# Animal Bite Precautions

- **AVOID ANIMALS!**
  - Rabies can be highly prevalent in feral dogs and cats
  - Monkeys and bats (spelunking) also a source of exposure
  - Focus education/counseling on children
- **IF BITTEN BY TERRESTRIAL MAMMAL OR BAT:**
  - Immediately wash wound with soap and water for several minutes
  - Seek medical attention as soon as possible
    - Rabies immune globulin plus vaccine needed if no pre-exposure vaccination given
    - Additional doses of vaccine required even if pre-travel vaccine was administered

# Safety/Security

Leading Cause of Injury Death to US Citizens in Foreign Countries (2009-2011)



CDC Health Information for International Travel, 2014

# Motor Vehicle Safety



# Objectives

- DISCUSS THE EPIDEMIOLOGY OF TRAVEL-RELATED ILLNESS
- REVIEW KEY ELEMENTS OF THE PRE-TRAVEL ENCOUNTER
- IDENTIFY USEFUL ONLINE TRAVEL MEDICINE RESOURCES

# Travel Medicine Resources

- CDC TRAVEL HEALTH SITE (THE YELLOW BOOK)
  - [www.cdc.gov/travel](http://www.cdc.gov/travel)
- SHORELAND® TRAVAX
  - <https://mhs.health.mil/TRAVAX/travax.cshtml>
- NATIONAL CENTER FOR MEDICAL INTELLIGENCE
  - <https://www.ncmi.detrick.army.mil>
- DHA IMMUNIZATION HEALTHCARE BRANCH (MILVAX)
  - [www.vaccines.mil](http://www.vaccines.mil)

[←](#) [↶](#) [http://wwwnc.cdc.gov/travel/destinations/list/?s\\_cid=cdc\\_home](http://wwwnc.cdc.gov/travel/destinations/list/?s_cid=cdc_home)

[Destinations | Travelers' He...](#)

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CDC Home 
 Travelers' Health  
 All CDC Topics


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

**SEARCH**

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A-Z Index **A** **B** **C** **D** **E** **F** **G** **H** **I** **J** **K** **L** **M** **N** **O** **P** **Q** **R** **S** **T** **U** **V** **W** **X** **Y** **Z** #

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**TRAVELERS' HEALTH**   
 TRAVEL SAFE. TRAVEL SMART.

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- Destinations
- ▶ Destinations**
- Travel Notices
- Find a Clinic
- Disease Directory
- Information Centers
- For Travelers
- For Clinicians
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**Disease Directory**  
Learn more about travel-

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## Destinations

**For Travelers**



**Where are you going?**

-- Select One -- ▼

**What kind of traveler are you?**  
*(optional)*

**For Clinicians**



**Destination**

Ecuador ▼

**Special population(s)**  
*(optional)*

**Print page**

---

**Our Twitter**

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**Get email updates**

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**Contact Us:**

Centers for Disease Control and Prevention  
1600 Clifton Rd  
Atlanta, GA 30333

800-CDC-INFO  
(800-232-4636)  
TTY: (888) 232-6348

[Contact CDC-INFO](#)

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U.S. DEPARTMENT  
OF DEFENSE

- Report Builder 2.0
- Destinations
- Resources
- Resource Map
- Medical Library
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 Find Hospitals Near Me

100%

Report Options

**New Report (New Type)**

**New Report (Same Type)**

**Modify Report Type**

**Report Contents**

• **Change Itinerary**

Select Maps

Personalize

**View Report**

Provider Report

Traveler Report

Maps

Report Builder 2.0

# Enter Itinerary

← Prev

Next →

Select from Country List then click "Add" button to add to Itinerary List (or double-click name).

### Country List

- Afghanistan
- Albania
- Algeria
- American Samoa
- Andorra
- Angola
- Anquilla
- Antarctica
- Antigua and Barbuda
- Argentina
- Armenia
- Aruba
- Australia
- Austria
- Azerbaijan
- Azores
- Bahamas
- Bahrain
- Bangladesh
- Barbados
- Belarus

+  
Add

-  
Remove

✖  
Clear

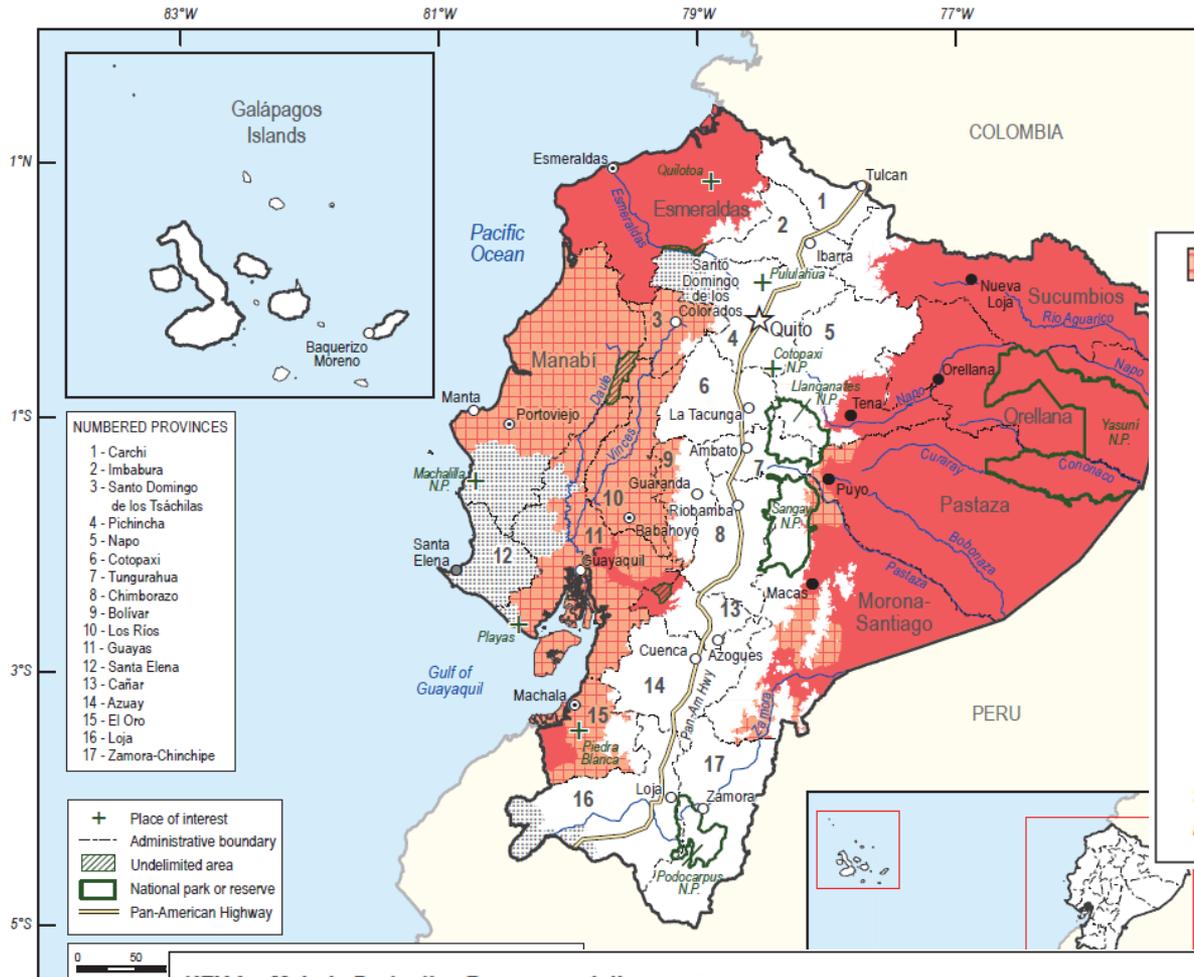
### Itinerary List

- Ecuador
- Peru
- Bolivia

↑

↓

# Travax® Malaria Risk Map for Ecuador



**Issues for Medical Providers to Consider**

**Factors favoring chemoprophylaxis**

- Adventure travel
- Risk-averse travelers
- Vulnerable travelers
- Immigrants visiting friends and relatives
- Flexible itineraries
- Travel longer than 1 month
- Unreliable medical expertise and/or treatment drugs at destination

**Factors against chemoprophylaxis**

- Air-conditioned hotels only
- Urban areas only
- Non-transmission season
- Minimal nighttime exposure
- Travel shorter than 3 days

**See the "Technical Explanation of Malaria Mapping" document for more information.**

**KEY for Malaria Protective Recommendations**—Evening and nighttime insect precautions are essential in areas with any level of transmission.

Chemoprophylaxis is recommended for all travelers*	City where protective recommendations are the same as the surrounding region
Chemoprophylaxis is recommended for certain travelers; see <i>Issues to Consider</i> inset above	City where insect precautions only are recommended* (negligible transmission reported)
Insect precautions only are recommended* (negligible transmission reported)	City where insect precautions only are recommended in central urban areas*; at city outskirts protective recommendations are the same as the surrounding region
No protective measures are necessary (no evidence of malaria transmission exists)	City where no protective measures are necessary (no evidence of malaria transmission exists)
	National capital (no protective measures are necessary)

\* RARE EXCEPTIONS APPLY. SEE THE TECHNICAL EXPLANATION OF MALARIA MAPPING DOCUMENT FOR MORE INFORMATION.



# National Center for Medical Intelligence

UNCLASSIFIED//FOUO

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Date	Title
11 Jun 2012	<a href="#">(U) China: Improved Disaster Response Preparedness and Consequence Management</a> UNCLASSIFIED
31 May 2012	<a href="#">(U) South Sudan: Threat of Visceral Leishmaniasis - Alternative Futures</a> UNCLASSIFIED
29 May 2012	<a href="#">(U) Yemen: Suicide Attack Highlights Ineffective Emergency Management</a> UNCLASSIFIED//FOUO
23 May 2012	<a href="#">(U) Infectious Disease Alert -- COMOROS, KENYA, RWANDA - Eastern Africa: Disease Risk Likely Increased Due to Flooding</a>

- ### News & Resources
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  - [Request Information from NCMI](#)
  - [Register for our Subscription Service](#)
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  - [Download the NCMI MEDIC CD](#)
  - [Links of interest](#)
  - [Chemical Hazards and Industrial Processes Reference Database](#)
  - [Briefings from NCMI's Intro to Medical Intelligence](#)
  - [Hospital Facility Information Questionnaire](#)
  - [Environmental Health Information Sheet](#)
  - [Infectious Disease Information](#)

(U) Infectious Disease Risk Assessment: Syria - Windows Internet Explorer

https://www.intelink.gov/ncmi/product/idra\_db.php?co=SYR

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(U) Infectious Disease Risk Assessment: Syria

**(U) Force Health Protection**  
 (U) [Click here](#) for general force health protection recommendations based on this assessment, developed under the auspices of the Joint Preventive Medicine Policy Group.

**(U) Guide to Possible Causes of Nonspecific Fever**  
 (U) [Click here](#) for a guide to possible causes of nonspecific fever in U.S. forces based on this assessment.

**(U) Disease Outbreaks**  
 (U) [Click here](#) to view assessed outbreaks for this country.

**(U) Table 1. Disease Summary Table**  
**UNCLASSIFIED**

Foodborne and Waterborne Diseases (Detailed Risk Information)				
Disease	Risk* (Operational Impact)	Typical Risk period	Typical severity**	Potential attack rates per month in the absence of countermeasures for personnel who consume non-approved local food, water, or ice
Diarrhea - bacterial <small>Last Updated on 04 December 2009</small>	High	Year-round	Mild	Potentially 11-50%
Hepatitis A <small>Last Updated on 04 December 2009</small>	High	Year-round	Severe	A small number of cases (less than 1%)
Diarrhea - protozoal <small>Last Updated on 04 December 2009</small>	Intermediate	Year-round	Moderate	A small number of cases (less than 1%)
Brucellosis <small>Last Updated on 08 January 2010</small>	Intermediate	Year-round	Severe	Rare cases (less than 0.1%)
Typhoid / paratyphoid fever <small>Last Updated on 04 December 2009</small>	Intermediate	Year-round	Moderate	Rare cases (less than 0.1%)
Hepatitis E <small>Last Updated on 26 March 2011</small> ▶ <a href="#">View Map</a>	Low	Year-round	Severe	Disease assessed as present, rare cases possible - see details ( <a href="#">see map</a> )

Internet 100%

### (U) Malaria

[See also: Details on Assessment Methodology](#)

#### (U) Potential Risk to U.S. Personnel: No

- (U) Indigenous transmission recently eliminated - no current risk among personnel exposed to mosquito bites, primarily at night. (see map below)
- (U) Debilitating febrile illness typically requiring 1 to 7 days of inpatient care, followed by return to duty.

#### (U) Risk Period:

(U) Not applicable

#### (U) Risk Distribution:

(U) Not applicable. (see map).

#### (U) Typical Incubation Period:

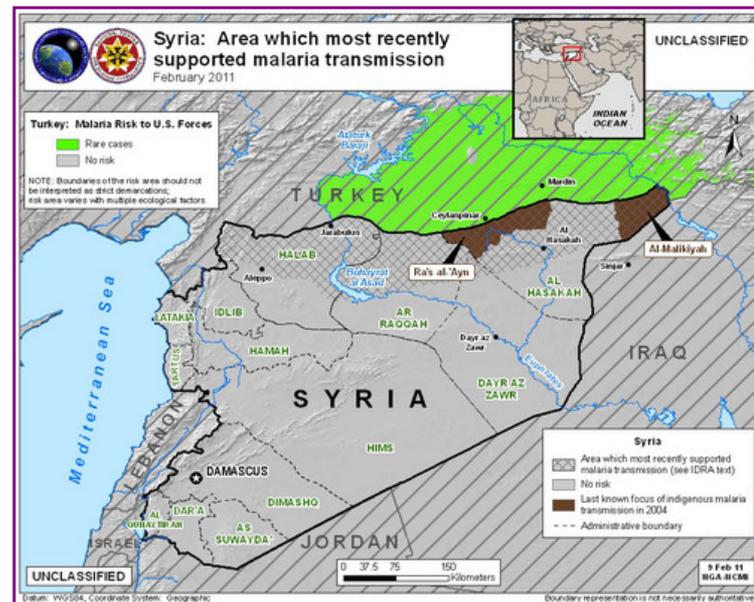
(U) 7 to 14 days (maximum range: 7 to 30 days)

#### (U) Surveillance and Survey Data (Human):

(U) Indigenous malaria transmission has been controlled in Syria, although cases continue to be imported into potentially suitable environments, especially along the borders with Turkey and Iraq. Syria recorded its last indigenous malaria case in Al Malkeih District of Al Hasakeh Province in 2004.

(U) The following cases (likely an underestimate of true case numbers) have been officially reported:

- (U) 2010: no indigenous cases, 23 imported cases
- (U) 2009: no indigenous cases, 39 imported cases
- (U) 2008: no indigenous cases, 51 imported cases
- (U) 2007: no indigenous cases, 37 imported cases
- (U) 2006: no indigenous cases, 34 imported cases
- (U) 2005: no indigenous cases, 28 imported cases
- (U) 2004: 1 indigenous case, 12 imported cases
- (U) 2003: 2 indigenous cases, 16 imported cases
- (U) 2002: 15 indigenous cases, 22 imported cases
- (U) 2001: 63 indigenous cases, 16 imported cases
- (U) 2000: 6 indigenous cases, 36 imported cases



(U) Syria: Area which most recently supported malaria transmission

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## VACCINE RECOMMENDATIONS

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 Last Updated 19 Sep 14 

Vaccine	Dosing Schedule	Route - Dose	Vaccine Type	Required for AFRICOM AOR
 Anthrax	0,4w,6,12,18m + annual booster	IM (in deltoid), 0.5ml	Inactivated	N/A
 Chickenpox	0, 4-8w (2 dose) or + serologic testing	SC, 0.5ml	Live	Required if no immunity.
 Hepatitis A	0, 6m (2 dose) or + serologic testing	1-18yrs: IM, 0.5ml, >=19yrs: IM, 1ml, Twinrix >=18yrs: IM, 1ml	Inactivated	Required.
 Hepatitis B	0,1,6m (3 dose) or + serologic testing	0-19 yrs: IM, 0.5ml, >=20yrs: IM, 1ml, Twinrix >=18yrs: IM, 1ml	Inactivated	Required.
 Influenza - Seasonal	1 dose annually	Injectable: IM, 0.5ml, Intranasal: 0.2ml	Injectable - inactivated, Intranasal - Live	Required.
 Measles	2 lifetime doses or + serologic testing	MMR: SC, 0.5ml Measles: SC, 0.5ml	Live	Required.
 Meningococcal	Menomune, Menactra, Menevo: if at prolonged risk of disease exposure vaccinate every 5 yrs	Menomune: SC, 0.5ml, Menactra, Menevo: IM, 0.5ml	Inactivated	Required.
 Mumps	2 lifetime doses or + serologic testing	MMR: SC, 0.5ml, Mumps: SC, 0.5ml	Live	Required.
 Pneumococcal	High risk: 1 dose, Asplenic Only: 1 dose + 1 time booster if 5 yrs or greater since 1st dose	SC or IM, 0.5ml	Inactivated	Required for asplenic and other high risk health conditions per ACIP.



## VACCINE RECOMMENDATIONS

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 Chickenpox	0, 4-8w (2 dose) or + serologic testing	SC, 0.5ml	Live	Required if no immunity.
<div style="background-color: #e6f2ff; padding: 10px;">  <p style="text-align: center;"><b>Vaccine <a href="#">Hepatitis A</a></b> </p> <p><b>Disease Effects</b> Liver infection, death (rare)</p> <p><b>Dosing Schedule</b> 0, 6m (2 dose) or + serologic testing</p> <p><b>Epidemiology - Transmission</b> Fecal-Oral</p> <p><b>Microbe</b> Hepatitis A virus</p> <p><b>Route - Dose</b> 1-18yrs: IM, 0.5ml, &gt;=19yrs: IM, 1ml, Twinrix &gt;=18yrs: IM, 1ml</p> <p><b>Vaccine Type</b> Inactivated</p> <p><b>Reference</b> <a href="#">IAW U.S. AFRICA COMMAND THEATER CAMPAIGN PLAN (TCP) - TAB A TO APPENDIX 6 TO ANNEX Q TO TCP. Click to view Travel Health Form with vaccination requirements.</a></p> <p><b>Required for AFRICOM AOR</b> Required.</p> </div>				
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# Questions?