Complete Summary

GUIDELINE TITLE

The practice of travel medicine: guidelines by the Infectious Diseases Society of America.

BIBLIOGRAPHIC SOURCE(S)

Hill DR, Ericsson CD, Pearson RD, Keystone JS, Freedman DO, Kozarsky PE, DuPont HL, Bia FJ, Fischer PR, Ryan ET, Infectious Diseases Society of America. The practice of travel medicine: guidelines by the Infectious Diseases Society of America. Clin Infect Dis 2006 Dec 15;43(12):1499-539. PubMed

GUIDELINE STATUS

This is the current release of the guideline.

** REGULATORY ALERT **

FDA WARNING/REGULATORY ALERT

Note from the National Guideline Clearinghouse (NGC): This guideline references a drug(s) for which important revised regulatory and/or warning information has been released.

- July 08, 2008, Fluoroquinolones (ciprofloxacin, norfloxacin, ofloxacin, levofloxacin, moxifloxacin, gemifloxacin): A BOXED WARNING and Medication Guide are to be added to the prescribing information to strengthen existing warnings about the increased risk of developing tendinitis and tendon rupture in patients taking fluoroquinolones for systemic use.
- February 28, 2008, Heparin Sodium Injection: The U.S. Food and Drug Administration (FDA) informed the public that Baxter Healthcare Corporation has voluntarily recalled all of their multi-dose and single-use vials of heparin sodium for injection and their heparin lock flush solutions. Alternate heparin manufacturers are expected to be able to increase heparin production sufficiently to supply the U.S. market. There have been reports of serious adverse events including allergic or hypersensitivity-type reactions, with symptoms of oral swelling, nausea, vomiting, sweating, shortness of breath, and cases of severe hypotension.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

- Health of travelers who visit foreign countries
- Infectious diseases occurring during travel, including vaccine-preventable illnesses, traveler's diarrhea, and malaria
- Environmental risks and risks to personal safety incurred during travel

GUIDELINE CATEGORY

Counseling
Management
Prevention
Risk Assessment

CLINICAL SPECIALTY

Family Practice
Infectious Diseases
Internal Medicine
Pediatrics
Preventive Medicine

INTENDED USERS

Advanced Practice Nurses
Health Care Providers
Nurses
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

To define a standard for the practice of travel medicine, and also present guidelines for three of the essential areas in the discipline: vaccine use in travel, the management of travelers' diarrhea, and the prevention of malaria

TARGET POPULATION

Travelers who visit foreign countries

INTERVENTIONS AND PRACTICES CONSIDERED

1. Provision of care in specialized travel clinics with adequately trained and knowledgeable personnel
2. Pre-travel health risk assessment
3. Providing education and advice to travelers
4. Maintaining permanent records of the pre-travel visit, including records of all immunizations
5. Standard procedures for immunization: informed consent, vaccine storage, administration, record-keeping and reporting of adverse events
6. Ensuring that all travelers are adequately vaccinated by updating vaccines and recommending others based on risk assessment (e.g., Hepatitis A, yellow fever)
7. Education and advice on prevention of traveler's diarrhea, including food and liquid hygiene and prompt self-treatment
8. Treatment of travelers' diarrhea:
    - Fluid replacement and diet
    - Symptomatic therapy (e.g., bismuth subsalicylate, loperamide)
    - Antibiotics
    - Combination therapy
9. Prevention of malaria
    - Risk assessment
    - Use of insect repellents and protective clothing
    - Antimalarial chemoprophylaxis
    - Prompt diagnosis
10. Counseling on safety, behavior, and injury prevention during travel, including support stockings or low molecular weight heparin for those at risk of deep vein thrombosis and acetazolamide for prevention of altitude illness
11. Provision of post-travel medical care

MAJOR OUTCOMES CONSIDERED

- Risk for preventable travel-related illness or injury
- Effectiveness of vaccines and chemoprophylaxis against travel-related illness
- Adverse effects of vaccines and drugs used for travel-related illnesses

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Not stated

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Quality of Evidence

I. Evidence from ≥1 properly randomized, controlled trial
II. Evidence from ≥1 well-designed clinical trial, without randomization; from cohort or case-controlled analytic studies (preferably from >1 center); from multiple time-series; or from dramatic results of uncontrolled experiments
III. Evidence from opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Strength of Recommendation

A. Good evidence to support a recommendation for use
B. Moderate evidence to support a recommendation for use
C. Poor evidence to support a recommendation
D. Moderate evidence to support a recommendation against use
E. Good evidence to support a recommendation against use

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Respected peers - those who are not members of the guideline panel but who are experts in the same field - reviewed the guidelines for scientific validity. These outside reviewers are acknowledged at the end of the original guideline document. Guidelines were also reviewed by the Infectious Diseases Society of America (IDSA) Practice Guidelines Committee for content and format. The guideline group submitted its final draft to the Practice Guidelines Committee for approval. After approval was granted, the draft was forwarded to the IDSA Governing Council for final approval and then to *Clinical Infectious Diseases* for publication.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Definitions of the levels of evidence (I-III) and grades of recommendation (A-E) are provided at the end of the "Major Recommendations" field.

Setting

- Most travel medicine care should be carried out in a specialized travel clinic by persons who have training in the field, particularly for travelers who have complex itineraries or special health needs **(C-III)**. Primary care physicians and non-specialists should be able to advise travelers who are in good health and visiting low-risk destinations with standard planned activities

Knowledge Base

- The knowledge base for the travel medicine provider includes epidemiology, transmission and prevention of travel-associated infectious diseases, a complete understanding of vaccine indications and procedures, prevention and management of non-infectious travel health risks, and recognition of major syndromes in returned travelers (e.g., fever, diarrhea, and rash) **(A-III)**. All providers should access web, text, and journal based resources. The U.S. Centers for Disease Control and Prevention provides authoritative advice on travel health (www.cdc.gov/travel).

Competency in Travel Medicine

- Appropriate knowledge and aptitude for practicing travel medicine may be demonstrated by achieving a certificate of knowledge in field (see supporting text in the original guideline document). Maintaining competency includes ongoing education and performing pre-travel consultations on a frequent and regular basis. **(B III)**

Pre-travel Risk Assessment

- The key element of the pre-travel visit is a health risk assessment of the trip **(A-II)**. This balances the health of the traveller: age, underlying health conditions, medications, and immunization history, with the details of the planned trip: season of travel, itinerary, duration, and planned activities.

Spectrum of Travel Medicine Advice

- Topics of health education and advice that should be covered for all travelers are vaccine preventable illness, avoidance of insects, malaria chemoprophylaxis (for itineraries that include a malaria risk), prevention and self-treatment of travelers' diarrhea, responsible personal behavior, sexually transmitted infections and safety, travel medical insurance, and access to medical care during travel **(A-II)**. Other topics should be covered as indicated by the risk assessment. Consistent and clear advice that is provided in both verbal and written form will help increase traveler compliance with preventive measures **(A-II)**. The interaction between traveler and health care provider should be collaborative and affords the opportunity to enhance preventive health knowledge.

Records and Procedures

- Permanent records should be maintained for the pre-travel visit: traveler demographics and health history, travel health risk assessment, immunizations, recommendations, and prescriptions given **(A-III)**.
- Standard procedures for immunization should be followed: informed consent, vaccine storage, administration, record-keeping, and reporting of adverse events **(A-III)**.

Immunization

- The pre-travel visit should be used to update vaccines routinely recommended according to U.S. schedules and based on the traveler's age and underlying health status **(A-I)**. These vaccines include tetanus, pertussis, diphtheria, *Haemophilus influenzae* type b, measles, mumps, rubella, varicella, *Streptococcus pneumoniae*, and influenza. Vaccines against hepatitis A and B, poliomyelitis, and *Neisseria meningitidis* may be recommended for travel as well as for routine health care.
- Vaccination against yellow fever is usually indicated for travelers to countries in the endemic zone for yellow fever (areas in Africa and South America where conditions are conducive for yellow fever transmission) **(A-III)**. In addition, under International Health Regulations, some countries that lie in or outside of the endemic zone may require yellow fever vaccination as a condition for entry. Recent recognition of serious adverse events associated with yellow fever vaccination requires that a careful risk-benefit assessment be performed before administration of the vaccine.
- Hepatitis A vaccine should be considered for all travelers **(A-III)**. Booster doses following the primary two-dose series are not currently recommended **(A-II)**.
- Vaccines against Japanese encephalitis, rabies, tick-borne encephalitis and typhoid fever should be administered based on a risk assessment **(A-III)**. Quadrivalent (A/C/Y/W-135) meningococcal vaccine should be administered

to travelers at risk. It is required by Saudi Arabia for religious pilgrims to Mecca for the Hajj or Umrah.

Travelers' Diarrhea

- Travelers' diarrhea is the most common disease of travelers. Management of travelers' diarrhea includes education and advice about prevention: food and liquid hygiene **(A-III)**, and provision for prompt self-treatment in the event of illness **(A-I)**. The elements of self-treatment include hydration, loperamide for control of symptoms if necessary (when there is no fever >38.5 degrees C or gross blood in the stool), and a short course (single dose to three days) of a fluoroquinolone antibiotic **(A-I)**. Antibiotic resistance of enteric pathogens, particularly for *Campylobacter*, in the destination country needs to be considered. For these destinations, as well as for other travelers, azithromycin may be indicated **(B-II)**. Combination treatment with loperamide and an antibiotic may be considered for travelers with moderately severe diarrhea **(B-III)**. Antibiotic prophylaxis is not recommended for most travelers **(A-III)**.

Malaria

- Malaria is one of the most severe infectious diseases of travelers. Nearly all cases in travelers are preventable. Prevention and best management of malaria include awareness of risk, avoidance of mosquito bites, compliance with chemoprophylaxis, and prompt diagnosis in the event of a febrile illness either during or on return from travel **(A-I)**. When seeking medical care after return from travel, travelers should be instructed to inform their health provider of their travel history.
- Travelers at risk for malaria should practice the following measures to prevent mosquito bites: protective clothing to cover exposed skin, application of repellents, and sleeping in areas protected by netting (preferably impregnated with a residual insecticide such as permethrin) and screens **(A-I)**. Currently, repellents that contain 20% to 50% DEET are considered to provide sufficient protection **(B-II)**.
- The choice of chemoprophylaxis should be made following a careful assessment of malaria risk during the trip and whether the traveler has contraindications to a particular antimalarial.
- The malaria risk assessment includes the itinerary, the species of malaria at the destination (and whether the most severe form of malaria, *Plasmodium falciparum*, is present and if it is resistant to chloroquine or other antimalarials), the season of travel, activities, duration, and access to medical care. Consultation with the latest resource information is necessary.

Personal Safety and Environmental Health

- All travelers should be aware of personal safety during travel and exercise responsible behavior **(A-III)**. Road and pedestrian safety, risk of blood borne infections, avoidance of animal bites, awareness of the risk of assault, sexually transmitted infections, and moderation in alcohol use should be discussed.
- Travelers should understand the effects that air, sea, and land travel, sun, altitude, and heat and cold may have upon their health. In order to prevent

deep venous thrombosis (DVT) long-haul travelers with journeys of 6 to 8 hours and longer should avoid constrictive clothing around their waist and lower extremities, exercise their calf muscles, and maintain hydration **(A-III)**. Travelers with increased risk factors for DVT may consider wearing below the knee support stockings **(B-II)** or receiving low molecular weight heparin **(B-I)**.

- Ascent to altitudes above 3,000 m is often associated with various forms of high altitude illness. Staged ascent is an effective way to decrease the risk of altitude illness. Travelers who need to ascend rapidly may take acetazolamide for prevention **(B-I)**.

Post-Travel Care

- Health professionals who advise travelers should be able to recognize major syndromes in returned travelers (e.g., fever, diarrhea, respiratory illness, and rash) and either provide care for the traveler or promptly refer them for appropriate evaluation and treatment **(A-III)**.

Definitions:

Quality of Evidence

I. Evidence from ≥1 properly randomized, controlled trial
II. Evidence from ≥1 well-designed clinical trial, without randomization; from cohort or case-controlled analytic studies (preferably from >1 center); from multiple time-series; or from dramatic results of uncontrolled experiments
III. Evidence from opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees

Strength of Recommendation

A. Good evidence to support a recommendation for use
B. Moderate evidence to support a recommendation for use
C. Poor evidence to support a recommendation for use
D. Moderate evidence to support a recommendation against use
E. Good evidence to support a recommendation against use

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for selected recommendations (see "Major Recommendations" field).

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

In specialized clinics, travelers should receive individualized and up-to-date advice on vaccine preventable illness, malaria and diarrhea, advice on how to care for chronic medical conditions during travel, and required and/or recommended immunizations.

POTENTIAL HARMS

- Adverse effects of vaccinations (see Table 5 in the original guideline document)
- Adverse effects of antimalarial drugs (see Table 8 in the original guideline document)

CONTRAINDICATIONS

CONTRAINDICATIONS

- See Table 5 in the original guideline document for contraindications to specific vaccinations.
- Atovaquone/proguanil is contraindicated in those with renal insufficiency and a creatinine clearance less than 30 mL per minute.
- Contraindications to mefloquine include known hypersensitivity to the drug, a history of convulsions or major psychiatric disorder, and a recent history of depression or anxiety reaction.
- Doxycycline is contraindicated in pregnancy and in children less than 8 years of age.
- Primaquine is contraindicated during pregnancy.
- Scopolamine is contraindicated in persons with glaucoma or urinary obstruction.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- Practice guidelines are systematically developed statements to assist practitioners and patients in making decisions about appropriate health care for specific clinical circumstances. Attributes of good guidelines include validity, reliability, reproducibility, clinical applicability, clinical flexibility, clarity, multidisciplinary process, review of evidence, and documentation.
- It is important to realize that guidelines cannot always account for individual variation among patients. They are not intended to supplant physician judgment with respect to particular patients or special clinical situations. The Infectious Diseases Society of America considers adherence to these guidelines to be voluntary, with the ultimate determination regarding their application to be made by the physician in the light of each patient's individual circumstances.

- Because recommendations for the administration of specific vaccines or antimalarials may change from those provided in this document, additional authoritative sources, as outlined in the Appendix of the original guideline document, should be consulted when putting these guidelines into practice. For each vaccine that is licensed in the United States, the Advisory Committee on Immunization Practices (ACIP) (www.cdc.gov/vaccines/recs/acip/default.htm), often in conjunction with other authoritative bodies such as the American Academy of Pediatrics, the American College of Physicians, or the Infectious Diseases Society of America, has developed recommendations that are published by the Centers for Disease Control and Prevention (CDC). These statements and the publication, *Health Information for International Travel* (known as the Yellow Book), remain the definitive resources for US practitioners. This document will provide guidance on their practical application. Several excellent reviews and new textbooks in travel medicine should also serve as resources. Being able to access and use the many resources available in travel medicine is an important aspect of its practice.
- The application of evidence-based standards to travel medicine is a challenge. The specialty is new and has not had the time required to develop a vast evidence base. Therefore, for many areas, expert opinion defines practice. Where possible, however, the recommendations are graded according to accepted standards.
- The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the Department of Health and Human Services.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

IMPLEMENTATION TOOLS

Personal Digital Assistant (PDA) Downloads

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Staying Healthy

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Hill DR, Ericsson CD, Pearson RD, Keystone JS, Freedman DO, Kozarsky PE, DuPont HL, Bia FJ, Fischer PR, Ryan ET, Infectious Diseases Society of America. The practice of travel medicine: guidelines by the Infectious Diseases Society of America. Clin Infect Dis 2006 Dec 15;43(12):1499-539. PubMed

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2006

GUIDELINE DEVELOPER(S)

Infectious Diseases Society of America - Medical Specialty Society

SOURCE(S) OF FUNDING

Infectious Diseases Society of America (IDSA)

GUIDELINE COMMITTEE

Infectious Diseases Society of America (IDSA) Standards and Practice Guidelines Committee

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Authors: David R. Hill, MD, DTM&H (*Chair*); Charles D. Ericsson, Professor of Medicine, Head, Clinical Infectious Diseases, University of Texas Medical School at Houston, Department of Internal Medicine; Richard D. Pearson, Professor of Medicine and Pathology, Division of Infectious Diseases and International Health, University of Virginia School of Medicine; Jay S. Keystone, Professor of Medicine, University of Toronto, Staff Physician, Center for Travel and Tropical Medicine, Toronto General Hospital; David O. Freedman, Professor of Medicine and Epidemiology, Division of Geographic Medicine, University of Alabama at Birmingham; Phyllis E. Kozarsky, Professor of Medicine/Infectious Diseases, Chief, Travel and Tropical Medicine, Emory University School of Medicine, Expert Consultant, Division of Global Migration and Quarantine, Centers for Disease Control and Prevention, Atlanta The Emory Clinic; Herbert L. DuPont, Chief of Internal Medicine, St. Luke's Hospital, Director, Center for Infectious Diseases, University of Texas – Houston School of Public Health, Vice Chairman, Department of Medicine, Baylor College of Medicine; Frank J. Bia, Professor of Medicine and Laboratory Medicine, Co-Director – International Health Program, Yale School of Medicine; Philip R. Fischer, Professor of Pediatrics, Mayo Clinic, College of Medicine, Chair, Division of General Pediatric and Adolescent Medicine, Medical

Director, Mayo Eugenio Litta Children's Hospital, Mayo Clinic; Edward T. Ryan, Director, Travelers' Advice and Immunization Center, Director, Tropical and Geographic Medicine Center, Associate Professor, Harvard Medical School, Tropical & Geographic Medicine Center, Division of Infectious Diseases, Massachusetts General Hospital

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Conflicts of Interest Declarations

David R. Hill: No declared conflicts of interest

Charles D. Ericsson:

- Received honoraria for speaking engagements and grants for research from Pfizer
- Served as consultant to, received research grants from, and received honoraria for speaking engagements from the manufacturers of rifaximin, Alfa Wasserman and Salix
- Received honoraria for speaking engagements from Elan and Merck

Richard D. Pearson: No declared conflicts of interest

Jay S. Keystone:

- Served as a paid consultant to GlaxoSmithKline, Sanofi-Pasteur, and Roche Pharmaceuticals
- Received honoraria for speaking engagements for GlaxoSmithKline and Roche Pharmaceuticals

David O. Freedman:

- Received honoraria for participation on advisory boards of GlaxoSmithKline, Sanofi Pasteur and Salix Pharmaceutical Company
- Serves as a paid consultant for Shoreland, Inc, publishers of Travax and Travax Encompass

Phyllis E. Kozarsky:

- Served as a paid consultant to Berna Products, Inc.
- Received honoraria for speaking engagements for GlaxoSmithKline
- Received honoraria for participation on the Advisory Board of Sanofi Pasteur

Herbert L. DuPont:

- Received honoraria for sponsored talks and has received research grants from the manufacturers of rifaximin, Salix Pharmaceutical Company

Frank J Bia:

- Served as a paid consultant to Pfizer, Sanofi Pasteur and GlaxoSmithKline.
- Editor of Travel Medicine Advisor, Thomson American Health Consultants, Inc.

Philip R. Fischer: No declared conflicts of interest

Edward T Ryan: No declared conflicts of interest

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available from the Infectious Diseases Society of America (IDSA) Web site.

Print copies: Available from Dr. David R. Hill, National Travel Health Network and Centre, Hospital for Tropical Diseases, Mortimer Market Centre, Capper St., London WC1E 6AU, England (david.hill@uclh.org)

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- Kish MA. Guide to development of practice guidelines. Clin Infect Dis 2001 Mar 15;32(6):851-4.

Electronic copies: Available from the Clinical Infectious Diseases Journal Web site.

Print copies: Available from Infectious Diseases Society of America, 1300 Wilson Boulevard, Suite 300, Arlington, VA 22209.

A PDA version of the original guideline document is available from www.idsaguidelinesforhandhelds.org.

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on October 25, 2006. The information was verified by the guideline developer on December 5, 2007. This summary was updated by ECRI Institute on June 22, 2007 following the U.S. Food and Drug Administration (FDA) advisory on heparin sodium injection. This summary was updated by ECRI Institute on March 14, 2008 following the updated FDA advisory on heparin sodium injection. This summary was updated by ECRI Institute on July 28, 2008 following the U.S. Food and Drug Administration advisory on fluoroquinolone antimicrobial drugs.

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