Preparation for travel

Self-assessment

Analyzing risks

Decision making

- The following point of views should be considered:
  - The (self) fitness of health for travel
  - The health hazards in the target country
  - The mode of travel
  - The possible special needs (pregnancy, traveling with children, etc.)

Topic for risk assessment questioning

Traveller details:

- Age
- Medical history
- Medication
- Allergies
- Previous vaccinations
- Previous travel
- Pregnancy (actual or planned)
- Handicaps or special needs

Journey details:

- Destination(s)
- Date of departure
- Duration of stay
- Purpose of trip
- Type of accommodation
- Mode of transport
- Urban/rural travel
- Availability of medical facilities

- Travel budget

Evaluating and quantifying potential health risks 1.

- **Age:**
  - Illness in travelers is reported more commonly in those aged < 40 years.
  - Death rates for accidents and injuries are also highest in the younger age group (20-29 years).
  - In the very young, common ailments, such as sunburn, diarrhea and vomiting, may have more serious squeal than for older travelers.
  - The most common cause of death in travelers is cardiovascular disease, particularly myocardial infarction, and this is more likely to be experienced by elderly individuals. I
  - In addition, the elderly are more likely to have a preexisting medical condition which may be exacerbated by traveling or necessitate medical intervention while abroad.
  - Age limits may also apply to certain vaccines and antimalarials.

Evaluating and quantifying potential health risks 2.

- Medical history 1.:
- When individuals have an existing health problem, it is advisable for them to be assessed prior to travel abroad to ensure their condition will not be aggravated by the trip and to allow any necessary pre-travel arrangements and contingency plans to be made.

Evaluating and quantifying potential health risks 3.

- Medical history 2.:
  - Travelers who have recently had major surgery may need to be assessed for their fitness to travel.
  - Individuals who have recently suffered myocardial infarction should avoid flying and travelers with chronic gastrointestinal problems may find that travel to a developing area aggravates their condition.
  - Doses of antimalarials may need to be adjusted in certain conditions, for example, renal or liver disease.

Evaluating and quantifying potential health risks 4.

- Medical history 3.:
  - Individuals who are physically unfit, or who have a medical condition which precludes strenuous exercise, should avoid adventure and sporting activities beyond their capabilities.
  - Immuno-suppressed individuals should avoid receiving live vaccines and their response to inactivated ones may be suboptimal, whilst travellers without a spleen are more likely to develop severe malaria if infected.
  - In certain countries, HIV-infected travelers may be refused entry.

Evaluating and quantifying potential health risks 5.

- Medical history 4.:
  - Emotional and psychiatric disorders are often overlooked when it comes to determining an individual's suitability to travel.
  - Psychological assessments are difficult to carry out unless specially trained to do so, but they are particularly relevant for individuals intending to be abroad for extended periods.
  - Mefloquine is contraindicated when there is a history of convulsions or psychiatric illness.
- Travelers with an underlying medical condition, including pregnancy, should ensure their travel insurance" covers their condition.

Evaluating and quantifying potential health risks 6.

- Medication:
  - If planning to live abroad for an extended period, travellers on regular medication should check in advance if they will have access to the drugs they require.
  - If it is envisaged that obtaining medication abroad will be difficult, or for the short-term traveller, an adequate supply of personal medication should be carried, preferably in hand luggage rather than the aircraft hold. Insulin should always be carried in hand luggage since temperatures in the hold may drop to near freezing.
  - Immunosuppressive drugs may contraindicate the use of certain live vaccines.
  - Other medications, for example anticonvulsants and beta-blockers, may be unsuitable when taken in combination with certain antimalarials.

Evaluating and quantifying potential health risks 7.

- **Allergies:**
  - A previous allergic reaction to a vaccine or antimalarial may contraindicate further doses.
  - More specifically, an anaphylactic reaction to egg would contraindicate yellow fever vaccine. Individuals who respond vigorously to insect bites may require additional advice regarding bite prevention and use of antihistamines.
  - If the traveler has a life-threatening allergy, it may be advisable for the traveler to carry adrenaline for emergency use.

Evaluating and quantifying potential health risks 8.

- **Previous vaccinations:**
  - This will help the travel health adviser to plan a vaccination schedule.
  - Determining risk estimates for vaccine-preventable diseases is extremely complex and there are very few studies which have tackled this issue

Evaluating and quantifying potential health risks 9.

- Previous travel:
  - Experienced travelers tend to have fewer health problems than individuals who have little travel history.
  - They are more likely to be better organized, more extensively immunized and more aware of the preventive measures which should be taken with respect to food, water, insect bites, sun, accidents and sex.
  - They are also less likely to suffer problems related to culture shock and climate.

Evaluating and quantifying potential health risks 10.

- Pregnancy:
  - Certain vaccines and antimalarials may be contraindicated during pregnancy.
  - Contracting malaria while pregnant can have very serious consequences for both mother and child since the woman is more likely to develop life threatening illness and the chances of premature labour and spontaneous abortion are increased.
  - Travel to malarious areas during pregnancy should be avoided where possible.
  - Most airlines will not fly pregnant women past a certain gestation, usually about 35 weeks, but sometimes earlier.

Evaluating and quantifying potential health risks 11.

- Handicaps or special needs:
  - This will determine, to a certain extent, the destination and type of travel undertaken.
  - Some tour operators organize holidays aimed at specific groups of individuals, for example, wheelchair users.
  - This makes it easier to ensure that traveling arrangements and facilities at the destination are appropriate for the individual's particular needs.
  - Airlines and hotels will often provide services, such as special meals, refrigerators in rooms for storing medication, and wheelchair access, but the traveler needs to be prompted to ask about them.

Evaluating and quantifying potential health risks 12.

- **JOURNEY DETAILS**
- Destination 1.:
  - Geography plays a large part in determining which diseases an individual may be exposed to, since certain infections will only be transmitted within defined geographic boundaries.
  - For example, Japanese encephalitis is only found in South-East Asia, and yeilow fever in Africa and South America.
  - Travel to the tropics and developing countries is generally associated with greater risks to health than travel elsewhere,2 particularly risks associated with contaminated food and water.

Evaluating and quantifying potential health risks 13.

- Destination 2.:
  - As well as risks from infection, the traveler may face other hazards, including those related to standards of medical care and facilities, crime, public road maintenance and transport services, and these may vary between countries.
  - Traveling to high altitude destinations can also lead to problems, particularly if the traveler has an underlying medical condition which may be aggravated by altitude, for example, cardiopulmonary disease or a seizure disorder.

Evaluating and quantifying potential health risks 14.

- Date of departure:
  - More reports of illness are recorded during the summer months as opposed to the winter. It is preferable if travelers attend for advice well in advance of their trip (at least 4-6 weeks).
  - This allows vaccination schedules to be fully completed and sufficient advice given and discussed. Last minute attendees are all too frequent and they present problems in terms of the advice and protection which can be offered at short notice.

Evaluating and quantifying potential health risks 15.

- **Duration of stay:**
  - Risks for short-stay travellers will differ from those for individuals staying longer term.
  - The length and extent of exposure to health risks are generally increased in the latter.
  - Some risks may be seasonal, for example, malaria after the rains and meningococcal meningitis during the dry season

Evaluating and quantifying potential health risks 16.

- **Purpose of trip:**
  - This plays a large part in determining an individual's health risks.
  - Reasons for travel are many and varied, including holiday, business, voluntary work, expedition and visiting family.

Evaluating and quantifying potential health risks 17.

- Degree of contact with the local population is an important aspect to consider since infections spread person-to-person via the respiratory route, such as diphtheria, tuberculosis and meningitis, are more effectively transmitted in prolonged, dose contact situations.
- As a result, travelers most at risk from these infections would include teachers, healthcare workers and missionaries, rather than package tourists who are more likely to mix with fellow tourists than indigenous people.

Evaluating and quantifying potential health risks 18.

- Travelers returning to their country of origin to stay with family are also more at risk from diseases endemic in the indigenous population.
- This is particularly so with regard to malaria. Individuals returning home after a long absence may believe they are still immune to the parasite, fail to take prophylaxis, and subsequently contract the infection.

Evaluating and quantifying potential health risks 19.

- The package tour has, to an extent, an element of safety attached which the self-organized or backpacking trip lacks.
- Partly as a result of this, tourists on package holidays, particularly teenagers and young adults, often relax their behavior and attitudes while abroad.
- If this is coupled with drug-taking and excessive alcohol, it can be a very volatile combination which is often associated with accidents, sexual risk-taking and illness.
- Sunburn is also very commonly reported in this group.

Evaluating and quantifying potential health risks 20.

- Backpackers and expedition travelers visit areas of the world which the average tourist would not consider exploring.
- At the destination, they will often engage in pursuits other than the usual sunbathing and swimming.
- Engaging in certain activities may increase their likelihood of exposure to insect and animal bites, for example camping or jungle trekking.
- Other activities, such as scuba diving, rafting, climbing and water sports may be particularly hazardous if facilities, equipment and supervision at the destination are sub-standard.
- As a result, backpackers and adventure, expedition travelers may be exposed to very particular health risks and may need additional advice, vaccines, equipment, self-treatment medications and insurance.

Evaluating and quantifying potential health risks 21.

- Those going abroad to work will have very specific needs with regard to health advice, vaccinations and malaria, particularly within certain occupations.
- Doctors and nurses may be more exposed to blood-borne viruses, veterinarians to rabies and teachers to tuberculosis.
- Business travelers present their own particular problems, whether going abroad for short-term or longer-term business.
- Lack of preparation before departure, loneliness and isolation, missing family at home, cultural differences, language barriers, overindulgence in alcohol and sexual risk-taking are some of the problems which may be experienced by this group.

Evaluating and quantifying potential health risks 22.

- **Type of accommodation:**
- Obviously, staying in five-star hotel accommodation with air-conditioning, access to safe water and a decent restaurant will pose far fewer risks to the traveler's health than sleeping out under canvas and purchasing food from street vendors.
- However, even the best hotels are not immune to problems of hygiene in their kitchens and bars and a degree of caution should be exercised wherever the traveler is staying.

Evaluating and quantifying potential health risks 23.

- Mode of transport:
  - Certain individuals may not be permitted to travel by air, for example those having undergone recent abdominal surgery or pregnant women into the third trimester.
  - Cruising is an increasingly popular type of holiday and it is likely that motion sickness will be a problem for those traveling by sea.
  - Traveling by train, bus, car, jeep or motorcycle/moped presents hazards surrounding personal safety, not only from road traffic accidents, which are a major cause of death and injury in travelers, but also the risk of assault and robbery.

Evaluating and quantifying potential health risks 24.

- Urban/rural travel:
  - Risks will vary between urban and rural areas. It is often more difficult to access clean water, medical facilities and screened accommodation in rural areas, whereas accidents are more likely to occur in cities.
  - It is common for travel itineraries to involve stays in both urban and rural areas, for example a beach holiday which includes a week-end safari, and this would need to be identified.


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Evaluating and quantifying potential health risks 25.

- Availability of medical facilities:
  - This is particularly relevant for those travelers with an underlying medical condition, pregnant women and children.
  - Most travelers should be advised to carry a first-aid kit containing items such as adhesive strip bandages, a thermometer and antiseptic lotion.
  - For those visiting areas where medical facilities are poor, additional supplies may be required, including needles, syringes, gauze dressings and antibiotics.
  - Taking out adequate travel insurance to cover medical treatment abroad is essential for every traveler, but for those visiting areas with inadequate medical facilities, it is important that the policy also covers repatriation.

Travel with special conditions

Travel and pregnancy 1.

- When deciding to travel, a pregnant woman should be advised to consider the potential problems associated with international travel, as well as the quality of medical care available at her destination and during transit.
- According to the American College of Obstetrics and Gynecology, the safest time for a pregnant woman to travel is during the second trimester (18 through 24 weeks) when she usually feels best and is in least danger of experiencing a spontaneous abortion or premature labor.

Travel and pregnancy 2.

- Once a pregnant woman has decided to travel, a number of issues need to be considered before her departure.
- An intrauterine pregnancy should be confirmed by a clinician and ectopic pregnancy excluded before beginning any travel.
- Health insurance should provide coverage while abroad and during pregnancy. In addition, a supplemental travel insurance policy and a prepaid medical evacuation insurance policy should be obtained, although most may not cover pregnancy-related problems.
- Check medical facilities at the destination. For a woman in the last trimester, medical facilities should be able to manage complications of pregnancy, toxemia, and cesarean sections.

Travel and pregnancy 3.

- Determine beforehand whether prenatal care will be required abroad and, if so, who will provide it. The pregnant traveler should also make sure prenatal visits requiring specific timing are not missed.
- Determine, before traveling, whether blood is screened for HIV and hepatitis B at the destination. The pregnant traveler should also be advised to know her blood type, and Rh-negative pregnant women should receive the anti-D immune globulin (a plasma-derived product) prophylactically at about 28 weeks' gestation.
- The immune globulin dose should be repeated after delivery if the infant is Rh positive.

Travel and pregnancy 4.

- A pregnant woman should be advised to travel with at least one companion; she should also be advised that, during her pregnancy, her level of comfort may be adversely affected by traveling.
- Typical problems of pregnant travelers are the same as those experienced by any pregnant woman: fatigue, heartburn, indigestion, constipation, vaginal discharge, leg cramps, increased frequency of urination, and hemorrhoids.
- During travel, pregnant women can take preventive measures including avoidance of gas-producing food or drinks before scheduled flights (entrapped gases can expand at higher altitudes) and periodic movement of the legs (to decrease venous stasis). Pregnant women should always use seatbelts while seated, as air turbulence is not predictable and may cause significant trauma.
- Signs and symptoms that indicate the need for immediate medical attention are vaginal bleeding, passing tissue or clots, abdominal pain or cramps, contractions, ruptured membranes, excessive leg swelling or pain, headaches, or visual problems.

Travel and pregnancy 5.

- Pregnant women should always use seatbelts while seated, as air turbulence is not predictable and may cause significant trauma.
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Food- and Waterborne Illness During Pregnancy

- It is especially important for pregnant women to adhere strictly to food and water precautions in developing countries because the consequences may be more severe than diarrhea and may have serious sequelae (e.g., toxoplasmosis, listeriosis).
- Suspect drinking water should be boiled to avoid long-term use of iodine-containing purification systems. Iodine tablets can probably be used for travel up to several weeks, but congenital goiters have been reported in association with administration of iodine-containing drugs during pregnancy.
- Oral rehydration is the mainstay of therapy for travelers' diarrhea.
- Bismuth subsalicylate compounds are contraindicated because of the theoretical risks of fetal bleeding from salicylates and teratogenicity from the bismuth.
- The combination of kaolin and pectin may be used, and loperamide should be used only when necessary.
- The antibiotic treatment of travelers' diarrhea during pregnancy can be complicated.
- Azithromycin or an oral third-generation cephalosporin may be the best options for treatment if an antibiotic is needed.

Malaria During Pregnancy 1.

- Malaria in pregnancy carries significant morbidity and mortality for both the mother and the fetus.
- Pregnant women should be advised to avoid travel to malaria-endemic areas if possible.
- Women who do choose to go to malarious areas can reduce their risk of acquiring malaria by following several preventive approaches.
- Because no preventive method is 100% effective, they should seek care promptly if symptoms of malaria develop.

Malaria During Pregnancy 2.

- Pregnant women traveling to malarious areas should
  - remain indoors between dusk and dawn, if mosquitoes are active outdoors during this time;
  - if outdoors at night, wear light-colored clothing, long sleeves, long pants, and shoes and socks;
  - stay in well-constructed housing with air-conditioning and/or screens;
  - use permethrin-impregnated bed nets;
  - use insect repellents containing DEET as recommended for adults, sparingly, but as needed.
  - Pyrethrum-containing house sprays may also be used indoors if insects are a problem.
  - If possible, remaining in cities or areas of cities that are at low (or lower) risk for malaria can help reduce the chances of infection.
  - Pregnant travelers should be under the care of providers knowledgeable in the care of pregnant women in tropical areas.

Malaria During Pregnancy 3.

- For pregnant women who travel to areas with chloroquine-sensitive *Plasmodium falciparum* malaria, chloroquine has been used for malaria chemoprophylaxis for decades with no documented increase in birth defects.
- For pregnant women who travel to areas with chloroquine-resistant *P. falciparum*, mefloquine should be recommended for chemoprophylaxis during the second and third trimesters.
- For women in their first trimester, most evidence suggests that mefloquine prophylaxis causes no significant increase in spontaneous abortions or congenital malformations if taken during this period.
- Because there is no evidence that chloroquine and mefloquine are associated with congenital defects when used for prophylaxis, CDC does not recommend that women planning pregnancy need to wait a specific period of time after their use before becoming pregnant

Malaria During Pregnancy 4.

- Doxycycline and primaquine are contraindicated for malaria prophylaxis during pregnancy, because both may cause adverse effects on the fetus.
- Malaria must be treated as a medical emergency in any pregnant traveler.
- A woman who has traveled to an area that has chloroquine-resistant strains of *P. falciparum* should be treated as if she as illness caused by chloroquine-resistant organisms.
- Because of the serious nature of malaria, quinine or intravenous quinidine should be initiated, and the case should be managed in consultation with an infectious disease or tropical medicine specialist.
- The management of malaria in a pregnant woman should include frequent blood glucose determinations and careful fluid monitoring: these requirements may necessitate intensive care supervision.

Immunizations

- Risk to a developing fetus from vaccination of the mother during pregnancy is primarily theoretical.
- No evidence exists of risk from vaccinating pregnant women with inactivated virus or bacterial vaccines or toxoids.
- The benefits of vaccinating pregnant women usually outweigh potential risks when the likelihood of disease exposure is high, when infection would pose a risk to the mother or fetus, and when the vaccine is unlikely to cause harm

The Travel Health Kit During Pregnancy

- Additions and substitutions to the usual travel health kit need to be made during pregnancy and nursing.
- Talcum powder, a thermometer, oral rehydration salts (ORS) packets, multivitamins, an antifungal agent for vaginal yeast, acetaminophen, insect repellent containing a low percentage of DEET, and a sunscreen with a high SPF should be carried.
- Women in their third trimesters may be advised to carry a blood pressure cuff and urine dipsticks so they can check for proteinuria and glucosuria, both of which would require attention.
- Antimalarial and antidiarrheal self-treatment medications should be evaluated individually, depending on the traveler, her trimester, the itinerary, and her health history.
- Most medications should be avoided, if possible.

Traveling Safely with Infants and Children 1.

- The number of children who travel or live outside their home countries has increased dramatically.
- An estimated 1.9 million children travel overseas each year.
- Health issues related to pediatric international travel are complex, reflecting varied activities, exposures, and age-specific health risks.
- While some travel health concerns are similar for children and adults, international pediatric travelers have unique problems because of variable immunity and different age-based behavior; for example, a newly mobile toddler will have different health risks than a sexually active adolescent.
- Furthermore, many travel-related vaccinations and preventive medications used for adults are not licensed or recommended for pediatric use.

Traveling Safely with Infants and Children 2.

- **Diarrhea and Dehydration 1.**
  - Diarrhea and associated gastrointestinal illness are among the most common travel-related problems affecting children.
  - Young children and infants are at high risk for diarrhea and other food- and waterborne illnesses because of limited pre-existing immunity and behavioral factors such as frequent hand-to-mouth contact. Infants and children with diarrhea can become dehydrated more quickly than adults.
  - Causes of Travelers' Diarrhea (TD) in children are similar to those in adults.
  - For young infants, breastfeeding is the best way to reduce the risk of foodborne and waterborne illness.
  - Travelers should use only purified water for drinking, preparing ice cubes, brushing teeth, and mixing infant formula and foods.

Traveling Safely with Infants and Children 3.

- **Diarrhea and Dehydration 2.**
  - Scrupulous attention should be paid to handwashing and cleaning pacifiers, teething rings, and toys that fall to the floor or are handled by others.
  - When proper handwashing facilities are not available, an alcohol-based hand sanitizer can be used as a disinfecting agent.
  - However, alcohol does not remove organic material; visibly soiled hands should be washed with soap and water.
  - Travelers should ensure that dairy products are pasteurized.
  - Fresh fruits and vegetables must be adequately cooked or washed well and peeled without recontamination.
  - Bringing finger foods or snacks (self-prepared or from home) will reduce the temptation to try potentially risky foods between meals.
  - Meat, fish and eggs should always be well cooked and eaten just after they have been prepared.
  - Travelers should avoid food from street vendors.

Traveling Safely with Infants and Children 4.

- **MANAGEMENT OF DIARRHEA IN INFANTS AND YOUNG CHILDREN**
  - Adults traveling with children should be counseled about the signs and symptoms of dehydration and the proper use of World Health Organization oral rehydration solutions (ORS).
  - Immediate medical attention is required for an infant or young child with diarrhea who has signs of moderate to severe dehydration, bloody diarrhea, fever higher than 38.5° C (101.5° F), or persistent vomiting.
  - ORS should be provided to the infant by bottle or spoon while medical attention is being obtained.

Traveling Safely with Infants and Children 5.

- **Assessment and Treatment of Dehydration**
  - The greatest risk to the infant with diarrhea and vomiting is dehydration.
  - Fever or increased ambient temperature increases fluid losses and speeds dehydration.
  - Parents should be advised that dehydration is best prevented and treated by use of ORS, in addition to the infant's usual food.
  - Rice and other cereal-based ORS, in which complex carbohydrates are substituted for glucose, are also available and may be more acceptable to young children.
  - Adults traveling with children should be counseled that sports drinks, which are designed to replace water and electrolytes lost through sweat, do not contain the same proportions of electrolytes as the solution recommended by WHO for rehydration during diarrheal illness.

Assessment of Dehydration Levels in Infants

SIGNS	SEVERITY		
	MILD	MODERATE	SEVERE
General condition	Thirsty, restless, agitated	Thirsty, restless, irritable	Withdrawn, somnolent, or comatose; rapid deep breathing
Pulse	Normal	Rapid, weak	Rapid, weak
Anterior fontanelle	Normal	Sunken	Very sunken
Eyes	Normal	Sunken	Very sunken
Tears	Present	Absent	Absent
Mucous membranes	Slightly dry	Dry	Dry
Skin turgor	Normal	Decreased	Decreased with tenting
Urine	Normal	Reduced, concentrated	None for several hours
Weight loss	4%-5%	6%-9%	>10%

Traveling Safely with Infants and Children 6.

- **Antibiotics**
  - Few data are available regarding empiric administration of antibiotics for TD in children.
  - Furthermore, the antimicrobial options for empiric treatment in children are limited. Trimethoprim-sulfamethoxazole (TMP/SMX) was previously used for empiric treatment of TD in children; however, its effectiveness has been reduced by widespread drug resistance and it is no longer routinely recommended.
  - Fluoroquinolones are frequently used for the empiric treatment of TD in adults.
  - The use of fluoroquinolones is not generally recommended for use in children and adolescents less than 18 years of age because of cartilage damage seen in animals tested.

Traveling Safely with Infants and Children 7.

- **Malaria 1.**
  - Malaria is one of the most serious, life-threatening diseases affecting pediatric international travelers. In the United States, 4,110 cases of malaria in US civilians were reported to CDC from 2000 through 2004. Of these cases, 572 (14%) occurred in children <18 years of age.
  - Among children with malaria, 182 (32%) were 1 month to 5 years old, 126 (22%) were 6-9 years old, 146 (25%) were 10-14 years old, and 118 (21%) were 15-17 years old.
  - The largest percentage of cases occurred in persons who were visiting friends and relatives.

Traveling Safely with Infants and Children 8.

- Malaria 2.
- Children with malaria can rapidly develop a high level of parasitemia.
- They are at increased risk for severe complications of malaria, including shock, seizures, coma, and death.
- Initial symptoms of malaria in children may mimic many other common causes of pediatric febrile illness and therefore may result in delayed diagnosis and treatment.
- Clinicians should counsel adults traveling in malarious areas with children to be aware of the signs and symptoms of malaria and to seek prompt medical attention if they develop.

Traveling Safely with Infants and Children 9.

- Malaria 3.
- Because overdose of antimalarial drugs can be fatal, medication should be stored in childproof containers and kept out of the reach of infants and children.
- Atovaquone/proguanil is available in pediatric tablet form.
- Pediatric doses should be calculated carefully according to body weight.
- Before departure, pharmacists can be asked to pulverize tablets and prepare gelatin capsules with calculated pediatric doses.
- Chloroquine, mefloquine, and atovaquone/proguanil have a bitter taste.
- Mixing the powder in a small amount of food or drink can facilitate the administration of antimalarial drugs to infants and children.

Traveling Safely with Infants and Children 10.

- **Insect and Other Arthropod Protection**
  - Personal protection against mosquitoes, ticks, and biting flies is an important part of prevention against malaria, yellow fever, and other diseases for which no other prophylaxis is available, such as dengue fever.
  - While outdoors, children should wear as much protective clothing (long sleeves and long pants) as they can tolerate.
  - They should sleep in rooms with air conditioning or screened windows or under bed nets.
  - Mosquito netting should be used over infant carriers.
  - Clothing and mosquito nets can be treated with permethrin, a repellent and insecticide derived from chrysanthemum flowers that repels and kills ticks, mosquitoes and other arthropods.
  - Permethrin remains effective through multiple washings.
  - Clothing and bednets should be retreated according to product label. Permethrin should not be applied to the skin.

Traveling Safely with Infants and Children 11.

- **Infection and Infestation from Soil Contact**
  - Children are more likely than adults to have contact with soil or sand and therefore may be exposed to infectious stages of parasites present in soil, including ascariasis, hookworm, cutaneous larva migrans, trichuriasis, and strongyloidiasis.
  - Children and infants should wear protective footwear and play on a sheet or towel rather than directly on the ground.
  - Clothing should not be dried on the ground.
  - Clothing or diapers dried in the open air should be ironed before use to prevent infestation with fly larvae (myiasis).

Traveling Safely with Infants and Children 12.

- **Animal Bites and Rabies**
  - Worldwide, rabies is more common in children than adults. In addition to the potential for increased contact with animals, children are also more likely to be bitten on the head or neck, leading to more severe injuries.
  - They are also less likely to report a bite.
  - Children and their families should be counseled to avoid all stray or unfamiliar animals and to inform adults of any contact or bites.
  - Animal exposure abroad is not limited to rural areas, since stray dogs are common in many urban areas.
  - Children may approach or be unable to avoid animals.
  - Mammal-associated injuries should be washed thoroughly with water and soap (and povidone iodine if available), and the child should be evaluated promptly for the need for rabies postexposure prophylaxis and other measures

Traveling Safely with Infants and Children 13.

- **Air Travel**
  - Air travel is safe for healthy newborns and infants; however, children with chronic heart or lung problems or with upper or lower respiratory symptoms at the time of travel may be at risk for hypoxia during flight, and a physician should be consulted before travel.
  - Ear pain can be very troublesome for infants and children during descent. Equalization of pressure in the middle ear can be facilitated by swallowing or chewing; infants should nurse or suck on a bottle. Older children can try chewing gum. Antihistamines and decongestants have not been shown to have benefit. There is no evidence that air travel exacerbates the symptoms or complications associated with otitis media.
  - Travel to different time zones, “jet lag,” and schedule disruptions can disturb sleep patterns in infants and children, as well as adults. Attempts to adjust sleep schedules 2-3 days before departure may be helpful. After arrival, children should be encouraged to be active outside during daylight hours to promote adjustment..

Traveling Safely with Infants and Children 14.

- **Pediatric Travel Health Kit**
- In addition to the kit recommended for all travelers, parents should carry safe water and snacks; waterless, alcohol-based hand sanitizer; child-safe hand wipes; ORS packets; oral syringes for the administration of medications and ORS; diaper rash ointment; and a water- and insect-proof ground sheet for play outside.
- In addition, many countries may not provide medications and child-care products of the same type and quality as are available at home. In selected circumstances, rectal preparations of medications, such as acetaminophen; topical antibacterial antibiotics, such as mupirocin; and lice and scabies topical treatments may be useful.
- As a precaution, travelers with children should consider bringing additional items they might need, such as baby formula and medications specific to the child