Safety Guidelines for Field Researchers

The University of Houston
Environmental Health & Life Safety
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Safety Guidelines for Field Researchers

Table of Contents

I. Introduction 3
II. General Field Safety Guidelines 3
A. Before You Leave 4
B. While You are Working 8
C. Medical Care and First Aid 9

III. Physical & Environmental Hazards 10
A. General 10
B. North America 13
C. International 13

IV. Animals & Other Indigenous Creatures 13
A. Proper Rodent Handing 14
B. General 16
C. North America 18
D. International 20

V. Diseases 21
A. General 21
B. North America 23
C. International 25

VI. Resources 28

Trip Safety Checklist 32

Release Agreement 33

Thanks to The University of Texas at Austin, Environmental Health and Safety for allowing The University of Houston to use as a model for our guidelines.

I. Introduction

Fieldwork is an important part of teaching and research at the University of Houston. Since fieldwork activities take you off campus, this guide is intended to help you plan and prepare for health and safety problems you might encounter in the field. Please remember that the researcher leading the fieldwork is ultimately responsible for his/her safety as well the safety of team members. The traditional campus resources such as Environmental Health and Life Safety, UH Police, Office of Emergency Management and Risk Management *will not be available* in the field. Therefore carefully plan your fieldwork, consider any problems or emergencies that could arise and decide on a response to address the problem or emergency before departure.

This "Safety Guidelines for Field Researchers" is organized into several distinct sections. The first section covers "general guidelines" to assist you before you leave, while you are doing fieldwork and with emergency medical care. Sections III, IV and V address specific hazards that you may encounter in the field. By looking at these hazards, you can assess the risk associated with your fieldwork and develop a brief, practical "Safety Plan". Physical and environmental hazards are listed with the cause, symptoms and prevention measures. Animal-related hazards include a listing of "what to do if encountered" as well as preventive measures. Finally specific diseases that present a hazard are listed with exposure routes, symptoms and preventive measures. The last section of this guide provides you with resources both on campus and outside the university.

II. General Field Safety Guidelines

The following safety guidelines are presented for any type of fieldwork in any location. Of course, each field trip is unique and the best way to address your specific hazards is to prepare your own "Safety Plan".

For more specific information on fieldwork hazards and precautions, talk to your supervisor or contact Environmental Health & Life Safety. Also check the resources section of this Guide.

A. Before You Leave

One of the most important phases of your fieldwork experience is planning and preparation *before* you leave.
Here are some suggestions for a safe trip:

Prepare a Safety Plan

Prepare a written *Safety Plan* of your trip. Discuss the plan and provide a copy to each member of your team and leave a copy with a responsible party. Include the following:

a. Your itinerary: Locations, arrival and departure dates, names, addresses and phone numbers of all fieldwork participants.
b. Contact person: Name and phone number of a person to contact in case of emergency- a spouse, parent or friend, as well as a campus contact.
c. Activities: General nature of activities being conducted.
d. Local contacts: Names of people at or near your fieldwork site who can reach you if necessary, as well as your check-in/check-out arrangements.
e. Possible Risks: Potentially hazardous plants, animals, terrain and weather conditions where you plan to work.
Complete a **"Field Research Safety Plan"**. A simple template for a Safety Plan is presented below.

As you prepare your Plan, talk with other fieldworkers, local residents, and authorities, such as state and national park services' personnel who may be able to provide you with helpful information.

A template for a Safety Plan is presented below and may be used by the Principal Investigator (PI), or Project Lead, to assist with the development of your specific Plan. **The completed Safety Plan should be shared with all the members of the field research team and kept on file on campus.** Multiple trips to the same location can be covered by a single Safety Plan. The Safety Plan should be revised whenever a significant change to the location, the team or scope of field work occurs. EHLS is available to assist in completion or review of the Safety Plan; (713)743-5858.

University of Houston
Field Research Safety Plan

Principal Investigator: Department:

Phone Number: E-mail Address:

Dates of Travel: *(List multiple dates if more than one trip is planned)*

Location of Field Research:

Country:_____ Geographical Site: _____

Nearest City: _____
(Name, Distance from Site)

Nearest Hospital or Medical Clinic: _____
(Location, Distance from Site)

Field Research: (Please include a brief description of the field work).

University Contact:
Name: _____ Phone: _____

Local (field) Contact:
Name: _____ Phone: _____

Emergency Procedures: (Please include detailed plans for field location including evacuation and emergency communication; *Include a separate sheet if necessary).*

First Aid Training: (Please list any team members who are first aid trained and the type of training they have).

Physical Demands: (Please list any physical demands required for this field research, e.g., Diving, Climbing, Temperature Extremes, High Altitude).

Risk Assessment: Please list identified risks associated with the activity or the physical environment (e.g., extreme heat or cold, wild animals, endemic diseases, firearms, explosives, violence). List appropriate measures to be taken to reduce the risks; *Include a separate sheet if necessary.*

Identified Risk	*Control of Risk*
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

Travel Immunizations: (Please list required immunizations/prophylaxis.) *Contact UH Health Center (713) 743-5151 for assistance.*

Field Team Membership (Please list the names of all members of the field research team, and identify the Field Team Leader, (Use additional sheets as needed)

Get Your Vaccinations and Make Medical Preparation

If your trip involves travelling outside of the country, you should contact UH Health Center or another travel health clinic to learn about the required and recommended vaccinations for your location. Some countries require proof of vaccinations prior to entry. A travel appointment should be scheduled as far in advance as possible since some vaccines are given as a series over a six-month period.

Consider taking a CPR/First Aid class through UH Police Department or UH Recreation Center.

Assemble Your Safety Gear

Assemble safety provisions and check everything *before* you leave.
Safety provisions may include:

- First aid kit and first aid manual. These should be taken on *any* trip and are described in detail below.
- Medications you regularly take (if your medication involve syringes or liquid preparations, consider carrying a note from your physician documenting your need for such due to airline or country specific restrictions)
- Allergy treatments (if you have allergies)
- Sunscreen and hat
- Water purification tablets or filter devices
- Vehicle emergency kit
- Flashlight
- Flares (Do not take on plane)
- Cell Phone or radio
- Personal protective equipment for fieldwork activities (safety glasses/goggles, gloves, hard hat, sturdy work boots, etc.). EHLS can recommend protective equipment depending on your activities.
- Tool to removed fishhooks from skin if using hooks for fishing
- Seasickness tablets (be aware of drowsiness side effects)

Other Actions

- Research involving animals, including wild animals, require registration with and approval from the Institutional Animal Care and Use Committee (IACUC). Research involving microorganisms requires registration with and approval from the Institutional Biosafety Committee (IBC). Please see the resources section for more information.

- Ask your health insurance provider about how your coverage applies to medical treatment in the fieldwork locale, should that become necessary. **Note while UH Workers' Compensation provides worldwide benefits, it only covers UH employees during the performance of their job functions.**

- For international destinations, you may contact Risk Management to order a Travel Advisory/Country Report or City Guide, which details political conditions, cultural factors and other useful information. Include your destination and dates of travel and allow three business days for completion of the request. Contact the Risk Management Department for information regarding these reports listed in the resources section of this guide.

- As part of a field team non employed team members will be asked to sign a release agreement with the University (see trip safety check list)

- Be sure to evaluate the risks associated with driving. Consider working with a local guide or driver.

B. While You are Working

1. Fieldworkers should check in with their group office regularly, and should advise the group office of any changes in schedule or points of contact.

2. Fieldworkers should also inform someone in their work locale (for example, local search and rescue personnel, police, sheriff, or motel employee) each day about the daily fieldwork location and the approximate time of return.

3. After each day's work, the fieldworkers should notify the contact when they return.

4. The local contact should be provided with the telephone numbers of people to call (group office, university contact, etc.) if the workers do not return or report in within a predetermined interval of the scheduled return time.

5. Whenever possible, fieldwork activities should be done in teams of at least two people. The “buddy” system is the safest way to work. Always make sure your supervisor knows where you will be and when you will return.

C. Medical Care and First Aid

The following guidelines apply to all off-campus operations including field stations, academic field trips, field research, excursions, etc. that involve employees and students:

1. A first aid kit should be maintained at all times during the operation or exercise. First aid kits are highly recommended for all off-campus operations. Departments must purchase and maintain first aid kits including any special equipment or medication that is needed. Kits and refills may be ordered from safety supply companies. EHLS can assist with identifying vendors.

2. At least one employee who is trained and certified in first aid and CPR should be present during operations.

3. At permanent university field stations, written arrangements should be made in advance with local facilities for emergency medical treatment. If you are working from a field station you should find out what the arrangements are for emergency care.

Job Related Injuries or Illnesses

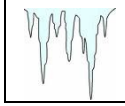
If a university employee suffers a job-related injury or illness, he/she must notify his/her supervisor within **24 hours**. The employee’s department/supervisor or designee must complete the Supervisor’s First Report of Injury form. If the injury is “serious” (amputation, permanent disfigurement, overnight hospital stay, fatality) notify your supervisor or designee **immediately**. Contact the Risk Management Department for information regarding Workers Compensation listed in the resources section of this guide.

III. Physical & Environmental Hazards

There are many general physical and environmental hazards that exist in nearly every location worldwide. All field researchers, regardless of the work location, should read through this section to learn more about some general physical and environmental hazards. If your research is in North America, please also read Section B: North America. If your research will take you out of North America, please also read Section C: International.

A. General

Hazard	Location	Cause	Symptoms	Prevention
Vehicle Accident	Worldwide	-Fatigue -Impaired driving -Driver error -Roadway factors -Vehicle factors	-Various trauma injuries	-Obey traffic laws -Wear your seatbelt -Don't drive impaired -Don't speed or drive recklessly -Don't use a 12 or 15 passenger van
Boating Accident	Worldwide	-Lack of proper training -Fatigue -Severe weather -Alcohol impairment -Dangerous/unfamiliar conditions	-Various injuries or death	-Proper training and certification by appropriate authority -Don't drive while impaired - Don't speed or drive recklessly
Slips, trips, falls	Worldwide	-Loose, irregular or slippery surface -Wrong footwear -Poor lighting -Obstruction -Improper (or lack of) use of ladders -Inattention or distraction	-Strains, fractures, bruises and contusions (head, wrist, elbow, shoulder, back, hip, knee, ankle)	-Proper "housekeeping" -Wear proper footwear -Adequate lighting -Don't carry oversized objects -Use ladders properly -Pay attention to your surroundings

Hazard	Location	Cause	Symptoms	Prevention
Dehydration 	Worldwide	Not enough water intake	-Increased thirst -Dry mouth -Flushed face -Dizziness -Headache -Weakness -Muscle cramps -Dark urine	-Drink plenty of water (at least 2 quarts per day), more if working strenuously or in a warm climate
Impure Water	Worldwide	Harmful organisms and pathogens living in water sources	-Gastrointestinal illness -Flu-like symptoms	-Carry your own water -Treat water before use with tablets, purifiers, or by boiling for > 3 minutes
Sunburn 	Worldwide	Excessive exposure to the sun	-Irritated skin, pink or red in color	-Wear long sleeved clothing and a hat -Apply SPF ≥30 sun block
Heat Exhaustion	Worldwide – hot climates	Prolonged physical exertion in a hot environment	-Fatigue -Excessive thirst -Heavy sweating -Cool, clammy skin	-Acclimate to heat gradually -Drink plenty of liquids -Take frequent rest breaks
Heat Stroke	Worldwide – hot climates	Prolonged physical exertion in a hot environment	-Exhaustion -Light-headedness -Bright red warm skin	-Acclimate to heat gradually -Drink plenty of liquids -Take frequent rest breaks
Frostbite	Worldwide – cold climates	Exposure to cold temperatures	-Waxy, whitish numb skin -Swelling, itching, burning, and deep pain as the skin warms	-Dress in layers -Cover your extremities with warm clothing, e.g., hats, facemask, gloves, socks, and shoes
Hypothermia 	Worldwide – cold climates	Prolonged exposure to cold temperatures	-Shivering -Numbness -Slurred speech -Excessive fatigue	-Dress in layers -Wear appropriate clothing -Avoid getting damp from perspiration

Hazard	Location	Cause	Symptoms	Prevention
High Altitude Illness 	Worldwide – high altitudes	Decreased oxygen intake and increased breathing rate	-Headache -Nausea -Weakness	-Allow your body to acclimatize by gaining elevation slowly
Water	Worldwide	-Currents, waves, turbulent, fast moving water -Drop-offs	-Drowning or near drowning -Injuries	-Familiarize yourself with water safety practices and techniques -Use proper gear including flotation devices -Protective footwear for wading, marsh, reef, or rocky bottom research
Red/Brown tides	Red tides occur on both sides of the Atlantic, off Florida, and along the Pacific coast to Alaska	Algal blooms	-Respiratory distress -Dead fish -Discolored water	-Avoid areas where tides are in bloom
Carbon Monoxide	Worldwide	Running a vehicle or burning a fuel stove in an enclosed space	-Severe headaches -Disorientation -Agitation -Lethargy -Stupor -Coma	-Keep areas adequately ventilated when burning fuel -Ensure that vehicle tailpipe is not covered by snow
Extreme Weather	Worldwide	Snow squalls, blizzards, heavy rains, lightning, tornadoes, hurricanes, flash floods	Severe weather can result in physical injury and/or death	-Be aware of special weather concerns -Bring appropriate equipment to deal with severe weather

B. North America

Hazard	Location	Cause		Prevention
Hunting Season 	United States	Local hunting seasons and regulations vary	-A hunting accident may result in serious injury or death	-Wear appropriately colored safety clothing -Avoid animal like behavior (e.g. hiding in thickets)
Poisonous Plants 	North America	Exposure to poison ivy, poison oak, or poison sumac plants	-Itchy rash -Red, swollen skin	-Avoid contact with poisonous plants -Use pre-exposure lotion -Wash clothes and skin with soap and water after exposure

C. International

Hazard	Location	What to do if encountered	Prevention
Violence caused by political unrest or military conflict	International	Leave the area as soon as it is safe to do so	-Be aware of current travel advisories (Security travel advisories are available from Risk Management- See Section II, Other Actions for access information)
Theft	International	Report theft immediately to local authorities	-Keep wallet in front pocket -Carry shoulder bag diagonally and keep bag in front under your arm

IV. Animals & Other Indigenous Creatures

There are many general safety hazards pertaining to animals and other indigenous creatures that exist in nearly every location worldwide. All field researchers, regardless of the work location, should read through this section to learn more about some general guidelines to prevent unwanted animals and "pests". If your research is in North America, please also read Section B. If your research will take you out of North America, please also read Section C: International.

General Safety Guidelines

A number of animals and pests may be encountered in fieldwork. Follow these general guidelines to prevent close encounters of the painful kind:

- Wear insect repellent. **Mosquito-borne illnesses are responsible for more than a million deaths each year.**
- Use netting to keep pests away from food and people.
- Keep garbage in rodent-proof containers and stored away from your campsite or work area. Food crumbs and debris may attract insects and animals.
- Thoroughly shake all clothing and bedding before use.
- Do not camp or sleep near obvious animal nests or burrows.
- Carefully look for pests before placing your hands, feet or body in areas where pests live or hide (wood piles, crevices, etc.).
- Avoid contact with sick or dead animals.
- Wear clothes made of tightly woven materials, and tuck pants into boots.
- Minimize the amount of time you use lights after dark as they may attract pests and animals.
- Carry a first aid kit with you on any excursion so you can treat bites or stings. If the pest is poisonous or if the bite does not appear to heal properly, seek medical attention immediately.
- Be aware of the appearance and habitat of pests likely to be found, such as those described in the following pages.

A. Proper Rodent Handling

Steps can be taken to reduce the risk of rodent-borne diseases:

1. Most importantly, make the area unattractive to rodents.

2. Cover or repair holes into a building to prevent unwanted rodents.

3. If camping, keep the area clean of trash and store food carefully to prevent attracting rodents.

4. Don't camp near rodent burrows.

5. If rodent feces or dead rodents are discovered, some precautions will help reduce the risk of exposure to rodent-borne diseases when cleaning the area:

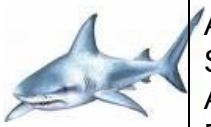
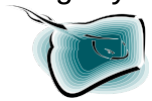
   Indoors: **Do not stir up dust**. Ventilate the area by opening the doors and windows for at least 30 minutes to diffuse potentially infectious aerosolized material. Use cross-ventilation and leave the area during the airing-out period.

   Dead Rodent: Using gloves, soak the rodent, droppings and nest with a solution of 1 part bleach to 9 parts water, let soak for at least 5 minutes before picking it up with a plastic bag. Place bag in a second plastic bag.

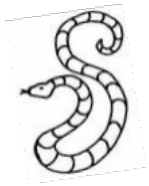
   Rodent Feces: Don't sweep or vacuum rodent droppings. Spray the droppings with 1 part bleach to 9 parts water, let soak for at least 5 minutes then wipe up the droppings. If possible, wet mop the area with the bleach solution.

B. General

Type	Location	Most Dangerous Species	What to do if encountered	Prevention
Mosquitoes	Worldwide – especially wet areas	Refer to Section IV: Diseases		-Use insect repellant -Don't leave standing pools of water -Use bed nets
Rodents	Worldwide		-Don't touch a rodent, dead or alive	-Keep areas clean to avoid attracting rodents -Store food in sealed containers
Flies	Worldwide	Flies can serve as vectors for many diseases including: conjunctivitis, poliomyelitis, typhoid fever, tuberculosis, anthrax, leprosy, cholera, diarrhea and dysentery	-Remove insects from the area if possible -Avoid areas with heavy fly infestations	
Conenose "Kissing" Bugs 	North and South America	May cause allergies in some people. In Latin America they sometimes carry a protozoan, *Trypanosoma cruzi,* which causes Chagas'	-Remove the bug from the premises	-Use caution when working near nests and wood rat dens -Use extra caution when working near rock shelters

Type	Location	Most Dangerous Species	What to do if encountered	Prevention
		disease Refer to Section IV: Diseases		
Sharks 	Worldwide – Oceans – U.S., Africa, Central & South America, Australia, Pacific Islands	Great White, Bull, Tiger, Oceanic Whitetip	Call for help, swim towards safety, punch or kick the shark if necessary	-Never swim alone -Don't wear sparkling jewelry -Don't enter the water when bleeding
Crocodiles & Alligators	Worldwide – tropics & subtropics – North America, Australia, Africa, Eastern China	American Alligator (North America), Estuarine Crocodile (Australia), Nile Crocodile (Africa)	 Do not provoke an alligator or crocodile	-Avoid waters known to be home to crocodiles or alligators -Keep at least 30 feet away from any crocodile or alligator
Sting-rays 	Worldwide-freshwater and marine habitats	All	- Do not provoke or feed -Shuffle feet to let string-rays know you are there -Move to another area if possible	-Stingray encounters usually happen when walking in shallow water 0Shuffle feet while wading -Wear proper footwear
Fish	Worldwide-freshwater and marine habitats	Barracuda, piranha, moray eel, stonefish, scorpionfish	-Do not provoke or feed -Work somewhere else if possible	-Be aware of which fish you might encounter in their habitats -Use fish handler gloves
Oysters, Shells, Corals 	Worldwide-freshwater and marine habitats	-Danger in the bacteria (Vibrio, staph) which can cause potentially life-threatening infection. Some corals can sting.	-Avoid the area -Seek medical treatment immediately	-Immediate cleansing and treatment for any wounds -Wear clothing to avoid getting scratched/stung -Avoid touching or handling

C. North America

Type	Location	Most Dangerous Species	What to do if encountered	Prevention
Bears	North America	Black Bear (North America), Grizzly Bear (Alaska, Western Canada, Pacific Northwest), Polar Bear (Arctic)	-Do not run -Move slowly and speak in a low soft voice -If attacked, lay in the fetal position and protect head -Play dead	-Keep food out of sleeping areas -Never approach a bear (or bear cub) -Wear a bell or other noisemaker -Stay away from the bear's food supply
Mountain Lions 	North, Central, and South America	All	-Do not run, back away slowly, do not corner it - Do not play dead, look it in the eyes -Make yourself look larger (arms overhead), do not bend down -Use a loud voice -Throw sticks or rocks -Fight back, poke it in the eye with your thumb -Protect your neck and head	-Do not leave children or pets unattended -Do not feed deer -Avoid hiking, biking, jogging alone or other outdoor activities when mountain lions are most active, dawn, dusk, and at night -Avoid walking near dense growth, rock outcroppings, ledges -Always look up and behind you -Carry pepper spray
Snakes 	North America, Mexico	Rattlesnakes, Cottonmouths, Coral Snakes, Moccasins, and Copperheads	-Back away slowly while keeping an eye on the snake -Do not make fast movements	-Walk in open areas -Wear heavy boots -Use a stick to disturb the brush in front of you - Do not pick up, disturb, or corner a snake -Back away from a snake -Avoid locations where snakes may be
Spiders 	North America	Black Widow and Brown Recluse	-If you cannot leave/avoid the area, remove the spider from the area without using hands directly	-Use care around rock piles, logs, bark, gardens, outdoor privies, old buildings -Wear gloves when working outside -Shake out clothing and bedding before use -Do not pick up or disturb a spider -Avoid locations where spiders may be such as dark places

Type	Location	Most Dangerous Species	What to do if encountered	Prevention
Scorpions 	North America – especially Arizona, Southeast California, Utah and Mexico	All	-If you cannot leave/avoid the area, remove the scorpion from the area without using hands directly	-Shake out clothing and bedding before use -Avoid lumber piles and old tree stumps -Wear gloves when working outside --Do not pick up or disturb a scorpion -Avoid locations where scorpions may be
Bees, Wasps, etc	North America	Bees, wasps, hornets, and yellow jackets, Africanized Killer Bees (Southeast United States)	- Do not swat or kill – this may elicit an attack response from other bees/wasps -Leave the area immediately and quickly -If being chased move into a closed area if possible -Cover face	-Bring medication if you have an allergy (the sting may be fatal) -Keep scented foods, drinks and meats covered -Wear shoes outside - Avoid wearing bright colors, flower prints and perfume -Move slowly or stand still (don't swat at insects)
Fleas & Ticks 	North America	Refer to Section IV: Diseases	-Brush away if not attached -If attached remove quickly -Remove from premises	-Wear long clothing with tightly woven material -Wear insect repellent -Tuck pants into boots -Drag cloth across campsite to check for fleas/ticks -Protect pets -Avoid shrubbery -Stay on widest part of path

D. International

Type	Location	Most Dangerous Species	What to do if encountered	Prevention
Bears 	Worldwide (Arctic, South America, Asia)	Polar Bears (Greenland and North Russia), Spectacled Bears (North and West South America), Asiatic Black Bears (South & East Asia)	-Do not run -Move slowly and speak in a low soft voice -If attacked, lay in the fetal position and protect head -Play dead	-Keep your camp area free of garbage and food waste -Never feed or approach a bear (especially a cub) -Stay away from the bear's food
Lions	Africa and Asia	All 	-Do not startle -Do not run -Do not look it in the eye -Make yourself look larger	-Stay inside the vehicle if travelling near lions -Do not camp in areas frequented by lions -Do not sleep outside -Do not provoke
Water Dwellers	Worldwide (especially Australia)	Blue Ringed Octopus, Box Jellyfish, and Irukandji Jellyfish (Australia); Stonefish (worldwide)	Never touch an unidentified octopus or jellyfish 	-Avoid going in waters known to be inhabited by jellyfish and octopus -Wear sandal in the water to avoid stepping on a stonefish
Snakes	Worldwide	Russel's Viper, Indian Cobra (India); Tiger, Black, Brown, Sea Snakes (Australia); Egyptian Cobra, Puff Adder, Saw Scaled Viper (Africa); Fer-de- lance (Central and South America)	-Do not pick up, disturb, or corner a snake -Move away from the snake	-Walk in open areas -Wear heavy boots -Use a stick to disturb the brush in front of you
Spiders	Worldwide	Funnel Web and Redback Spiders (Australia); Brazilian Wandering Spider, Brown Recluse, Black Widow, and Tarantula (South America)	-If you cannot leave/avoid the area, remove the spider from the area without using hands directly	-Use care around rock piles, logs, bark, outdoor privies, and old buildings -Shake out clothing and bedding before use -Wear shoes outside -Wear gloves when working outside
Scorpions	Worldwide (especially North Africa, The Middle East, South America, and India)	-All	-If you cannot leave/avoid the area, remove the scorpion from the area without using hands directly	-Shake out clothing and bedding before use -Avoid lumber piles and old tree stumps -Wear gloves when working outside

V. Diseases

There are diseases caused by viruses, bacteria, fungi, and parasites in nearly every location worldwide. This guide is not intended to cover every health risk in every location, but it provides information about some more common diseases. *Always check with your health care provider, Student Health Services or another travel health clinic before travelling out of the country to learn about specific health risks for the region in which you will conduct your research.* All field researchers, regardless of the work location, should read through this section to learn more about some general diseases that exist worldwide. If your research is in North America, please also read Section B: North America. If your research will take you out of North America, please also read Section C: International.

A. General

Type	Location	Exposure Route	Symptoms	Prevention
Campylo-bacteriosis	Worldwide	Foodborne – poultry products, unpasteurized milk or water contaminated with *Campylobacter*	-Diarrhea -Gastrointestinal symptoms -Fever	-Always cook food thoroughly -Never drink water from an impure source -Do not drink unpasteurized milk - Wash hands with soap and water frequently
E. coli O157:H7 and Shiga toxin-producing *E. coli* Gastroenteritis	Worldwide	Foodborne – beef, unpasteurized milk, unwashed raw vegetables, water contaminated with *Escherichia coli*	-Diarrhea -Gastrointestinal symptoms	-Always cook food thoroughly -Wash vegetables before consuming -Never drink water from an impure source -Wash hands with soap and water frequently
Hepatitis A (Vaccine Available)	Worldwide(under-developed countries)	Foodborne –water, shellfish, unwashed raw vegetables contaminated with Hepatitis A virus	-Diarrhea -Gastrointestinal symptoms	-Obtain a vaccine -Always wash produce and cook food thoroughly -Never drink water from an impure source -Wash hands with soap and water frequently
Histo-plasmosis	Worldwide(especially MS & OH River Valleys)	Inhalation of fungus *Histoplasma capsulatum* from soil contaminated with bat or bird droppings	-Mild flu-like -Rarely can be acute pulmonary histoplasmosis	-Use caution when disturbing dry soils or working near bat or bird droppings -Personal protective equipment may be needed
Human Immuno-deficiency virus/ Acquired Immune Deficiency Syndrome (HIV/AIDS)	Worldwide	-Being exposed to blood or body fluids infected with HIV -Having sex or sharing needles with someone infected with HIV	-May have flu-like symptoms 14-60 days post infection -Attacks the immune system, may eventually result in opportunistic infections or cancers	-Follow Bloodborne Pathogen training when handling any unfixed human blood or tissue -Do not engaging in risky activities
Influenza (seasonal)	Worldwide	-Inhalation of influenza virus -Contact with birds or other animals infected with influenza	-Fever (usually high) -Headache -Extreme tiredness -Dry cough, Sore throat, Runny or stuffy nose	-Annual flu vaccination -Cover your nose and mouth with a tissue or your elbow when you cough or sneeze -Wash hands with soap and water frequently, or use an alcohol based hand cleaner -Try not to touch your eyes, nose, or mouth.

Type	Location	Exposure Route	Symptoms	Prevention
Influenza (continued)			-Muscle aches -Stomach symptoms (nausea, vomiting, diarrhea) more commonly in children	-Stay away from people who are sick -If you get the flu, stay home from work or school
Leptospirosis	Worldwide	Ingestion, swimming, or other activities in water contaminated with *Leptospira*	-Flu-like -Occasionally more serious symptoms	-Use care when working in the water, especially after a flooding event -Avoid entering the water with open wounds
Norovirus "Norwalk-like viruses" (NLV) Gastroenteritis	Worldwide	Foodborne – food, water, surfaces or objects contaminated with Norovirus -Direct contact with another person who is infected	Nausea, vomiting, diarrhea, stomach cramping -Some people also have a low-grade fever, chills, headache, muscle aches, malaise	-Wash hands with soap and water frequently -Wash fruits/vegetables, and steam oysters -Clean and disinfect contaminated surfaces immediately after illness using a bleach-based cleaner -Remove and wash contaminated clothing or linens
Plague	Worldwide	Flea-borne – from rodents infected with *Yersinia pestis* to humans -Direct contact with infected tissues or fluids from sick or dead animals	-Flu-like -Non-specific -Swollen and painful lymph nodes (bubonic)	-Use care when working in areas where plague is found -Use caution when working with wild rodents
Rabies (Vaccine Available)	Worldwide	-Infection from bite of an animal (e.g., raccoons, skunks, bats, foxes, coyotes, dogs, cats) infected with the rabies virus -Bat bites are difficult to see and may not be felt. Exposure is also possible when a bat is found in living or sleeping quarters.	-Fatal (within days of the onset of symptoms) without immediate treatment -Early symptoms: fever, headache, malaise -Later symptoms: insomnia, anxiety, confusion, paralysis, hallucinations, hypersalivation, difficulty swallowing, fear of water	-Obtain a vaccine if you will be working with high rabies risk species -Use extreme caution handling these animals -Vaccinate pets -Do not handle or feed stray animals or wild mammals

Type	Location	Exposure Route	Symptoms	Prevention
Salmonellosis	Worldwide	Foodborne – beef, poultry, milk, eggs, unwashed raw vegetables contaminated with salmonella bacteria	-Diarrhea -Gastrointestinal symptoms	-Always cook food thoroughly -Wash vegetables before consuming -Wash hands with soap and water frequently
Typhoid Fever (Vaccine Available)	Worldwide	Foodborne – food and water contaminated with *Salmonella typhi*	-Diarrhea -Gastrointestinal symptoms	-Obtain a vaccine -Always cook food thoroughly -Never drink water from an impure source -Wash hands with soap and water frequently
Tetanus (Vaccine Available)	Worldwide	A wound that is infected with *Clostridium tetani*; tetanus toxin is produced by the bacteria and attacks nerves	-Early symptoms: lockjaw, stiffness in the neck and abdomen, difficulty swallowing -Later symptoms: muscle spasms, seizures, nervous system disorders	-Obtain a vaccine for tetanus every 10 years or immediately following a suspect wound or injury -Once the disease starts it must run its course
Typhus Fever	Worldwide	Infection from bite of lice, fleas, ticks, or mites infected with *Rickettsiae* species	-Headache -Fever -Rash	-Use insect repellant -Wear long sleeve shirts -Tuck pants into boots

B. North America

Type	Location	Exposure Route	Symptoms	Prevention
Coccidiodo-mycosis "Valley Fever"	North and South America semiarid regions	*Coccidioides* species fungus is inhaled when soil is disturbed	-None in most people ~60% -Flu-like (fever, cough, rash, headache, muscle aches) Occasionally, chronic pulmonary infection or widespread disseminat infection	-Wet soil before digging - If you are immunocompromised, wear a mask when digging -Stay inside during dust storms in areas where *Coccidioides* fungus is present -Keep doors and windows tightly closed

Type	Location	Exposure Route	Symptoms	Prevention
St. Louis Encephalitis	North and South America	-Mosquito-borne –infection from bite of a mosquito infected with St. Louis Encephalitis virus	-Mild – fever and headache -Severe headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, paralysis, and rarely death	-Use insect repellent -Many mosquitoes are most active at dusk and dawn, consider staying indoors during these hours -Wear long sleeves and pants -Avoid areas of standing water where mosquitoes breed
Lyme Disease	United States, Europe and Asia	Infection through the bite of a tick infected with *Borrelia burgdorferi* (U.S.) *Borrelia afzelii* or *Borrelia garinii* (Europe)	-Spreading rash ("bullseye") -Early symptoms: flu- like -Later symptoms: arrhythmia and neurologic problems	-Avoid tick infested areas -Wear long sleeves and pants -Use insect repellant
Rocky Mountain Spotted Fever	United States, southern Canada, Mexico, and Central America	Infection through the bite of an infected tick -*Rickettsia rickettsii*	-Sudden onset of fever -Headache -Muscle pain -Spotty rash	-Avoid tick infested areas -Wear long pants, shirts -Use a repellant
Hantavirus Pulmonary Syndrome (HPS) – Sin Nombre Virus	North America	-Inhalation of dusts or aerosols from the infected rodent's feces, urine, or saliva -Vector: Deer mouse (peromyscus maniculatus)	-(Early, 1-5 weeks) fatigue, fever, muscle aches, chills, headaches, dizziness, sometimes abdominal problems -(Late, 4-10 days after early) coughing, shortness of breath	-Avoid contact with rodents, especially their feces -See section on dealing with rodent infested areas
Arenavirus (White Water Arroyo)	North America	- Inhalation of dusts or aerosols from the infected rodent's feces, urine, or saliva -Vector: Woodrats (*Neotoma fuscipes*) and other *Neotoma* species	-Fever -Headache -Muscle aches -Severe respiratory distress (occasionally)	-Avoid contact with rodents, especially their feces -See section on dealing with rodent infested areas
West Nile Virus	North America	-Mosquito-borne –Infection from the bite of a mosquito infected with West Nile Virus -Handling infected birds	-None in most people~80% -Mild – fever, headache, body aches, nausea, vomiting, and sometimes swollen glands or a rash on the chest, stomach and back; -Severe – high fever, neck stiffness, stupor, muscle weakness, disorientation, coma, tremors, convulsions, vision loss, numbness, paralysis	-Use insect repellent -Many mosquitoes are most active at dusk and dawn, consider staying indoors during these hours -Wear long sleeves and pants -Avoid areas of standing water where mosquitoes breed -Don't handle dead birds with your bare hands

C. International

Type	Location	Exposure Route	Symptoms	Prevention
Dengue Fever	Africa, Southeast Asia, China, India, Middle East, South and Central America, Australia and the Pacific Islands	-Mosquito-borne –Infection from the bite of a mosquito infected with 1 of 4 dengue viruses	-Flu-like -Sudden, high fever -Severe headache -Pain behind eyes -Nausea/vomiting -Rash	-Wear long sleeves and pants -Use insect repellent -Use a mosquito net
Malaria (Preventable with Drugs)	Central and South America, Hispaniola, Africa, India, South Asia, Southeast Asia, the Middle East, and Oceania	-Mosquito-borne –Infection from the bite of an infective female *Anopheles* mosquito -Blood transfusion -Contaminated needles/syringes	-May take 10 days to 1 year for symptoms to appear -Flu-like, fever, sweats, chills, headache, malaise, muscle aches, nausea, vomiting, jaundice -Untreated may cause severe complications including death	-Use a mosquito net –Use insect repellent -Take Antimalarial drugs (visit your health care provider 4-6 weeks before travel) -Wear long sleeves and pants

Type	Location	Exposure Route	Symptoms	Prevention
Severe Acute Respiratory Syndrome (SARS)	Occurred in 2003 in North America, South America, Europe, and Asia	-Close person-to-person contact -Inhalation of respiratory droplets produced when an infected person coughs or sneezes -Touching surface or object contaminated with infectious droplets and then touch mouth, nose, or eye(s)	-Begins with a high fever (>100.4°F [38.0°C]) -Headache -Malaise -Some have mild respiratory symptoms at the outset -10- 20% have diarrhea -After 2 to 7 days may develop a dry cough -Most develop pneumonia	-Wash your hands with soap and water frequently or an alcohol-based hand rub -Travelers to China should avoid live food markets and contact with civets and other wildlife
Yellow Fever (Vaccine Available)	South America and Africa	-Mosquito-borne –Infection from the bite of a mosquito infected with Yellow fever virus	-Flu-like -Jaundice -Can be fatal	-Visit doctor at least 10 days before travel for vaccine -Wear long sleeve shirts and pants -Use insect repellant -Use a mosquito net
Hantavirus (Sin Nombre Virus) and Arenavirus (White Water Arroyo)	Central and South America and Asia	-Inhalation of dusts or aerosols from the infected rodent's feces, urine, or saliva -Vector: Rodents; especially *Neotoma* and *Peromyscus* species	-Fever -Headache -Muscle aches -Severe respiratory distress (occasionally)	-Avoid contact with rodents, especially their feces -See section on proper rodent handling for cleaning a rodent infested area
Schistoso-miasis, (or bilharzias)	Brazil, Egypt, sub- Saharan Africa, southern China, the Philippines, and Southeast Asia	Transmitted by swimming in contaminated fresh water	-Can be asymptomatic -(Acute: 2-3 weeks) Fever, weight loss, weakness, cough, headaches, abdominal, joint and muscle pain, diarrhea, nausea -(Chronic) disease in lungs, liver, intestines, bladder	-Avoid fresh-water wading or swimming in endemic regions -Heat bath water over 50□C for at least 5 minutes before use

Other Diseases (Vector-borne) – There are many other vector-borne diseases that may pose a problem when travelling out of the country. Always check with a healthcare professional to learn the specific threats to your location of study. Some other vector-borne diseases include:

- African Sleeping Sickness – carried by the tsetse fly in Africa
- Chagas Disease – transmitted by the triatomine bugs (a.k.a., conenose or "kissing" bug) in Mexico and Central and South America
- Encephalitis – carried by mosquitoes in Asia and Eastern Russia
- Leishmaniasis – transmitted by sand flies in the tropics and subtropics
- Filariasis – carried by mosquitoes in the tropics
- Onchocerciasis – causes 'river blindness' and is carried by black flies in Africa, Arabia, and Central and South America.

Other Diseases (General) – There are other diseases to be aware of when travelling outside of the United States. While risk of infection is generally low, it is important to be aware of and take appropriate precautions to guard against diseases such as Tuberculosis, Viral Hemorrhagic Fevers, etc. Always check with your health care provider to learn more about specific diseases that exist in the region you will be conducting your research.

VI. Resources

There are many resources available that may provide more in depth information regarding your research environment. Please use the references in this section for further information on many of the topics discussed in these guidelines.

A. On Campus

Environmental Health & Life Safety: EHLS is available for various hazard information, hazard evaluations and training.
(713)743-5858
http://www.uh.edu/ehls/

University Health Center: UHC is available for travel vaccinations and other health related information.
(713)743-5151
http://www.uh.edu/healthcenter/index.html

Animal Care Operations: is a resource for knowledge about animals and provides care for animals housed on campus.
(713)743-9164
http://www.uh.edu/research/about/core-facilities/aco/

Institutional Animal Care and Use Committee (IACUC): Research with animals, including wild animals, must be reviewed and approved by the committee prior to beginning research. Information is available from the Office of Research Support
(713) 743-9252
http://www.uh.edu/research/compliance/iacuc/

UH Police Department: For Training in CPR and First Aid (713)743-3333
http://www.uh.edu/police/contact/police.html

Campus Recreation: Offer classes on CPR, First Aid and Outdoor Activities
(713)743-9500
http://www.uh.edu/recreation/

Student Travel Policy: University Policy on student travel policy, travel authorizations, and related topics.
http://www.uh.edu/af/universityservices/policies/mapp/04mapprocurement.htm

Dean of Students: Information for students, parents and families on University policies and procedures
(832)842-6183
http://www.uh.edu/dos/

Risk Management: Information on insurance, travel advisories automobile, general liability, commercial property and workers' compensation claims.
(713)743-5218
http://www.uh.edu/af/riskmanagement/

Workers Compensation: Risk Management handles the workers' compensation program for the University
(713)743-0414
http://www.uh.edu/af/riskmanagement/workerscomp.htm

B. Off-Campus

General: The Centers for Disease Control and Prevention (CDC) offers a website that describes many topics related to travel, both domestic and international:
http://wwwn.cdc.gov/travel/default.aspx

Medical: Information about a variety of diseases and illnesses, including dehydration, carbon monoxide poisoning, sunburn, excessive heat, hypothermia, and high altitude sicknesses, can be found online at:
http://my.webmd.com

Wildlife: Texas Parks and Wildlife has information dealing with native plants and wildlife
https://tpwd.texas.gov/

Diseases: The CDC offers more detailed information about many diseases related to travel on their website:
http://wwwn.cdc.gov/travel/contentDiseases.aspx

The Texas Department of State Health Services Infectious Disease Control Unit offers information about infectious diseases.
(512)458-7676
http://www.dshs.state.tx.us/idcu/

Weather: More information on extreme weather and how to protect yourself can be found from the National Weather Service.
http://weather.gov/safety.html

Impure Water: The CDC provides information waterborne diseases.
http://www.cdc.gov/healthywater/

Research Vessel Safety: Addresses field operations abroad research vessels or larger watercraft.
http://www.unols.org/publications/manuals/saf_stand/contents/htm

C. North America

Hunting Season: To get more information concerning hunting seasons and regulations, contact the U.S Forest Service. (800)832-1355
http://www.fs.fed.us/

General Outdoor Safety: For more information on outdoor and recreational safety.
800-832-1355
http://www.fs.fed.us/safety/outdoor/

Poisonous Plants: More information about poisonous plants, including photos.
http://poisonivy.aesir.com/

Hantavirus: The CDC has detailed information about hantavirus.
http://www.cdc.gov/ncidod/diseases/hanta/hps/noframes/generalinfoindex.htm

Lyme Disease: The American Lyme Disease Foundation provides information about the disease.
http://www.aldf.com/

D. International

Travel Health & Outbreaks: Updated information about disease outbreaks and international travel health can be found from the World Health Organization (WHO).
http://www.who.int/ith/en/

Advisories: Travel advisories are announced through the U.S. Department of State. Current travel warnings, public announcements, and consular information sheets can be obtained online at:
http://travel.state.gov/

Trip Safety Checklist

For the Principal Investigator or Project Leader

□ **Complete** Field Research Safety Plan

□ **Provide** a copy of the Plan to all members of the team and your supervisor

□ **Get** your vaccinations early

□ **Assemble** your safety gear including first aid kits

□ **Obtain** any required approvals from research committees

□ **Obtain** travel insurance if applicable

□ **Be sure to** check on health insurance for non-employed team members as you may not be automatically covered by UH

□ **Sign** Release Agreement if applicable (follows this section)

□ **Develop** a check-in or buddy system while you are in the field

Release Agreement

The Release and Indemnification Agreement is available at

http://www.uh.edu/legal-affairs/contract-administration/pdf-documents/Release%20and%20Indemnification%20Agreement%20OGC-S-2013-11_Created%2002.21.13.pdf