An Overview of Field Research Safety Resources for Biosafety Professionals

Outline

- Background and interest in the topic of field research safety
- Review of previous study results from survey of ABSA-International membership on field biosafety oversight
- Introduce resources and tools available to biosafety professionals on the topic
Background and Interests
Field Biosafety

An Assessment of the Biosafety Profession

Summary of Recent Activities

Platform Presentations on Field Biosafety:

- American Biological Safety Association-International – Annual Conference in San Diego, CA (2014)

Professional Development Courses on Field Research Safety:

- Campus Safety Health and Environmental Management Association (CSHEMA) – Annual Conference in Tucson, AZ (2017)
- Southern Biosafety Association (ABSA-International Affiliate) – Semi-annual Symposium in College Station, TX (2018)
Recent Developments

- Dedicated field research safety positions
- Field research risk assessment forms / field safety plans
- Field research safety committees
- Currently under development:
  
  Campus Safety Health and Environmental Management Association (CSHEMA)
  – Community of Practice (COP) on Field Research Safety

Helpful University or College

Field Research Safety Resources
Biosafety Program

Field-Related Biosafety Resources

This section of the website is devoted to biological safety topics and resources related to studies involving field research. This information is not intended to place barriers in the way of conducting studies. Rather, it is intended to assist field and research personnel with designing procedures in a manner that will reduce the risk of occupationally acquired infections, cross-contamination, and environmental releases.

Field research consists of work-related projects (research and teaching) that are performed outside the geographical boundaries of the university.

Please check this page frequently as new information will be added to serve the ever-changing needs of the university community. If you have any questions, please contact the Biosafety Office.

Infectious Agent Registration-Field Collection Procedures

The following form must be completed for field procedures that involve the following:

- Trapping and handling of wild animals for surveillance of agents infectious to humans and/or animals designated as SGL-2 or higher.
- Trapping and handling of wild animals that may transmit significant or life-threatening zoonoses, e.g., rabies, Herpesvirus (Epstein-Barr) as determined by risk assessment of the target species and proposed procedures.
- Laboratory processing of diagnostic samples collected from these studies.

The completed form must be submitted to the USB/USAGSM Biosafety Officer for evaluation and consultation regarding biological containment. The final registration with all

USDA / ARS

Presentations and Resources
Selected Publications on Field Associated Infections
Zika virus transmission from exposure that occurred during collection of mosquitoes in Senegal, 2011

- Mosquito collection study focused on malaria conducted in Senegal during the summer of 2008
- Pre-dawn collection times aimed to capture mosquitoes that had preyed on villagers in their homes during the night
- Researchers specifically did not use mosquito repellents to protect themselves, and as a result reported being bitten frequently
- Two researchers tested positive for Zika virus
- Subsequently, upon return transmission to wife occurred – this is the first known documented case of sexual transmission of Zika virus


Fatal case of pneumonic plague from direct blood and aerosol exposure during necropsy of a mountain lion in Arizona, 2007

- National Park Service employee conducted a necropsy on a mountain lion in his garage without the use of personal protective equipment
- Three days later he developed a fever and hemoptysis and died approximately 6 days after exposure
- Tissues from the mountain lion tested positive for Yersinia pestis
- This case showcased the need of enhanced awareness of zoonotic diseases and appropriate use of PPE
- Development of Safe Practices to Avoid Zoonotic Disease from Wildlife guidance document:

Leishmaniasis exposure by capturing and handling birds in Brazil (Felinto de Brito, 2012)

• Report on occupationally acquired case of American Cutaneous Leishmaniasis (ACL) during field studies on bird biology.
• This case highlights the potential risks of laboratory and field work and the need to comply with strict biosafety procedures in daily routines.

A 35 year old male doctoral student noticed the emergence of an ulcerated lesion with high edges.

The lesion was first noted two months after fieldwork capturing birds in the forests in Paranati, Mato Grosso, Brazil. Routine clinical and laboratory examinations comprising of immunological and parasitological tests were carried out in the lab.

https://www.hindawi.com/journals/cridm/2012/279517/

The patient was treated with N-methyl-glucamine for 20 days. Injury began healing at day 11 and completely healed after the completion of treatment.
Wilderness Risk Management Conference

The Keyhole 7: How far should the National Parks go to keep people safe?
Outside Magazine, May 2016
### Field Research Safety Plans

**Field Research Safety Planning Framework**

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Field Research Safety Plans
Risk Assessment & Emergency Plan for Field Research Safety

Travel Resources
Information and Training on Common Field Hazards
Training Needs Identified in Study

Survey Responses (Provided in Text Responses) Indicating Specific Critical Areas of Training for Biosafety Professionals on Field Research Safety

- Field research safety best practices
- Risk assessment / risk identification
- Overview of zoonotic diseases
- Emerging pathogens
- Potentially hazardous wildlife
- Regulatory issues related to field collection of biological specimens

- Basic field survival skills
- Communication in the field
- Safe specimen collection / handling techniques for the field
- Safe specimen transport techniques for biological specimens
- Safety considerations and SOPs for wild animal trapping / handling / manipulation
- Personal protective equipment
- Hand hygiene / infection control
- Personnel transportation safety considerations / vehicle driving safety
- Field lab set up / considerations

- Occupational health requirements for conducting field research
- Travel medicine
- Establishing / communicating locations to receive treatment (e.g., local clinics, hospitals)
- Emergency response / mitigation in the field
- Emergency evacuation plans
- Overexposure response
- Field first aid

Acknowledgements:

Sara Souza, MPH, REHS, CIH University of California - Berkeley
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**Selected field research safety references:**


Selected website references:

ProMED health map: http://www.healthmap.org/promed/

CDC travelers’ health: https://wwwnc.cdc.gov/travel/

US Department of State travel alerts and warnings: https://travel.state.gov/content/passports/en/alertswarnings.html


Helpful university or college field research safety resources:


University of Maryland: https://www.essr.umd.edu/research-safety/field-research-safety

Princeton: https://ehs.princeton.edu/laboratory-research/laboratory-safety/field-research-0

Virginia Tech: https://www.ehss.vt.edu/programs/FRS_program_online.php

Scripps: https://scripps.ucsd.edu/safety/field-research


Selected list of publications on field acquired infection events:


**USDA ARS presentation resources:**


