One Health Interest Group
Webinar #2

Introduction to One Health
for CORE Group Members
March 18, 2020
“Engaging Communities in One Health Research and Action: Characterization of the Human-Animal Interface for Control of Lassa Fever and Other Wildlife-Origin Zoonoses in Nigeria”

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Engaging communities in One Health research & action: Characterization of the human-animal interface for control of Lassa Fever & other wildlife-origin zoonoses in Nigeria

Sagan Friant
Risk is correlated with socioeconomic, environmental and ecological factors.
Local and individual scale processes
One Health

Approach
One Health

processes?

direction?

conditions?
Projects:

Research Questions:

One Heath Applications:

Webinar Structure

Webinar Goals - Share insights and best practices for:

1) community engagement to understand proximate and distal drivers of disease

2) developing and implementing evidence-based and community-driven interventions
Acknowledgments

**Research assistants:** Ifebueme Nzube, Akonjom Ayambem, Alobi Alobi, Oshama Otukpa (University of Calabar, Nigeria)
Azuka Adeke (NCDC)

**PSU graduate students & postdocs:** Dr. Metrey Tiv, Christian Herrera

**Collaborators:** Jessica Rothman, Tony Goldberg, Jerry Jacka, Clement Alawa, Jonathan Heeney, Christian Happi

**Local Partners:**
Project 1:

The Cross River Ecology and Health Project is directed by Sagan Friant, in partnership with Mkpot community, Cross River National Park, the University of Calabar, and Penn State University.
Mixed - methods approaches

- Introductory meetings & sensitization
- Field and laboratory methods
  (nutrition and disease ecology)
- Quantitative questionnaires
  (human-wildlife contact, risk perceptions, dietary data)
- Qualitative methods
  (FGDs, key informant interviews, participatory mapping)
- Participant observation
  (Hunter follows, food preparation, festivals etc.)
Project 1: Characterization of human-wildlife contact

**Question:** What are the different modes of human-wildlife contact and how do they vary across communities or by wildlife species?

**Application:** Block salient pathways for zoonotic disease transmission

- Hunted
- Pets
- Butcher
- Injuries
- Consume
- Medicine

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Cultural salience of transmission pathways

Contact modes

Friant et al. 2014 PLoS NTDs; Friant et al. 2020 EcoHealth
Cultural salience of transmission pathways

Contact modes

Meat preferences

Friant et al. 2014 PLoS NTDs; Friant et al. 2020 EcoHealth
Project 1: Distribution of health risks

**Question:** How is hunting behavior and human-wildlife contact patterned by an individual's socioeconomic background and environment?

**Application:** Target socioecological drivers of hunting behavior
## Socioeconomic drivers of hunting

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<td>&lt;.001</td>
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<tr>
<td>Resident cultural group</td>
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Friant et al. 2014 PLoS NTDs
Beyond hunters (& hunting)
Project 1: Health Benefits at the Human Wildlife Interface

**Question:** What is the role of wildlife in local diets and nutrition?

**Application:** Offer solutions that explicitly address health trade-offs.
Project 1: Health Benefits at the Human Wildlife Interface
Project 1: Health Benefits at the Human Wildlife Interface

Friant et. al 2020 EcoHealth
Project 1: Health Benefits at the Human Wildlife Interface
Project 1: Exposure Risks at the Human Wildlife Interface

**Question:** What are the specific exposure risks, and how do they vary across commodity chains and different sections of societies?

**Application:** Develop biologically and socio-culturally relevant interventions
Project 1: Community & evidence-based interventions

**Goal:** Design community-driven interventions that seek to maximize human, animal, and environmental health

EX: “Disrupting wildlife trade networks through strengthening alternative nutritional, economic and health networks”
Project 2: Lassa spillover within socio-ecological systems

Redding et al. 2016 Methods in Ecology and Evolution; Gibb et al., 2017 Pathogens and Global Health
Project 2: Human-rodent interactions and behavioral risk factors

Question: What are the behavioral, environmental and social contexts of human-rodent contact and Lassa virus exposure?

Application: Reduce community risk factors for Lassa virus transmission
Project 2: Concepts of illness & health seeking behavior

**Question:** What barriers within communities and health systems limit diagnostics and treatment?

**Application:** Improve health outcomes via access to healthcare, understanding of Lassa epidemiology, and vaccine deployment
Project 2: Cross-scale dynamics of LASV spillover within human-driven ecosystems

**Question:** How do broad scale risk factors (e.g. poverty) translate into local scale processes that influence risk (e.g. livelihoods or farming practices)

**Application:** Develop One Health interventions and improve disease forecasting
Seeking insights for best practices in community-engaged research and action

- Community engagement in research
- Understand proximal and distal drivers of Lassa exposure
- Maximizing research benefits for individuals and communities
- Developing evidence-based and community-driven interventions
- Mobilizing partnerships and policy impacts
- Building and sustaining relationships
- Public health messaging (and beyond)
Thanks for listening!

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One Health is a multisectoral, transdisciplinary approach that promotes the interconnections between the health of humans, animals, plants and the planet we share. Given the increasing frequency and intensity of animal borne disease outbreaks, the global health community has taken up the call for a One Health approach to prevention, detection and response to outbreaks, as well as an examination of related modes of transmission within the environment. As a contribution to this effort, the CORE Group’s One Health Interest Group supports coordination, communication, and collaboration for strengthened community engagement across human, animal and environment sectors before, during and after outbreaks.

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