

Bushmeat value chains and zoonotic risks

Steve Staal

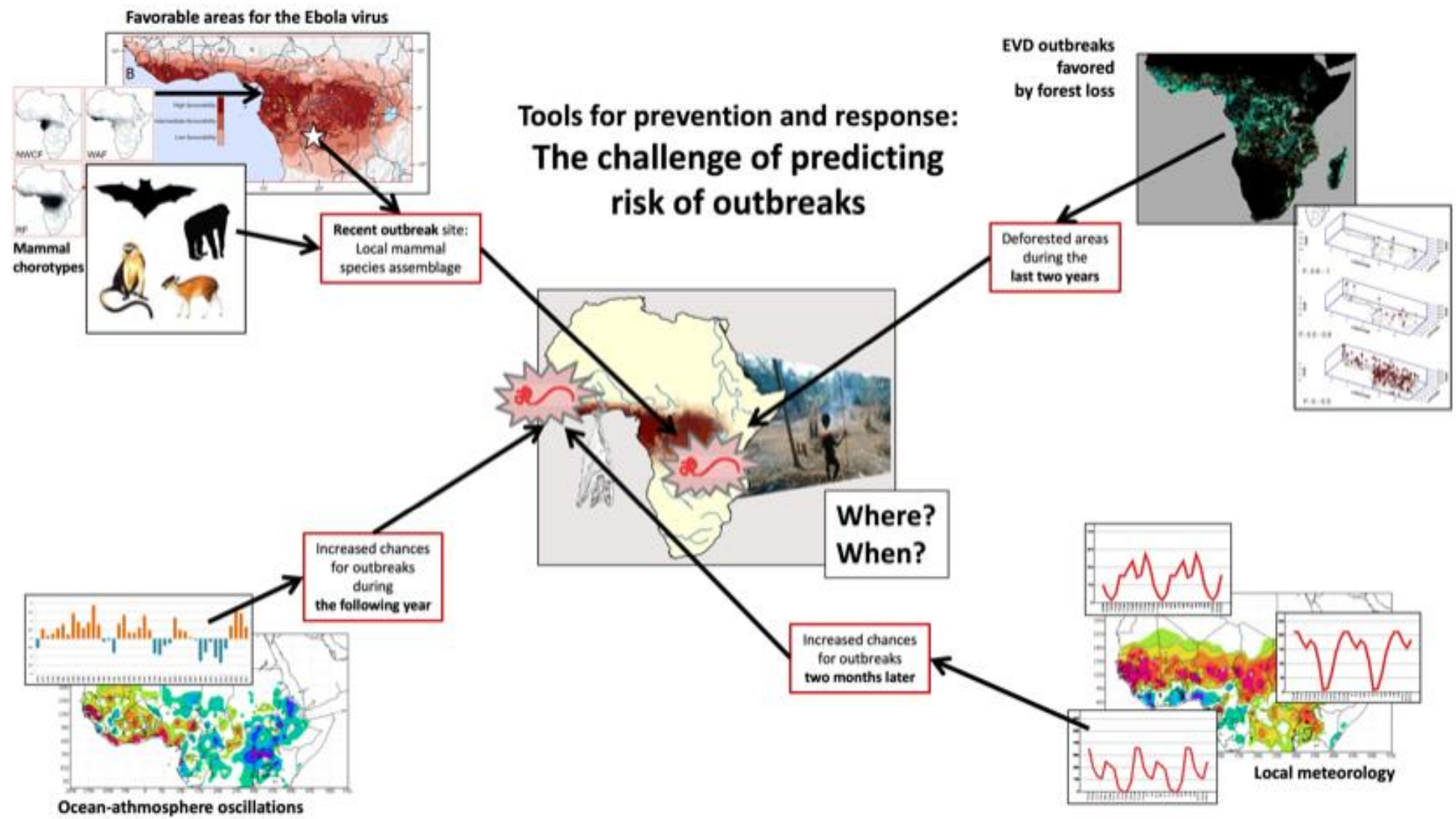
- Objective: understand practices, actors and incentives driving bushmeat VC's and implications for disease risk
- Extensive search of formal/grey literature: 100+ sources
- 44% of forest-margin households across Africa participate in BMVC's (ungulates, primates & rodents)
- Value of BM trade is large (\$10Ms) and create important livelihoods for men and women
- Hunting pressure increases the relative presence of small animals – rodents, duikers
- Level of rural consumption is high – key role in availability of ASFs. Consumption is less if cheap livestock meat is available
- Most hunting is driven by consumption in rural HHs, along with some important urban markets (new China role emerging)
- Understanding of zoonotic disease risks among hunters/consumers generally poor, and few mitigation practices are employed
- Until recently bushmeat monitoring focused on conservation and consumption needs and ignored zoonotic risks
- Research – improving community zoonotic risk understanding, livestock alternatives, community-based management strategies, integrated monitoring methods (conservation/consumption/livelihoods/zoo risks)



2:00

Deforestation and Ebola

Julia Fa, CIFOR



2:00

Coronavirus transmission at wildlife-livestock-human interface in Vietnam

Objective: evaluation of Coronavirus (COVID-19) in bats and potential spillover to animals and humans

- Bat caves and pig farms / Bat guano farms (bats-pigs-humans)
- Wildlife supply chain (trappers–traders–wet markets–restaurants): mainly rats and other wild animals (e.g., porcupine)

Target provinces: Lao Cai (North) and Dong Thap/Soc Trang (South)

National partners: Animals (NIVR&sub-DAHs) and humans



Rat trading at wet market



Rat meat at wet market



Bat cave



Pig farms near cave



Bat guano farms

2:00

Are abattoir workers in Kenya at risk for COVID-19?

BACKGROUND

Abattoir workers in EU/USA were identified as high-risk for COVID-19
Risk factors – crowding, low temperatures

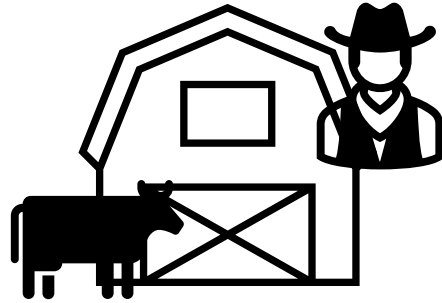


AIM

To determine if workers in Kenya are high risk

METHODS

ABATTOIRS



4 abattoirs
200 participants



COMMUNITY



100 households
500 participants

DATA COLLECTED

- Questionnaire
- 10mls blood

ANALYSIS

- ELISA
- Prevalence
- Risk factors

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OUTPUTS

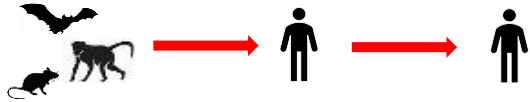
- Estimate of COVID-19 seroprevalence in Kiambu County
- Identification of high-risk groups
- Determination of risk factors
- Development of in-house ELISA
- Information about other zoonotic diseases

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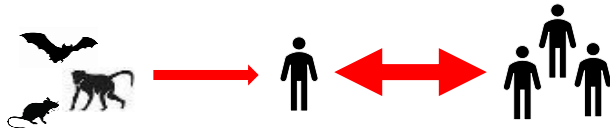
Serological Footprints of Spill over Events in Guinea



Spillover



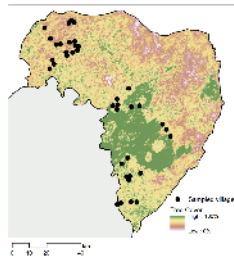
Stuttering transmission chains



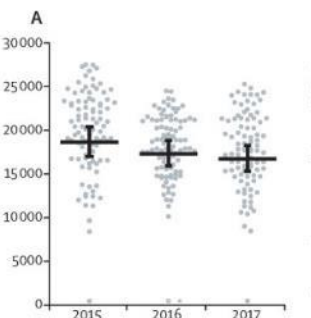
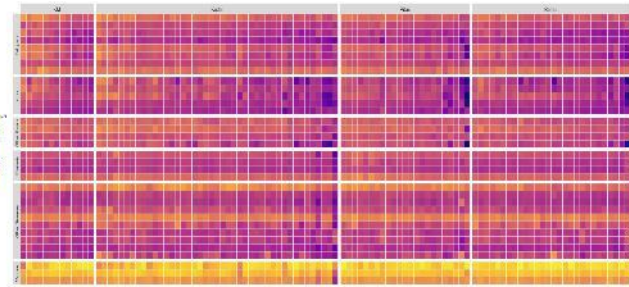
Widespread human transmission

Unlikely to be detected by routine surveillance systems
Frequently driven by occupational and land use activities

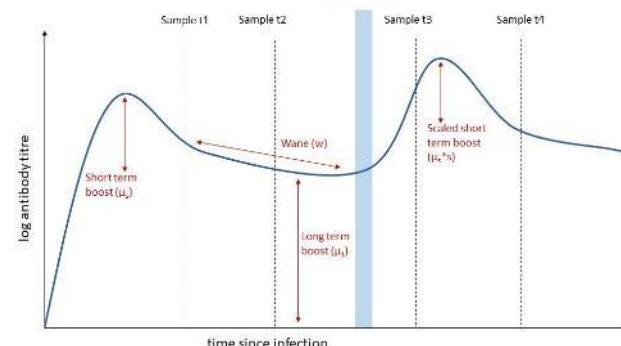
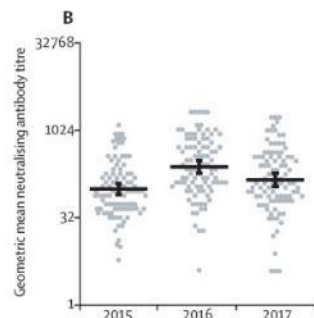
Serosurveys in Guinea



Multi-disease surveillance



Longitudinal data



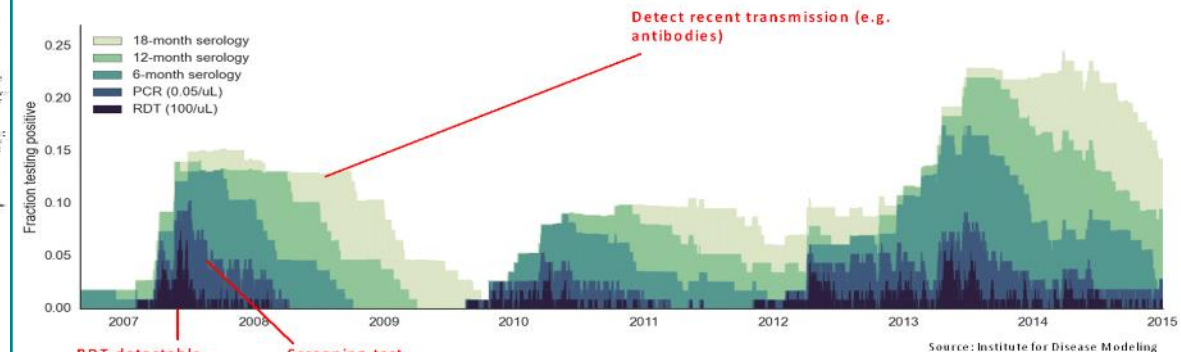
Antibody kinetics

Thom et. al, 2021, *Lancet ID*, Fornace et. al, 2019, *Lancet PH*

Serological surveillance increases probability of detection

Ability of various tests to detect foci of transmission

Simulated 'hot-spot' village in area with tenuous transmission



Source: Institute for Disease Modeling

LONDON SCHOOL of HYGIENE & TROPICAL MEDICINE



Centre on Climate Change & Planetary Health

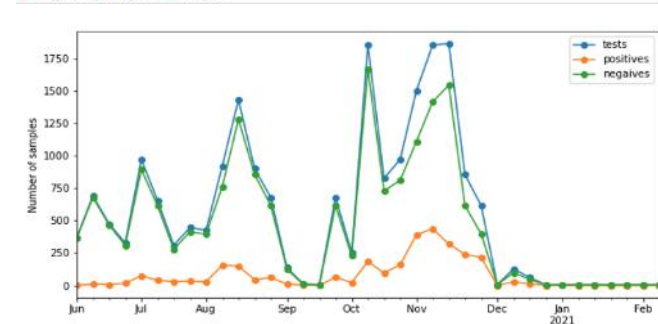
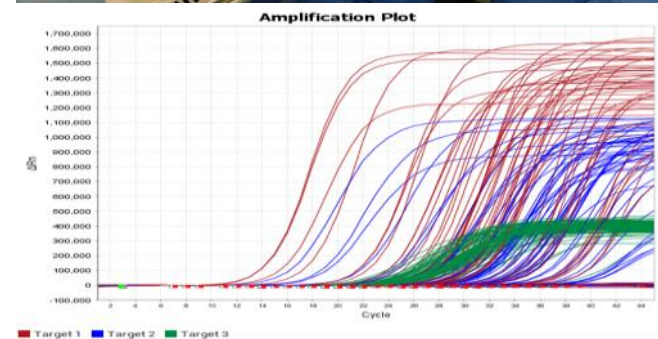
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1. The vicious circle of poverty & ill-health
 - Effects of Covid-19: ill-health causes poverty
 - Effects of Lockdown: poverty causes ill-health
2. Modelling
 - IFPRI: economic models for national planning
 - LSHTM: epidemiological models for intervention planning
3. Steps to integration

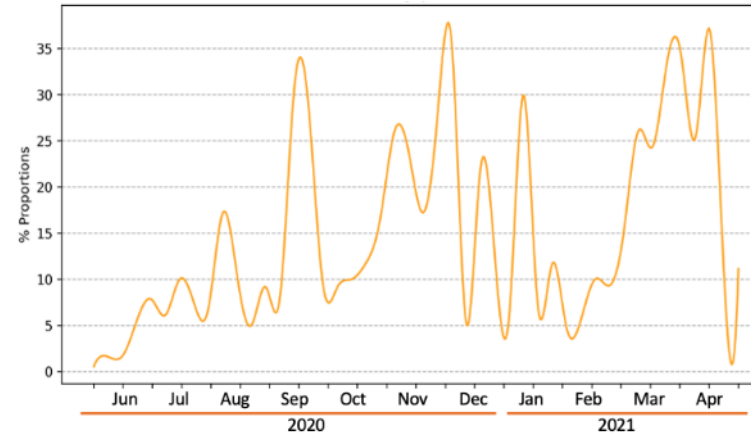
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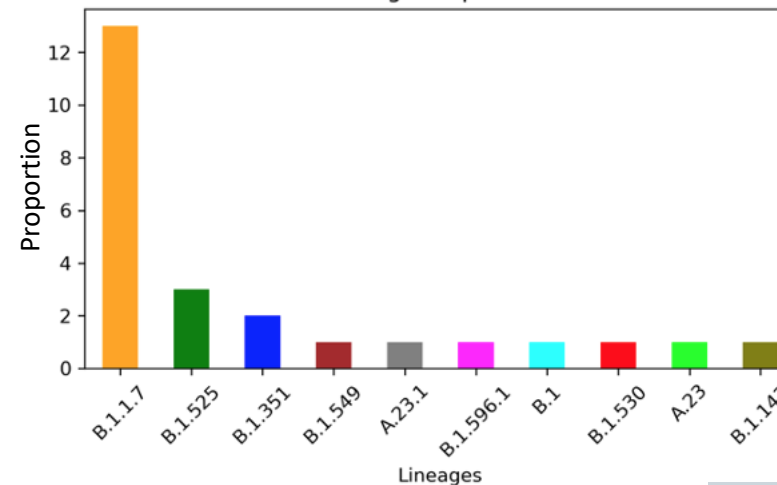
ILRI-COVID-19: Testing and Genomic surveillance of SARS-CoV-2 in Kenya



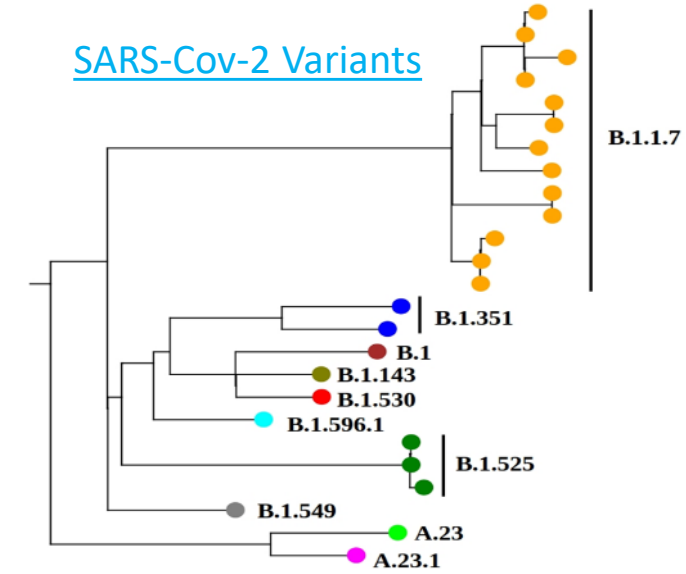
Proportion of Positive Tests



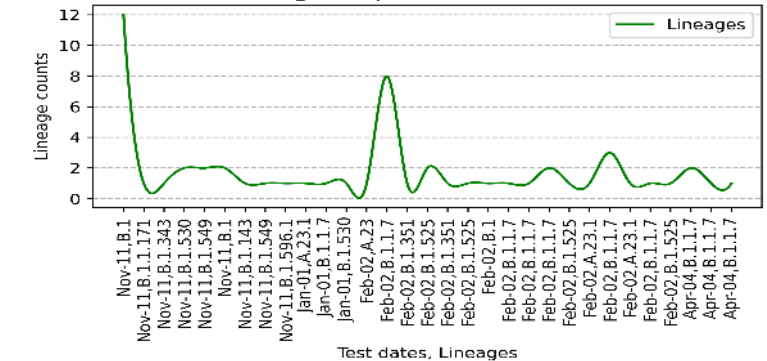
Lineage frequencies



SARS-Cov-2 Variants



Lineage frequencies across time



June – December 2020

>30,000 tests

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2:00