Human-Animal Interface of Ebola Virus Disease (EVD)

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Introduction
- 31,141 reported cases of EVD in Africa
- 12,984 resulting deaths
- Outbreaks of EVD continue to occur (there is currently one in the Democratic Republic of the Congo)

Objective
We aimed to understand the predominant causes of the introduction of Ebola virus into human populations.

Methods
- Reviewed existing literature on every Ebola virus outbreak traced to a single zoonotic spillover
- Through statistical analysis, I characterized the relationships between suspected or confirmed animal source of infection, the viral taxa, the method of contraction by the human index case(s), and the case fatality rate (CFR)

Results
- The null hypothesis that there is no dependence between viral taxa & CFR, and contraction method & animal source was rejected (p-value < 0.05)
- The average CFR for each viral taxa is different
- CFR has no dependence on animal source of infection or contraction method
- Viral taxa is independent of animal source and contraction method

Variables tested for independence | P-Value
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Contraction method—CFR | 0.2680
Animal source—CFR | 0.3300
Virus type—CFR | 0.0224
Contraction method—Animal source | 1.093x10^-4
Contraction method—Virus type | 0.1139
Animal source—Virus type | 0.2508

Conclusions
- Leading cause of virus contraction is a population’s eating/hunting habits
- Primates are the main source of zoonotic spillover
- Zaire ebolavirus is the most lethal ebolavirus

Further Work
- How to best prevent eating/hunting of ebolavirus hosts (especially primates) in African countries?

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