



Research Problem

Many hunters are at the interface of zoonotic disease transmission between humans, livestock, and wildlife. To understand the role of hunters at this interface I used a One Health approach examining how human, animal, and environmental factors contribute to global health, and is needed to effectively address issues of both infectious diseases and wildlife conservation (Buttke 2015). Previous studies of hunters have focused on Chronic Wasting Disease and have shown that hunters vary in their behavioral response (Vaske 2010) and that perceptions of health risk do influence behavior and stakeholder knowledge of infectious disease varies (Vaske 2010). I explored the relationship between knowledge, attitudes, and practices of hunters in Ohio.

Research Questions

1. What are hunters' Knowledge, Attitudes, and Practices (KAP) with regard to wildlife diseases?
1. What is the relationship between hunters' knowledge, attitudes, and practices?
1. How do Knowledge, Attitudes, and Practices affect risk exposure to wildlife diseases?



Fig. 1: SE Ohio Landscape

Methods

Ethnographic approach: semi-structured interviews were conducted with 21 hunters in SE Ohio.

Interviews were used to develop an online survey distributed by email to a random sample of 4,000 hunters from the ODNR database of licensed Ohio hunters. 356 surveys were completed. The response rate was 8.9%.

Using grounded theory, the survey data was transcribed, coded, and sorted to describe Knowledge, Attitudes, and Practices (KAP).

Statistical analysis was also used to examine these relationships in the online survey data.

Theoretical & Conceptual Frameworks

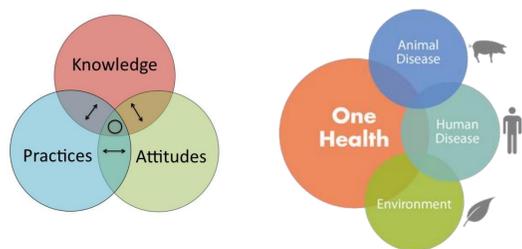


Fig. 2 & 3 : Relationships between Knowledge, Attitudes, and Practices, and a representation of the One Health theoretical approach.

Sources of Knowledge

Answer	Response	%
ODNR, Division of Wildlife	318	83%
Friends/Colleagues	290	76%
Magazines/Newspapers	271	71%
Family	259	68%
Online Sources of websites	236	62%
Social Media (Facebook, Twitter, Instagram, etc)	89	23%
Hunting Organizations/Clubs	89	23%
Shops/Stores/Businesses	85	22%
Other	24	6%

Fig 4: Sources of information contributing to hunters' knowledge of wildlife and hunting practices

Knowledge of Wildlife Diseases

Hunters get general hunting information and information about wildlife diseases from the same sources: family, friends, and the ODNR. (chi square = 84.44, df=40, p=0.00).

The survey data indicates no correlation between knowledge of disease prevention and perception of risk exposure (Chi square=25.48, df= 16, p=0.06).

Those who agree that diseases can be transmitted from animals to humans also perceive low risk of exposure to a wildlife disease through hunting. Knowledge of zoonotic disease transmission alone does not impact perception of risk exposure. (Chi-square: 57.44, DF: 16, p-value: 0.00)



Fig. 4: Passing on hunting knowledge (source: ODNR)

Attitudes about Wildlife Diseases

50% of respondents believe Ohio hunters are concerned about wildlife diseases. 30% agreed or strongly agreed that hunters are knowledgeable about wildlife diseases.

Hunters perceive low risk of being infected with a wildlife and zoonotic diseases and believe that wildlife diseases impact wildlife populations more than human populations

Hunter's own personal concerns are not related to their perception of the attitudes of the general Ohio hunting population.

Diseases of Concern

Most commonly listed diseases were:

- Chronic Wasting Disease (330 mentions)
- Blue Tongue Virus (80 mentions)
- Epizootic Hemorrhagic Disease (67 mentions)
- Lyme Disease- Zoonotic (66 mentions)
- Rabies- Zoonotic (11 mentions)



Fig. 5: A deer with Chronic Wasting Disease (source: Colorado Division of Wildlife)

Hunting Practices

Practices related to knowledge sharing are related to hunting with others. (chi-square: 17.59, DF: 2, p-value: 0.00)

76% of respondents indicated they taught hunting to a family member, and 64% indicated they taught hunting to a child/young adult.

The type of hunter (by game) does not impact this type of risk-reducing behavior (wearing gloves). (Chi-square: 50.97, DF: 52, p-value: 0.51)



Fig. 6: A young male white-tail deer in Ohio (photo courtesy of Karla Moreno)

KAP and Risk of Exposure

Hunters demonstrate a distinction between applied knowledge and general knowledge regarding hunting practices and knowledge of disease.

Hunters are aware of these diseases but may not be actively preventing transmission when they do not see an immediate risk to their health.

Knowledge of zoonotic disease transmission alone does not impact perception of risk exposure (Chi-square: 57.44, DF: 16, p-value: 0.00).

No relationship between knowledge and practices in regards infectious disease transmission prevention (Chi-square: 15.56, DF: 16, p-value: 0.48).

Discussion and Conclusions

Hunters have varied sources of knowledge, but indicate the ODNR and social networks as major resources.

Hunters perceive low risk of exposure to wildlife and zoonotic disease but express interest in learning more about them.

Hunters do not change their practices based on knowledge of wildlife diseases.

The distinction between general and applied knowledge regarding infectious disease explains why hunters are aware of these diseases but may not be actively preventing transmission.

The results of this study highlight the complex relationships between knowledge, attitudes, and practices and the importance of the examining the role of human dimensions in looking at wildlife populations and infectious disease ecology.



Fig 1: Intersection of wildlife and domesticated animals (photo courtesy of Karla Moreno)

Recommendations

Understanding KAP allows us to best tailor public health education for communities based on how they gain knowledge in a way that would best reduce high-risk practices within current practices (Decker et al. 2012).

Public health education and information regarding wildlife diseases should be targeted towards hunters and hunting practices, and disseminated through ODNR and encouraged to be shared among hunting social circles (family, friends).

Encourage more interdisciplinary research in the field of infectious disease and wildlife conservation.

Extend research to other stakeholders such as farmers and wildlife workers to better understand their impact on infectious disease dynamics.

References

- Buttke, Danielle E. et al. 2015. The Role of One Health in Wildlife Conservation: A Challenge and Opportunity, Journal of Wildlife Diseases. 51 (1): 1-8
- Bernard, H. Russell. 2006. Research methods in anthropology: qualitative and quantitative approaches. Walnut Creek (CA): Altamira Press.
- Decker, et al. 2012. Public perceptions of wildlife-associated disease: risk communication matters. Humans-Wildlife Interactions. 6(1): 113-122
- Vaske, Jerry J. 2010. Lessons Learned from Human Dimensions of Chronic Wasting Disease Research. Human Dimensions of Wildlife: An International Journal. 15:3, 165-179

