

# Zoonotic disease – messaging to producers

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## Abstract

Zoonotic diseases of cattle can negatively impact the people caring for them. Veterinarians understand the potential health risks associated with contracting a zoonotic disease and are critical to communicating to clients. Educating about disease exposure routes, of which there are 6, is one way to simplify the health message. Messages should be clear, short, action oriented, and free of scientific jargon to be understood by animal caretakers. Numerous resources exist to educate people about zoonotic disease prevention.

**Key words:** zoonotic disease, communication, prevention

## Introduction

Worldwide, there are at least 45 zoonotic diseases of cattle, of which the majority are bacteria.<sup>4</sup> The list of more commonly seen diseases may be a dozen or less yet the risks from some, like anthrax or rabies, can severely impact people. Veterinarians take an oath swearing to use their knowledge and skills to benefit society through “the promotion of public health” among other important statements.<sup>1</sup> Through their training in public health, veterinarians understand the potential health risks associated with contracting a zoonotic disease. This makes them the perfect conduit to educate clients about practical, easily implemented steps to protect themselves from zoonotic diseases. Effective communication of health messages can be challenging. Information needs to be presented in a way that has meaning to the listener and can be easily understood and acted upon to prevent zoonotic disease exposure.

## Identifying Who is at Risk

Animal caretakers contact animals on a daily basis, increasing their risk of zoonotic disease exposure. Immunocompromised people are more vulnerable to zoonotic diseases. Immunocompromised individuals include the elderly, children under the age of 5, pregnant women, chemotherapy patients, organ transplant recipients, persons with HIV/AIDS, and people with chronic diseases such as diabetes. Since a person’s immune status is often unknown to the veterinarian, it is better to err on the side of informing all clients of the risk and let them determine the next best steps. One does not need to be immunocompromised to be exposed and become ill. Therefore, if a zoonotic disease is suspected

or diagnosed, all should be made aware of the risk and how to protect themselves.

## Preventing Disease by Preventing Exposure

Zoonotic disease agents can be spread between animals and humans through a variety of transmission routes. Depending on the disease agent, humans can be exposed by more than 1 route of exposure. The majority of clients have not taken a bacteriology, virology, parasitology, or food safety course. The specific details for all of the pathogens taught in veterinary school are largely irrelevant to the majority of the public. Distilling disease transmission down to the routes of exposure, of which there are 6, is one way to simplify the health message. The 6 ways diseases are spread include aerosol, direct contact, oral, fomite, vector, and zoonotic.<sup>2</sup> Zoonotic transmission can occur through all of the previously mentioned routes. Once it is understood that some diseases can be acquired orally, like salmonellosis and cryptosporidiosis, and others are breathed in via aerosol transmission, like Q fever, it is easier to control exposure to them and prevent disease.<sup>4</sup> This approach is effective and easy for animal owners to understand without requiring knowledge about a wide range of diseases. This approach can also help protect against emerging zoonotic diseases.

In the case of a cow with leptospirosis, a human can be exposed through urine splashing into their mucous membranes (eyes, mouth) or through cuts or cracks in the skin.<sup>5</sup> Preventing leptospirosis exposure relies on measures that prevent entry into mucous membranes or abrasions in the skin. Contaminated food or water is another source of leptospirosis exposure. Focusing efforts on clean hands, cooking surfaces, and water sources can prevent exposure. These prevention steps also work against other diseases that rely on the same exposure routes. Using this approach in communication simplifies what clients need to do to protect themselves.

## Communication Tips

Veterinarians are taught the intricacies of diseases – etiology, clinical signs, pathogenesis, diagnostics, prevention, and more. After 4 years of rigorous education, taking that complex information and presenting it in a way so that others may understand is critical. Start by presenting the most important information first, then actions, leaving the “why” for last.<sup>3</sup> For example, always wash your hands with soap and

water for at least 20 seconds after handling the calves. Crypto is spread in feces and it can make you sick.

Less is more. Do not overwhelm the listener with details that do not contribute to actions around prevention. Crypto etiology, while fascinating to veterinarians with its low dose infectivity and reinfection rate in humans, is not relevant to most clients. State your messages actively with positivity. For instance, “washing your hands can keep you healthy. Washing your hands can keep your family healthy”.

Carefully choose your words. Readability in writing is based on the number of syllables in a word, among other things. Whether writing to clients or talking in person or over the phone, shorter words are best. If translation is necessary, shorter words can be easier to translate meaningfully.

Veterinarians know a lot of scientific wording and jargon. Save that for colleagues. Simplify it for clients. “Crypto” instead of cryptosporidiosis. “Garden hose diarrhea” instead of profuse, watery diarrhea with cramping.

Another important consideration is presenting information in a culturally appropriate way. As your client base becomes more diverse, consider working with people that have experience communicating to audiences of different cultural backgrounds. Effective communication often involves testing messages and delivery, using verbal and non-verbal cues, to ensure understanding.

Lastly, be aware of non-verbal communication when speaking to clients. Use of body language, body position when speaking, tone, speed, volume, and physical appearance such as facial flush or sweating can impact message receipt. Self-awareness when communicating to clients can increase understanding of barriers and strengths when delivering health-related messages.

### Zoonotic Disease Resources

There are a variety of resources to effectively communicate about zoonotic disease prevention available to veterinarians and livestock producers.

- Center for Food Security and Public Health at Iowa State University: [www.cfsph.iastate.edu](http://www.cfsph.iastate.edu)
- Compendium of measures to prevent disease associated with animals in public settings, 2017: <http://nasphv.org/documentsCompendiumAnimals.html>
- Compendium of veterinary standard precautions for zoonotic disease prevention in veterinary personnel, 2015: <http://nasphv.org/documentsCompendiaVet.html>

- Disinfection guidance: <http://www.cfsph.iastate.edu/Disinfection/index.php>
- Healthy pets, healthy people: Farm animals: <https://www.cdc.gov/healthypets/pets/farm-animals.html>
- Stay healthy at animal exhibits: <https://www.cdc.gov/features/animalexhibits/index.html>
- Bring home the blue, not the flu, preventing disease in animals and people: <https://content.cfsph.iastate.edu/bluenotflu/>

### Conclusion

Veterinarians are uniquely trained to identify and diagnose diseases of animals, some of which are zoonotic. Zoonotic disease prevention is essential to the health and safety of animal caretakers. Veterinarians delivering effective health messages to people require an understanding of how people receive information. Health messages need to be simple and clear to be understood. There are a number of zoonotic disease resources available to veterinarians to use to effectively educate their clients.

### Acknowledgements

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### References

1. American Veterinary Medical Association. Veterinarian’s Oath. Available at: <https://www.avma.org/resources-tools/avma-policies/veterinarians-oath#:~:text=Being%20admitted%20to%20the%20profession,of%20public%20health%2C%20and%20the>
2. Bickett-Weddle D. Development and initial validation of a dairy biological risk management assessment tool. 2009. Available at: <https://lib.dr.iastate.edu/cgi/viewcontent.cgi?article=1145&context=etd>.
3. Centers for Disease Control and Prevention. Simply put. 2009 Available at: [https://www.cdc.gov/healthliteracy/pdf/simply\\_put.pdf](https://www.cdc.gov/healthliteracy/pdf/simply_put.pdf)
4. McDaniel CJ, Cardwell DM, Moeller Jr. RB, Gray GC. Humans and cattle: A review of bovine zoonoses. *Vector-borne and zoonotic diseases* 2014; 14:1-19.
5. Spickler AR. Leptospirosis. 2013. Available at: <https://www.cfsph.iastate.edu/Factsheets/pdfs/leptospirosis.pdf>