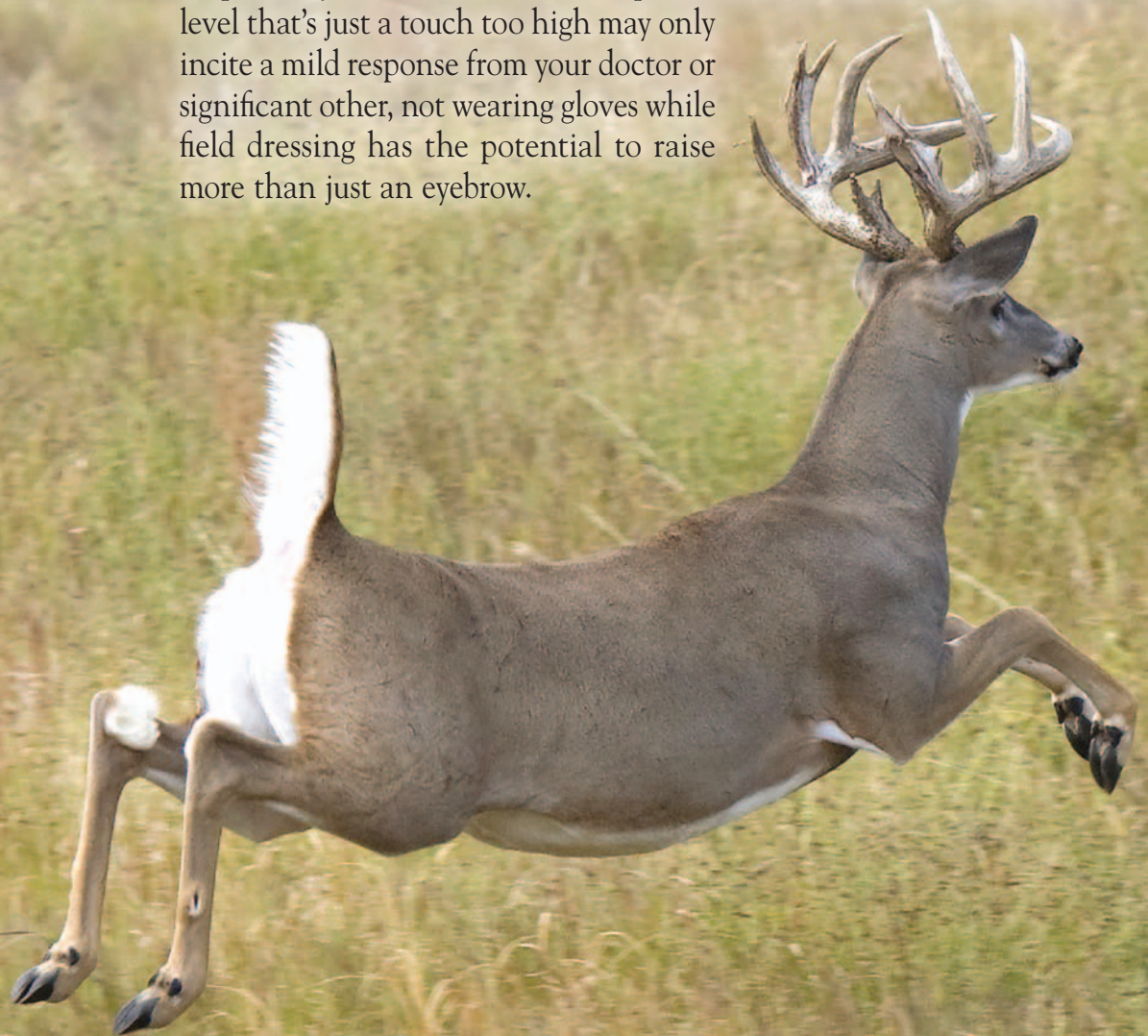


TO GLOVE OR NOT TO GLOVE

By Megan Kirchgessner
DVM, PhD

Do you wear gloves when you field dress a deer? Almost every hunter admits knowing that he or she should be wearing them, but fewer actually are. It's pretty similar to skipping the salt at dinner, running those five miles after work, or picking up the carrot sticks instead of the gummy bears for a road trip. It should be happening, but it's probably not. While a few extra pounds on the scale or a cholesterol level that's just a touch too high may only incite a mild response from your doctor or significant other, not wearing gloves while field dressing has the potential to raise more than just an eyebrow.





What must be done to prevent transmission of these bugs from a dead animal to the human who is dressing it? It's not complicated or expensive, and does not require extensive planning or preparation. No, it's really rather simple. Wear gloves!

Matthew W. Adres wore gloves after he harvested this typical whitetail deer in Wabasha County, Minnesota.



Who Should Wear Gloves, and When?

The short answer is, anybody who handles dead wildlife should wear gloves. Always.

Contrary to popular belief, many diseases that affect game species are capable of infecting humans as well. Approximately 69 percent of human viruses, bacteria, and parasites (collectively known as pathogens) are capable of causing disease in animals. In addition, 73 percent of pathogens that were diagnosed for the first time in humans within the last 20 years are capable of infecting at least one wildlife species. In other words, many pathogens that have a wide range of hosts can easily be transmitted from animals to humans and vice versa. What must be done to prevent transmission of these bugs from a dead animal to the human who is dressing it? It's not complicated or expensive, and does not require extensive planning or preparation. No, it's really rather simple. Wear gloves!

For a wildlife veterinarian like me, it's not a stretch to prefer to wear gloves when working with wildlife. I simply know too much about potential risks to do otherwise. But for people who have hunted for years without ever thinking about disease risks, to glove up when field dressing can be a radical decision. Every day I work with biologists

who would never venture into the field without multiple pairs of gloves in their sample kit. Yet more often than not, they would not even consider putting gloves on after killing a deer on a Saturday morning hunt. In reality, there is no difference between the road-killed buck that needs to be sampled for chronic wasting disease and the doe that is killed at a deer camp on a Saturday; they both represent potential risks to human health if proper precautions are not taken.

You may be aware of hunting-related disease risks but assume they occur somewhere else, not in the area your family has hunted for generations. Unfortunately, this is not a good assumption. Human sprawl, altered habitats, escape of captive-bred animals into the wild, and shifting ranges of wildlife species have changed the distribution of pathogens and turned a new chapter on the transmission of diseases between humans and wildlife.

When it comes to transmissible diseases, ignorance is not bliss. There are many nasty pathogens that can easily be transferred from dead wildlife to humans who have not taken precautionary measures. Picking up an infection can ruin more than the remainder of your hunting season. Let's look at some examples.

Tuberculosis and Tularemia

Mycobacterium bovis, also known as bovine tuberculosis, is capable of infecting a variety of hosts including cattle, deer, and humans, and has been documented in various regions of the world. Depending on the locale, the main "reservoir" of the bacterium shifts from the European badger in England to the common brushtail possum in New Zealand to the white-tailed deer in northern Michigan. *Mycobacterium bovis* was diagnosed in a wild white-tailed deer for the first time in northern Michigan in 1994 and has consistently been diagnosed in deer harvested in the same region ever since. Historically, human *M. bovis* infections in the United States have been associated with the consumption of unpasteurized milk and other dairy products. But in the nearly 20 years since *M. bovis* was found in the wild white-tailed deer population of northern Michigan, deer harvested in that area pose a risk to hunters, processors, and consumers of venison. During that time at least two Michigan residents have been diagnosed with *M. bovis*, suspected to be contracted via direct or indirect contact with an infected dead deer. One of these individuals punctured his left

index finger with a hunting knife while field-dressing a deer. Opening the chest cavity, he noted the presence of tan nodules that laboratory testing subsequently confirmed as bovine tuberculosis abscesses.

Tularemia, also known as rabbit fever, is a highly infectious, widespread bacterial disease typically transmitted from wild rodents or rabbits to humans. Mule deer have also been found to harbor the bacteria, albeit uncommonly. *Tularemia* has been diagnosed throughout the Northern Hemisphere, and humans most commonly become infected with *Francisella tularensis*, the inciting bacteria, via skinning, eating, or simply handling infected animals. Common routes of infection in humans include skin, eye, or mouth contact with the blood or tissues of infected animals. Inhalation of infected dust or airborne particles may cause infection as well. Furthermore, any tick feeding on the infected animal may carry the bacterium and subsequently infect the hunter or trapper who skins or handles the host animal's carcass. Gloves not only prevent direct contact with infective fluids or tissues, they also decrease the likelihood of picking up ticks during skinning. Infections caused by direct skin contact (usually on the hand) with infected tissues or a tick may manifest as a slow-growing ulcer with associated enlarged local lymph nodes. Pneumonia-like illness may follow inhalation exposure. Untreated *tularemia* is fatal in up to 60 percent of human

cases but drops to less than 5 percent in treated cases.

Q Fever

Q fever is a lesser-known bacterial infection that usually causes flu-like symptoms in humans. Occasionally, infected humans may exhibit more serious symptoms associated with lung, liver, and brain infections. While the most notable sources of

animal into an open cut on the hand or arm of the human handler can lead to the successful transfer of the bacterium from the hunted to the hunter.

Because early Q fever is often mild and does not necessitate medical treatment, many infections likely go undiagnosed and thus untreated. The later form of Q fever, known as chronic Q fever, typically develops months to years after the initial infection and occurs when an early infection is not diagnosed or treated. Individuals with underlying heart problems are the most commonly affected, and the estimated mortality rate ranges from 2 percent to 65 percent. Because of the variable clinical presentations of Q fever and the fact that many people do not seek medical care when initially infected, the number of humans infected with the bacterium is not known.

How common is Q fever exposure in wildlife? Due to the scarcity of reported studies, it remains a mystery for most species and regions. The host range for *C. burnetii* is wide and includes a variety of species of mammals, birds, and even reptiles, and the bacterium has been identified worldwide. In New York State, where antibody prevalence in the white-tailed deer population has been investigated, 17.6 percent of sampled bucks and 11.2 percent of sampled does had antibodies to *C. burnetii*, indicating exposure to the bacterium at some point during their lives. The antibody-positive deer were distributed widely across New

Like wildlife, people need to adapt to changes in their environment and relationships to other organisms. For hunters, taking caution in the face of emerging diseases is one aspect of "survival of the fittest."

infection for humans are domestic sheep, goats, and cattle, many species of wildlife, including white-tailed deer, are also believed to be potential sources of the bacterium. The causative bug, *Coxiella burnetii*, has been isolated from the blood, lungs, spleen, and liver of infected animals during the early stage of the infection. The bacterium is usually harbored in the mammary glands during the later phase of the disease. This means that a splash of blood or milk from an infected

Always remember this: it is safer to assume wildlife has been exposed to something rather than hope it hasn't.



York, suggesting that exposed animals were not clustered in particular locales. Bucks were more likely than does to be antibody-positive, and deer harvested in towns with greater than 10 cattle herds were more likely to be antibody-positive.

Such data show that you never know what pathogen or pathogens an animal may have encountered. Always remember this: it is safer to assume wildlife has been exposed to something rather than hope it hasn't.

Brucellosis

Another disease with serious potential implications for hunters worldwide is Brucellosis. *Brucella abortus*, a bacterium, is commonly diagnosed in elk residing in the Greater Yellowstone Basin. Brucellosis is known as undulant fever in humans and typically causes waves of feverish episodes, often accompanied by profuse sweating, muscle pain, and delirium. Years ago, when bare-armed rectal examinations were commonplace in large animal veterinary practice, it was not unusual for veterinarians to become infected as a result of direct contact with the bacterium while performing rectal palpations in cattle. Now, I am fairly certain that most hunters asked to perform a rectal examination of their quarry would elect to glove up. Considering all these bugs that seem to be waiting for their chance to infect a human, do you think gloves should be reserved for the "dirty" end of the animal only? Let's be honest. Viruses, parasites, and bacteria don't just collect in the rectum of any dead animal. They're everywhere! By the way, rectal sleeves extend all the way to the shoulder, making them great for safe field dressing and keeping the sleeves of your favorite hunting shirt clean and ready for next weekend.

Better Safe Than Sorry

If you remember one thing from this article, it's that the easiest way to prevent transmission of pathogens from wildlife to humans is to wear gloves when handling carcasses. A physical barrier between human skin and animal flesh prevents the potential contact of animal bodily fluids with entry points in the skin, such as open cuts or abrasions. Should you become ill shortly after exposure to wildlife, regardless of whether or not you wore gloves when field dressing, it is critical that you inform your doctor of recent contact with a wildlife carcass. Most doctors don't diagnose many of the pathogens that could potentially be transferred from wildlife to humans, so these illnesses are unlikely to make the list of potential diagnoses if you don't inform them about that possibility. To

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avoid possible multiple trips to the doctor's office and the prescription of ineffective treatments, it is best to be upfront and let the doctor know what you may have been exposed to.

Finally, it is always easier to form good habits than to break bad ones, so it is critical that the next generation of hunters understand at an early age that gloves are just a normal and accepted part of field-dressing. If setting a good example for the next generation of hunters is what is needed to make you start packing latex gloves, I'll take it. If you start throwing on a pair of gloves because you've decided TB or any of the fevers (rabbit, undulant, or Q) aren't things you're interested in getting to know first-hand, I'll take that too.

Like wildlife, people need to adapt to changes in their environment and relationships to other organisms. For hunters, taking caution in the face of emerging diseases is one aspect of "survival of the fittest." ■

Megan Kirchgessner is the State Wildlife Veterinarian for the Virginia Department of Game and Inland Fisheries. She recently completed her PhD, entitled "Spatial Epidemiology of Bovine Viral Diarrhea Virus and *Coxiella burnetii* Seroprevalence in White-Tailed Deer in New York," where she studied disease transmission between humans, domestic animals, and wildlife.