



Medicine for Managers

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Zoonoses

We used to live in Hertfordshire. We had a large garden and as someone who dislikes gardening, I hit on the idea of borrowing a herbivore from a local zoo to keep the grass down. An enormous cow with huge horns duly arrived and set about the vegetation very efficiently. My daughter loved the cow but I became very unpopular when my daughter developed ringworm. She had acquired a zoonosis.

A zoonosis is a disease acquired from an animal. Large numbers of people acquire such diseases every year by a variety of routes. The illness may be mild or severe and can even cause death. The appearance of an animal is often not a clue as to its state of health. It may be carrying a disease without overt symptoms that is capable of making a human very ill.

It is said that 55-65% of known infectious diseases in people are spread from animals and that 75% of emerging diseases are acquired from animals. It is difficult to prove that many diseases made the move from animals to humans but, from analysis of DNA, it seems likely that diseases such as measles, smallpox, diphtheria, tuberculosis and common viruses such as colds and influenza, and also HIV were acquired by this route.

Not all diseases apparently acquired from animals are zoonotic. The African diseases, schistosomiasis and elephantiasis, for example, are *not* defined as zoonotic because, although acquired through the bites of insects, they actually depend on the human host for part of their life cycle.

We encounter animals in a variety of ways. They are our pets, they work for us, they may be in contact with us in zoos or safari parks or we might encounter them in the wild. Of course, we must also not forget that we eat them. They are an important food source globally and we consume their flesh, their eggs and their milk.

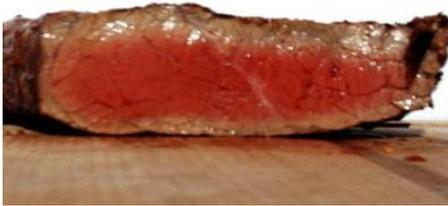
So, *how do we acquire illnesses from animals*. In many contacts we are very close; cuddling the dog or the cat, stroking the tame animals in zoos and parks and of course intimately through the gut with animals that we eat. The common ways of passing infections are:

1. **Direct Contact** - Urine, faeces, saliva, blood, mucous secretions from the nose
2. **Indirect Contact** - Contacting material that has already been infected by animals. Such infections may be passed



during cleaning of animal habitats; hen coops, dog kennels, aquaria or even working on plants and soil which may have been contaminated by the animal excretions.

3. **Food borne infections.** There are a host of food routes to become unwell. It includes eating undercooked infected



meat, drinking unpasteurised milk, infected eggs, unwashed salad and fruit and vegetables.

4. **Vector borne** - Insect bites, including from the mosquito, the fly, the flea and



a variety of other generally blood-sucking insects.

Who is vulnerable to zoonotic infection?

Like so many other infections, the same groups of vulnerable people may acquire zoonoses. They include

- The elderly (over age 70)
- The young (under age 5)
- Pregnant women
- People with systemic disease
- People with heart and kidney diseases
- People with weakened immune systems through illness or cancer.

Patients in such groups need to be particularly protected by taking appropriate precautions with animals and animal products because those groups may become particularly unwell or may die.

How do we avoid zoonoses?

Many of the commonly occurring zoonoses can best be avoided by basic attention to hygiene. Hand washing after touching animals is very important to avoid illness and infection spread.

Many of the zoonoses are tiresome but medically not serious. However, there are some illnesses which can make people very ill and some sufferers will die.

E coli is a common infection amongst animals. It is treated faeco-orally (infection spread through faeces into the mouth, usually from dirty hands) and easily acquired if touching the animals or infected grass.

Farm workers may acquire E coli from touching infected udders. Other bacterial examples are **campylobacter** and also **salmonella** can be acquired by handling chicks, chickens, ducks and turtles and also from the consumption of eggs.

Malaria, Dengue fever and **West Nile Virus** are acquired by bites from mosquitoes.

Lyme Disease and **Rocky Mountain Spotted Fever** are transmitted by tick bites.

Other well-known diseases are **sleeping sickness, anthrax, bubonic plague, encephalitis, Ebola, giardia, histoplasmosis, leprosy, psittacosis, toxoplasmosis** and **Q fever**.

The control of zoonoses is very important because of the potential for serious new consequences.

Bird flu is very common in chickens but rare in humans.

However, in community and public health circles, one of the major concerns is that the bird flu virus will recombine with the human influenza virus to cause a catastrophic pandemic such as happened in 1918 with Spanish flu.

The message is: [After contact with animals, wash your hands.](#)

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