

Companion Animals and Zoonoses: Understanding the Physician's Role in Disease Prevention, A One Health Perspective

Slide 1. Title Slide

Welcome to "Companion Animals and Zoonoses: Understanding the Physician's Role in Disease Prevention, A One Health Perspective," presented by the CDC One Health Office.

The goal of this presentation is to discuss the important role of physicians in promoting public health. This presentation addresses selected zoonoses commonly associated with companion animals in the United States. This slide set should take approximately 45 minutes to review.

Slide 2. Learning Objectives

The learning objectives for this presentation are to:

- Review zoonoses and other health risks associated with pet ownership
- Understand how general practice veterinarians contribute to public health in their daily work activities
- Develop ways to improve communication with patients regarding health risks from pets
- Identify opportunities for professional collaboration between physicians and veterinarians to further the goal of healthy pets and healthy people

Slide 3. Presentation Outline

1. Case Examples
2. Zoonoses: A One Health Perspective
3. Preventing Zoonoses in Patients with Animal Contact
4. Patient Education: Selected Zoonoses
5. Opportunities for Professional Collaboration

Slide 4. Case Examples

The slides that follow will provide two examples of opportunities for patient education you may encounter.

Slide 5. Case Example: Bats and Rabies

As you begin examining a long-time patient, he tells you a story about the bats that are living in his barn. Yesterday, he noticed one of the bats was injured unable to fly, so he's considering bringing the bat into his home to rehabilitate it.

What questions should you ask him?

What preventive messages should you share with him?

Slide 6. Rabies Case Example: Rabies Prevention

Rabies is 100% preventable! The most common way for people to get rabies in the United States is

through contact with a bat. All sick, dead or easily captured bats should be tested for rabies if exposure to people or pets occurs.

Advise patients not to handle or feed wild animals. Patients should keep rabies vaccinations up to date for pet dogs, cats and ferrets

For more information, visit the CDC Rabies web page: <http://www.cdc.gov/rabies/index.html>

Slide 7. Case Example: *Salmonella* and Backyard Poultry

You are preparing to administer routine vaccines to a young patient when she proudly announces she received two chickens for her birthday, and her family will have fresh eggs from now on! Her parents shrug and admit they've never raised chickens before, but they are excited about the new project.

What questions should you ask them?

What preventive messages should you share with them?

Slide 8. *Salmonella* Case Example (continued): *Salmonella* from live poultry is an ongoing problem: 2012 Outbreaks of *Salmonella* Linked to Live Poultry

In 2012, there were 8 separate *Salmonella* outbreaks linked to live poultry, including chicks, ducklings and backyard poultry flocks. The median time from purchasing poultry to illness was 15 days, with a range of 3 days to 90 days. There were multiple serotypes of *Salmonella*: Thompson, Hadar, Montevideo, Infantis/Lille/Newport, Infantis, Muenchen, Braenderup

Based on preliminary data, there were 517 illnesses reported, with outbreak size ranging from 20 cases to 195 cases. Eighteen percent (93 cases) were hospitalized, and 4 deaths occurred (it is unclear if the *Salmonella* infection contributed to these deaths)

Slide 9. *Salmonella* Case Example (continued): Human *Salmonella* Infections

Human *Salmonella* infections are characterized by 4 to 7 days of illness after an incubation period of 21 to 72 hours. The resulting acute gastroenteritis has the following symptoms: fever, diarrhea, abdominal cramps, vomiting, bloody stools. Young children, immunocompromised individuals and the elderly are at greater risk of developing serious illness such as meningitis, bloodstream infections, and joint infections. Most patients do not require treatment other than oral fluids, however some may require rehydration with intravenous fluids. Antibiotics are not usually indicated.

Slide 10. *Salmonella* Case Example (continued): Highlights from 2012 Outbreak Data (as of July 1, 2013)

This slide presents trends in recent outbreaks linked to backyard poultry. Over 70% of cases (ill people) reported contact with baby poultry (chicks, ducklings, goslings). The common reasons for purchasing poultry are meat, eggs, to keep the poultry as a pet and other reasons, including youth projects.

In recent outbreaks, approximately 1/3 of ill people kept poultry inside their home, approximately 1/3 of ill people reported snuggling with poultry and approximately 10% reported kissing poultry

2013: Multiple outbreaks with 100s of illnesses linked to backyard flocks. Current updates are available at www.cdc.gov/zoonotic/gi

Slide 11. *Salmonella* Case Example (continued): *Salmonella* infections can be prevented!

Advise patients to wash their hands with soap and water immediately after handling live poultry, or materials in their habitat. Advise patients and their parents that children should not kiss poultry or put their hands or other objects into their mouths after handling animals. Habitats and their contents should be carefully cleaned outdoors, if possible. Do not eat or drink in the area where birds live or roam

Do not let live poultry inside the house, in bathrooms or especially in areas where food or drink is prepared, served or stored, such as kitchens or outdoor patios.

For more information, visit the CDC Enteric Zoonoses web page: <http://www.cdc.gov/zoonotic/gi/>

Slide 12. Zoonoses: A One Health Perspective

The slides that follow will give an introduction to zoonotic infectious diseases.

Slide 13. What is One Health?

The One Health concept recognizes that the health of humans, animals, and the environment are interconnected. Global collaboration between public health, human medicine, ecology, and veterinary medicine is necessary for effective detection, control, and prevention of public health threats.

Some pathogens, known as zoonotic diseases, can be transmitted from animals to humans. Examples of zoonotic diseases include rabies, salmonellosis, and Ebola. Animals also share our susceptibility to certain diseases and environmental hazards and can serve as early warning for potential human infections. For example, deaths in birds infected with West Nile Virus often occur before human cases of West Nile Virus fever.

The concept of One Health is not new, but its importance has been recognized in recent years. Demographic and ecological changes have altered the interactions of humans with the environment and caused the emergence and reemergence of diseases. As human populations grow and expand, more people are living in close contact with wild and domestic animals. Climate change and land use changes, such as deforestation and intensive agricultural practices, have altered the balance between pathogens and their animal hosts. Increases in international travel and trade allow pathogens to be rapidly transported across the globe. These factors demonstrate the importance of using an integrated approach to public health that reflects the interconnectedness of the larger ecological system.

Successful public health interventions require the cooperation of the human, veterinary, and environmental health communities. By promoting this collaboration, CDC achieves optimal health outcomes for both people and animals.

Slide 14. What is a Zoonotic Disease?

Many definitions exist and commonalities can be drawn between them:

“Any disease or infection that is naturally transmissible from vertebrate animals to humans. Animals thus play an essential role in maintaining zoonotic infections in nature...”

- World Health Organization

Animal diseases that are transmissible to humans.”

- World Organization for Animal Health

“Any infectious disease that can be transmitted (in some instances, by a vector) from non-human animals, both wild and domestic, to humans or from humans to non-human animals.”

- Wikipedia

Slide 15. Why are zoonotic diseases important?

Of all human pathogens, 60% are zoonotic.¹⁻⁴ Approximately 75% of all recent emerging infectious diseases of human concern are of animal origin.¹⁻⁴

There are approximately 1.1 million domestically acquired *Salmonella* infections annually in USA. Eleven percent of these infections are caused by direct animal contact⁵

References

- Hale, C. R., E. Scallan, A. B. Cronquist, J. Dunn, K. Smith, T. Robinson, S. Lathrop, M. Tobin-D'Angelo and P. Clogher (2012). "Estimates of enteric illness attributable to contact with animals and their environments in the United States." Clin Infect Dis 54 Suppl 5: S472-479.
- Jones, K. E., N. G. Patel, M. A. Levy, A. Storeygard, D. Balk, J. L. Gittleman and P. Daszak (2008). "Global trends in emerging infectious diseases." Nature 451(7181): 990-993.
- Taylor, L. H., S. M. Latham and M. E. Woolhouse (2001). "Risk factors for human disease emergence." Philos Trans R Soc Lond B Biol Sci 356(1411): 983-989.
- Woolhouse, M. and E. Gaunt (2007). "Ecological origins of novel human pathogens." Crit Rev Microbiol 33(4): 231-242.
- Woolhouse, M. E. and S. Gowtage-Sequeria (2005). "Host range and emerging and reemerging pathogens." Emerg Infect Dis 11(12): 1842-1847.

Slide 16. Modes of Transmission

There are several ways zoonotic diseases can be transmitted between humans and animals. Three general categories for transmission include:

1. Foodborne: Consumption of animal products (meat, milk, eggs)
2. Direct contact: Direct transmission can occur when a person comes in contact with an animal's contaminated body (fur, feathers, scales), or is bitten or scratched by an infected animal.
3. Indirect contact: occurs when a person comes in contact with cross-contaminated food or with a contaminated animal's environment or habitat.
4. Vector-borne: occurs when a person is bitten by an infected vector (ticks, mosquitoes, lice, fleas or other disease carrying insects)

It is important to note that many animals infected with a zoonotic disease do not show clinical signs of the infection. Zoonoses that can cause severe illness in people, often do not cause clinical illness in pets. For example, domestic cats infected with *Toxoplasma gondii* generally only show mild clinical signs when they are first infected, or may be completely asymptomatic. Reptiles and Amphibians carrying

and shedding *Salmonella* also do not present with clinical illness. The safety precautions discussed in this presentation should be used when interacting with all animals, even if they appear healthy.

Slide 17. People do not have to touch a pet to catch a zoonotic disease

The aquarium displayed in the picture on the right has been placed on the kitchen counter next to baby bottles, the kitchen sink, bottle brushes and baby formula. If this aquarium houses a frog, there is the potential for the aquarium, and its contents to be contaminated with *Salmonella*. This sets up an opportunity for contamination of baby bottles with *Salmonella* if they come in contact with the aquarium or the surfaces where the aquarium was cleaned. Food can also become contaminated if the counter and sink are not properly disinfected after cleaning the aquarium and before preparing food on these same surfaces.

Slide 18. Preventing Zoonoses in Patients with Animal Contact

The following slides will provide an overview of zoonoses to consider in patients with animal contact and general prevention messages

Slide 19. Pet Ownership in the United States

Pets play an important role in the lives of many Americans. Almost 63% of pet-owning Americans consider their pets “part of the family.” Approximately 39% of households own at least one dog and 33% own at least one cat. Approximately 1.6 million households own a reptile. This is good news, as multiple health benefits of pet ownership have been documented: Pets have been shown to improve their owners’ mobility as well as cardiovascular health. They provide companionship, emotional support, and can improve the lives of Americans with disabilities. In regards to children, owning pets can teach responsibility and compassion, and has been associated with a decreased risk of allergic disease later in life.

References:

Websites

Humane Society of the United States:

http://www.humanesociety.org/issues/pet_overpopulation/facts/pet_ownership_statistics.html

American Veterinary Medical Association. 2012. U.S. Pet Ownership and Demographics Sourcebook:

<https://www.avma.org/KB/Resources/Statistics/Pages/Market-research-statistics-US-Pet-Ownership-Demographics-Sourcebook.aspx>

Publications:

American Pet Products Association, I. (2012). 2011-2012 APPA National Pet Owners Survey

Arhant-Sudhir K et al. 2011. Pet ownership and cardiovascular risk reduction: supporting evidence, conflicting data and underlying mechanisms. *Clin Exp Pharmacol Physiol*. 2011 Nov; 38(11):734-8

Gretebeck KA et al. 2012. Dog Ownership, Functional Ability, and Walking in Community Dwelling Older Adults. *J Phys Act Health*. 2012 Oct 4; epub ahead of print

Oryszczyn MP et al. 2003. Allergy markers in adults in relation to timing of pet exposure: the EGEA study. *Allergy*. 2003 Nov;58(11):1136-43

Rintala DH et al. 2008. Effects of assistance dogs on persons with mobility or hearing impairments: A pilot study. *J Rehab Research Develop*. 2008; 45(4):489-504

Slide 20. Diagnoses to Consider in Patients with Animal Contact

These are selected zoonoses that can be associated with companion animals. Physicians should be aware of the zoonotic potential of these pathogens, and include questions about pet ownership when taking a patient's history, particularly when it comes to investigating patients who are suspected of having an infectious disease. Physicians should be aware of procedures to diagnose and treat infections with these pathogens, and share prevention messages with patients.

The CDC website "Healthy pets, Healthy People" provides all of this information in one easy location: <http://www.cdc.gov/healthypets/>

Slide 21. Other Health Risks to Consider in Patients with Animal Contact

Not all risks from pets are infectious in nature: Pets can cause injuries from biting and scratching, or people in the household may be allergic to pets.

Injuries – Trauma

- Approximately 50% of dog bites involve an animal owned by the victim's family or neighbors.
- Children are the most common victims of these bites, especially in the case of fatal encounters between dogs and people.

Allergies

- Approximately 10% of people with allergies are allergic to pets and up to 20% of those with asthma are allergic to pets

References:

Websites:

<http://www.aaaai.org/Aaaai/media/MediaLibrary/PDF%20Documents/Libraries/EL-allergies-pets-patient.pdf>

Publications:

Presutti RJ. 2001. Prevention and treatment of dog bites. *American Family Physician*. 63(8):1567-1573
Reisner IR and Shofer FS. 2008. Effects of gender and parental status on knowledge and attitudes of dog owners regarding dog aggression towards children. *JAVMA*. 233:1412-1419.

Slide 22: Physician's Role In Zoonotic Disease Prevention

Physicians can help mitigate health risks of pet ownership and support the human-animal bond through their daily activities in general practice. In general, it may be helpful to note what types of pets are owned by your patients. This will allow you to make specific disease prevention recommendations and consider species-specific zoonoses in your differential diagnoses.

Be aware of your patients' relationship with animals

- Are there pets in the home? What kind?
- Are they involved in an animal-related occupation?
- Is there a history of contact with chickens, reptiles, or amphibians?
- Has there been a recent visit to a farm or petting zoo?
- Has there been any recent evidence of illness in pets at home?

Patient Education

- Provide information on general risk-reduction strategies, as well as specific information on zoonoses of concern for high-risk patients

- Encourage patients to keep pets healthy with routine veterinary care

Slide 23. General Prevention Messages

Physicians can consistently take small opportunities during office visits to educate patients on avoiding injury and illness by providing the following general prevention messages:

- Wash hands with soap and water immediately after handling pets, pet foods, or materials in the pet's habitat. Running water and soap are best. Use hand sanitizers if running water and soap are not available. Be sure to wash your hands with soap and water as soon as a sink is available. Adults should always supervise hand washing for young children
- Don't let pets lick people on the mouth
- Work with puppies and kittens to encourage gentle play habits
- Fence pets to reduce contact with stray/wild animals
- Encourage pet owners to vaccinate their pets as recommended by veterinarians

Slide 24. Identify High-Risk Patients

Be aware of the people that live in your client's household. While the client who typically brings the pet to the office may be healthy and at low risk for diseases, clients or people that live in the home may have an especially high-risk for infection. For example, older household members (over 64 years), children less than 5 years old, pregnant women and individuals with chronic illness who are immunocompromised can all be more susceptible to infection. The general messages listed on slide 11 are excellent for all households, however, if you become aware that there may be high-risk clients living in the home, be sure to include additional information on the risk of zoonotic disease transmission and how clients can minimize these risks.

For more information on High-risk Patients visit: http://www.cdc.gov/healthypets/extra_risk.htm

Slide 25. Patient Education: Selected Zoonoses

The next few slides will discuss some of the more common zoonoses that physicians should be able to discuss with their patients.

Slide 26. Rabies

All species of mammals are susceptible to rabies virus infection, but only a few species are important as reservoirs for the disease. In the United States, distinct strains of rabies virus have been identified in raccoons, skunks, foxes, and coyotes. Several species of insectivorous bats are also reservoirs for strains of the rabies virus.

Transmission of rabies virus usually begins when infected saliva of a host is passed to an uninfected animal. The most common mode of rabies virus transmission is through the bite and virus-containing saliva of an infected host. Though transmission has been rarely documented via other routes such as contamination of mucous membranes (i.e., eyes, nose, mouth), aerosol transmission, and corneal and organ transplantations.

It's important to remember that rabies is a medical urgency but not an emergency. Decisions should not be delayed. One of the most effective ways to decrease the chance for infection is to wash the wound thoroughly with soap and water. Decide, in consultation with your state or local health department, if the patient will require rabies vaccination. Decisions to start vaccination, known as postexposure prophylaxis (PEP), will be based on the type of exposure and the animal the patient was exposed to, as well as laboratory and surveillance information for the geographic area where the exposure occurred.

For more information visit: <http://www.cdc.gov/rabies/>

Slide 27. Rabies

Key Patient Recommendations:

- Keep your pets healthy
 - Keep vaccinations up to date for pet dogs, cats and ferrets.
 - Keep pets under your direct supervision so they do not come in contact with wild animals
 - Call your local animal control agency to remove stray animals from your neighborhood
- Avoid direct contact with unfamiliar animals
 - Do not handle or feed wild animals
 - Never bring wild animals into your home
 - Teach children never to handle unfamiliar animals
 - Prevent bats from entering living quarters

Slide 28. Rabies

Key Patient Recommendations:

- If bitten by an animal, patients should:
 - Immediately wash bite wounds with soap and water
 - Seek medical evaluation for any animal bite
- A healthy domestic dog, cat, or ferret that bites a person should be confined and observed for 10 days. Any illness in the animal should be evaluated by a veterinarian and reported immediately to the local public health department
- Skunks, raccoons, foxes and bats that bite humans should be euthanized and tested as soon as possible
- If a bat is found in the room with a sleeping person, unattended child, mentally disabled person or intoxicated person, the bat should be trapped and submitted for rabies testing

Slide 29. *Toxoplasma gondii*

Cats and Toxoplasmosis: Cats acquire *Toxoplasma gondii* when they consume infected rodents, birds, or other small animals. Newly infected cats are most likely to shed oocysts in their feces for 1-2 weeks. This time period often goes unnoticed as the majority of cats will not show clinical signs.

Transmission to humans: *T. gondii* oocysts become infectious 1-5 days after they are passed in feces. People become infected when they ingest *T. gondii* cysts in undercooked meat, or when they accidentally ingest infectious oocysts from a cat's litterbox.

Generally if a woman has been infected before becoming pregnant, the unborn child will be protected because the mother has developed immunity. If a woman is pregnant and becomes newly infected with *Toxoplasma* during or just before pregnancy, she can pass the infection to her unborn baby (congenital transmission). The damage to the unborn child is often more severe the earlier in pregnancy the transmission occurs. Potential results can be severe neurologic problems in the child, and fetal death.

Important Note: Cats are the only animals that will shed oocysts in their feces, however humans can also become infected by consuming raw or undercooked meat that is contaminated (similar to how cats get the disease from eating prey animals).

Slide 30. *Toxoplasma* Transmission

The only known definitive hosts for *Toxoplasma gondii* are members of family Felidae (domestic cats and their relatives). Unsporulated oocysts are shed in the cat's feces . Although oocysts are usually only shed for 1-2 weeks, large numbers may be shed. Oocysts take 1-5 days to sporulate in the environment and become infective. Intermediate hosts in nature (including birds and rodents) become infected after ingesting soil, water or plant material contaminated with oocysts . Oocysts transform into tachyzoites shortly after ingestion. These tachyzoites localize in neural and muscle tissue and develop into tissue cyst bradyzoites . Cats become infected after consuming intermediate hosts harboring tissue cysts . Cats may also become infected directly by ingestion of sporulated oocysts. Animals bred for human consumption and wild game may also become infected with tissue cysts after ingestion of sporulated oocysts in the environment . Humans can become infected by any of several routes:

- Eating undercooked meat of animals harboring tissue cysts .
- Consuming food or water contaminated with cat feces or by contaminated environmental samples (such as fecal-contaminated soil or changing the litter box of a pet cat) .
- Blood transfusion or organ transplantation .
- Transplacentally from mother to fetus .

In the human host, the parasites form tissue cysts, most commonly in skeletal muscle, myocardium, brain, and eyes; these cysts may remain throughout the life of the host. Diagnosis is usually achieved by serology, although tissue cysts may be observed in stained biopsy specimens . Diagnosis of congenital infections can be achieved by detecting *T. gondii* DNA in amniotic fluid using molecular methods such as PCR .

Slide 31. *Toxoplasma gondii*: Key Patient Recommendations

It is important that pregnant cat owners do not feel pressured to relinquish their cats; however there are some important steps they should take to protect themselves:

- Consider keeping cats indoors to prevent hunting
- Do not feed raw meat diets
- Do not adopt a new kitten or cat if anyone in the house is pregnant
- Litter boxes should be cleaned by someone else in the household: If not possible, clean 1-2 times a day, wear gloves and wash hands immediately afterwards

- If cats are long-haired, keep hair on tail and around back of legs trimmed to prevent fecal matter accumulation
- Cats like to defecate in garden areas: Wash garden vegetables well and wear gloves when gardening

Slide 32. *Bartonella henselae* (Cat Scratch Disease)

B. henselae in Cats: The bacteria are naturally transmitted among cats by cat fleas (*Ctenocephalides felis*) and 40% of cats are infected at some time in their lives. Naturally infected cats are primarily asymptomatic, subclinical carriers of *Bartonella henselae*. *B. henselae* infections in cats, also known as feline bartonellosis, may occasionally cause a self-limiting, transient, febrile illness that lasts for approximately 48-72 hours. Cats < 1 year of age are most likely to be infected.

Transmission to Humans: This bacteria can be transmitted from a cat to a person during a scratch. Although anyone can become infected, immuno-compromised individuals are at greater risk. Symptoms include fever, a pustule or papule at the inoculation site and enlarged, tender lymph nodes.

For more information, visit: <http://www.cdc.gov/bartonella/>

Slide 33. *Bartonella henselae* (Cat Scratch Disease)

Patients may ask if their veterinarians should test their cat for *Bartonella*. Testing a cat is possible, but it is important to know that positive serology does not indicate a current infection, and a negative blood culture or PCR does not necessarily mean the cat is not a carrier. At this time, there is no known benefit to culture or routine serologic testing for cats.

However, there are recommendations you can make to immuno-compromised patients who own a cat or wish to adopt a new cat:

- Apply flea prevention monthly (even for indoor only cats)
- Avoid rough play with cats
- Wash all cat-associated wounds promptly
- Do not allow cats to lick wounds or cuts
- Adopt a visibly healthy cat > 1 year of age; preferably one with known history of consistent flea prevention

Slide 34. *Salmonella* from Pets

Poultry in backyard flocks, reptiles, amphibians, and rodents commonly carry *Salmonella*.

In recent years, there have been a number of large, high-profile outbreaks of *Salmonella enterica* infections in humans associated with pets and pet products, including backyard poultry flocks, small turtles, and African dwarf frogs. People become infected when they come into contact with fecal matter from a colonized bird, reptile or amphibian, and multiple studies have shown that direct contact is not necessary to acquire *Salmonella* infection.

Backyard poultry are becoming more common, even in urban areas. Between February 2011 and June 2013, CDC has identified over 700 cases of Salmonellosis linked to baby chicks and backyard flocks, of which approximately 33% are children less than 10 years of age.

Compared to other reptiles, turtles are considered especially risky for young children. This is because turtles are more likely than other reptiles to be given to young children due to their slowness, gentle nature and their perceived ease of care. In contrast to other reptiles, turtles are frequently kept in a terrarium with a reservoir of water, which can amplify *Salmonella* bacteria, and which may serve as a source of infection among young children who handle the turtle or come in contact with its habitat. In 2012, there were over 390 cases of *Salmonella* infection linked to small turtles, and 71% of the cases are children less than 10 years of age.

Asking if these animals are present in the home can provide the opportunity to educate patients on the risks of Salmonellosis from these animals.

For more information on enteric zoonoses, visit: <http://www.cdc.gov/zoonotic/gi/index.html>

Slide 35. *Salmonella* from Poultry, Reptiles, Amphibians

Key recommendations and prevention messages:

- Keep live poultry, amphibians, and reptiles out of homes and facilities with high risk people
- Clean and disinfect any surfaces that have been in contact with animals
- Children should perform this task only under adult supervision.
- Habitats and their contents should be carefully cleaned outdoors, if possible
- Do not dispose of water in sinks used for food preparation or for obtaining drinking water
- To prevent cross-contamination, avoid washing pet food and water dishes in the kitchen sink or bathtub
- If bathtubs must be used for these purposes, they should be thoroughly cleaned and disinfected with bleach afterward

Slide 36. *Salmonella* in Pet Food

Pet food is not manufactured to be a sterile product. Pet foods and treats have contents of animal origin and are at risk for *Salmonella* contamination. There are several reported outbreaks of Salmonellosis in humans from pet food products. Dogs and cats can also become infected and shed *Salmonella* in feces and saliva for extended periods of time; however they may not show clinical signs. Additionally, CDC recommends against feeding raw food to dogs and cats because of the risk of illness in the pet and the people in the household.

If a patient thinks their pet has become ill as a result of consuming a pet food product, advise them to visit the FDA pet food reporting page:

<http://www.fda.gov/AnimalVeterinary/SafetyHealth/ReportaProblem/ucm182403.htm>

Slide 37. *Salmonella* in Pet Food

Key recommendations and prevention messages:

- Purchase packaged food with no visible signs of damage to the package
- Avoid cross-contamination of human food and environments with pet food by:
- Feeding pets in areas other than the kitchen
- Washing hands immediately after handling pet food and treats
- Avoiding use of kitchen sink and bathtub when washing pet food and water bowls
- Keep children 5 years and younger away from areas where pets are fed to help prevent illness and injury

Slide 38. Children and Pets

Parents of young children should be cautioned in particular about avoiding contact with certain types of pets that can pose especially high risk of disease transmission and serious illness to infants and children under 5 years old. These animals include reptiles, amphibians, baby chicks and ducklings, and petting zoos.

Recommend against these pets for households with children under five years of age. Additionally, let patients know that children should stay away from pets with diarrhea.

Slide 39. Recommendations for Parents of Infants and Young Children

Specific risks from animal contact: Since children's immune systems are still developing they are at greater risk for infection. Children are also especially likely to have interactions with pets that place them at elevated risk. They are predisposed to bites, scratches and licks to the face and hands due to their height and their curiosity about animals. Children can also have very intimate interactions with animals, including kissing, licking and sharing beds, and may not take adequate hygienic measures, such as frequent hand and face washing after handling pets. Children are more likely to put contaminated objects or hands in their mouth, which can result in disease exposure. Finally, children may not be fully reliable reporters of exposures and symptoms when physicians are obtaining a medical history, which can present diagnostic challenges for identifying zoonotic diseases early in the clinical course.

Key recommendations and prevention messages:

- Ensure children wash their hands thoroughly after all animal interactions
- Teach kind handling of animals and understanding of animal body language
- Do not allow children to kiss pets or to put their hands or other objects into their mouths after handling animals
- Have pets routinely dewormed- puppies and kittens < 6 months are more likely have intestinal parasites
- Wash hands prior to breast feeding or preparation of formula
- Clean animal cages, tanks etc. outside to prevent cross-contamination in the kitchen
- Supervise children at petting zoos to make the experience fun and safe!

Slide 40. Veterinary Care for Companion Animals

Veterinarians can help mitigate health risks of pet ownership and support the human-animal bond through their daily activities in general practice:

Routine Veterinary Care

- Vaccinations
- Routine treatment for intestinal parasites
- Flea/tick preventatives

Patient education

- Teach animal handling skills for children (bite prevention)
- Guide appropriate pet selection
- Discuss zoonoses and other health risks
- Counsel immuno-compromised patients on how to safely care for their animals

Slide 41: Opportunities for Professional Collaboration

The following slides will describe opportunities for collaborating with veterinarians.

Slide 42: Opportunities for Professional Collaboration: The Physician's Role

- Be aware of high-risk patient needs or concerns
 - Ask if patients if they have any concern about risks associated with their pets
 - Have brochures available to provide information on zoonoses
- Be aware of the zoonotic disease potential of your diagnosis
- Encourage consultation with veterinarians for follow-up
 - Provide copies of diagnostic results and discharges to share
 - Provide a business card to pass on to veterinarian
 - Offer to be available for consultation

Slide 43: Opportunities for Professional Collaboration: Direct Communication with Veterinarians

Physicians can open direct lines of communication with veterinarian. This may be warranted when pets are diagnosed with a very serious condition with high risk to humans living with the ill animal. This may be especially important if your patient is at high risk for infection because of age, or pre-existing condition. You should request permission from the patient to contact their veterinarian to discuss details of the pet's medical history and diagnosis. This permission should ideally be written and should document that you discussed with the patient the information you plan to discuss and the person or persons you will be engaging in these discussions. Inform patients that they can revoke this permission at any time and document these discussions with patients and the outcomes of these discussions in the patient record.

Reference:

Babcock et al. 2008. Legal implications of zoonoses for clinical veterinarians. JAVMA 233(10):1556-62.

Slide 44. Summary

In summary, pets are important part of the family dynamic, and there are many benefits to pet

ownership. There are diseases that pets may carry that can make people sick, and this can occur even when pets appear healthy. By discussing disease and injury prevention strategies with patients, physicians help mitigate the risks of pet ownership. By fostering professional relationships with veterinarians, physicians can help to close potential gaps that exist with zoonotic disease prevention.

Slide 45. For more information please contact the Centers for Disease Control and Prevention using the contact information provided on this slide.