

Zoonosis From Pets

Dr. Corrie Brown, University of Georgia

A Webber Training Teleclass

Zoonoses from Pets

Old faithfuls ... Pretty scary ... On the increase/ really wild

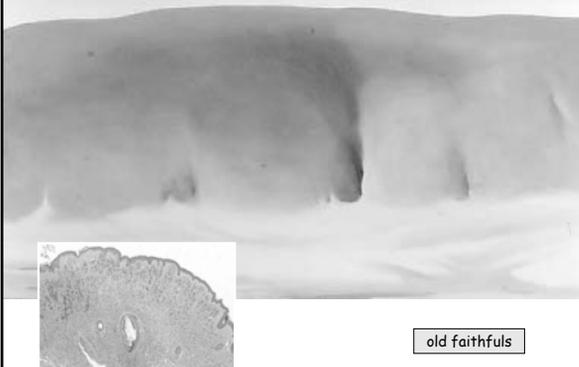


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Hosted by Paul Webber
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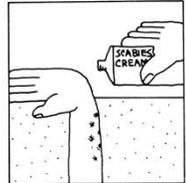
Skin diseases - often from pets!



old faithfuls

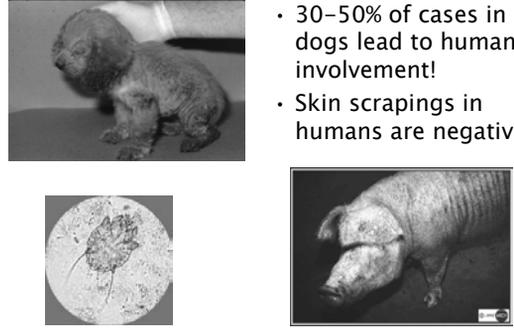
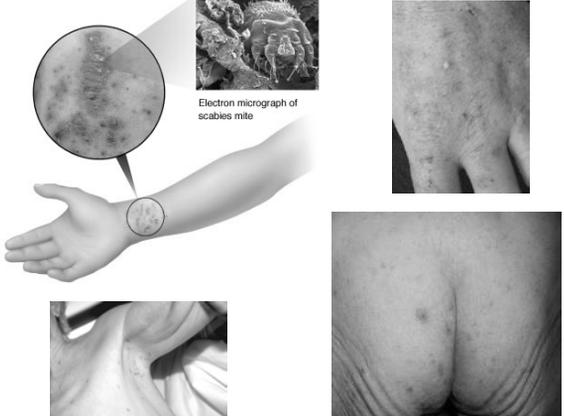
Mange – three types

- *Sarcoptes* – big winner
- *Cheyletiella* – “walking dandruff”
- *Notoedres* – rare

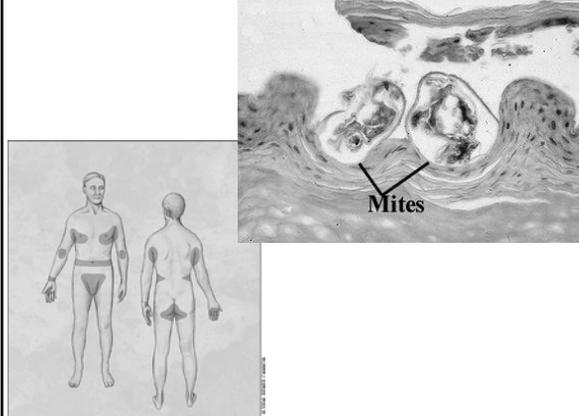


Sarcoptic mange

- 30–50% of cases in dogs lead to human involvement!
- Skin scrapings in humans are negative

Electron micrograph of scabies mite



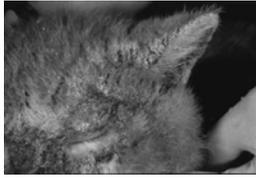
Mites

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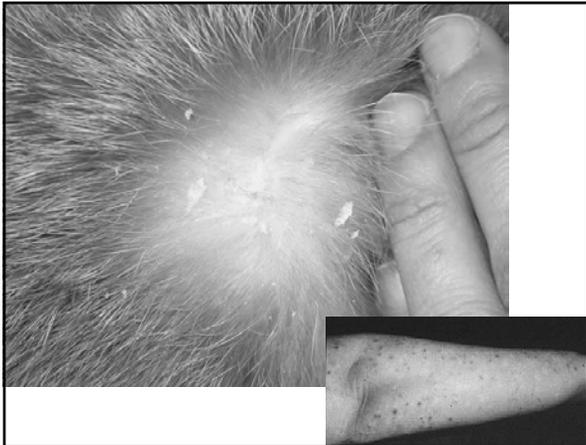
Notoedric mange

- Cats
- Uncommon in U.S.



Cheyletiellosis

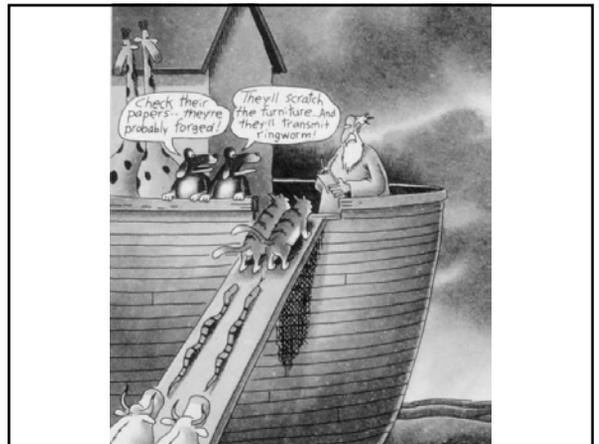
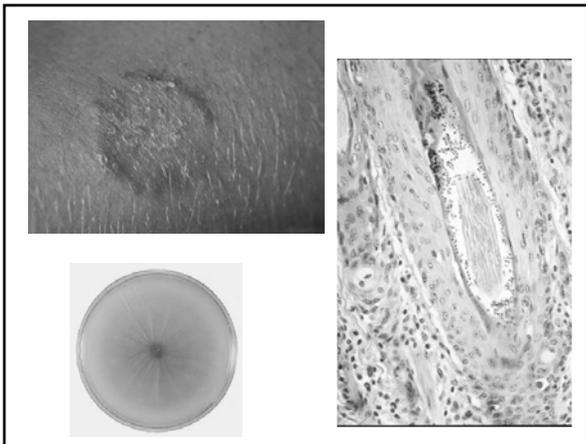
- Dogs, cats, rabbits
- "walking dandruff"
- Intensely pruritic in humans



Ringworm



- 30% of animal cases lead to human involvement
- Cats carry *Microsporum canis*



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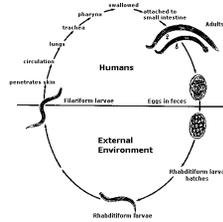
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Cutaneous larva migrans

- Hookworm larvae
- “creeping eruption”
- Southeastern U.S.

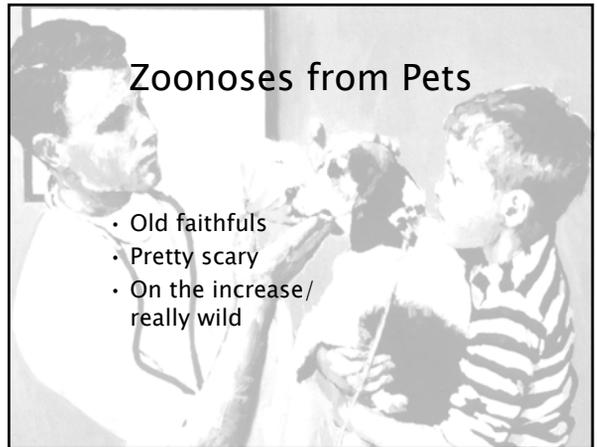


Cutaneous larva migrans



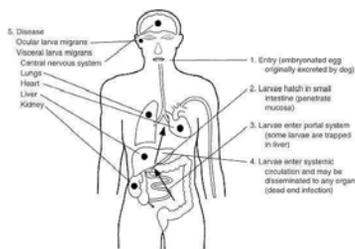
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- Old faithfuls
- Pretty scary
- On the increase/ really wild



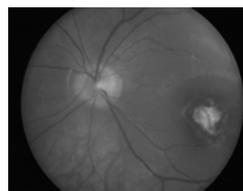
Visceral larva migrans

- *Toxocara* species
- 33% of humans have antibodies
- Target organs: EYE, brain, lung, liver



Toxoplasmosis

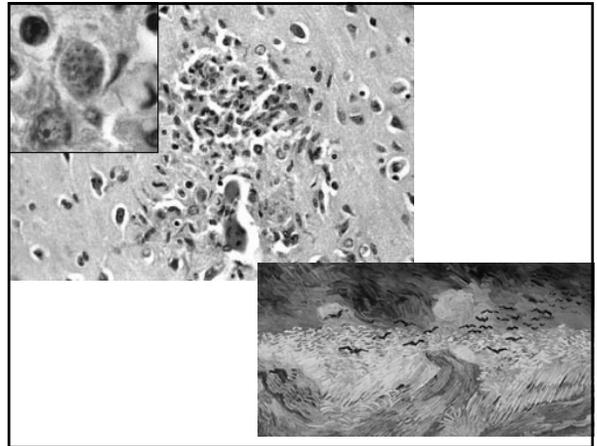
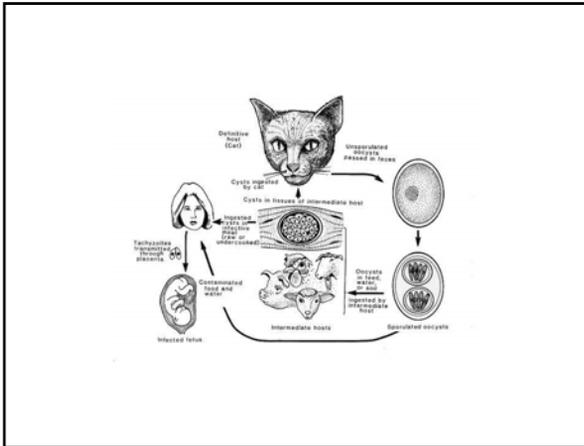
- 400-4,000 cases of congenital toxoplasmosis in the U.S. every year
- Sources – undercooked meat, cat feces, environmental contamination



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Psittacosis



- Flu-like illness in humans
- Birds can be carriers



Campylobacter jejuni

The most common cause of gastroenteritis in the U.S.

- surface water (fecal contamination)
- wild birds and mammals
- raw meat and poultry, milk, shellfish
- pets



Campylobacter jejuni



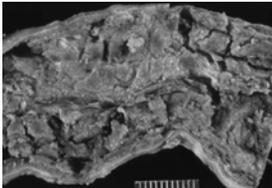
- MOST chicken carcasses are contaminated
- 5% of cases in humans are from pets



Salmonellosis



- 10^6 inoculating dose required
- animals are the major reservoirs for all *Salmonella* (except *typhi*)
- 1.4 million human cases per year in US
 - ~ 500 are fatal




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Reptile owner donates blood, passes on lethal *Salmonella* infection



A study in the New England Journal of Medicine (Oct.3,2002) reports that a snake is the source of a *Salmonella* organism that contaminated a platelet transfusion and infected two platelet recipients, killing one of them. The AVMA and Association of Reptilian and Amphibian Veterinarians have long been proponents of educating the public about *Salmonella* risks and reptile ownership, and the study is further evidence that this is key.

Doctors traced the infection to the platelet donation and discovered that both transfusions came from the same individual. Upon further investigation, they found that the donor, although appearing healthy at the time of apheresis, had asymptomatic salmonellosis.

cases of *Salmonella* infections that occur annually in the United States.

Dr. Wilbur Amand, ARAV executive director, thinks the top figure is closer to eight percent. There are many more cases of salmonellosis due to contamination of poultry and egg products than there are to cases coming from reptiles,' he said.

"To me, the message (of this study) is to reemphasize the need for the (reptile) pet-owning public to maintain high sanitation standards," Dr. Amand said. "I think that the veterinarian has a role to remind clients (that), whether it is a green iguana, or a box turtle, or a boa constrictor, that any or all of them may be a carrier of the organism, and as such, they need to




Outbreak of Multidrug-Resistant *Salmonella* Typhimurium Associated with Rodents Purchased at Retail Pet Stores --- United States, December 2003--October 2004

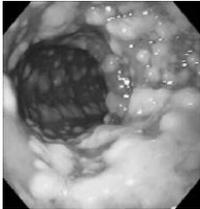


15 cases in 10 states



Clostridium difficile

- Incidence in humans increasing
- Found in healthy dogs



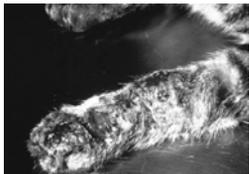
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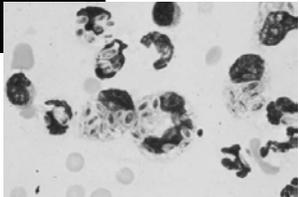


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Sporothrix schenckii

- environmental saprophyte
- causes cutaneous and lymphatic nodules
- contagious to humans





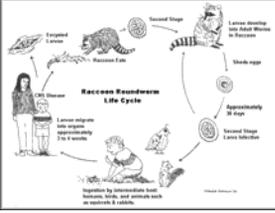
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Baylisascaris procyonis



- 60-80% of all raccoons carry
- VERY persistent in the environment

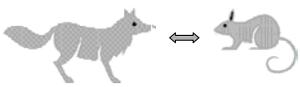




- Raccoons can defecate millions of *B. procyonis* eggs per day
- Eggs can survive in environment for years

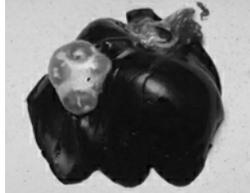
Alveolar Hydatid Disease (*Echinococcus multilocularis*)

- Arctic regions
- Fox, coyote (dog) are definitive hosts; rodents are intermediate hosts
- Humans infected by carnivore feces
- Multilocular hydatid cysts in liver, lung, brain



Alveolar hydatid disease

- *Echinococcus multilocularis* – range increasing




Emerging diseases from pets

Yersinia pestis

- Sylvatic plague increasing in SW U.S.
- Last 20 years – 300 cases in cats, 30 cases in humans




Regular outbreaks in prairie dogs every 4-5 years

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Plague in cats



- Same forms of disease as in humans
- Most cases BUBONIC, with lesions around head
- Secondary pneumonic form reported - DANGER



Yersinia pestis



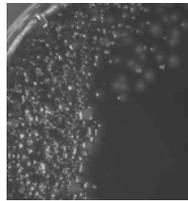
antiphagocytic
plasminogen
activators
endotoxin

Yop virulon



Disease from bite wounds

- 1% of ER visits
- from dogs > cats > humans
- polymicrobial



Capnocytophaga *canimorsus*

- part of normal canine oral flora
- septicemia with DIC in humans, peripheral symmetrical gangrene, encephalitis, death



Bartonella henselae



- cats have prolonged bacteremia
- fleas important in spread

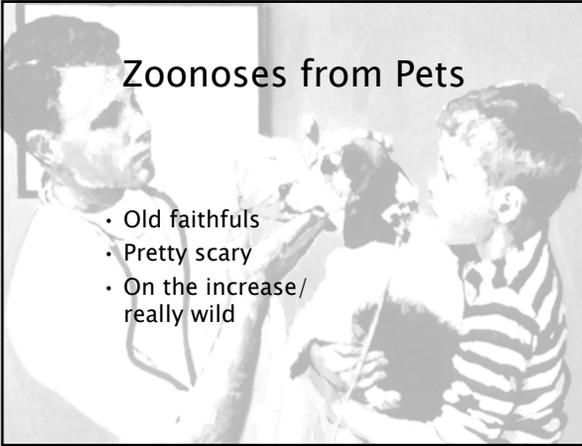
cat scratch disease



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World Health Organization

Cumulative Number of Confirmed Human Cases of Avian Influenza A/(H5N1) Reported to WHO

12 May 2006

Country	2003		2004		2005		2006		Total		
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	
Azerbaijan	0	0	0	0	0	0	0	8	5	8	5
Cambodia	0	0	0	0	4	4	2	2	6	6	
China	0	0	0	0	8	5	10	7	18	12	
Djibouti							1	0	1	0	
Egypt	0	0	0	0	0	0	13	5	13	5	
Indonesia	0	0	0	0	17	11	16	14	33	25	
Iraq	0	0	0	0	0	0	2	2	2	2	
Thailand	0	0	17	12	5	2	0	0	22	14	
Turkey	0	0	0	0	0	0	12	4	12	4	
Viet Nam	3	3	29	20	61	19	0	0	93	42	
Total	3	3	46	32	96	41	64	39	208	115	

Total number of cases includes number of deaths.
WHO reports only laboratory-confirmed cases.



World Health Organization

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Avian influenza A(H5N1) - update 28: Reports of infection in domestic cats (Thailand), Situation (human) in Thailand, Situation (poultry) in Japan and China

30 February 2004

Reports of infection in domestic cats (Thailand)

WHO is aware of reports of H5N1 infection in a single household of domestic cats in Thailand. Investigators are under way and no firm conclusions can be made at present. However, concern is great and several specific questions are being raised about risks to humans in close contact with infected cats and the need for surveillance of diseases in cat populations.

H5N1 infection in two out of three dead domestic cats was announced today by the Faculty of Veterinary Sciences at Thailand's Kasetsart University. The animals are part of a single household of 13 cats. Of these, 14 have died. Contact of one cat with dead chickens was observed by the owner.

SCIENTIFIC AMERICAN

News
September 03, 2006

Long Thought Immune, Felines Contract Bird Flu

The threat from avian influenza may be lessening. Supporting new evidence shows that the deadliest of the bird flu virus, H5N1, may not be as deadly as once thought. In fact, the bird flu may be less deadly than once thought.

During the outbreak of avian influenza A(H5N1) in Asia in 2003-2004, there were 15 documented cases of deaths from subtypes of avian H5N1 in cats.

Like other avian strains, the deadly H5N1 virus appears capable to pass from humans to cats. In the wake of the health emergency, however, a single case of a cat died after the infection of the chicken chicken. Contrary to what is commonly known about the possibility of cats transmitting the disease to humans.

MSNBC NEWS 24/7 U.S. News • MSNBC Wire Service

Officials say Azeri dog dies of bird flu.

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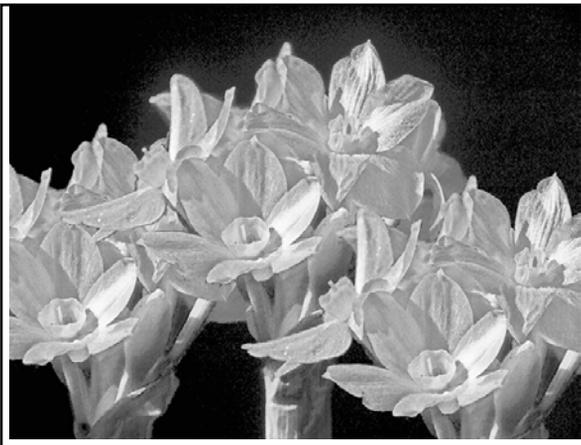
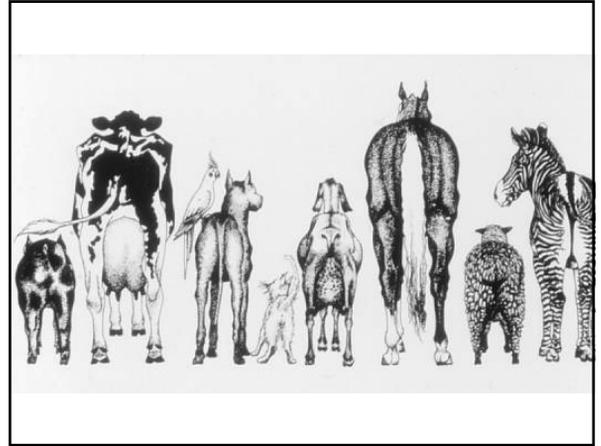
REUTERS
Updated: 9:24 a.m. ET March 15, 2006

BAKU - A dog has died of bird flu in Azerbaijan, a country on the crossroads of Europe and Asia where three people have already died from the virus, officials said on Wednesday.

"A dead stray dog has been found, and after analysis type A bird flu was discovered. The medical investigation is continuing," said a statement from the state commission tasked with fighting the spread of bird flu.

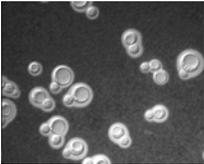
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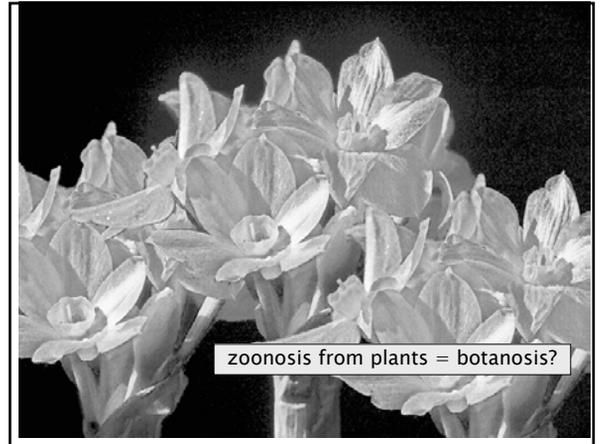
Cryptococcus gattii

- Cluster of human and animal cases, Vancouver island
- New species of *Cryptococcus*
- Immunocompetent individuals affected



Cryptococcus gattii

- From red gum eucalyptus
- Respiratory, skin, and CNS lesions
- >100 human cases



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- | | |
|---------|---|
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... with Marion Yetman, Lauri Streitenberger,
Anne Augustine |
| June 29 | <i>Bloodborne Pathogen Control Across the
Continuum of Care</i>
... with Sue Sebazco |
| July 18 | <i>Infection Surveillance in the UK</i>
... with Dr. Allan Johnson |
| July 27 | <i>Demal Absorption of Alcohol Disinfectants</i>
... with Dr. Axel Kramer |

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in July and August

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