

# The patient has WHAT?

## Zoonotic Diseases:

### The Good, The Bad and The Ugly



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CANADA'S ESSENTIAL DESTINATION FOR POLITICS



MAC

# Toronto Public Health Issues Warning After Puppy Sold At Flea Market Dies From Rabies

BY NEWS STAFF

POSTED JAN 23, 2008 12:00 PM EDT

LIFE

More than 758 people have called so far. At least 60 people have been vaccinated.

# Multistate Outbreaks of *Salmonella* Infections Linked to Contact with Live Poultry in Backyard Flocks, 2018




Language: English (US) ▾

- [Salmonella Infections Linked to Contact with Live Poultry in Backyard Flocks en Español](#)
- [Case Count Maps](#)

Posted June 8, 2018 9:30 AM ET

## Outbreak Advisory

<b>124</b> Cases	<b>36</b> States	<b>21</b> Hospitalizations	<b>0</b> Death
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- CDC and multiple states are investigating several multistate outbreaks of *Salmonella* infections linked to contact with live poultry in backyard flocks.
  - Several different types of *Salmonella* bacteria have made people sick: *Salmonella* Seftenberg, *Salmonella* Montevideo, *Salmonella* Infantis, *Salmonella* Enteritidis, *Salmonella* Indiana, and *Salmonella* Litchfield.
- As of June 1, 2018, 124 people infected with the outbreak strains of *Salmonella* have been reported from 36 states.
  - Illnesses started on dates ranging from February 2, 2018 to May 14, 2018.
  - 21 ill people have been hospitalized, and no deaths have been reported.
  - 31% of ill people are children younger than 5 years.
- Epidemiologic, traceback, and laboratory findings link these outbreaks to contact with live poultry, such as chicks and ducklings, which come from multiple hatcheries.
  - In interviews, 55 (74%) of 74 ill people with information available reported contact with chicks or ducklings in the week before their illness started.
  - People reported obtaining chicks and ducklings from several sources, including feed supply stores, websites, hatcheries, and from relatives.
- Seventy outbreaks of *Salmonella* infections have been linked to contact with backyard flocks [since 2000](#)  [PDF - 887KB]. In 2017, CDC reported the [largest number of illnesses ever recorded](#) linked to backyard flocks.
- People can get sick with [Salmonella infections](#) from touching live poultry or their environment. These birds can be carrying *Salmonella* bacteria but appear healthy and clean and show no signs of illness.



**ALWAYS WASH YOUR HANDS  
AFTER HANDLING LIVE POULTRY**



**CLICK TO VIEW CASE COUNT  
MAPS**

## Tips to Stay Healthy with a Backyard Flock

- Always wash hands thoroughly with soap and water right after touching live poultry.
- Do not let children younger

# How do you like walrus? Well done is best amid outbreak in Alaska

2 outbreaks of trichinosis over last year in western Alaska

Dan Joling · The Associated Press · Posted: Jul 07, 2017 8:30 AM CT | Last Updated: July 7, 2017



Walrus during a hunt in Nunavut. Officials in the U.S. are warning people about the effects of undercooked game meat after two outbreaks of trichinosis over the last year in western Alaska. (Niore Iqalukjuak)

If walrus is in your dinner plans, the Centers for Disease Control and Prevention recommends you make sure it's well done.

The federal health agency warned of the effects of undercooked game meat after two outbreaks of trichinosis over the last year in western Alaska. The outbreaks sickened 10 people and all have fully recovered.

It was the first multiple-case outbreaks of trichinosis associated with walrus, which can only be hunted by Alaska Natives for subsistence or handicraft purposes, since 1992.

# Presentation Outline

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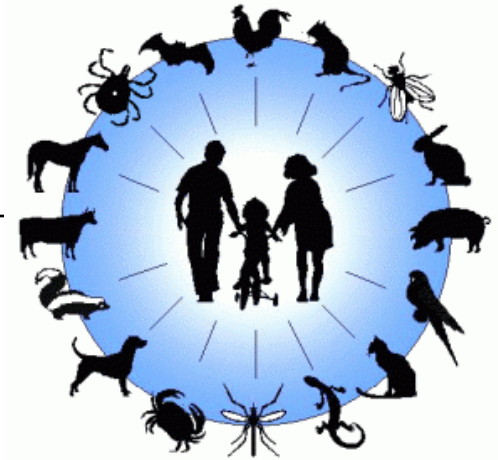
## □ Zoonoses

- Definition
- Background
- Transmission
- Examples
- Prevention

## □ Questions



# Zoonotic Diseases



## □ Zoonoses

➤ Zoo = Animal

➤ Noses = Illness or Pathology

□ **Definition: Infectious agents or diseases that can be transmitted directly or indirectly from animals to humans**

**Animal**



**Human**

# Zoonotic Diseases

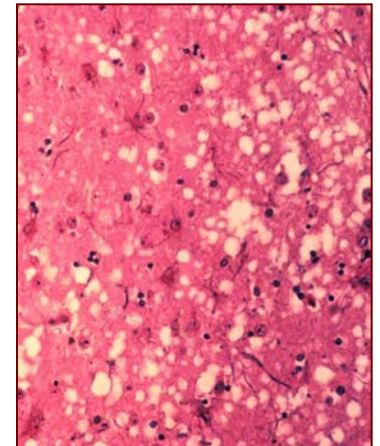
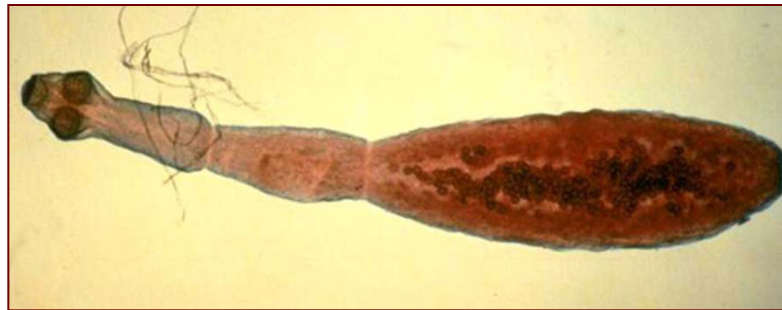
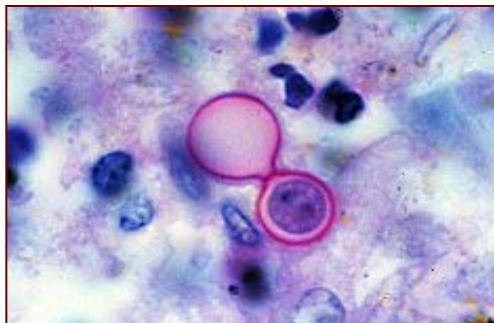
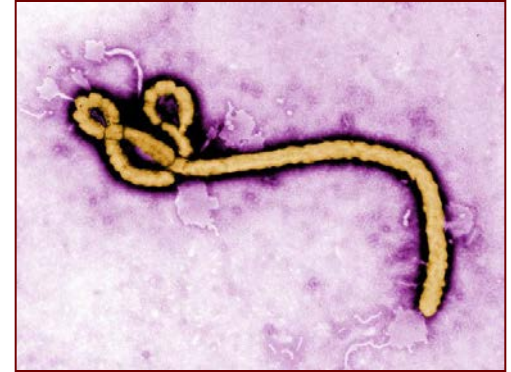
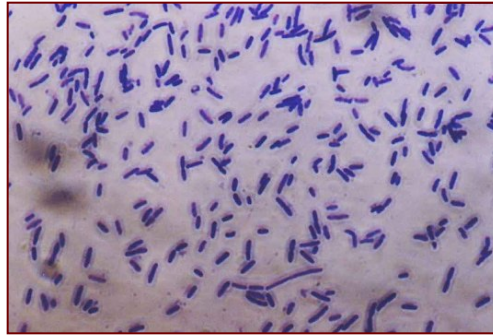
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- ❑ **Approximately 60% of human pathogens are zoonotic** (Taylor et al., 2001)
- ❑ **Approximately 75% of emerging human pathogens are zoonotic** (Taylor et al., 2001)



# Types of Zoonotic Pathogens

- Bacteria
- Viruses
- Fungi
- Parasites
- Prions





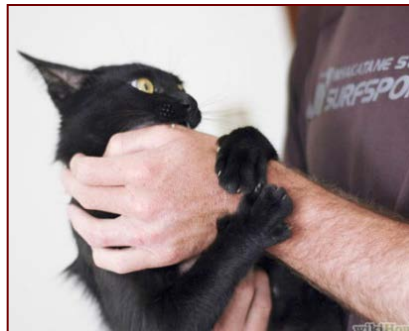
# Some Emerging Zoonotic Diseases

Date	Infection
1982	<i>E. coli</i> O157:H7; <i>Borrelia burgdorferi</i>
1992	<b>EBOLA &amp; ZIKA</b>
1994	
1996	
1997	
1998	
2003	Monkey pox; SARS
2009	Influenza H1N1
2012	MERS

# Transmission of Zoonoses

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- ❑ **Direct contact with animals or animal excretions**
  - **Contact, aerosol, ingestion**



# Direct Contact

- ❑ Share our homes
- ❑ Visitation animals
- ❑ Petting zoos
- ❑ Occupational exposure
- ❑ At risk individuals/populations



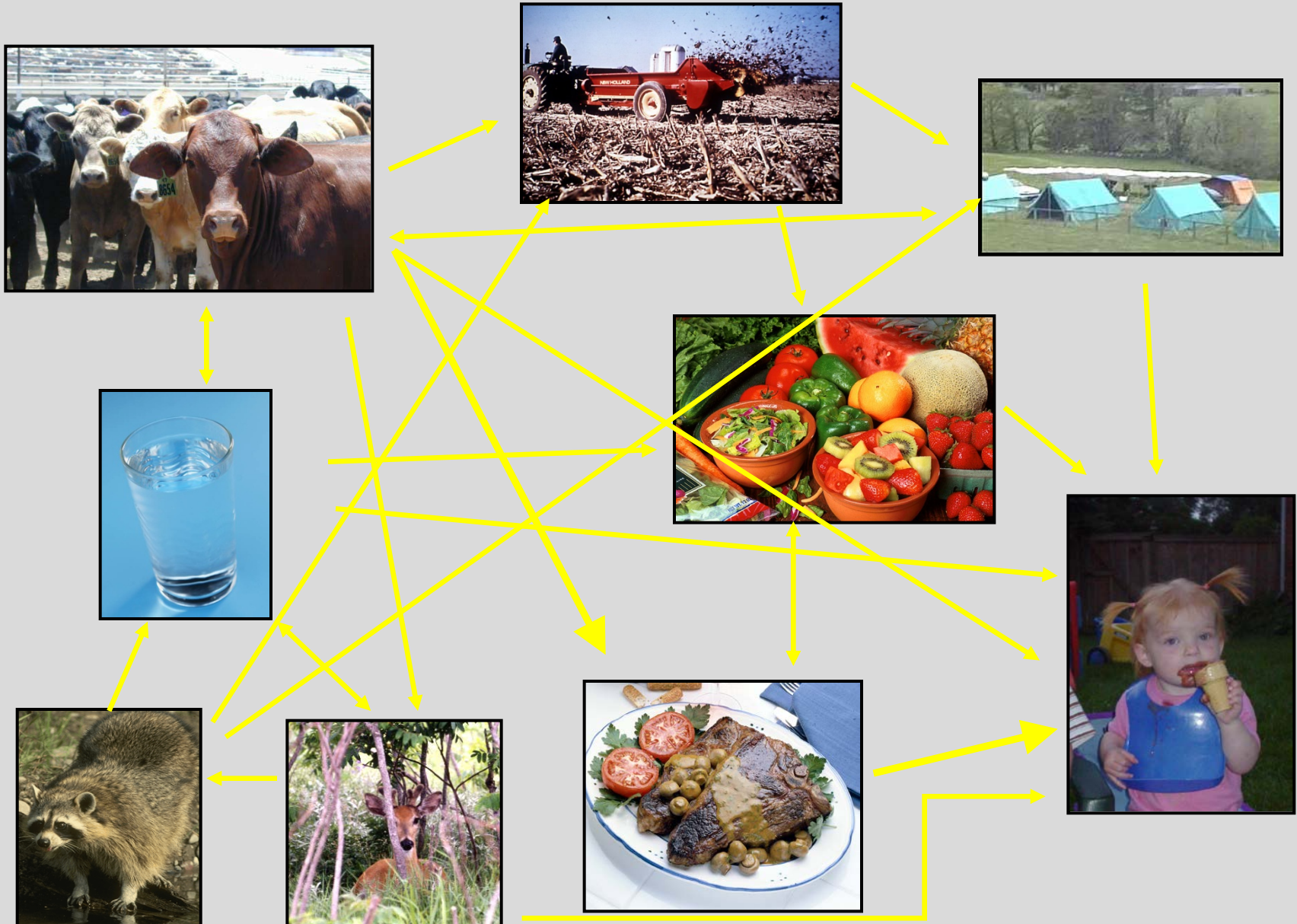
# Transmission of Zoonoses

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- ❑ **Direct contact with animals or animal excretions**
  - **Contact, aerosol, ingestion**
- ❑ **Indirect contact**
  - **Vector borne, fomites, food, water, environment**



# Foodborne, Waterborne, Environmental Transmission Routes



# FUN ANIMAL FACT #1



**Smudge as a kitten**



**Smudge all grown up**

**Smudge is deaf = 65-85% cats blue eyes + white fur  
Congenital deafness = degeneration of inner ear**

# Zoonotic Diseases: Dogs & Cats

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- Rabies
- Salmonella*
- Campylobacter*
- Toxoplasmosis
- Scabies
- Cryptosporidium
- Roundworms
- Leptospirosis
- Ringworm
- Tularemia
- Pasteurella multocida*
- Cat scratch fever



# Zoonotic Diseases: Farm Animals

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Rabies, Anthrax, Brucellosis, TB (bovis), BSE, Leptospirosis, *E. coli* 0157, Listeriosis, Ringworm, *Strep suis*, Trichinellosis, Influenza, Menangle virus/Nepah virus, Erysipelas, Orf, Q-fever, Psittacosis, Western Equine Encephalitis, Eastern Equine Encephalitis, Venezuelan Equine Encephalitis, St. Louis Encephalitis, West Nile Virus, Hendra Virus, Salmonellosis, Glanders, MRSA, *Campylobacter jejuni*





# Zoonotic Diseases: Wild Animals

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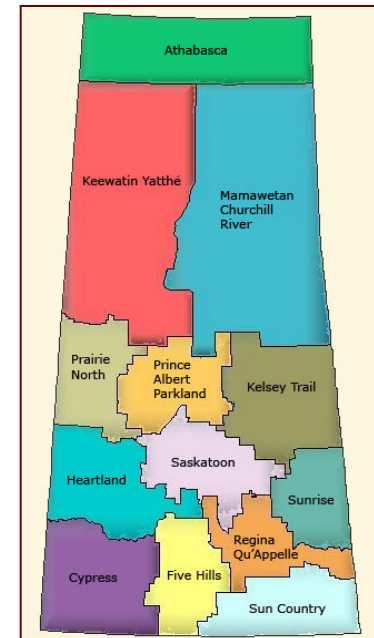
- Rabies
- Baylisascaris procyonis*
- Hantavirus
- Trichinosis
- Tularemia
- Plague
- Leptospirosis
- Salmonellosis
- Lyme Disease



# Noteworthy Zoonotic Diseases: Saskatchewan

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- ❑ Anthrax
- ❑ West Nile
- ❑ *Cryptosporidium parvum* (North Battleford)
- ❑ Northern Saskatchewan
  - *Toxocara canis*
  - *Echinococcus*
- ❑ *Yersinia pestis* (plague)
- ❑ Hantavirus
- ❑ Rabies



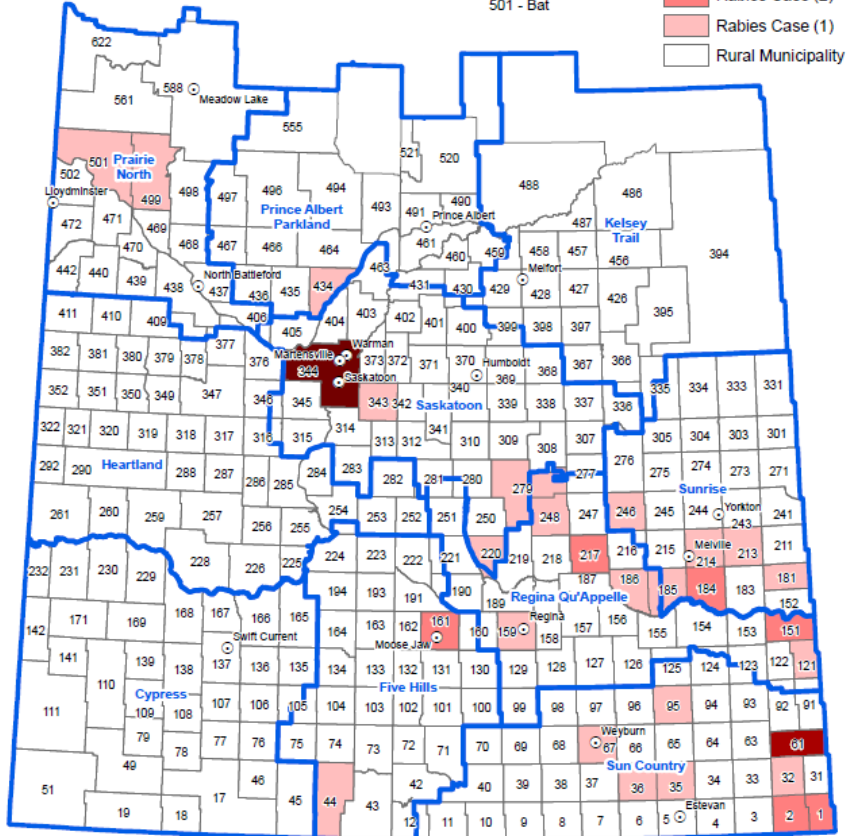
## Saskatchewan Rabies Cases

2016

### RM ANIMAL (# Cases, where multiple)

1 - Skunk, Horse	67 - Bat	184 - Skunk (2)	246 - Skunk
2 - Skunk (2)	95 - Cat	185 - Skunk	248 - Skunk
32 - Goat	121 - Skunk	186 - Skunk	279 - Cow
35 - Skunk	151 - Skunk, Sheep	213 - Skunk	343 - Skunk
36 - Skunk	159 - Bat	214 - Skunk	344 - Bat (7)
44 - Bat	161 - Bat (2)	217 - Skunk, Dog	434 - Bat
61 - Skunk (2), Cat	181 - Skunk	220 - Skunk	499 - Skunk
			501 - Bat

- City
- ▭ Health Region
- ▭ Rabies Case (7)
- ▭ Rabies Case (3)
- ▭ Rabies Case (2)
- ▭ Rabies Case (1)
- ▭ Rural Municipality



Data Source: Rabies Case Locations - Livestock Branch

Geomatics Services, Ministry of Agriculture January 3, 2017

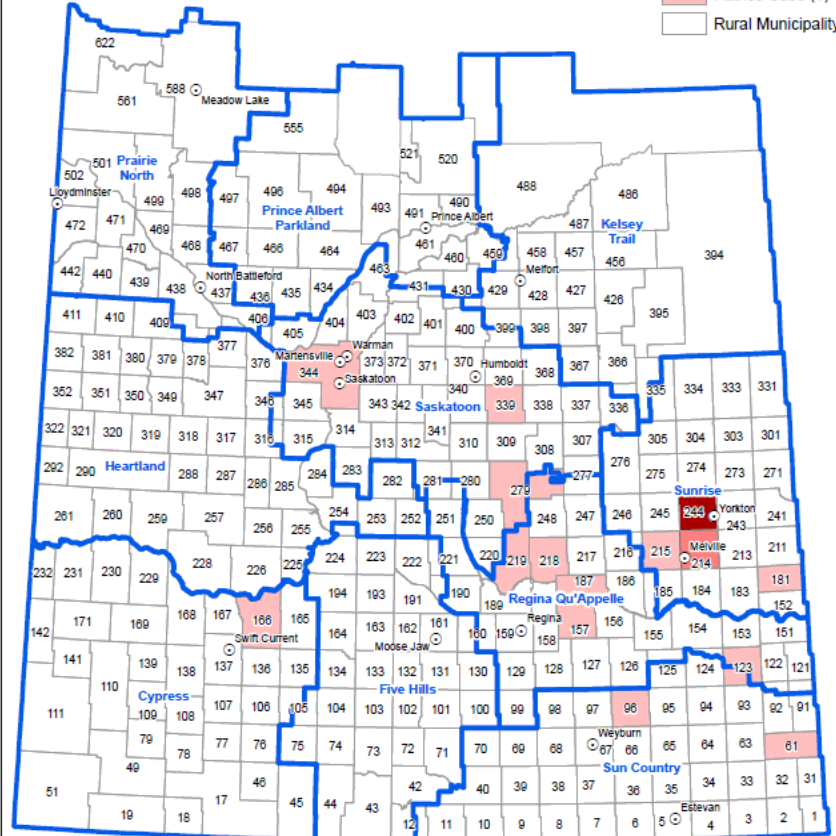
## Saskatchewan Rabies Cases

2017

### RM ANIMAL (# Cases, where multiple)

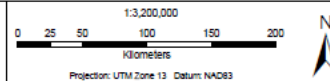
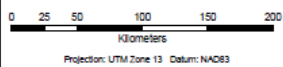
61 - Skunk	187 - Bat	279 - Skunk
96 - Skunk	214 - Skunk (2)	339 - Skunk
123 - Bovine	215 - Skunk	344 - Bat
157 - Skunk	218 - Skunk	
166 - Bat	219 - Skunk	
181 - Skunk	244 - Skunk (2), Dog	

- City
- ▭ Health Region
- ▭ Rabies Case (3)
- ▭ Rabies Case (2)
- ▭ Rabies Case (1)
- ▭ Rural Municipality



Data Source: Rabies Case Locations - Livestock Branch

Geomatics Services, Ministry of Agriculture January 3, 2018



# **FUN ANIMAL FACT #2**



**Pastoral Symphony - Beethoven**

**Bridge Over Troubled Water - Simon & Garfunkel**

**Everybody Hurts - REM**

# Case #1

(Van den Eden et al., Emerg Infect Dis, 2006;12:523-525)

- ❑ 31 year-old, healthy, female, Belgian
- ❑ Traveled with friends to Botswana, Namibia, and South Africa
- ❑ Early Jan/15, friend cleaned
- ❑ Blisters, black necrotic tissue on finger, hand, arm, tendon in finger
- ❑ enlarged lymph nodes, destroyed
- ❑ Anthrax suspected
- ❑ Legs dead antelope and sat on hippo carcass



# Case #2

(Hajek et al., Can J Infect Dis Med Microbiol 2009; 20:177-180)

- ❑ Previous healthy 7 y.o. boy, autism, presents Toronto hospital with:



- ❑ Dx: Raccoon Roundworm Meningoencephalitis

# Case #3

(Canada Communicable Disease Report 2000;26-06)

- **August 1999, Alberta, increase in *Salmonella Infantis* cases in humans**
  - **8/12 *S. Infantis* cases dog owners**
  - **9/12 cases exposure pig ears**
  - **5/27 dogs owned by cases ill**
  - **Molecular typing indicated same strain**
  - **Handling pig ears?**
  - **Shedding of organism in home from dogs?**



# Case #4

(The Guardian <https://www.theguardian.com/lifeandstyle/2014/jan/31>)

□ June 20  
remove  
choking

- Bitter
- Day a
- fever
- Few

lungs  
swelling and turning black



Plague

to  
who was  
d buried  
cratch  
lapsed  
hands



# Case #5

(Srinivasan et al., NEJM 2005;352:1103-1111)

- ❑ **Hospital in Texas, May 2004**
- ❑ **4 recipients of kidneys, liver, arterial segment from common organ donor died of encephalitis of unknown cause**
  - **Inflammation of the brain – headache, fever, seizures, muscle weakness**
- ❑ **Organ donor and recipient diagnosis: Rabies**
- ❑ **Organ donor bitten by bat**



# FUN VET FACT #3



**Giant Kidney Worm**

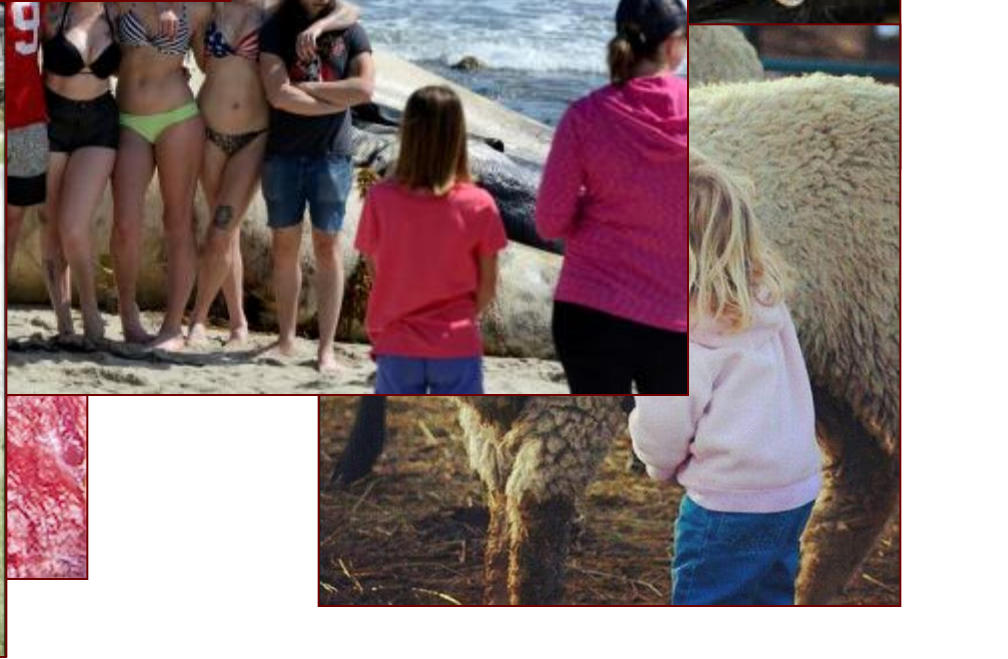


# Zoonotic Diseases Prevention

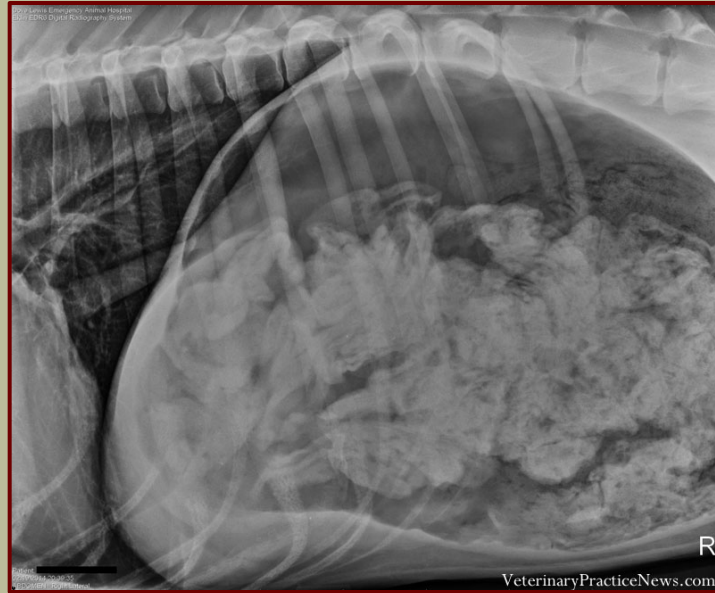
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- Zoonoses exist in your locale (& those not zoonotic)
- Know routes of transmission
- At risk populations (young, old, immunocompromised)
- Animals: vaccination & deworming
- Humans: vaccination (especially travel)
- Safe food preparation
- Safe drinking water
- Insect repellent, appropriate clothing
- Wash hands
- COMMON SENSE**





# Thank You – Questions?



**3 year old Great Dane repeatedly vomiting all day. In total: 43.5 socks removed from his stomach.**

