

*2014 Update of the odd
Zoonotic Diseases on
Navajo*

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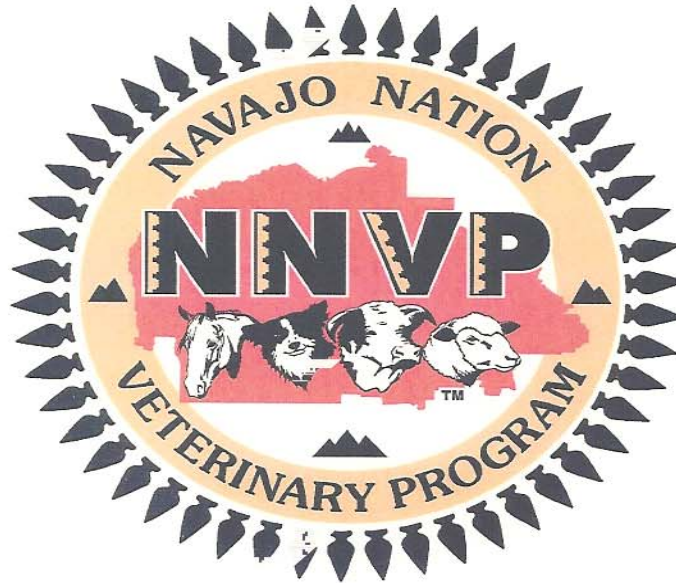
Navajo Nation Veterinary Program

Navajo Nation Dept. of Agriculture

Navajo Nation

OR THE ANSWERS ARE:

- “Flu like symptoms”
- And
- “tetracycline”.... Ok.... Doxycycline!



MISSION STATEMENT

The Mission of the Navajo Nation Veterinary & Livestock Program is to provide reasonable cost, comprehensive veterinary services for the protection of animal health, to alleviate animal suffering, to conserve livestock resources, to promote public health and the advancement of medical knowledge.

What you need to know.....

- Last terrestrial case on Navajo 1949
- Closest Endemic areas are in Eastern NM, Southwestern AZ
 - Skunks – New Mexico and Southern Arizona
 - Gray Fox – Central Arizona
- Bats- 9/26/13, Sawmill, AZ
- Bat to Skunk & Fox. Flagstaff 2000.....

Management Protocol:

- Wound care critical
- Animal quarantine before any Rabies treatment (Dog/Cat)
 - 100% die within 10 days of signs IF POSITIVE
- Rabies Antibody – Day 0
- Human Vaccinations - Day 0, Day 3, Day 7, Day 14
- Unless bat bite – start immediately.

Plague

- Don't ever blame the p. dogs!
- Continuing to move east and north
- Entered via San Francisco from China.
- Currently hot zone is NM
- A genetic disease resistance.....700 years old.....

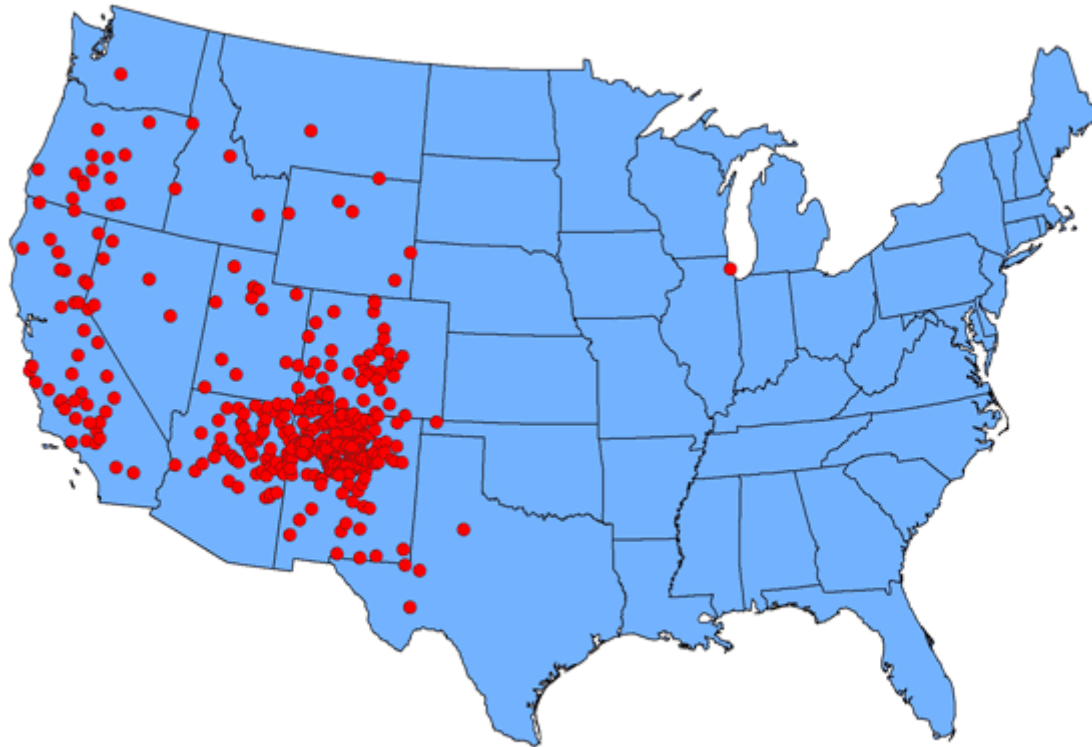
Three Forms

- **Bubonic plague:** enlarged, tender lymph nodes, fever, chills and prostration
- **Septicemic plague:** fever, chills, prostration, abdominal pain, shock and bleeding into skin and other organs
- **Pneumonic plague:** fever, chills, cough and difficulty breathing; rapid shock and death if not treated early

THE BUBONIC



Reported cases of human plague--United States, 1970-2012



1 dot placed in county of exposure for each plague case

Plague on Navajo

- Ft. Defiance 2009, 2010, 2012
- Window Rock 2008
- Ganado 2003
- Blood samples collected

- Dog Titer 19,800 : 1
- Treated with Oxytetracycline
- Recovered fine.

- P Dog Vaccine trial- slated for this year.
 - Ganado and NAPI areas, and 5 other US sites.

Plague Surveillance

- Watch the Prairie dogs
- Pet exposures- Usually CATS



Treat me Next!



Fly Larva infections “Myiasis”

- Can happen to any species
- Humans usually secondary
 - Rodent / rabbit hunting
- Occasional untreated wound infections
- Some types used for septic wound debridement.
- Two primary types: Blowfly & Botfly
- Screw worm in S. America.

Blowfly Larva

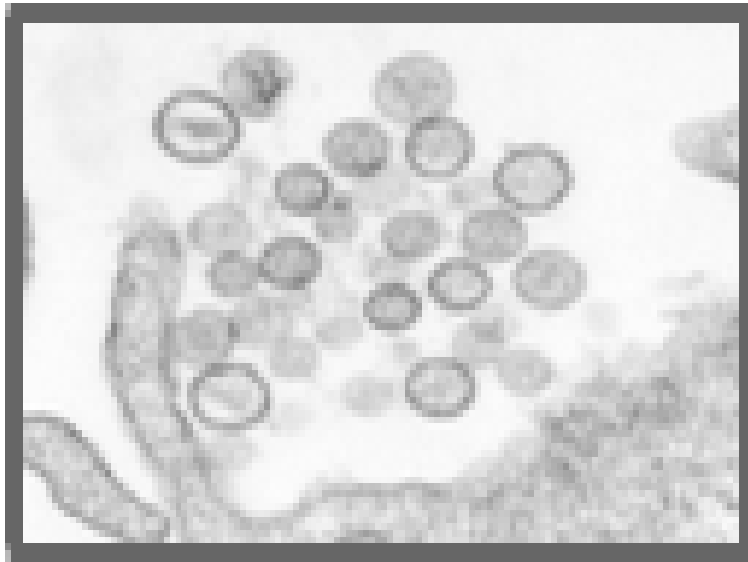


Botfly Larva

 University of Nebraska
Department of Entomology



Hanta Virus



East VS West

- Old World.
- Generally kidney – hemorrhagic
- First big outbreak- Korean War

- New World
- Respiratory HVPS
- Largely unknown until the 1990

- May have been historical Navajo “outbreaks” – oral reports that fit syndrome.

- Arena Virus are EXTENSIVE in N & S America ~22 types identified so far, all rodent assoc.

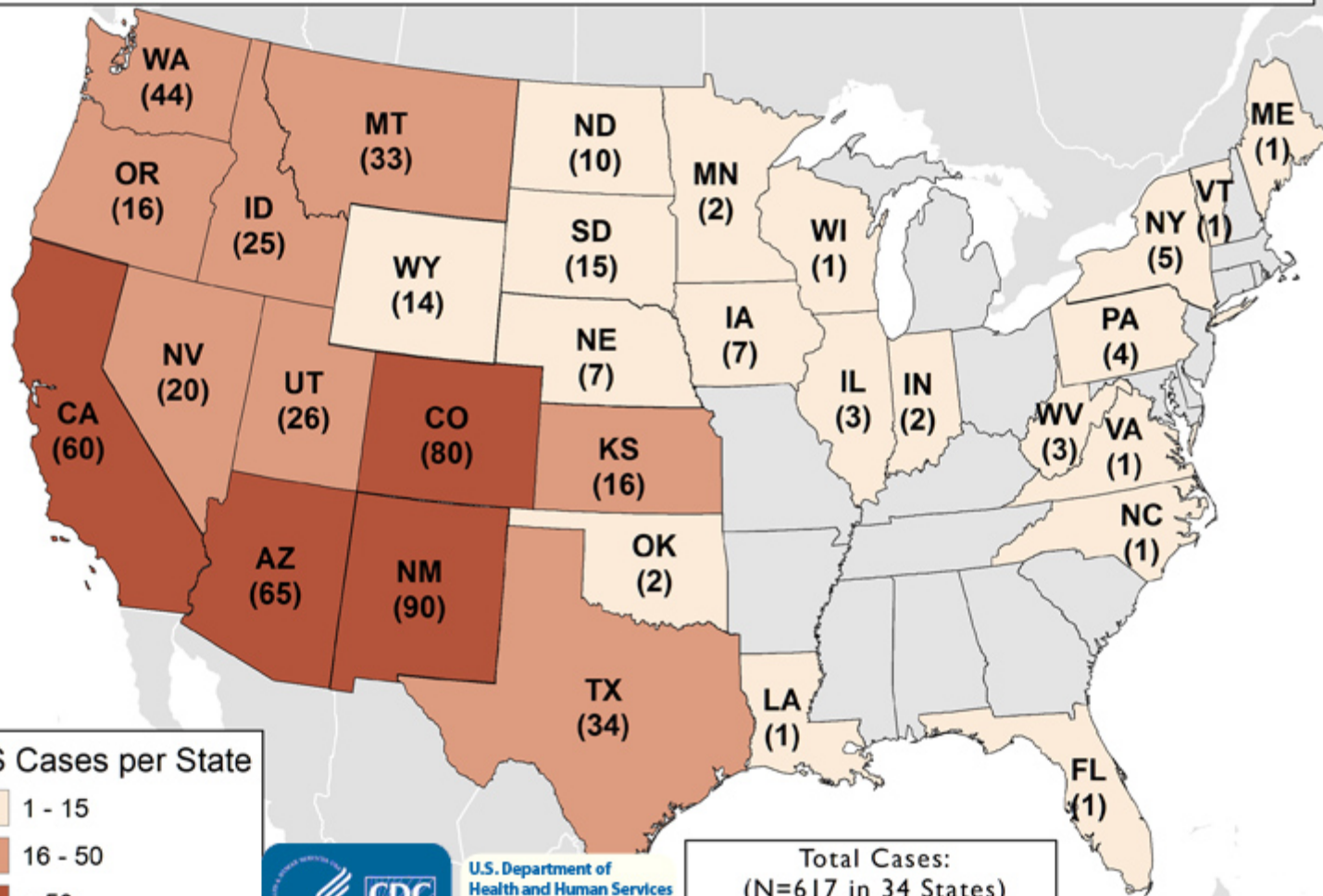
WEST and EAST



Hanta – Polygamy VS Monogamy!



Hantavirus Pulmonary Syndrome (HPS) Cases, by State of Exposure



HPS Cases per State

- 1 - 15
- 16 - 50
- > 50
- Zero Cases



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

Source: Viral Special Pathogens Branch, CDC

Total Cases:
(N=617 in 34 States)
27 Cases With an Unknown State of Exposure. Cumulative Case Count Per State Valid as of February 28, 2013.

Sanitation, sanitation, sanitation.....

- This infects humans by the fecal – respiratory route....
- So how do we prevent this.....
 - SANITATION.....(Bleach it 'til it GLOWS!!!)
 - Exclusion



Onchocerca

- Parasitic worm family
- *Cervicalis* (horse, cattle), *Cervipedis* (deer, elk)

- *Oncocerca lupi*
- Mediterranean area- Greece, Turkey, Iran
- Human case in Lukachukai

- All affect Humans

- Confused with and more common:
 - Visceral and Cutaneous Larval Migrans
 - (Toxocara canis and Ancylostoma spp.)

Dog Onchocerca



Human Symptoms

- Takes 6-12 months to develop
- Microfilaria spread by large biting insects (horse or deer flies)
- Usually skin lesions.

- Dx- Skin Biopsy
- Dx: DNA or adult female morphology

- Rx: Ivomec

Human and Animal Cases





A real WORKING Dog
breed

Bed Bug associated MRSA?

We do have Bed bugs on Navajo.....



Chaga's Disease

(*Trypanosoma cruzi*)

“Kissing” or “Assassin” Bug

Heart Disease

Report of high titers in SW wildlife

Competent Vector?

- Yes- in Central – South America
- Unknown in North America
- Navajo- *Triatoma navajoi*??

Rocky Mt Spotted Fever

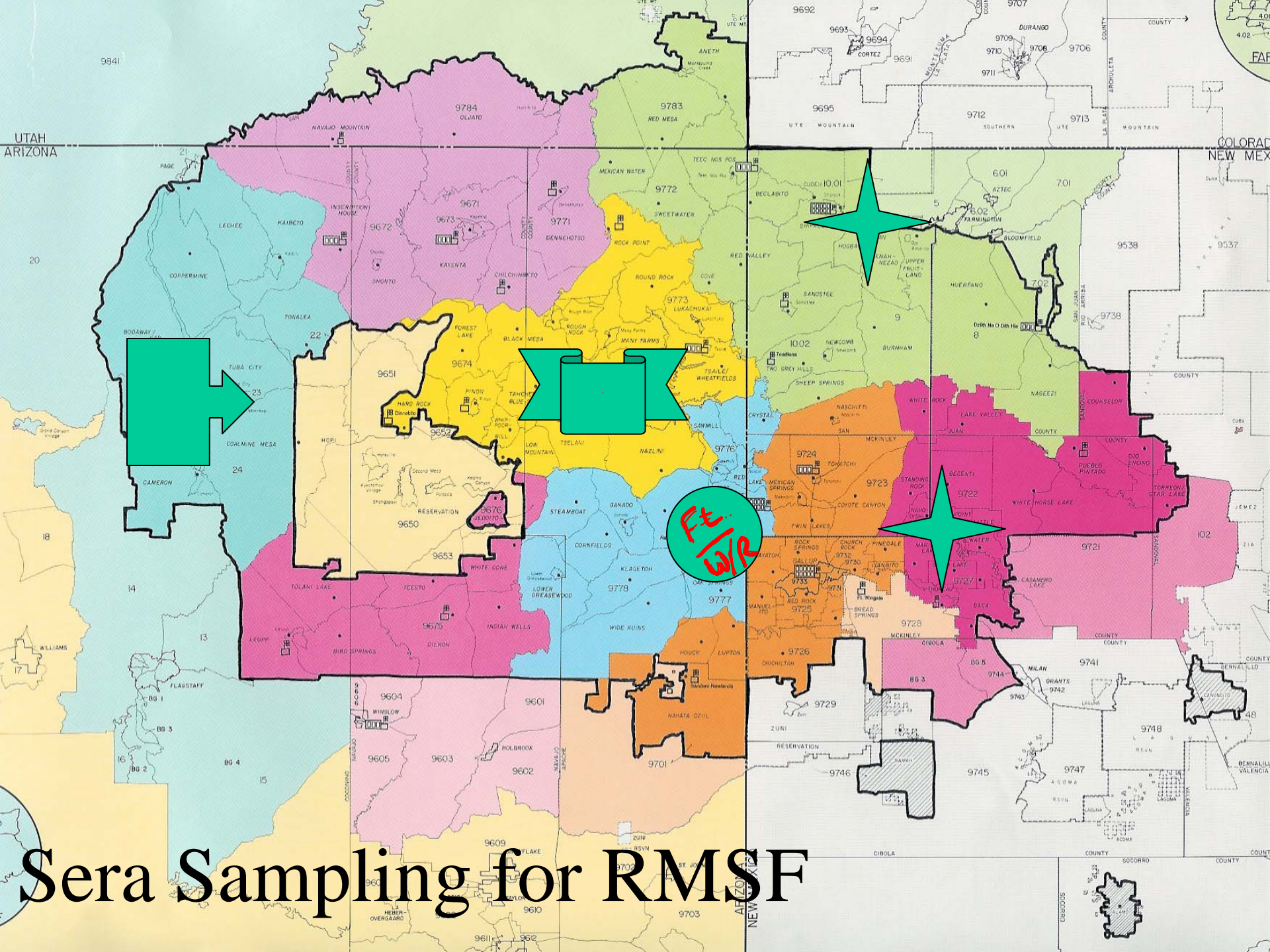
- Continues to be an issue on White Mountain, San Carlos, Tohono O'odham, Salt River
- Ticks moved on DOGS move RMSF
- Known as “black measles”
- Most deaths in children
- “malaise and fever” (commercial lab test questionable) and petechial rash.

- Navajo: Three FALSE positives so far this 2012-
 - MUST have increase in titer over two weeks to be a confirmed positive

- Rx: tetracycline, Doxycycline

Background issues....

- Brown Dog tick involved
 - Tick control important
 - Dogs on east Navajo have higher titers in survey 2006
 - CDC repeated Study 2012
 - SAME FINDINGS!!!!
-
- \$1,000,000 QUESTION!
 - Why do we have high background titers to RMSF in our folks.....
 - A nature “VACCINATION”?????
 - 5 OF 10 positive in Farmington area. (Q fever investigation)



Sera Sampling for RMSF



Bartonella spp

- “New Disease”???
- “Cat scratch fever” in this class.
- 30 new Bartonella species
- One human case in NC of sheep associated
 - Endocarditis
- Present in some Navajo sheep
- Found in Sheep Keds....
 - (But not known to bite humans)
- Still an unknown.....

Q FEVER

First Human positive in several years (2011)
Generally sheep and goat associated
Abortions of small ruminants
Originally slaughter house disease
Likely local human cases
Single titer doesn't "prove"

**ANY PERSON POSITIVE MUST HAVE A
2nd TITER TO BE CALLED POSITIVE**

Goat outbreak in Farmington area
-10 people tested, all negative.
(5 positive for RMSF!!!)

"Watch for Animals; Next 140 miles" US160, Navajo Nation



“Tulie”- Tularemia

- Rabbit skinner's disease
- Insect spread
- Human- open wound or scratch
- Eating undercooked rabbit or rodent species.
- Rez has “hot spots”
 - Last cases 2009 in White Cone area..
 - Road kill rabbit for dinner = 2 human cases

Triconella spiralis- 8 species identified

- Pig to human (undercooked pork)
- Bears to Humans (undercooked meat)
- Pig species killed by freezing
- Bear (silvatic) species is NOT killed by freezing
- 100% of dogs in Shiprock & Chinle infected.

Brucella canis

- First confirmed case on Navajo 4/2011
- Second 2013
- Both dogs from central Navajo
- Zoonotic- ~ 60 human conf. cases
- 4% background antibodies (human)
- Fever, malaise, Heart
- Significance??????

Leptospirosis- 5 serovars

- Human bloody diarrhea
- Kidney infections- urine contamination.
- Dx: Silver stain on urine
- Water associated
 - So around the San Juan???
- Outbreak in Cottonwood, AZ in 2010
- Southern New Mexico Cattle abortions 2013
- Sero survey on Navajo 116 dogs....
 - NO POSITIVES
 - (so may not be an issue???)



I was blind....

Not because I could not see,
But because I wasn't looking.

(SCB.DVM)



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