RABIES UPDATE, VACCINATIONS AND VACCINE TITERS

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GOALS

Rabies *****

AAHA Vaccination Recommendations Guidelines

Canine vaccinations

- Distemper, Adenovirus, Parvovirus, Parainfluenza****
- Bordetella
- Leptospirosis
- Lymes (*Borrelia burgdorferi*)
- Canine Influenza virus (H3N8 and H3N2)

Feline Vaccinations

- FVRCP (Feline Rhinotracheitis, Calici virus and Panleukopenia)
- Feline Leukemia

Avian Vaccination

Ferret Vaccinations

GOALS

Vaccination Titers

- Distemper, Adenovirus, Parvo virus, Rabies, Feline RCP

Individual Risk

WHAT IS RABIES?

Viral disease of mammals that affects the Central Nervous System

Described as early as 23rd century B.C.

Endemic on all continents other than Antarctica

Most common in rural areas in Africa and Asia

Most common in children 5-14 years of age

59,000 deaths annually, 2-3 deaths in the U.S annually

Highest mortality rate of any disease on Earth (99.9% fatal)

HOW DO I GET RABIES

Virus is transmitted through contact with brain and nervous system tissue and saliva

Contact of mucosal surface (eye, mucous membranes) with saliva or brain tissue

Petting, handling, contact with blood, urine or feces does not constitute exposure

People at highest risk are in rural areas, and professions such as laboratory, animal control, veterinarian, veterinary staff, wildlife rangers, any profession that works closely with wildlife

WHAT ANIMALS TRANSMIT THE RABIES VIRUS?

Local wildlife; foxes, coyotes, bats, raccoons, skunks

Reservoir in NC are bats and raccoons

Domesticated and feral dogs and cats can become infected with Rabies

Bites from rodents are not known to transmit rabies

Dogs most common, bats most fatal

RABIES VIRUS

Rabies Facts in Mammals

Incubation period 10 days-1 yr

Dogs 10 days-4 months

Onset of signs

- Site of bite
- Severity of bite
- Amount of virus injected into site

RABIES VIRUS

Furious Rabies

Aggressive/excitement

Pica

Seizures

Dumb Rabies

More common in dogs

Progressive weakness and paralysis

Cannot swallow

Coma, death

WHAT DO I DO IF I OR MY PET HAS BEEN BITTEN BY AN ANIMAL

Human exposure

Thoroughly wash the wound

Call your health care professional, Public Health Department, Animal control

If the animal is wildlife then have animal control try to trap it for testing

Post-exposure prophylaxis

Immunoglobulin, four vaccinations within 14 days.

Dog and Cat exposure

Call your veterinarian

Call Public Health Department in your county

If the animal is wildlife then have animal control try to trap it for testing

MECKLENBURG COUNTY PUBLIC HEALTH UPDATE ON RABIES

As of 10/1/2017, regarding management of dogs, cats and ferrets exposed to Rabies

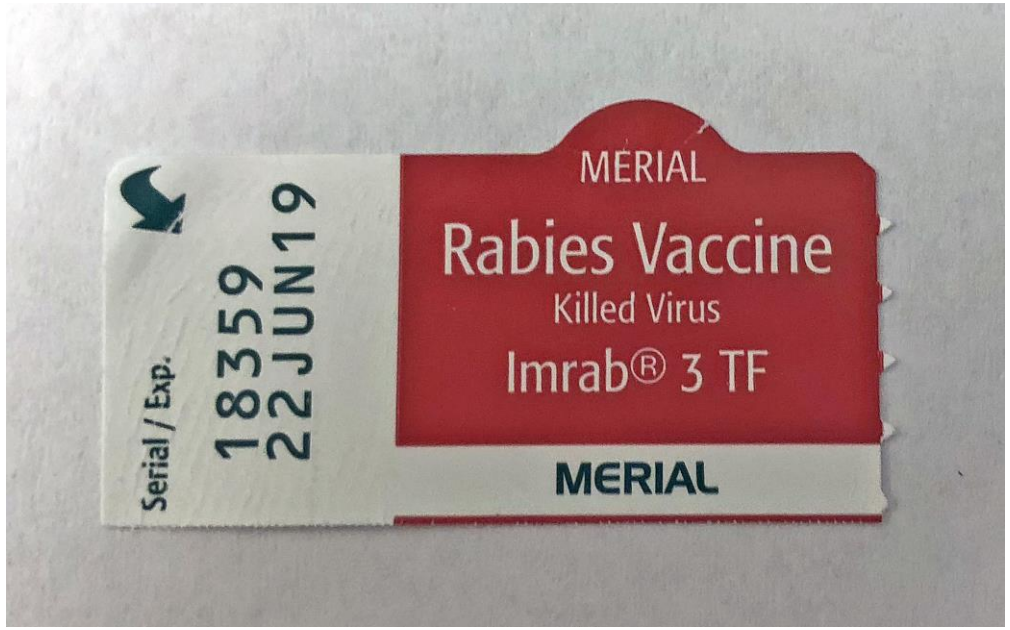
If current, will be released to owner for observation/quarantine up to 45 days

If not current, will be in quarantine with Animal Control for 10-45 days

Rabies vaccination administered immediately and no later than 96 hours post exposure-may reduce quarantine time and risk

Dogs and cats-no current vaccination but has been vaccinated in the past can reduce quarantine and possible euthanasia

CANINE RABIES VACCINATION



Killed Virus Vaccination labeled for 1 and 3 year interval

Administered SQ

Only vaccination required by law in NC

Veterinarians in MC are required to submit copy of Rabies vaccination certificates to Animal Care and Control for their database

Innoculation at 12-16 weeks of age.

Booster at 1 yr of age and at 3 year intervals

FELINE RABIES VACCINATION

Feline Rabies Vaccination

Live Canarypox Vector

1 year

3 year

- Triple the antigen load
- Longer duration of immunity
- Less vaccination, less risk for vaccine associated neoplasia
- Less stimulation for the immune system over time
- $$$

CANINE VACCINATIONS

Distemper (core)

Parvo (core)

Adenovirus (CAV-2) (core)

Parainfluenza (core)

Bordetella bronchispetica (non core)

Leptospirosis (non-core)

Canine Influenza (non-core)

Lymes (non-core)

DISTEMPER, PARVO, ADENOVIRUS, AND PARAINFLUENZA IN DOGS

Distemper Virus-affects respiratory, GI, CNS, conjunctival membranes of the eye

Direct contact

Lethargy, sneezing, coughing, fever, vomiting, diarrhea

Parvo Virus-highly contagious virus, attacks rapidly dividing cells (GIT, WBC), cardiac muscle tissue

Highly resistant virus, in environment for months-year

Lethargy, severe vomiting, diarrhea, febrile, dehydration

Direct contact by any person, animal or object that comes in contact with infected feces

DISTEMPER, PARVO, ADENOVIRUS, AND PARAINFLUENZA IN DOGS

Canine Adenovirus (CAV-1 and CAV-2)

CAV-1 Infectious Canine Hepatitis

- Can mimic signs of Parvo virus infection
- Acute liver disease
- Transmitted through urine, feces, blood, saliva

Canine Adenovirus-2

- Common cause of upper respiratory infections
- Cross protection occurs for CAV-1 when receiving a vaccine for CAV-2
- Transmitted through direct contact with saliva, respiratory secretions

DISTEMPER, PARVO, ADENOVIRUS AND PARAINFLUENZA VIRUS IN DOGS

- Canine Parainfluenza Virus
- Highly contagious upper respiratory virus
- Mild to moderate upper respiratory signs (sneezing, nasal discharge, cough, febrile, lethargy)
- When combined with other infectious agents can contribute to upper respiratory infection

DISTEMPER, PARVO, CAV-2 AND PARAINFLUENZA VACCINATION

MLV or recombinant vaccination

Administered SQ

Not recommended prior to 8 weeks of age

Protocols vary:

Breeders start as young as 4 weeks and give every 2-4 weeks

Standard protocol: start at 9 weeks and booster every 3-4 weeks with final after 16 weeks of age

Booster at 1 year of age, then every 3 years

BORDETELLA BRONCHISEPTICA

Highly contagious bacterial upper respiratory infection

Transmitted through upper respiratory secretions (saliva, nasal discharge)

This is the cause of “kennel cough” in dogs

Upper respiratory infection does not equal “kennel cough”

Single antigen (bacterin) vaccination

Given orally, intra-nasal or SQ

Vaccination protocols are based on patient risk and environment

May be required by boarding facilities- is required here at Atrium

Are effective 48-72 hours after administration (oral and intra-nasal only)

LEPTOSPIROSIS

Disease caused by infection with Leptospirosis bacteria

Found worldwide in soil and water

Many strains

Zoonotic

Humans, dogs, cattle, pigs, horses, rodents

Flu like signs that may lead to liver and/or kidney damage

Common in warmer climates with high annual rainfall

Transmitted via MM or broken skin contact with infected urine, or urine contaminated food, bedding, soil, water

Variable signs from mild and self limiting to severe

5-14 day incubation period

Intermittently shed in urine for months to years

LEPTOSPIROSIS

Diagnosis can be difficult to confirm

Blood testing can be done serially to check for antigen or antibody levels

Treatment is supportive with antibiotics and supportive care as needed

Vaccination for at risk dogs is up for debate

No cross reactivity

Risk of allergic reaction to bacterin vaccination

Innoculation followed by a booster 2-4 weeks later, then annual

LYMES DISEASE

Caused by a bacteria *Borrelia burgdorferi*

Transmitted through the bite of *Ixodes scapularis* (black-legged tick/deer tick)

Must be attached for 36-48 hours to transmit disease

LYMES DISEASE

Flu like clinical signs

Lethargy, fever, shifting leg lameness and painful. Swollen joints, kidney damage

20-30% of infections will result in a “bull’s eye” rash

Concentric circles around a center point, about 2 inches in diameter

Many are round red rash patches and not the bull’s eye appearance

LYMES DISEASE

Signs can be seen anywhere from 3-30 + days after the bite

Diagnose with in house 4Dx test

U/A, UPC, C6

C6 can be repeated if patient begins to show clinical signs

IXODES SCAPULARIS

Ticks come in three sizes

Larvae (grain of sand)

Nymph (poppy seed)

Adults (apple seed)

New England states most common

Virginia new spot (close to NC)

Tick is expanding into southern, western U.S and Canada

More resilient to cold temperatures

Cases reported in Florida, Mexico

Reported cases(humans) increased 80% between 2004-2016

Vector-borne, not zoonotic

LYMES VACCINATION IN DOGS

Efficacy is up for debate

In endemic areas seroprevalance in dogs can be up to 90%

Small percentage of dogs will develop clinical signs of arthritis or Lymes nephritis (2%-5%) depending on the study

Lymes bacterin not developed for humans since various antigens seem to play a role in post-Lyme immune mediated disease

Innoculation followed by a booster 2-4 weeks later then annual

CONCLUSION FOR LYMES

Tick Prevention is best defense

For dogs at high risk pros and cons of vaccination can be discussed

Infected dogs may not develop clinical signs of disease

CANINE INFLUENZA VIRUS

Two Canine Strains

H3N8

- Florida 2004
- In all U.S. states

H3N2

- 2015 in Chicago
- South Korea, China and Thailand

Can Canine Influenza Virus Infect Cats?

Clinical Signs

- Highly Contagious
- Incubation period/no clinical signs
- Respiratory secretions

- Lethargy
- Fever
- Nasal discharge
- Cough
- Pneumonia
- Complications related to pneumonia

CANINE INFLUENZA VACCINATION

Bivalent vaccine most common

Innoculation followed by a booster 2-4 weeks later

Annual vaccination for at risk

Shelter

Boarding

Traveling

- Agility
- Show

FELINE VACCINATIONS

FVRCP

- Feline Rhinotracheitis
- Feline Calicivirus
- Feline Panleukopenia Virus
  - Feline Parvo Virus
  - Rapidly Dividing Cells

Sneezing, Congestion, Chronic Ocular signs (blepharospasm, conjunctival discharge)

Direct transmission (secretions)

Fever, lethargy, anemia, diarrhea

Feline Leukemia Virus (FelV)

- Direct Transmission
- Blood, saliva
- Lethargy, fever, anemia, chronic infection, cancer

Outdoor Cats most at risk

FELINE VACCINATIONS

FVRCP Vaccination	Feline Leukemia Vaccination
Modified Live Vaccination	Modified Live Vaccination
8 weeks, 12 weeks, 16 weeks	12 weeks, 16 weeks
1 yr	Annually
Every 3 years	

FERRETS AND BIRDS

Ferrets are required to be vaccinated against Rabies

Annually

Polyoma vaccination recommended for birds < 2 years of age

Affects young birds

Can cause benign feather lesions or acute death

Virus spread through feather dust, droppings, eggs

Treatment is supportive care

TITERS

A titer is a way to measure antibody levels in the blood against a specific disease

Titer number is expressed as a ratio

If the titer number is high the patient potentially has enough antibodies to fight off a specific disease

Debate whether a high antibody titer is true proof of immunity

Cost

Rabies Virus

Distemper, Adenovirus, Parvovirus

Rhinotracheitis, Calicivirus, Panleukopenia Virus

RABIES TITER

North Carolina does not recognize an adequate titer as proof of immunity.

Atrium Animal Hospital does recognize an adequate titer

May retest every 3-5 years depending on results

TITERS

Distemper, Adenovirus, Parvovirus

Titers can be done at 1 year of age, the rechecked every 3+ years

Individual vaccinations for Distemper, Adenovirus and Parvovirus

Boarding and grooming

Titers in Cats:

Rhinotracheitis

Calicivirus

Panleukopenia

Rechecked every 3+ years

VACCINATION PROS AND CONS

Philosophy of practice is about assessing each individual patient

It depends....

Tailored to their unique family situation and environment

Splitting up vaccinations

Risk of vaccine reaction

Immune System Health

Nutrition

Vitamin D testing

- Important in maintenance of a healthy immune system

Probiotics important for a healthy gastro-intestinal tract and immune system

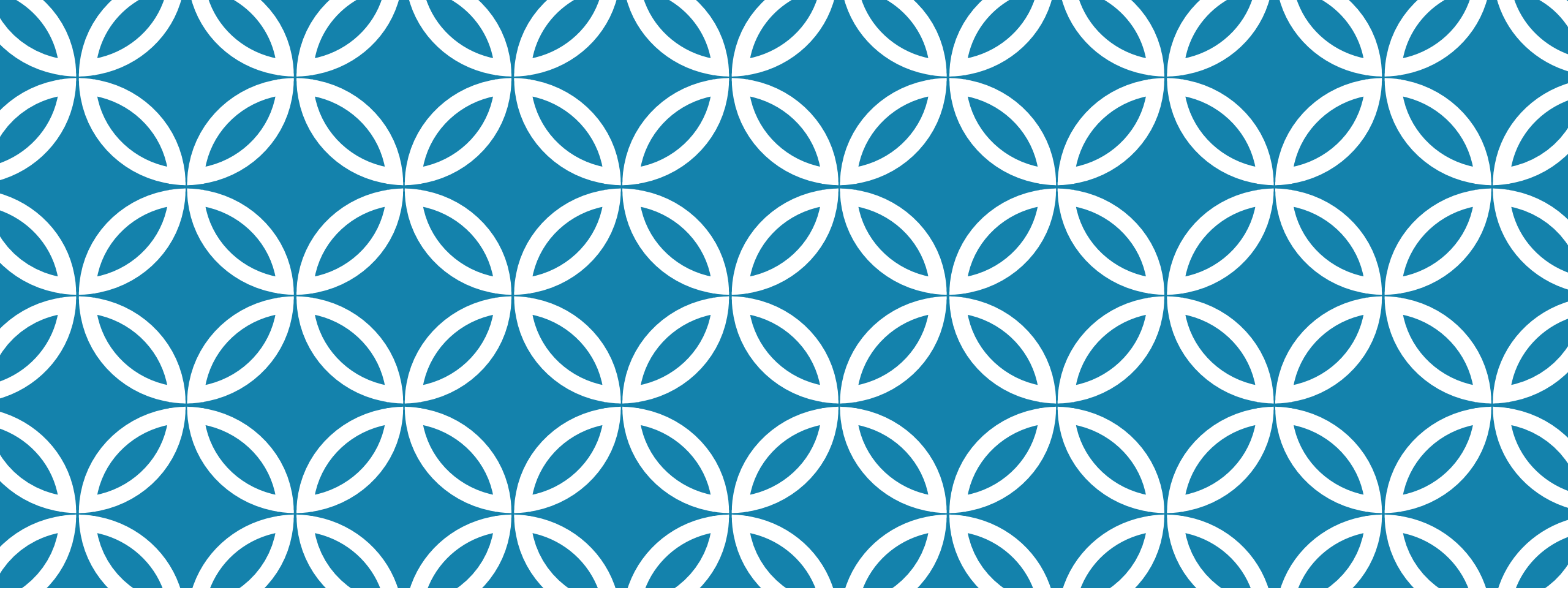
VACCINATION PROS AND CONS

Thimerosol

Adjuvants

Chines Herbs

- Jade Screen 8
- Wei Qi Booster
- Lysine
  - Amino acid shown to suppress Herpes virus in cats



THANK YOU!!!!!!!!