Small Animal Care and Management 4th edition Warren Solutions Manual

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CHAPTER 2

Safety

REVIEW QUESTIONS AND ANSWERS

1. **What is a parasite?**
   Parasites are organisms that live on or within another organism or host and derive their sustenance (food or nourishment) from the host.

2. **What is a host? What is an intermediate host?**
   A host is the organism on which or within which the parasite lives and from which it derives its sustenance (food or nourishment). An intermediate host is a host that a parasitic organism lives on or in during an immature stage.

3. **What is a zoonosis?**
   A zoonosis is a disease that can be transmitted from animals to humans.

4. **What is the life cycle of the deer tick and the black-legged tick?**
   In the Northeast and upper Midwest, white-footed mice serve as a reservoir (an immune host) for ticks carrying the *Borrelia* organism. These ticks have a two-year life cycle. They lay their eggs in the spring, and the larvae that emerge feed on white-footed mice. The larvae then remain dormant during the winter and develop into nymphs the following spring. The nymphs feed for three or four days on white-footed mice and then move to their preferred host, the white-tailed deer.

5. **What is the life cycle of the Western black-legged tick?**
   The cycle in question 4 is followed by the Western black-legged tick, except that the dusky-footed woodrat, a common California rodent, is the reservoir for the *Borrelia* organism in the West.

6. **Why are children and the elderly more at risk from some of the diseases and injuries covered in this chapter?**
   Children and the elderly are at a greater risk because they have a lower resistance to some of the disease-causing organisms. Children are also at risk because they play with animals and play in areas that can become contaminated by animals.

7. **Why shouldn't a pregnant woman handle a cat's litter box?**
   Toxoplasmosis is a disease produced by infection of the parasite *Toxoplasma gondii*. It can be carried by several different animal species but is usually spread to humans through cat feces or contaminated litter. Pregnant women should not handle cat litter boxes because toxoplasmosis can cause miscarriage, premature births, and blindness in the unborn child.

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8. **What are the major symptoms of an animal with rabies?**
One of the signs of rabies is behavior change. An animal may appear unusually aggressive or unusually tame. If a wild animal is on your property, leave it alone. If the animal exhibits unusual behavior, contact your local animal control authorities. Refer to Page 213 for a more complete listing of symptoms.

9. **Why is early diagnosis and treatment important in cases of Rocky Mountain spotted fever?**
The organism causing Rocky Mountain spotted fever multiplies in the cells of the small peripheral blood vessels. Fever, headache, and skin rash are symptoms of Rocky Mountain spotted fever. Early diagnosis and treatment with antibiotics is important because the disease can cause death when not treated.

10. **What determines whether someone should be given immune gamma globulin injections for rabies?**
Whether to treat a patient for rabies will depend on the following criteria:

- the species of animal that caused the bite
- the frequency of rabies in the community
- the circumstances surrounding the bite (Was the animal provoked or was it an unprovoked attack?)
- the behavior of the biting animal
- whether the animal can be quarantined and observed
- whether the animal's head (in the case of a wild animal) can be sent in for laboratory examination of the brain

11. **What are some safety guidelines to follow when working with small animals?**
The following are some general guidelines to follow for safety in the workplace or school lab:

(a) Always wear protective clothing and equipment when the job requires it.
(b) Always wash protective clothing and equipment after use to prevent contamination.
(c) Wash hands and face after completing a job, to make sure all chemical residue is removed.
(d) If required, shower after completing a job so that chemical residue is completely removed from the body.
(e) Wash hands frequently while working with animals, especially if working with different species and in different areas. This prevents contamination to other animals and also prevents self-contamination.
(f) Keep hands away from the mouth, eyes, and face when working with chemicals and animals, to prevent self-contamination.
(g) Do not consume food or drinks in areas where contamination could occur, and do not store these items in areas where contamination could occur.
(h) Remove uniforms, lab coats, and coveralls when leaving an area that could be contaminated.
(i) Never wash uniforms lab coats, or coveralls with regular clothing.
(j) Make sure all containers are correctly labeled to prevent misuse of chemicals.
(k) Dispose of all chemicals and their containers according to proper procedure or instructions on the labels.
(l) Students and small animal workers should be instructed in the proper methods of handling small animals.
(m) First-aid kits should be kept in the work area or instructional area, and workers and students should be made aware of the location of first-aid kits.

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Chapter 2: Safety

Learning Domain - Cognitive

Level of Learning – Comprehension

Time Allocation – Approximately 55 minutes

Learning Objectives:

- Explain the importance of safety when working and playing with small animals
- List ten diseases that can be transmitted from animals to humans
- Describe how to prevent becoming infected by small animals
- Describe proper restraint procedures when working with small animals
- List guidelines for safety when handling dangerous chemicals and when working with small animals

Vocabulary Introduced:

- carriers
- cat-scratch fever
- Elizabethan collars (e-collars)
- evulsions
- immunosuppressive therapy
- immune gamma globulin
- intermediate hosts
- intradermal
- intramuscular
- lateral recumbency
- oocyst
- parasite
- psittacosis
- reservoir
- rodents

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- ringworm
- salmonellosis
- sternal recumbency
- Streptococcal bacteria
- sustenance
- toxoplasmosis
- zoonoses (also called zoonotic)

Needed Equipment/Materials:

Instructor: PowerPoint presentation equipment
Student: paper, pencil

References: *Small Animal Care and Management*

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I. Introduction

[Time Allocation: 5 min.]

A. This chapter will discuss the importance of safety when working and playing with small animals
B. It will cover diseases that can be transmitted from animals to humans and ways to prevent becoming infected
C. Proper restraint procedures must be followed when working with small animals will be discussed
D. You will be given a list of safety guidelines for working with small animals

Reference: *Small Animal Care and Management,* p. 15
Slide: 2-2

II. Risks with Small Animals

[Time Allocation: 25 min.]

A. Zoonoses (or zoonotic)
   1. Diseases that can be transmitted from animals to humans
      a. Rabies can be transmitted by dog bites
      b. Bubonic plague was caused by bacteria transmitted to humans by fleas carried by infected rats
   2. Roundworms and hookworms
      a. Common parasitic worms of dogs and cats
      b. The larval stage of these parasites can infect humans
         i. A parasite is an organism that lives on or within another host organism
         ii. A parasite derives its sustenance from the host
      c. Children are most at risk because they play in the soil where these animals have been
         i. Play areas and sandboxes should be kept clean or covered and free of feces
         ii. Wash your hands after handling animals or their feces
      d. Symptoms of roundworms in humans
         i. Fever
         ii. Headache
         iii. Cough
         iv. Poor appetite
      e. Hookworm larvae can penetrate the skin and leave an inflamed tract as they travel under the skin
   3. Toxoplasmosis

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a. Disease produced by infection with a parasite that can be carried by several different animal species
b. Cats play an important role in the spread of toxoplasmosis
    i. They become infected by eating infected rodents, birds, or other small animals
    ii. The parasite is then passed in the cat's feces in an oocyst form (an immature egg), which is microscopic
    iii. Kittens and cats can shed millions of oocysts in their feces for as long as three weeks after infection
    iv. Mature cats are less likely to shed *Toxoplasma* if they have been previously infected
    v. A *Toxoplasma*-infected cat that is shedding the parasite in its feces contaminates the litter box
c. A woman who is newly infected with *Toxoplasma* during pregnancy can pass the infection to her unborn child
    i. Pregnant women should take extra precautions to prevent infection
    ii. Toxoplasmosis can cause miscarriage, premature births, and blindness in the unborn child
    iii. Pregnant women should avoid cleaning litter boxes
d. Daily cleaning of litter boxes is important
    i. Organism in the feces of an infected cat becomes infective after 36 to 48 hours
    ii. Wear rubber disposable and wash hands afterward
    iii. Wear a mask to prevent inhalation of airborne oocysts
    iv. Prevent children's play areas and sandboxes from being used as litter boxes
e. Most humans infected with *Toxoplasma* organisms will not develop symptoms rash
    i. Most people carry antibodies against the disease
    ii. People with immune system defects or those receiving immunosuppressive therapy can develop symptoms
    iii. Symptoms: fever, headache, swollen lymph glands, cough, sore throat, nasal congestion, loss of appetite, and skin

4. Ringworm
    a. Ringworm is a skin disease caused by a fungus, not a parasitic worm, as the name would imply
        i. Dogs, cats, chinchillas, guinea pigs, rats, mice, and rabbits can transmit the infection to humans
        ii. Spread by direct contact with a person or animal or indirectly through contact with contaminated objects
    b. Symptoms: round, scaly, or encrusted lesions on the skin; hair is usually absent from these areas
    c. Ringworm is infectious as long as the fungus remains present in the skin lesion

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i. The fungus is no longer present when the lesion starts to shrink
ii. Avoid contact with the animal until it heals
iii. Caretakers should change clothing and wash themselves immediately after any contact

d. Topical and oral antifungal drugs are used to cure the problem in both humans and animals

5. Psittacosis
   a. Also known as ornithosis, parrot fever, and avian chlamydiosis
   b. Can be transmitted to humans from birds
      i. All birds are susceptible
      ii. Pet birds and poultry are usually involved in the transmission of the disease to humans
   c. Humans can be infected by contact with the feces of contaminated birds or from fecal dust
   d. Symptoms: coughing, chest pains, fever, chills, weakness, vomiting, and muscular pain
   e. Preventive measures
      i. Purchasing birds from reliable sources
      ii. Testing
      iii. Quarantining all new birds
      iv. Wearing dust masks or protective shields when handling birds and cleaning cages
   f. Antibiotics may be used to treat the disease both in birds and humans
6. Cat-scratch fever
   a. Associated with cat scratches or bites
   b. Symptoms: the affected area becomes swollen and is slow to heal and swollen, tender lymph nodes
   c. The disease is usually not serious and can be treated with antibiotics
7. Salmonellosis
   a. Caused by infection from *Salmonella* bacteria
      i. The bacteria can be transmitted to humans and animals
      ii. Children and the elderly are especially at risk
      iii. Inflammation of the stomach and intestines results in vomiting, diarrhea, and abdominal pain
      iv. Symptoms usually appear 12 to 72 hours after infection
      v. The illness usually lasts four to seven days
   b. Dogs, cats, birds, guinea pigs, hamsters, rats, mice, and rabbits can be carriers of the bacteria
      i. Carriers appear healthy, but carry disease-causing organisms that can infect other animals or humans
      ii. Pet turtles and other reptiles are a common source of infection in humans

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iii. Proper sanitation and husbandry practices greatly reduce the risk for infection

c. Improper handling or consumption of raw meat or dairy products can also result in salmonellosis

8. Streptococcal bacteria
   a. Infections can range from mild skin infections or sore throat to severe, life-threatening conditions
      i. Approximately 10 million cases of mild infections from streptococcal bacteria occur annually
      ii. Most infections are relatively mild illnesses, such as strep throat or impetigo
   b. Can be transmitted by pets
   c. Children are most susceptible
   d. Proper hand washing and other sanitary measures are important to reduce the spread of the bacteria
   e. Treatment with antibiotics generally eliminates the infected person's ability to spread the bacteria
   f. Infected animals can also be treated with antibiotics
9. Injuries
   a. Animal attacks, especially animal bites, are a major community health problem in the United States
   b. Approximately 4.7 million Americans are bitten by dogs each year
      i. Of those, 800,000 will seek medical attention for their bites
      ii. More than one-third require treatment in emergency departments for non-fatal dog bite-related injuries
      iii. Of the estimated 386,000 people treated for dog bites, 50 percent were children
      iv. Approximately 16 people receive fatal injuries each year from dog bites
      v. In 2006, more than 31,000 people underwent reconstructive surgery as a result of being bitten by a dog
   c. The liability for a dog biting someone may vary by local community, county, and state statute
      i. Under the "one bite" rule, a dog's owner is liable if the owner knew or had reason to know that the dog was likely to cause that kind of injury
      ii. Liability might also result from negligent handling, or violation of leash or other control laws
   d. Although injuries become infected and fatalities do occur, the injury is more frequently psychological rather than surgical
      i. Fewer than 5 percent of dog bites become infected
      ii. Up to 50 percent of cat bites do because of the difficulty in effectively irrigating puncture wounds from cat bites
   e. Generally, animal bites have not been shown to be a high risk for tetanus contaminations

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f. The most important consideration in the treatment of the patient bitten or scratched is whether rabies treatment should be initiated

B. Rabies
1. Overview
a. Domestic animals can generally be identified and quarantined for observation or testing
b. Bats and feral carnivores
i. Frequently infected with rabies in the wild
ii. The most common source of human rabies in the U.S.
iii. Particularly fox, coyotes, skunks, bobcats, ferrets, and raccoons
c. Successful vaccination programs that began in the 1940s caused a decline in rabies among domestic animals
d. As the number of cases of rabies in domestic animals decreased, the number in wild animals increased
i. In 1997, the U.S. reported 8,509 cases of rabies in animals and 4 cases in humans
ii. Total cases reported in 2010 declined to 6,153 cases and only two cases were reported in humans
iii. Wild animals accounted for 92 percent of the reported cases and domesticated animals eight percent
e. Unvaccinated cats allowed to roam outdoors are at the highest risk for rabies infection
i. The feral cat population is a host reservoir for the rabies virus
ii. Cats allowed outside or housed outside are more likely to run across infected wild animals or infected dogs or cats
iii. In 2010, the cases of rabies in cats increased by 1 percent, but the cases in dogs decreased by 14.8 percent
f. During the 20th century, human deaths attributed to rabies declined from 100 or more each year to one or two each year
i. A result of animal control and vaccination programs and the development of effective rabies vaccine and antibodies
ii. Two deaths in humans were reported in 2010
2. Exposure to a potentially rabid animal
a. If exposed to a potentially rabid animal, wash the wound with soap and water and seek medical attention immediately
b. Whether or not to provide rabies treatment for a patient bitten by an animal depends on the following criteria:
i. Species of the animal that caused the bite
ii. Frequency of rabies in the community
iii. Circumstances surrounding the bite (Was the animal provoked or was it an unprovoked attack?)
iv. Behavior of the biting animal
v. Whether the animal can be quarantined and observed

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vi. Whether the animal's head (in the case of a wild animal) can be sent in for laboratory examination of the brain

3. Treatment
    a. Animal care workers should be alert to animals that are vicious or potentially hazardous
        i. Preexposure vaccinations can be given either intramuscularly or intradermally
        ii. Vaccinations consist of three injections, one injection per day on days 0, 7, and 21 or 28
        iii. Workers who have received injections would then need only two intramuscular boosters if they become exposed
        iv. Nonprotected workers require a series of five injections of rabies vaccine and one rabies immune gamma globulin injection over a 28-day period
    b. Proper handling of animals helps prevent injury
        i. Children should avoid unfamiliar animals, and be cautioned that any animal may bite if frightened, ill, or injured
        ii. Familiar animals may bite when startled or disturbed when sleeping or eating, or if they are handled roughly
        iii. Small children should always be supervised when handling or playing with animals
    c. Steps to protect one's self and family members from rabies
        i. Do not feed, touch, or adopt wild animals or stray dogs and cats
        ii. Be sure your pets have up-to-date rabies vaccinations
        iii. Family pets should be kept indoors at night
        iv. Don't leave pet food outside that will attract stray and wild animals
        v. Make sure there are no openings to the attic, basement, porch, or garage and that screens on doors and windows are in good repair
    d. Steps to take if one's pet has been bitten by another animal
        i. Wear gloves when handling your pet because rabies can be spread from the saliva of an infected animal
        ii. Isolate your pet from other animals and people
        iii. Call your veterinarian; vaccinated pets will need a booster shot
        iv. Report the bite to local animal control authorities
        v. Unvaccinated pets will need to be isolated for a period of 10 to 14 days or longer for observation

C. Ticks and Lyme Disease
    1. Overview
        a. Ticks are frequent carriers of diseases that can cause illness in people and animals
        b. An animal that has been infected through a tick bite will not pass the disease on to a person

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2. Rocky Mountain spotted fever (RMSF)
    a. Found in all areas of the country
    b. Primarily transmitted by the American dog tick, the Rocky Mountain wood tick, and the brown dog tick
    c. The organism that causes the disease is *Rickettsia rickettsii*
        i. The *Rickettsia* organism multiplies in the cells of the small peripheral blood vessels
        ii. Fever, headache, nausea, vomiting, and skin rash are symptoms of Rocky Mountain spotted fever
    d. Early diagnosis and treatment with antibiotics is important
        i. Anyone experiencing symptoms within two weeks of a tick bite or exposure should see a doctor immediately
        ii. If not treated, Rocky Mountain spotted fever can cause death
    e. Remove attached ticks carefully to avoid breaking off the mouthparts in the skin because they may cause infection
        i. Forceps and gloves should be used to avoid contamination
        ii. The area should be treated with antiseptic
3. Lyme disease
    a. Tick-transmitted disease affecting both humans and animals
    b. There could be ten times more cases of Lyme disease than are reported
        i. Many cases are misdiagnosed
        ii. Doctors fail to report cases to the CDC
    c. Two species of ticks have now been recognized as carriers of the infectious bacteria and can bite and infect humans
        i. The black-legged tick (deer tick) spreads the disease in the Northeastern, Mid-Atlantic, and North-Central U.S.
        ii. The Western blacklegged tick spreads the disease on the Pacific Coast
    d. Symptoms
        i. A distinctive skin lesion that appears in three to 32 days after the tick bite
        ii. Begins as a small red spot; expands into a large irregular circular or oval-shaped area with a red outer border
        iii. Other lesions may appear, including measles-like eruptions or hives; which disappear in about three weeks
        iv. Flu-like symptoms: aching muscles, stiff neck, fatigue, fever, chills, painful joints, nausea, coughing, sore throat, loss of appetite, swollen lymph glands, irritated eyes, and aversion to light that may disappear within three weeks
        v. Fatigue and muscle aches may last for several months
    e. Additional symptoms if untreated
        i. The bacteria can spread throughout the body and cause severe damage to the organs

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ii. Arthritis conditions, with severe joint pain and swelling, and neurological problems may occur
iii. Conditions may develop months to years after the tick bite

f. Treatment
i. Anyone experiencing Lyme disease-like symptoms should contact a doctor as soon as possible
ii. Treatment usually consists of antibiotics

g. Lyme disease can affect dogs and cats
i. Up to 95 percent of dogs and many cats will not exhibit any symptoms
ii. Symptoms may be temporary or last for three to four days and then return days or weeks later
iii. Symptoms: fever, decreased appetite, swollen, painful joints, and limping, that may shift from one leg to another

4. Additional information about ticks
a. Ticks are found in grassy or wooded areas and can be brought into the home by dogs and cats that have been allowed outside
i. Adult ticks usually crawl around on a person for some time before they attach themselves to the skin
ii. Small larvae are so tiny that they may go unnoticed
iii. Daily showers and personal hygiene are important in helping eliminate these small larvae

b. If ticks have attached themselves, grasp the tick as close to the head as possible and pull it straight out
i. Being careful not to squeeze or twist it
ii. Do not break off the head or to crush the tick because this may serve as a means of infection
iii. After the tick has been removed, the area should be disinfected with alcohol or another disinfectant

c. Pet owners who allow their pets outside and humane shelter workers are probably at greatest risk

d. Other persons at high risk are trappers, hunters, hikers, and others who venture into grassy and wooded areas
i. When in areas where ticks may be found, wear long pants, long-sleeved shirts, and long socks
ii. Use of insect repellent with 20 to 30 percent DEET

D. Tapeworms
1. Some carried by dogs and cats, can cause a rare, but potentially fatal, disease, alveolar hydatid disease (AHD)
a. *Echinococcus multilocularis*
i. Fox, coyotes, and mice are the normal intermediate hosts for this species of tapeworm
ii. The parasite is now appearing in domestic dogs and cats

b. *E. granuosus*
i. Normally uses sheep as the intermediate host

c. Infections in humans

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i. Eggs hatch in the small intestine, penetrate the intestinal wall, migrate to the liver, and produce tumors or cysts
ii. Clinical signs may not appear until the growth of the cyst has progressed for several years
iii. Surgical removal of the cyst is preferred, although in many cases the cyst may not be removable
iv. Fatality rate: 50 to 75 percent, with or without surgery

d. *E. multilocularis* and *E. granuosus* are difficult to identify
i. The eggs are identical to those of the *Taenia* tapeworm
ii. This species is common to dogs and cats

2. Preventive measures to minimize the risk for human infection
a. Pet owners and workers in rural areas are at higher risk
b. Personal protection and hygiene prevent hand-to-mouth transfer of eggs

Reference: *Small Animal Care and Management*, pp. 16-33
Slides: 2-3 through 2-8

III. Physical Restraint of Animals

[Time Allocation: 10 min.]

A. Overview
1. Animals may need to be restrained from normal movement for:
a. Examination
b. Collection of blood or other samples
c. Administration of drugs, or therapy
2. Prolonged restraint should be avoided
a. Sick or injured animals may become frightened and confused

B. Cats
1. Cats are nervous animals
2. When subjected to new situations or introduced to strange people, a normally good-natured family pet can bite and scratch
a. Working around the head or neck
i. Wrap the animal in a blanket to control the legs
ii. Place the cat in a zippered-type canvas bag with its head exposed
iii. To hold the cat's head, place the palm of the hand on the back of the head and grasp the head between the thumb and fingers
b. Cats can be transported in small cages or cat carriers
i. Use care when removing the cat from the carrier to prevent injury to the cat or the handler
ii. Grab the cat by the scruff of the neck with one hand and then grab the rear legs with the other hand

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iii. Lift the cat and remove from the carrier
c. Catch pole
i. A device that consists of a five- or six-foot pole with a rope and noose attached
ii. The noose should be slipped over the animal's head and front legs and around the chest
iii. Should be used only when all other methods have failed
iv. Improper use can injure or even kill an animal
d. Cloth muzzles for cats
i. Can be used to keep a cat from biting during procedures
ii. Holds the mouth shut and covers the eyes to calm it

C. Dogs
1. Dogs can be restrained while the animal is in a standing or sitting
a. Place one arm under the dog's neck with the forearm holding the head
b. Place the other arm around the animal's body, and the animal is held close to the handler's body
c. This procedure, the sternal recumbency, allows the handler to keep the dog on its belly
2. Dogs can be placed in a lying position
a. Reach over the back of the animal and grab the front legs with one hand and the rear legs with the other hand
b. Gently lift the animal and allow it to slide down into a lying position
c. This procedure is referred to as lateral recumbency
3. Muzzles can be used to prevent bites
a. Placed over the dog's mouth
b. Must fit snugly and comfortably
c. Can be made from a narrow strip of gauze or cloth as follows:
i. Make a loop in the material and slip the loop over the dog's nose and mouth
ii. Tighten the loop by pulling on the ends
iii. Cross the ends under the dog's jaw and bring them up behind the ears and tie them in a bow
iv. The bow can be untied quickly by pulling on the ends
4. Elizabethan collars (e-collars)
a. Prevent an animal from licking or biting its body or scratching its head or neck while wounds or injuries heal
b. Can be purchased from veterinarians or pet stores
c. Shaped like a cone and look like a lampshade
d. Should be short enough to allow the animal to eat and drink

D. Rabbits
1. Picking up rabbits
a. Grasp the scruff of the neck with one hand and lift up while placing the other hand under the rump
b. Support the hindquarters of the animal at all times

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2. Rabbits seldom bite, but they can inflict injury with their hind legs
3. They can injure their spines by in an attempt to escape
    a. Rabbits should not be placed on a smooth surface
    b. Rabbits should be placed on a piece of carpet or on a towel
    c. Veterinarians and researchers sometimes use restraint boxes to hold rabbits during treatment

E. Rats and mice
1. Biting
    a. Rats and mice that have not been handled may bite
    b. Gloves can be used to place the animals on a piece of carpet or on a piece of screening
    c. Once they are placed on the carpet or screening, they can be restrained with bare hands
        i. Grasp the animal gently by the tail
        ii. Don't grasp the end of the tail, but grasp as close to the body as possible
        iii. Use your other hand to grasp all the loose skin on the neck and shoulders that you can and lift the animal up
    d. Special restraining boxes are also available for rats and mice

Reference: *Small Animal Care and Management*, pp. 33-35
Slides: 2-9 through 2-13

IV. Other Risks

[Time Allocation: 5 min.]

A. Chemicals
1. All workers should be instructed in the safe use, storage, and disposal of chemicals and containers
2. Chemicals can enter the body in several ways; the skin is the most common portal of entry into the body
3. To prevent absorption through the skin, the worker must wear protective clothing and equipment

B. Protective clothing
1. Gloves should be worn by workers when handling chemicals
    a. Plastic or rubber unlined gloves that are liquid-proof
    b. Canvas, cotton, or leather gloves should not be worn
    c. For handling animals that may bite or scratch, leather and Kevlar gloves are available
2. Closed-toe shoes or boots are required
    a. Boots with no-slip soles should be worn when working on wet floors
    b. Shoes with steel toes may be beneficial to workers handling large cages and heavy equipment

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3. Eye and ear protection
    a. Eyes should be protected when working with chemicals
        i. Tight-fitting goggles with anti-fog lenses and ventilation holes
        ii. Full-face shields also provide protection against chemicals splashed into the face
    b. Workers in areas of high noise levels should wear ear protectors
4. Uniforms, overalls, lab coats, or other personal protective equipment (PPE)
    a. For working with animals that may be sick
    b. When working with potentially toxic substances
    c. Protective clothing should be laundered daily and not worn outside the facility
5. Respirators
    a. Provide protection from inhaling toxic substances

C. Safety Data Sheets (SDS)
1. Forms that contain data regarding the properties of a particular substance
2. Provide workers and emergency personnel with safe procedures for handling or working with a particular substance
3. Other information in an SDS includes:
    a. Physical properties of the substance
    b. Toxicity
    c. Health effects
    d. First-aid precautions
    e. Reactivity
    f. Storage requirements
    g. Disposal procedures
    h. Protective equipment to use when handling the substance
    i. Safe handling procedures

Reference: *Small Animal Care and Management*, pp. 35-36
Slides: 2-14 through 2-17

V. General Guidelines for Safety

[Time Allocation: 5 min.]

A. Overview
1. No safety guidelines can cover all situations
2. Workers and students must follow all instructions from supervisors and teachers and on all labels when handling chemicals
3. The following are some general guidelines to follow for safety in the workplace or school laboratory

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a. Always wear protective clothing and equipment when the job requires it
b. Always wash protective clothing and equipment after use to prevent contamination
c. Wash hands and face after completing a job to make sure that all chemical residue is removed
d. If required, shower after completing a job so that chemical residue is completely removed from the body
e. Wash hands frequently while working with animals, to prevent contamination of animals and self-contamination
f. Keep hands away from mouth, eyes, and face when working with chemicals and animals, to prevent self-contamination
g. Do not consume food or drinks in areas where contamination could occur, and do not store these items in these areas
h. Remove uniforms, lab coats, and coveralls when leaving an area that could be contaminated
i. Never wash uniforms, lab coats, or coveralls with regular clothing
j. Make sure all containers are correctly labeled to prevent the misuse of a chemical
k. Dispose of all chemicals and their containers according to proper procedure or instructions on the label
l. Students and small animal workers should be instructed in the proper methods of handling small animals
m. First-aid kits should be kept in the work area or instructional area

Reference: *Small Animal Care and Management*, pp. 36-37
Slides: 2-18 and 2-19

VI. Summary

[Time Allocation: 5 min.]

- Working with small animals is an interesting and rewarding career
- It is important that workers and pet owners are knowledgeable about diseases, and the prevention and treatment of them
- Several chemicals and pesticides may be used when working with small animals
- Most injuries and accidents when dealing with small animals can be prevented by being aware of safety guidelines and proper procedures

Reference: *Small Animal Care and Management*, p. 37
Slide: 2-20

Small Animal Care and Management 4th edition Warren Solutions Manual

VII. Assignment – Read Chapter 3 in *Small Animal Care and Management*

Small Animal Care and Management 4th edition Warren Solutions Manual