

Infection Control

Best Practices for Home-Based Programs



“Those who bring beauty and love into the world cannot keep it from themselves...”

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Director of Veterinary Outreach
ASPCA



Considerations

- Time commitment
- Resources needed
- Cleaning is hard work!
- Fostering is a 24 hr job
- Dealing with illness
- Health risks
 - Your pets
 - Family & Friends
- Emotional ups and downs



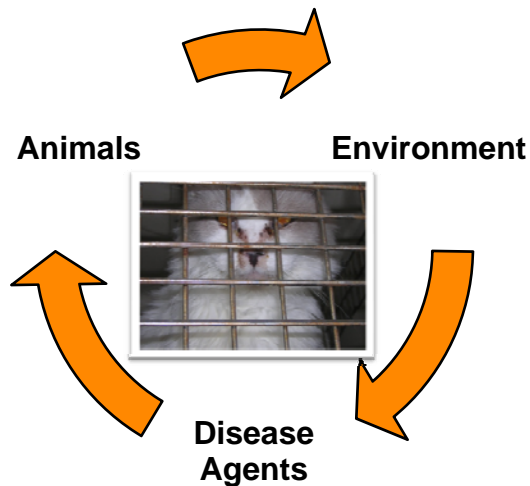
Objectives

- Understand why homeless animals get sick
 - Transmission principles
- Learn about routine infection control practices
 - How to set up a foster home environment for success
 - Preventative animal health care practices
- Help you help more animals find lifelong homes!

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Why Do These Animals Get Sick?



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Environment

- Overcrowding is common
- Isolation/quarantine can be difficult
- Older buildings not designed for wellness
- Poor ventilation
- Temperature extremes
- Difficult to clean efficiently



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Animals

- Histories often unknown
- Little prior preventative health care
- Immunocompromised
- Often ill on intake
- Age extremes
- Population always changing
- Inherently stressed



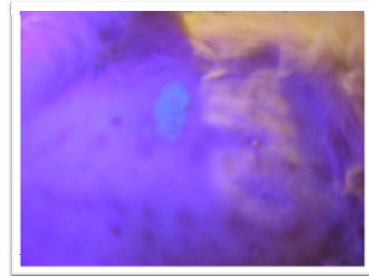
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Understanding Disease

- MANY causes
 - Viruses
 - Feline Herpes Virus
 - Canine Influenza Virus
 - Bacteria
 - Bordetella bronchiseptica
 - Parasites
 - Roundworms
 - Fleas/ticks
 - Fungi
 - Dermatophytosis

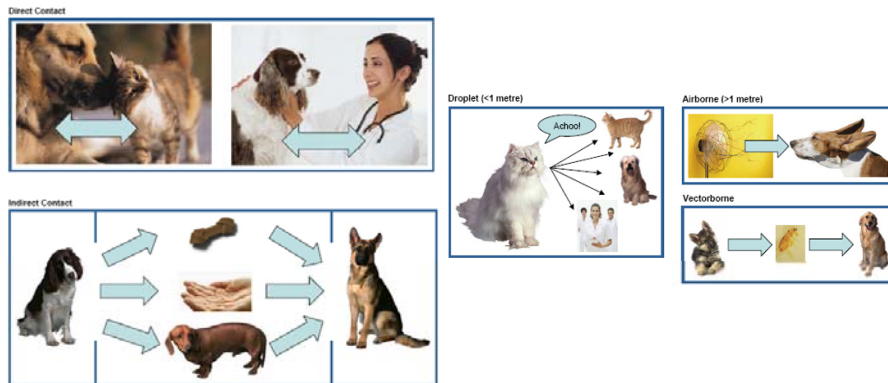


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Understanding Disease

- Many transmission modes and control strategies



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Detecting Disease Isn't Easy

- Infectious animals are not always obvious.
- Physical exams and lab tests may not detect or confirm disease.
- Animals can be adopted, transferred or placed into the population and later show illness



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Carriers and Incubation Times

- **Carrier state** - an animal who is not outwardly symptomatic harbors a pathogen in its body that can infect others
- **Incubation period** - time from exposure to onset of symptoms

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Examples

- **Feline Calici Virus**
 - Can be carried lifelong
 - May be shed continuously



- **Canine Influenza Virus**
 - After exposure, 2-5 day incubation period
 - Usually 7-10 days before clinical signs
 - Peak viral shedding occurs *prior* to symptoms
 - Pneumonia can be weeks later

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Shelter Holding Periods

- Average incubation period for common shelter diseases is 2-15 days
- Average legal holding period is 5-7 days
- *Many* opportunities exist for incubation & carriage

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Understanding Disease

- Shelter consequences
 - Spread
 - Outbreaks
 - Zoonosis
 - Decreased welfare
 - Death
 - Difficult decisions
 - Treatment
 - Staff time, money, space
 - Euthanasia



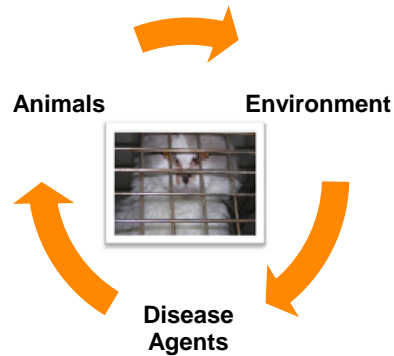
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Realistic Goals

- Some illness is inevitable
- *Limit* overall disease
- Prevent outbreaks
- Prevent zoonosis
- Aim for well animals!



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Shelter Medicine 101



“Creating wellness requires a team approach”

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Population Management



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Population Management

- Things that increase shelter time...
 - Holding periods
 - Illness
 - Long evaluations
 - Management issues
 - Animal flow issues
- Ways to decrease shelter time
 - Foster
 - Rescue
 - Reclaim
 - Transfer
 - Adoption
 - Euthanasia

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Home Based Programs Save Lives!



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Elements of Great Home Programs

- Dedicated coordinators
- Written policies and procedures
- Volunteer training
- Animal selection and volunteer matching
- Guidelines for veterinary care
- Media/marketing for adoption



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Animal Selection

- Skill of coordinator=critical to program success
- In addition to whether home is available selection criteria should consider:
 - Turnover time
 - Investment required
 - Adoptability
 - Health status
 - Behavior status



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Animal Selection

- Age
 - Too young/small for shelter environment
 - Nursing litters
 - Geriatric
- Health
 - Illness
 - Injury
- Behavior
 - Undersocialized
 - Home environment needed to evaluate



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Foster Home Selection

- Match human interest, ability, housing capability to animals' needs
- Interview
- Home visit
- Training process/experience
- Recent infectious disease in home?

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Before Animals Leave Shelter

- Legal contract/written records
 - Who “owns” animal
 - Description of animal
 - Who is responsible for provision of proper care
- Address animal care wellness issues
 - Environmental
 - Physical
 - Emotional

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Before Animals Enter a Home

- Humans should be immunocompetent +/- or consult with their physician
- Attend continuing education trainings on animal care
- Prepare for 2+ week commitment
- Be able to recognize personal limits
- Be able to adopt animals out
- Be aware that animals may not survive – emotionally hard
- One primary caregiver should be 18 yrs or older

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Before Animals Enter a Home

- Establish a contact for health/behavior concerns
- Have access to care 24 hrs/day – most emergencies are not during normal hours
 - Shelter staff/coordinator
 - Community liaison
 - Personal contact
 - Have information #s handy



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Before Animals Enter a Home

- Animals are infectious until proven otherwise



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Before Animals Enter a Home

- Discuss resident animals' health care with personal veterinarian
 - Vaccination status
 - Internal and external parasite control
 - Isolation concerns
 - Geriatrics
 - Immunocompromised animals
 - Weigh risk:benefit



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Before Animals Enter a Home

Components of Wellness

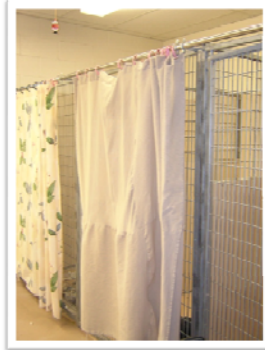
1. Environmental Health
2. Physical Health
3. Emotional Health

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Before Animals Enter a Home



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Before Animals Enter a Home

Isolation ideals:



- Low traffic patterns
- Dedicated supplies
- Required protective gear
- Clear signs
- Well trained (separate) people
- Different ventilation

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Before Animals Enter a Home

- Set up a small, contained area
 - Bathroom, laundry room, kitchen, bedroom
 - Wash-able surfaces (linoleum, tile)
 - No carpet
 - Safe
 - Easy to disinfect
 - Warm
 - Quiet
 - Light
 - Running water/sink is ideal

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Before Animals Enter a Home

- Isolated from other pets in home
 - Solid door/floor-ceiling walls
 - Ventilation/fresh air source
 - Ideally low human traffic area



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Before Animals Enter a Home

- Dedicate foster supplies
 - Shoes/clothes that stay in the room
 - Cleaning supplies
 - Food and water bowls
 - Toys
 - Bedding
 - Trash
 - Medical supplies



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Before Animals Enter a Home

- Use supplies and materials that can be sanitized



- Disposables
- Stainless steel
- Non-porous plastic
- Sealed concrete



- Carpet
- Pebble gravel
- Grass
- Soil

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Before Animals Enter a Home

Be prepared for good housekeeping!



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Good Housekeeping

- **Infection control involves cleaning and disinfecting – *they are not the same thing***
 - **Cleaning** – manual removal of all dirt and organic debris from all surfaces in addition to washing with water and soap
 - **Disinfecting** – inactivation of the pathogen

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Good Housekeeping

- Schedule for daily cleaning
 - High contact surfaces (horizontal, doorknobs, etc)
 - Visibly soiled objects/surfaces
 - Litterboxes, bowls
- Schedule for regular disinfecting
 - All surfaces weekly (walls, blinds, floors, toys)
 - Between new animals
 - Daily or more often when infectious disease occurs

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Good Housekeeping



- Hand hygiene
 1. Before and after handling animals
 2. After contact with items in animals' environment

Hand hygiene is the single most important thing to do to prevent transmission of infection.

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Good Housekeeping

- What supplies to have on hand?



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Disinfectants for Home

- **Sodium hypochlorite**
(regular household 5% bleach)
 - 1:32 – ½ cup/gallon
 - 1:10 – 1 ½ cup/gallon
 - Studies show 1:32 reliably kills parvo, calici
 - 1:10 for ringworm (stronger fumes, will discolor)
 - Low toxicity
 - CHEAP!
 - No cleaning activity
 - Inactivated by light & organic matter
 - Not stable if sits (mix fresh daily)



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Disinfectants for Home

- **Quaternary Ammonium Products**
(Roccal, Simple Green, A-33, Kennel-Sol)
 - Moderate inactivation by organic matter
 - Inactivated by soap/detergent
 - Stable for the day
 - Relatively inexpensive
 - NOT reliable against parvo, calici or ringworm

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Disinfectants for Home

- **Potassium peroxymonosulfate**
(Trifectant, Virkon)
 - Effective against parvo, calici
 - Not reliable against ringworm
 - Some detergent activity
 - Relatively active in the presence of organic matter
 - Powdered form active for 7 days when mixed
 - Leaves visible residue
 - More expensive than bleach
(but still cost effective)



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Things to Avoid

- Lysol
- Pine-sol
- Nolvasan
- Alcohol
- Hydrogen Peroxide
- Mopping, Sponges, Re-use of rags

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Good Housekeeping

- Laundry practices
 - Remove solid wastes before washing
 - Bag/contain soiled linens
 - Use detergent and bleach
 - Complete wash and rinse cycle
 - Machine dry or hand in sunshine
 - Practice hand hygiene when doing laundry



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Good Housekeeping

- Safety First!
 - Cords
 - Plants
 - Toxins
 - Falls
 - Crushes
 - Cars
 - People safety/bites



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Animals in Your Care

1. Environmental Health
2. **Physical Health**
 - Risk assessment
 - Intake Exam
 - Risk reduction
 - Vaccination
 - Parasite control
 - Nutrition
3. **Emotional Health**



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Risk Assessment



- Intake examination
 - Check for all signs of injury
 - Check for all signs of infectious diseases
- Recordkeeping
 - Use a standardized form
 - Normal/abnormal physical exam findings
 - Animal description/ID
 - Breed, sex (neuter status), age for lost and found
 - Track behavior status
 - Track treatments

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Risk Assessment

- Weekly – Biweekly recorded evaluations
 - Check for all signs of injury
 - Check for all signs of infectious diseases
 - Weight checks
 - Behavior checks
 - Treatment updates

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Risk Reduction - Vaccination

- One of the MOST important wellness tools
- Many considerations:
 - Which animals to vaccinate?
 - When should vaccines and boosters be given?
 - What type of vaccines to use?
 - MLV, Killed, Recombinant
 - What route of vaccination?
 - Intranasal, Subcutaneous
 - Are there risks?



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Risk Reduction - Vaccination

- Shelter situations are unique
 - Many animals are naïve on entry
 - Vaccination may protect against fatal diseases
 - Vaccines can fail for many reasons – only one part of infection control!
- Different protocols than owned pets
- Risk:benefit ratio must be weighed
- Tailored strategies are STILL important
- No single protocol works for every program

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Risk Reduction - Vaccination

- What are vaccines?
 - Triggers of protective immune responses
 - Ways of limiting overall disease and severity in a population
- What vaccines aren't!
 - Instant immunity for every animal
 - Antibodies
 - Guaranteed disease protection



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Risk Reduction - Vaccination

- Strategies
 - Follow AAHA/AAFP shelter guidelines¹
 - Vaccinate on intake
 - Vaccinate nearly every animal
 - Proper handling
 - Keep refrigerated until use
 - Avoid sunlight
 - Do not split doses
 - Mix w/ proper diluent
 - Give by proper route
 - Clean up spills
 - MLV vs. killed products



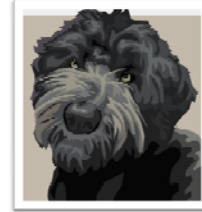
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¹ www.aaahanet.org/PublicDocuments/VaccineGuidelines06Revised.pdf
<http://www.catvets.com/professionals/guidelines/publications/?id=176>

AAHA 2006 Canine Shelter Guidelines

- “Core” vaccines
 - Recommended at intake
 - Parvo & Adeno virus
 - SQ MLV
 - Distemper virus
 - SQ MLV
 - Parainfluenza virus
 - SQ or IN
 - Bordetella *bronchiseptica*
 - SQ or IN
 - Recommended at exit (or intake for some)
 - Rabies



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AAHA 2006 Canine Shelter Guidelines

- Other
 - Boost adults in 2 weeks
 - Pups start @ 4-6 wks
 - q2wks until 16 wks
 - Vx mildly ill or injured
 - Vx nursing
 - Weigh risks in pregnant

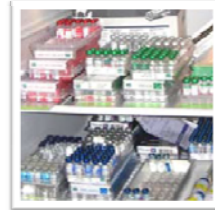


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AAFP 2006 Feline Shelter Guidelines

- “Core” vaccines
 - Intake
 - Panleukopenia
 - SQ MLV
 - Herpes & calici virus
 - IN +/-or SQ MLV
 - Exit (or intake for some)
 - Rabies
 - Special circumstances
 - FeLV
 - *Bordetella*
 - *C. felis*



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AAFP 2006 Feline Shelter Guidelines

- Other
 - Boost adults in 2 weeks
 - Kittens start @ 4-6 weeks
 - q2-4 wks until 16 wks
 - Vx mildly ill and injured
 - Vx nursing
 - Weigh risks in pregnant
 - Use inactivated for retrovirus + cats



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Risk Reduction - Parasite Control

- Not always apparent
- Uncomfortable for host
- Often contagious
- Can spread to humans
- Parasitized animals are immunocompromised

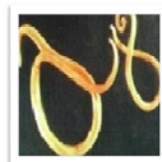


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Risk Reduction – Parasite Control

- Strategies
 - Deworm all animals routinely regardless of fecals
 - Follow CDC and CAPC guidelines¹
 - On intake then q2wks until 3mos, monthly until 6 months
 - Cover main zoonoses
 - Hooks, rounds
 - Pyrantel, Drontal Plus, Panacur



- <http://www.cdc.gov>
- <http://www.capcvet.org>

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Risk Reduction – Parasite Control

- Exams and tailored treatment for symptomatic
- Treat for Coccidia and Giardia if suspected
 - Bathe animals as part of treatment
 - Keep environment dry and clean



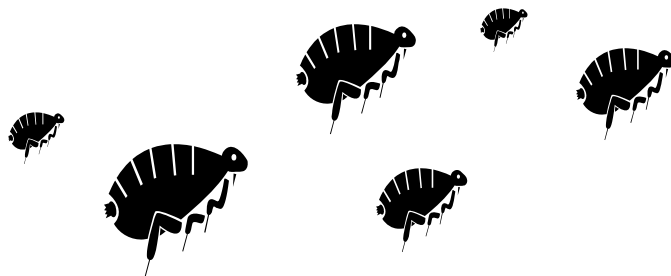
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Risk Reduction – Parasite Control

- External parasites
 - Consider routine use of topspot products
 - Recheck and retreat heavily infested animals
 - Don't forget to treat the environment



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Risk Reduction - Nutrition

- Proper nutrition improves immunity & health
- Body condition appropriate
 - Body condition score scaling
- Life stage appropriate
 - Juveniles need several meals/day
- AAFCO approved brands
 - Use donations with care



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Risk Reduction - Nutrition

- Strategies
 - Feed measured quantities
 - Use a written guide by weight
 - Interval feed
 - Positive reward feeding for enrichment
 - Chewing = decreased stress, better health



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Risk Reduction - Emotional Health

- Stress is the sum of the biological reactions to any adverse stimulus, physical, mental or emotional, internal or external, that tends to disturb the homeostasis of an organism
- Stress is inevitable in shelters but every effort should be made to minimize it

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Risk Reduction - Stress

- | | | |
|------------------------|-------------------------|---------------------|
| 1. Physical stress | 2. Environmental stress | 3. Emotional stress |
| – Malnutrition | – Hot/cold | – Fear |
| – Injury | – Wet/humid | – Pain |
| – Parasite infestation | – Poor ventilation | – Boredom |
| – Disease | – Noise | – Depression |
| | – Overcrowding | – Anxiety |

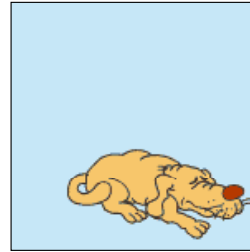


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Facts About Stress

- Stress induced symptoms are difficult to distinguish from infectious disease
 - Physiological
 - Anorexia
 - Depression
 - Vomiting/diarrhea
 - Behavioral
 - Aggression
 - Withdrawal
 - Stereotypies



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Risk Reduction - Stress

- Strategies
 - Provide physical health care
 - Vx, Nutrition, Parasite control...
 - Maintain environmental conditions
 - Turn off lighting at night, sunlight, fresh air
 - Minimize odor/fumes
 - Decrease noise – soft music, cat fountains
 - Time procedures routinely (feeding/cleaning)
 - Enrichment
 - House compatible animals/littermates
 - Bedding
 - Toys



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Risk Reduction - Stress

- Overcrowding
 - Stressful to people & animals
 - Fewer resources per animal
 - Increases disease transmission
 - Does *NOT* save lives



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Before MORE Animals Enter a Home

- What is the potential risk:benefit?
 - Can the current animals be kept separate?
 - Will resources support the population?
 - What if disease is introduced to all?
- Assume the *new* animals are infectious
 - Can the current animals be kept separate?
 - Will resources support the population?
 - What if disease is introduced to all?



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Adoption Time!

- Set new owners up to succeed
 - Individual animal's health information
 - Medical records & veterinary contact
 - Ongoing physical and behavioral wellness needs
 - Infectious disease risks
 - General information
 - Adoption
 - Wellness
 - Infection control in *their* home!



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Summary

- Shelter animals are at high risk for illness
- Plans for infection control should start before animals enter a home
- Education and protection of human health is an important component of infection control
- Keeping animals well involves maintaining their environmental, physical and emotional health care
- Infection control and wellness plans save lives!

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Thank You For All You Do!



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