Principles of Shelter Medicine

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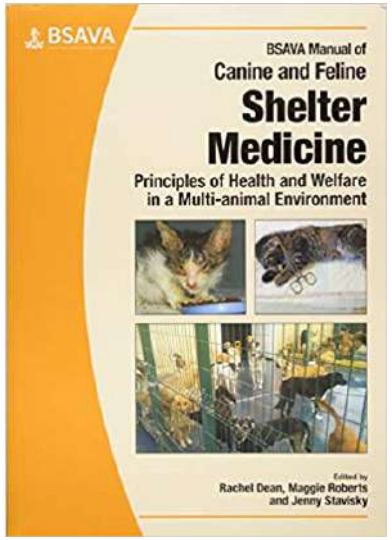
FOUR PAWS International

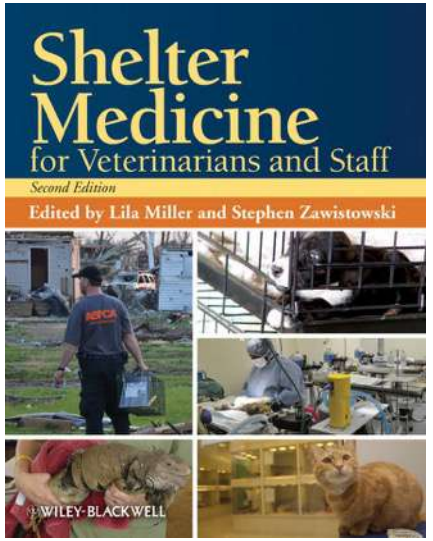
Shelter medicine today

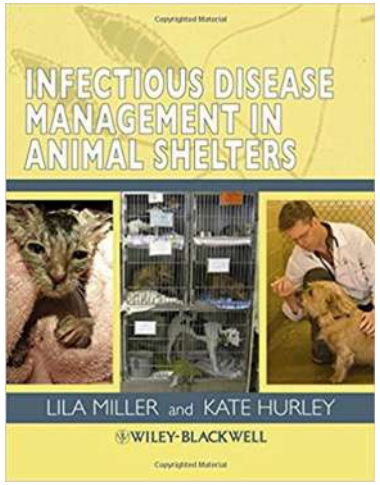
- Association of Shelter Veterinarians (ASV)
  - Over 1500 members around the world
  - 28 Student chapters
- Continuing education at major conferences

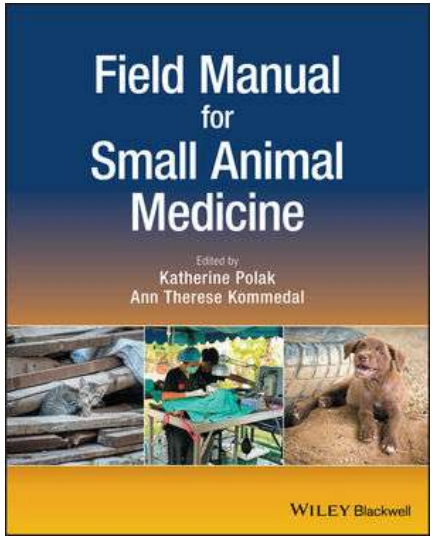
Resources

- **Association of Shelter Veterinarians**
  - www.sheltervet.org
- https://www.sheltermedicine.com/library/
- https://www.associationofcharityvets.org.uk/resources
- https://www.icam-coalition.org/downloads/
- https://www.maddiesfund.org/



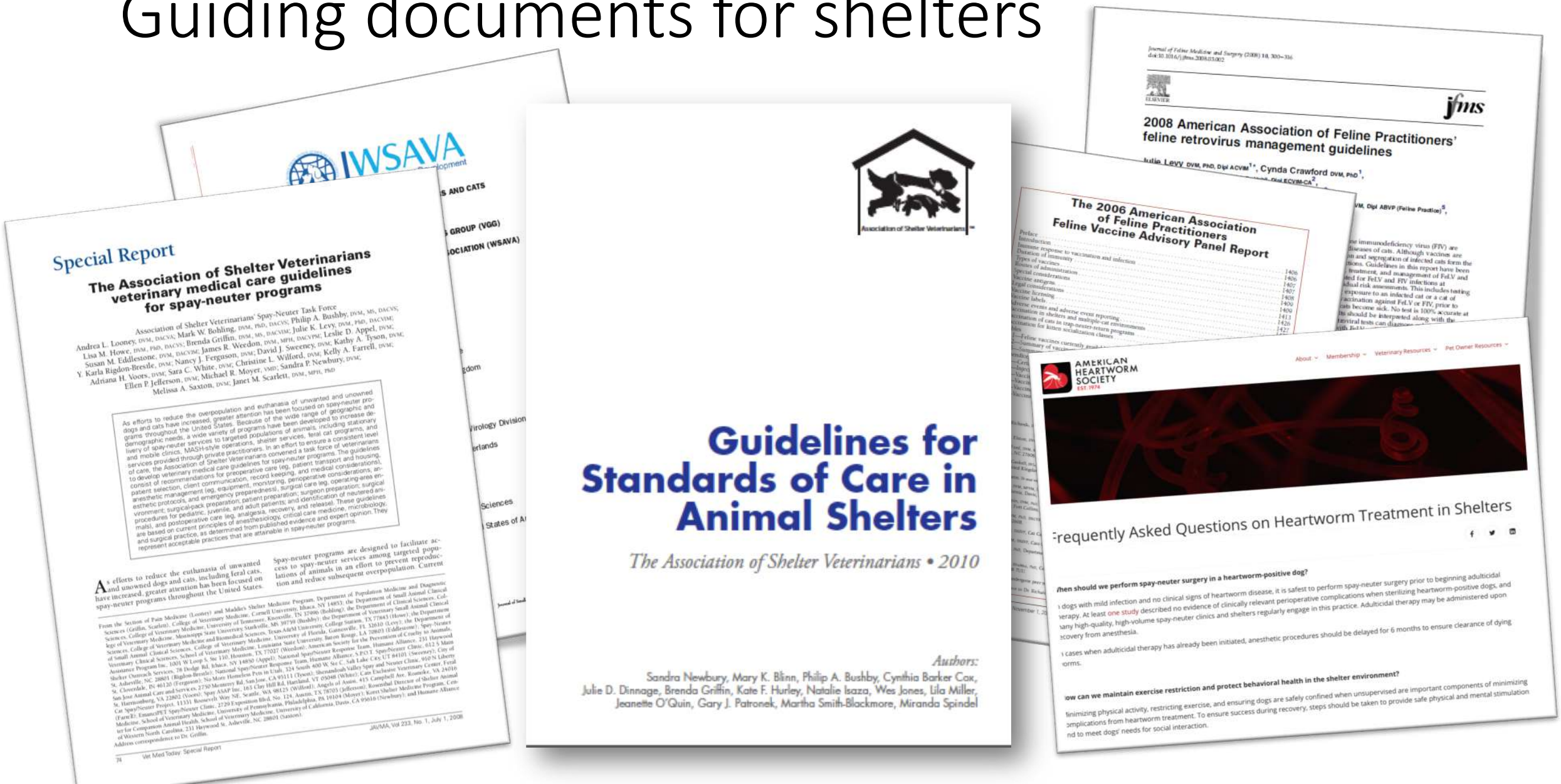






Sheltering and capacity for care (C4C)

Guiding documents for shelters

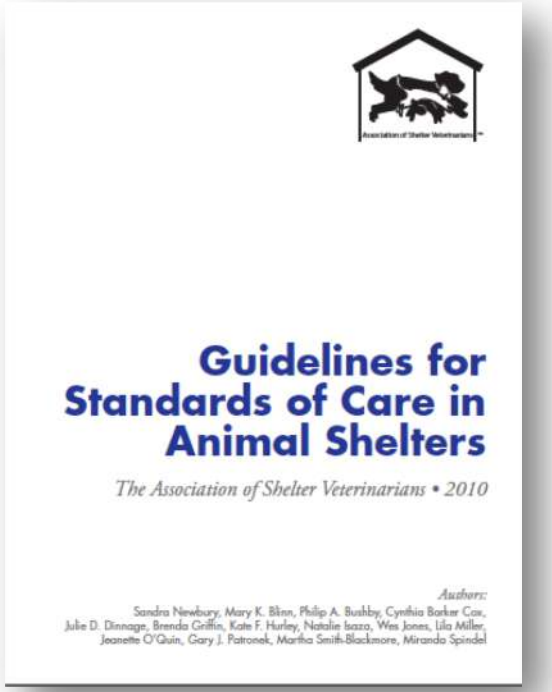


ASV Guidelines for Standards of Care in Animal Shelter

Published by the Association of Shelter Veterinarians (ASV)

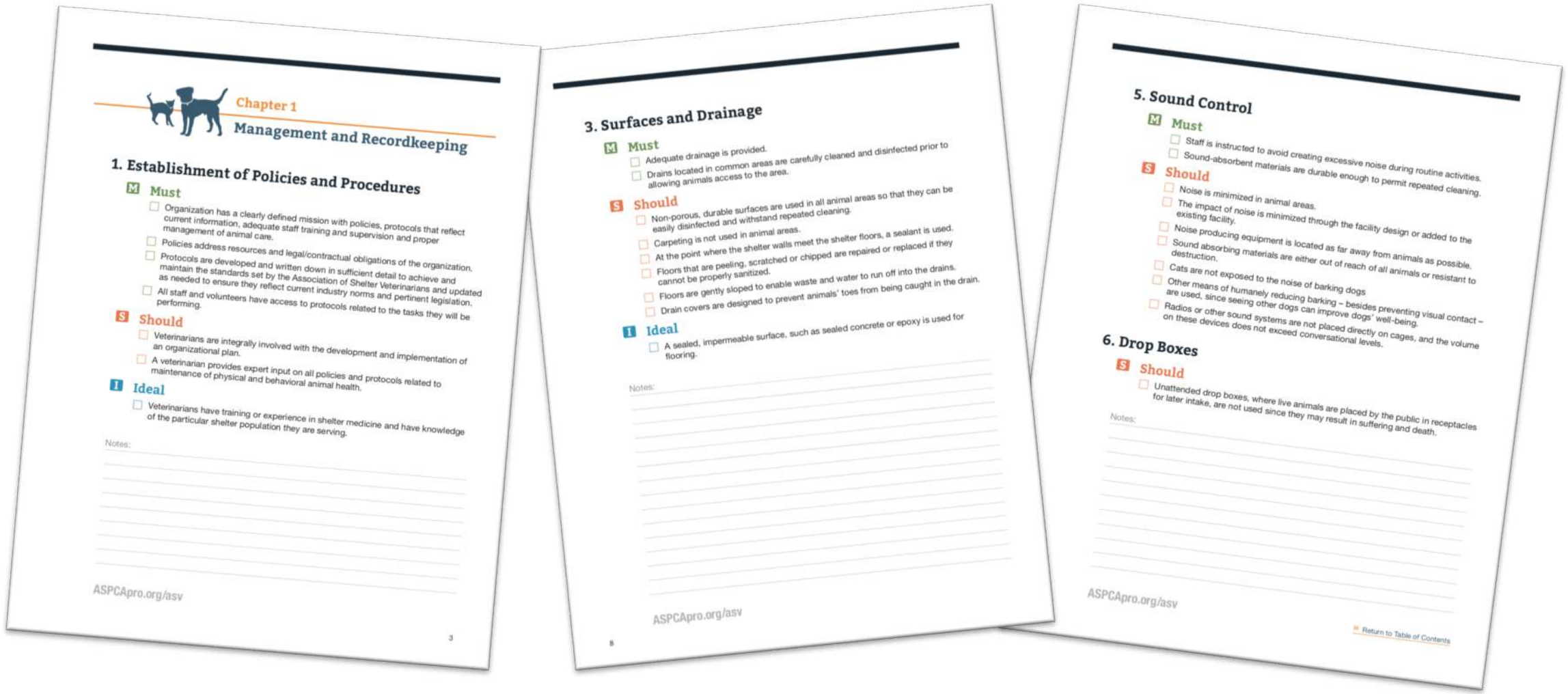
12 sections

- Management and recordkeeping
- Facility design
- Population management
- Sanitation
- Medical health
- Behavioral health
- Group housing
- Animal handling
- Euthanasia
- Sterilization
- Animal transport
- Public health



ASV Standards in Practice

ASPCA Professional



Chapter 1

Management and Recordkeeping

1. Establishment of Policies and Procedures

Must

- ☐ Organization has a clearly defined mission with policies, protocols that reflect current information, adequate staff training and supervision and proper management of animal care.
- ☐ Policies address resources and legal/contractual obligations of the organization.
- ☐ Protocols are developed and written down in sufficient detail to achieve and maintain the standards set by the Association of Shelter Veterinarians and updated as needed to ensure they reflect current industry norms and pertinent legislation.
- ☐ All staff and volunteers have access to protocols related to the tasks they will be performing.

Should

- ☐ Veterinarians are integrally involved with the development and implementation of an organizational plan.
- ☐ A veterinarian provides expert input on all policies and protocols related to maintenance of physical and behavioral animal health.

Ideal

- ☐ Veterinarians have training or experience in shelter medicine and have knowledge of the particular shelter population they are serving.

Notes:

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3. Surfaces and Drainage

Must

- ☐ Adequate drainage is provided.
- ☐ Drains located in common areas are carefully cleaned and disinfected prior to allowing animals access to the area.

Should

- ☐ Non-porous, durable surfaces are used in all animal areas so that they can be easily disinfected and withstand repeated cleaning.
- ☐ Carpeting is not used in animal areas.
- ☐ At the point where the shelter walls meet the shelter floors, a sealant is used.
- ☐ Floors that are peeling, scratched or chipped are repaired or replaced if they cannot be properly sanitized.
- ☐ Floors are gently sloped to enable waste and water to run off into the drains.
- ☐ Drain covers are designed to prevent animals' toes from being caught in the drain.

Ideal

- ☐ A sealed, impermeable surface, such as sealed concrete or epoxy is used for flooring.

Notes:

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5. Sound Control

Must

- ☐ Staff is instructed to avoid creating excessive noise during routine activities.
- ☐ Sound-absorbent materials are durable enough to permit repeated cleaning.

Should

- ☐ Noise is minimized in animal areas.
- ☐ The impact of noise is minimized through the facility design or added to the existing facility.
- ☐ Noise producing equipment is located as far away from animals as possible.
- ☐ Sound absorbing materials are either out of reach of all animals or resistant to destruction.
- ☐ Cats are not exposed to the noise of barking dogs
- ☐ Other means of humanely reducing barking – besides preventing visual contact – are used, since seeing other dogs can improve dogs' well-being.
- ☐ Radios or other sound systems are not placed directly on cages, and the volume on these devices does not exceed conversational levels.

6. Drop Boxes

Should

- ☐ Unattended drop boxes, where live animals are placed by the public in receptacles for later intake, are not used since they may result in suffering and death.

Notes:

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Population management

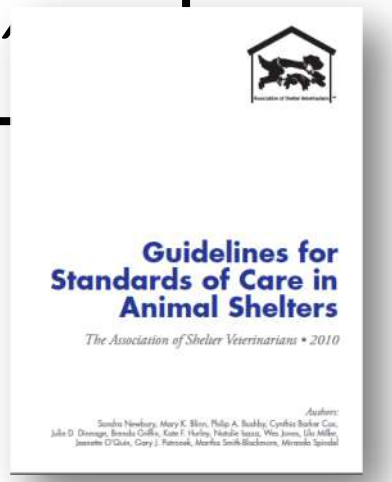
“We, and the animals, were caught in a vicious cycle; the housing and crowding in our kennels led to illness which led to more crowding and so on. The staff was spending so much time giving URI and ringworm treatments that we started to decrease the staffing for spay/neuter. The backup in spay/neuter only worsened the problem.”

-Exhausted shelter vet

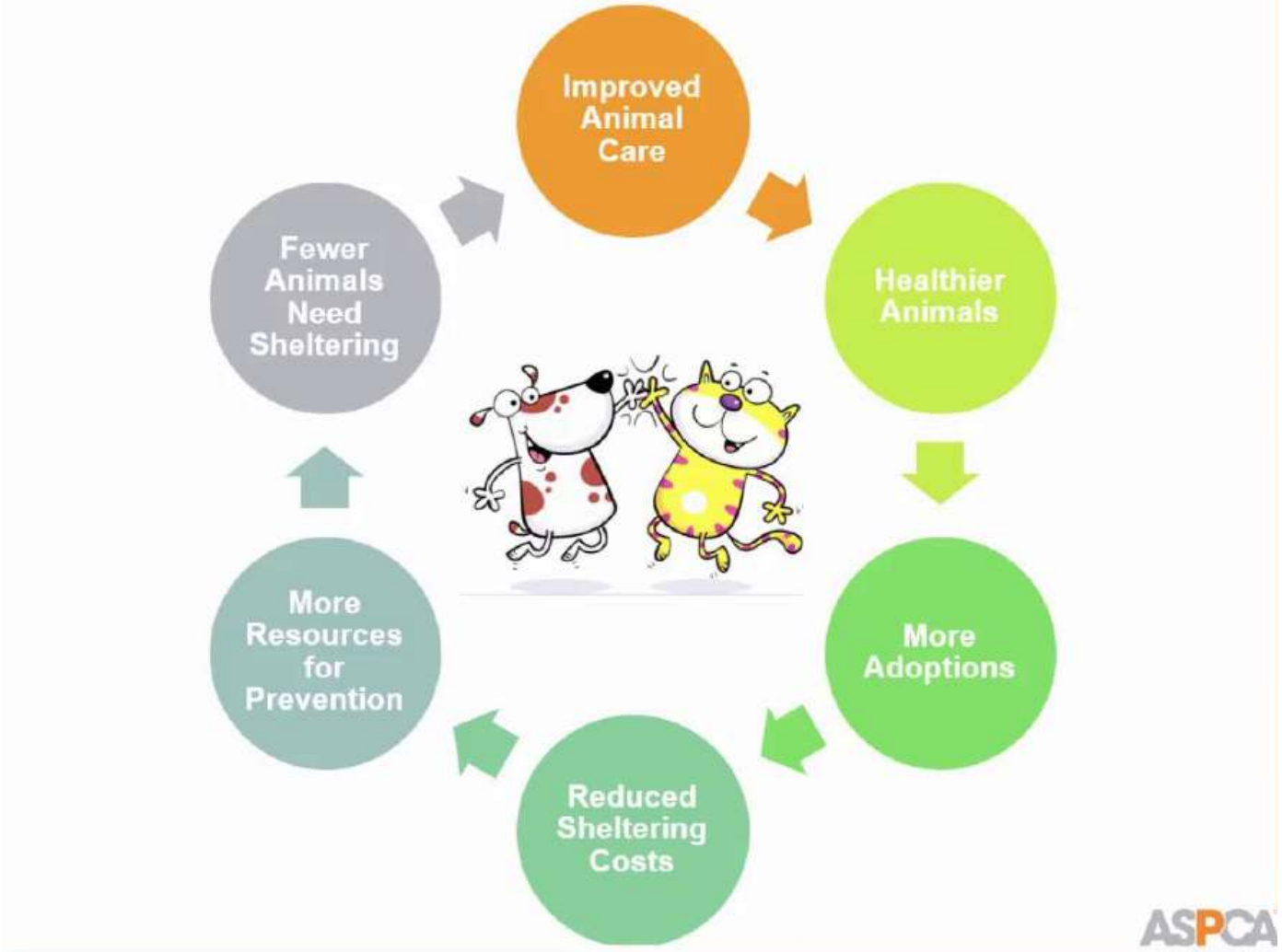
What is population management?

- Pro-active approach to in-shelter care
- Goals:
  - Identify animal needs
  - Create a response plan
  - Ensure accountability
- Ensure ALL animals receive optimum care to maintain their physical and behavioral health
- Shorten transit time through the shelter for dogs and reduce length of stay

"Every sheltering organization has a maximum capacity for care, and the population in their care must not exceed that level."

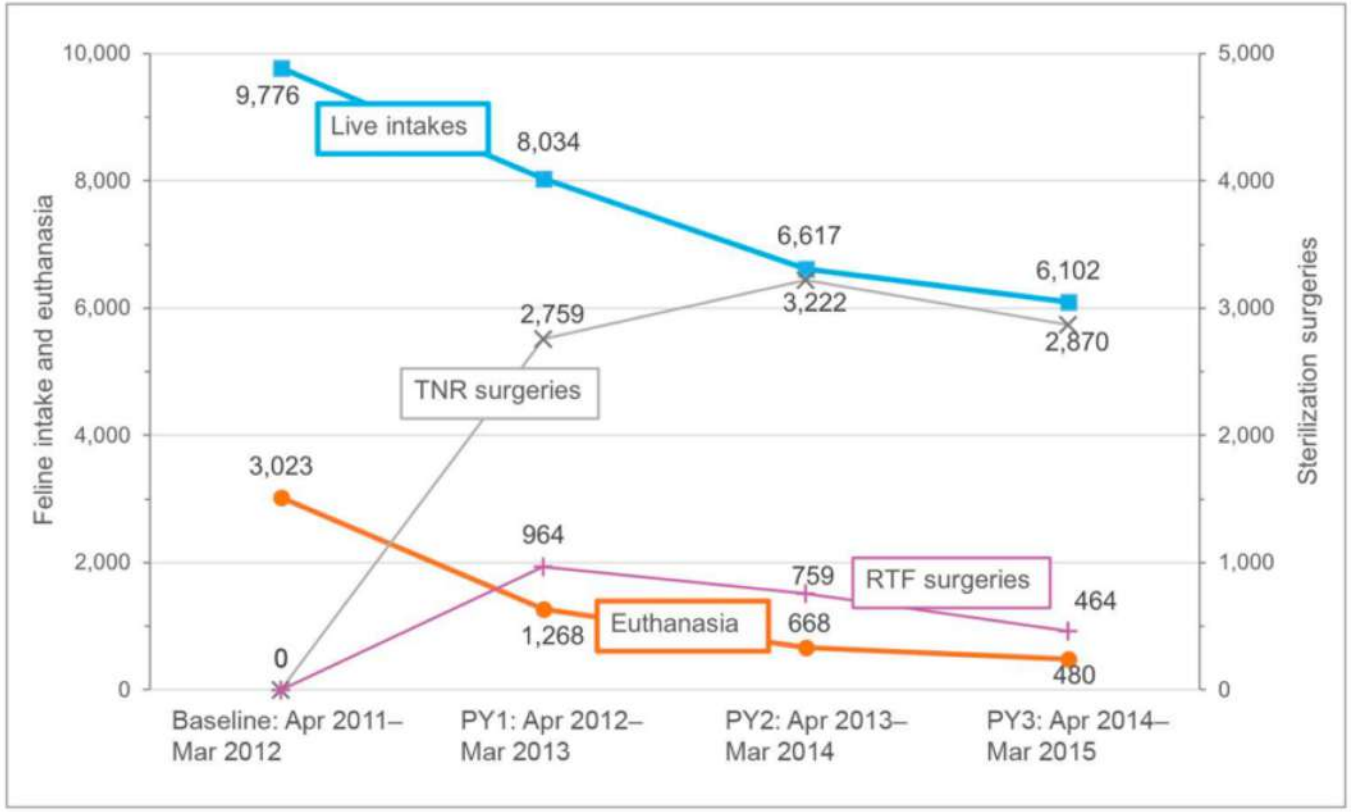


Why is population management important?



Population management

- Analysis of shelter population, length of stay, intake and outcomes, health trends
- Identification of the best path for each animal
- Working within the shelter's capacity for humane care

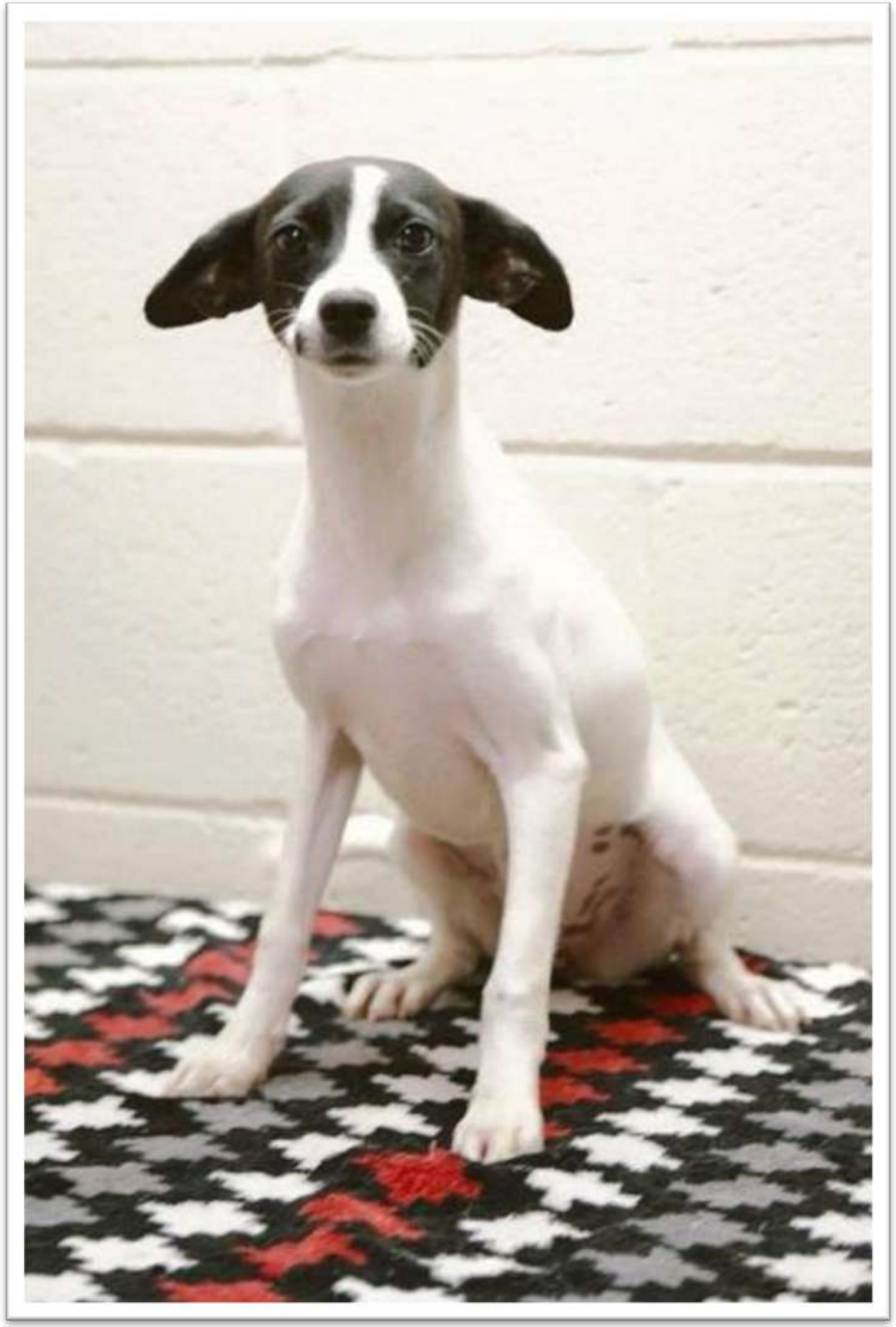


Population Management Tools:

- Daily Rounds
- Capacity Assessment and Planning

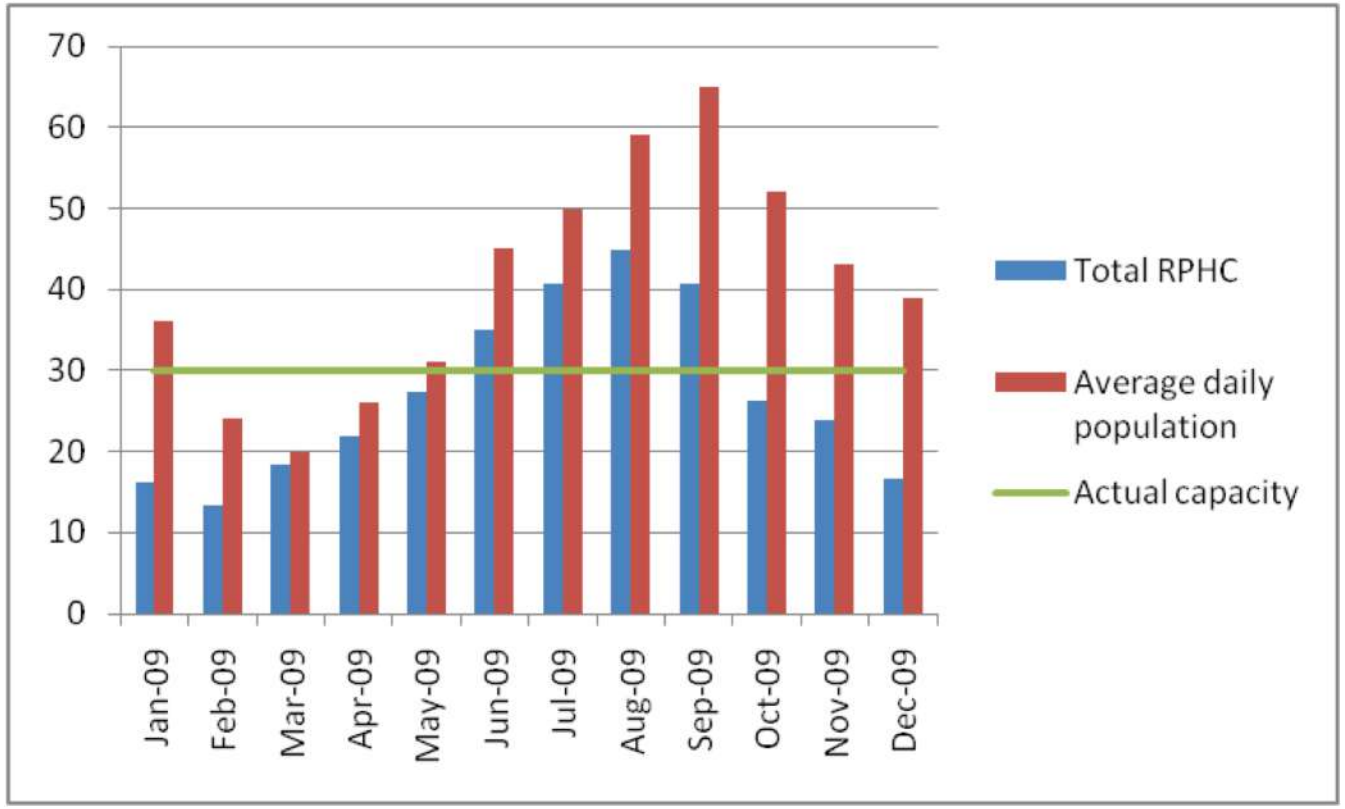
Daily Rounds

- Physical walk-through the shelter
  - Stop at each cage
- Examine and take action:
  - Who are you? (ID, characteristics)
  - How are you? (medical and behavioral)
  - Are you where you should be?
  - Do you need something today?
  - How can we help you?
- Complete a check-list and follow-up

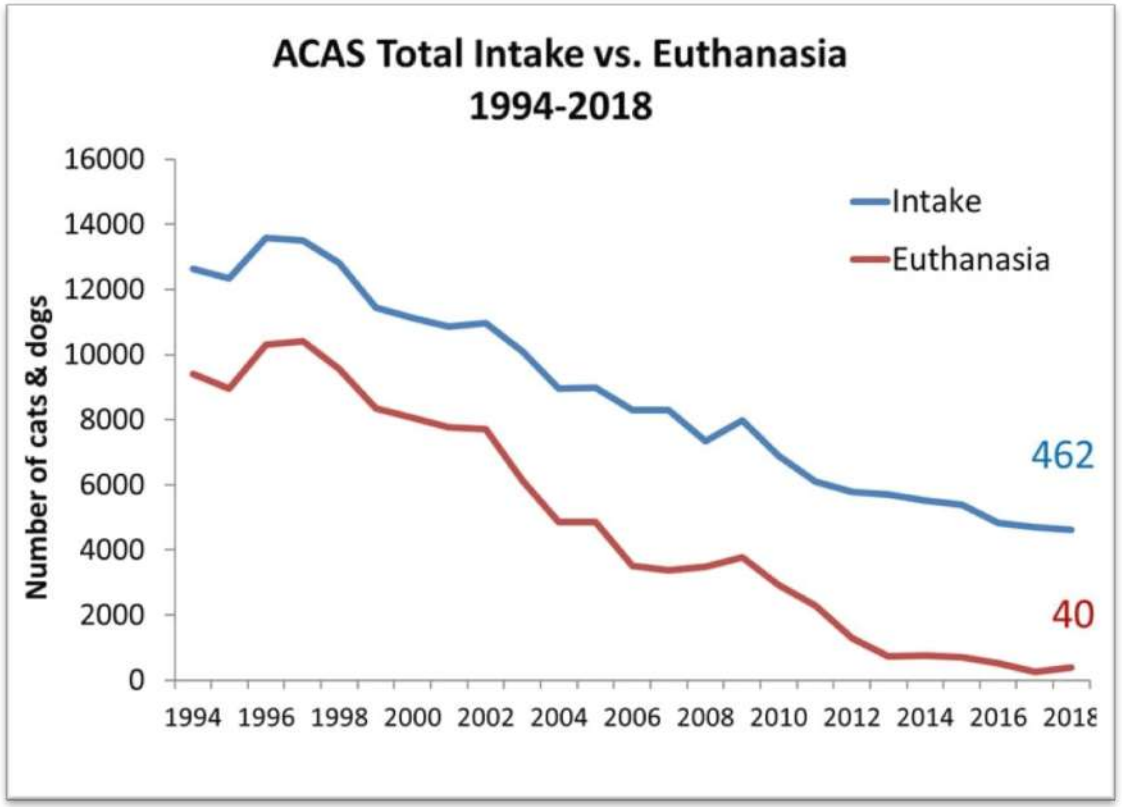


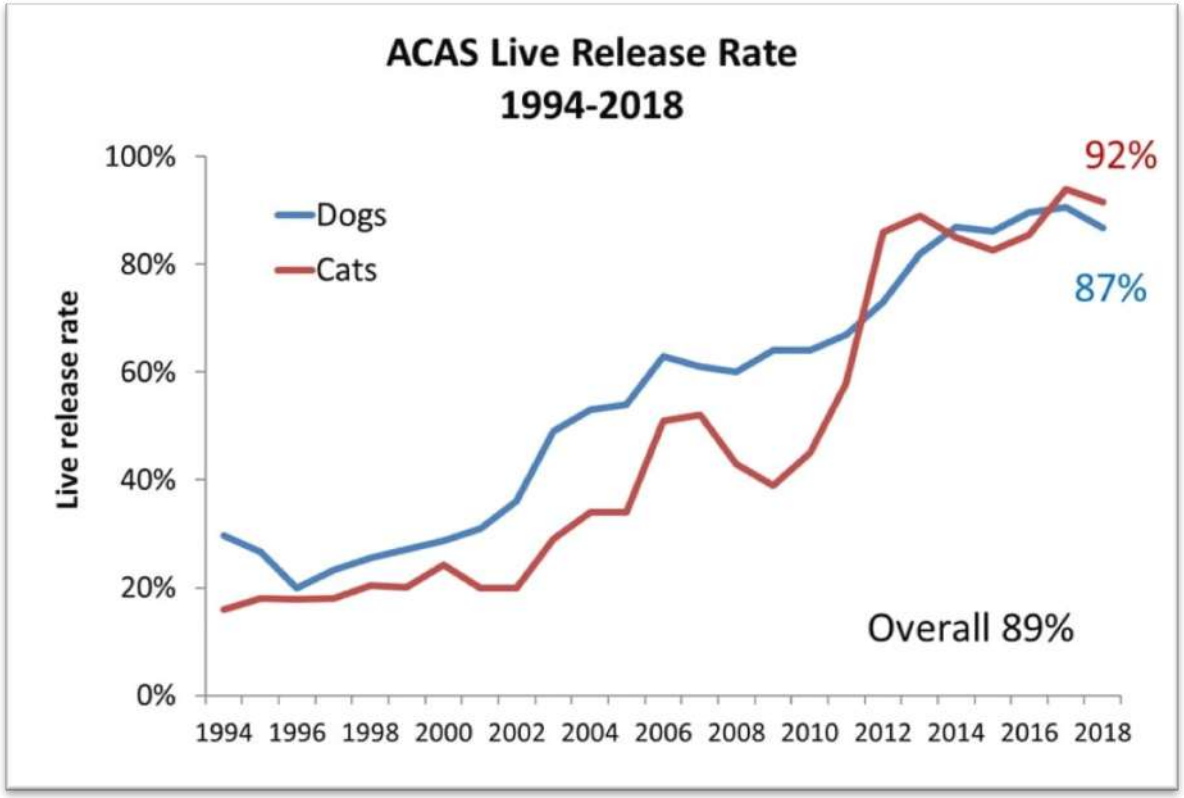
Basic capacity calculations

- Physical holding capacity
- Adoption driven capacity
- Staff capacity for daily care
- Staff capacity for flow through
- Average length of stay

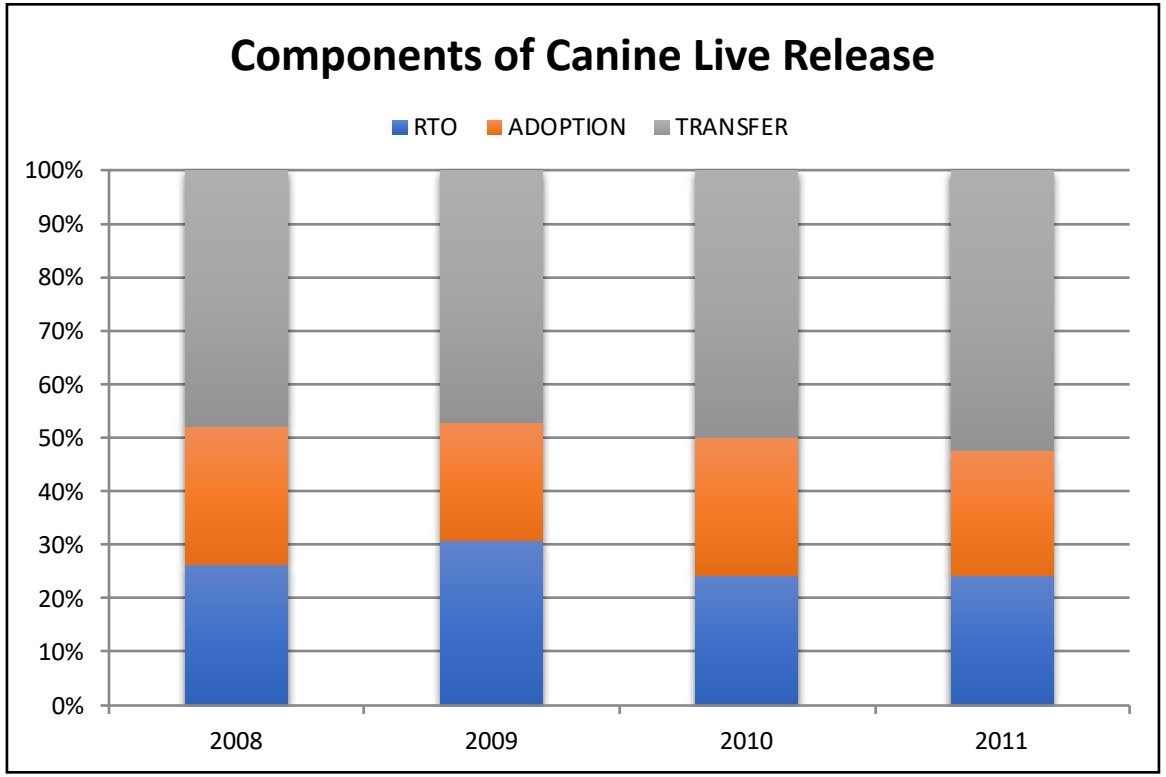


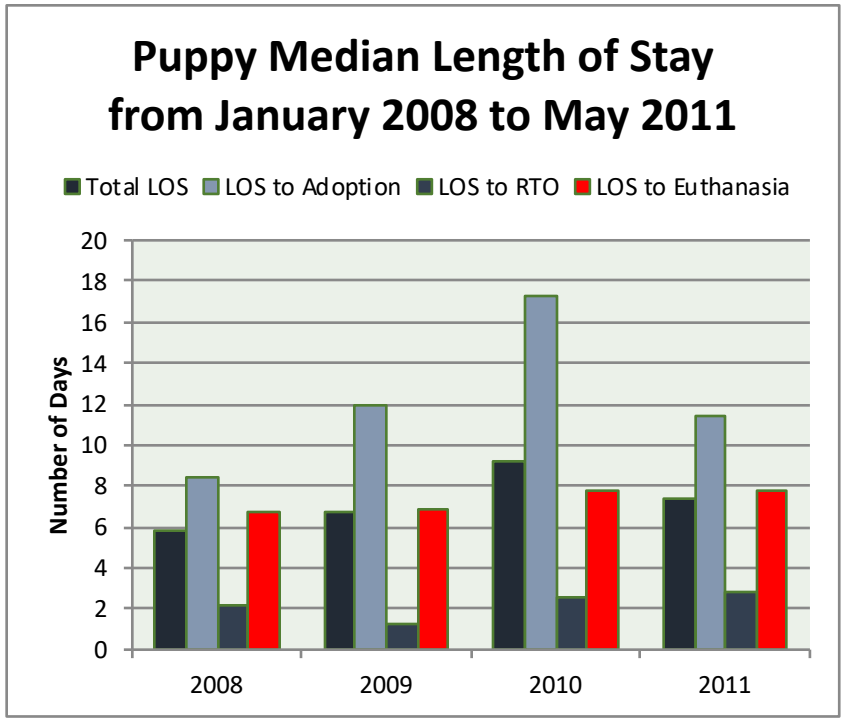
Intake, euthanasia, LRR data

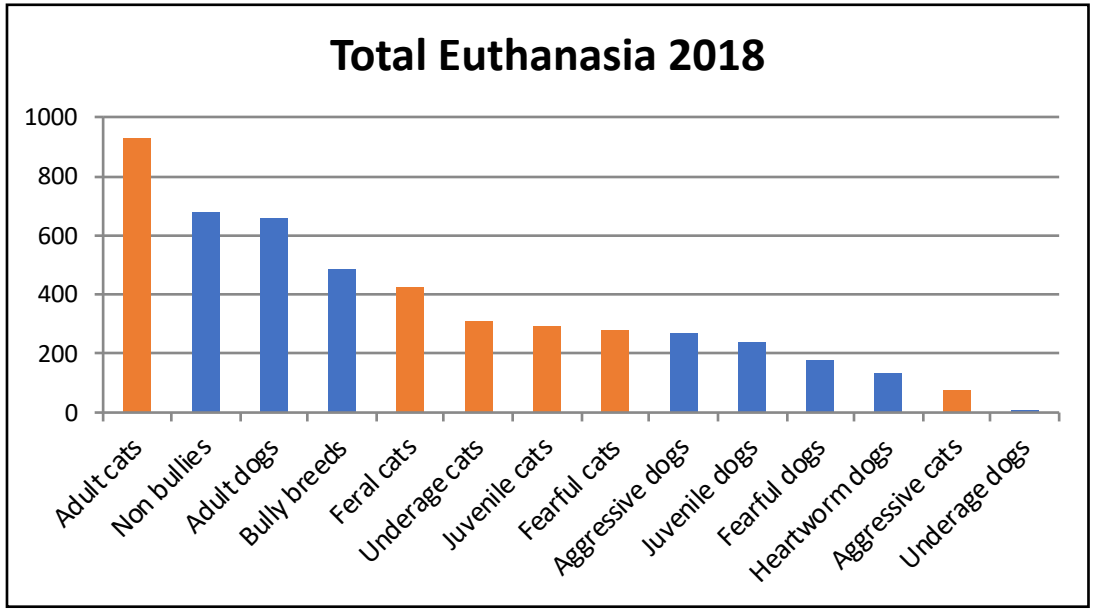




Shelter metrics







Data-driven DPM programs

ELSEVIER

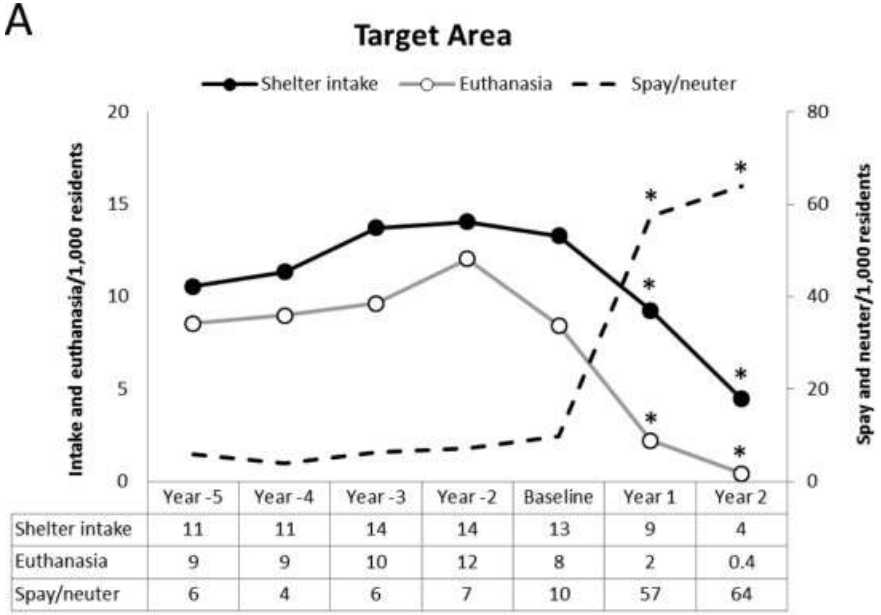
The Veterinary Journal

Volume 201, Issue 3, September 2014, Pages 269-274

Effect of high-impact targeted trap-neuter-return and adoption of community cats on cat intake to a shelter

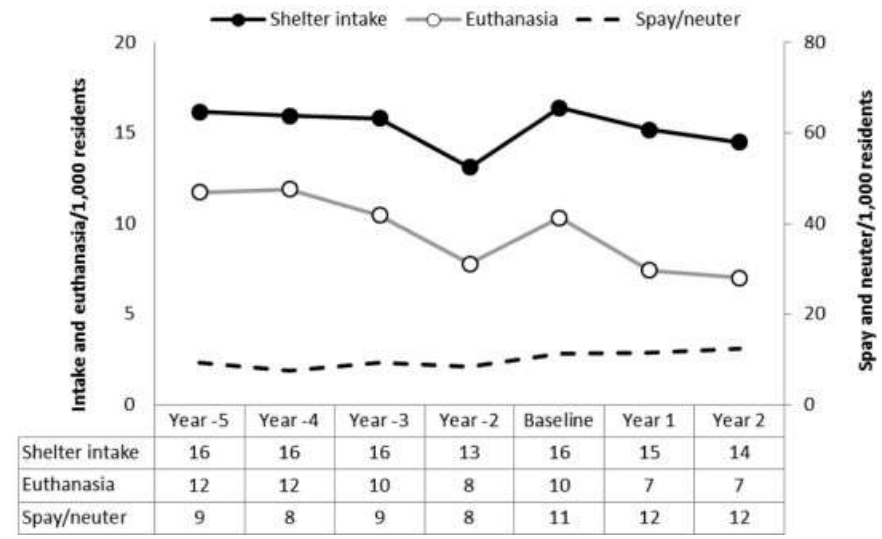
J.K. Levy [a], N.M. Isaza [b], K.C. Scott [a]

A



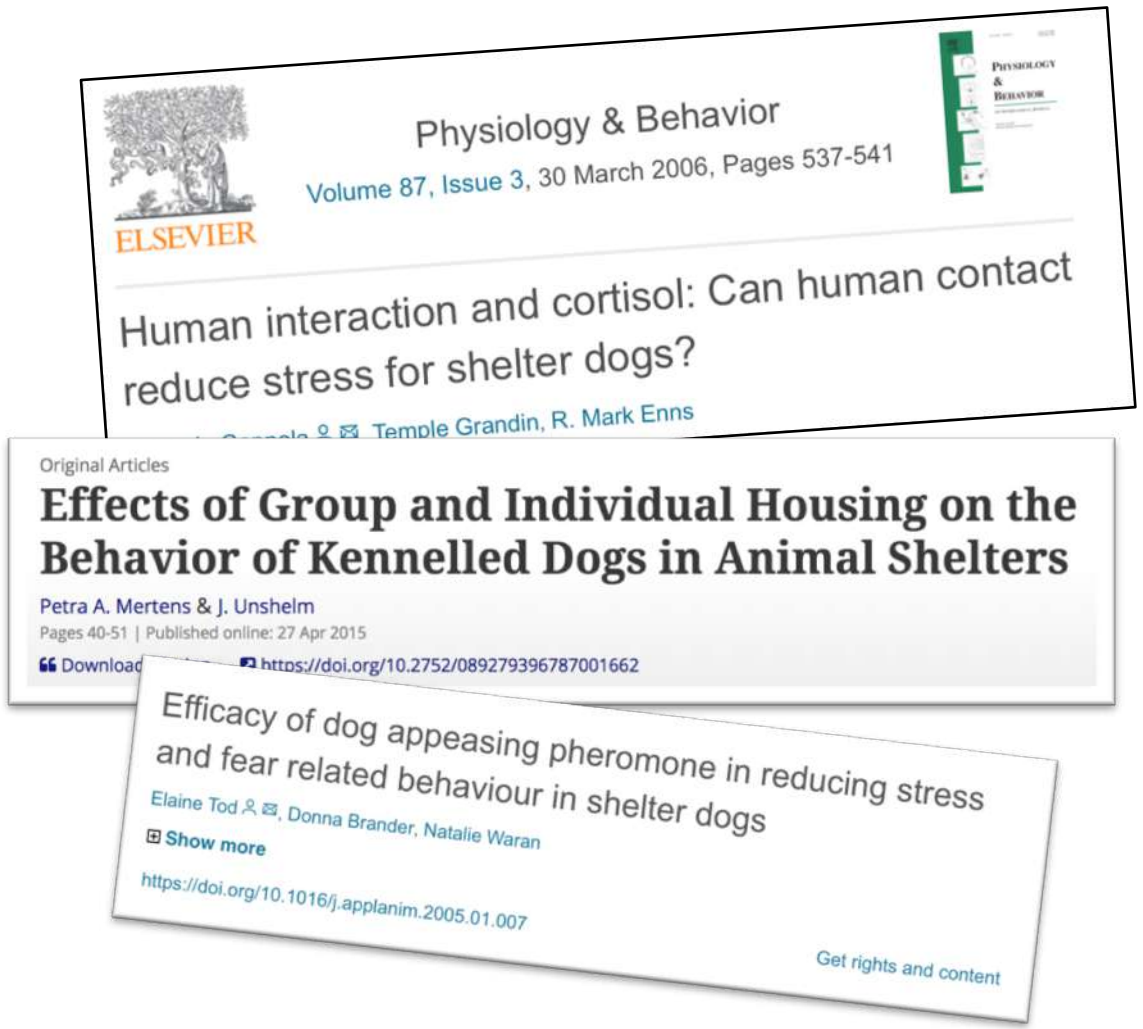
	Year -5	Year -4	Year -3	Year -2	Baseline	Year 1	Year 2
Shelter intake	11	11	14	14	13	9	4
Euthanasia	9	9	10	12	8	2	0.4
Spay/neuter	6	4	6	7	10	57	64

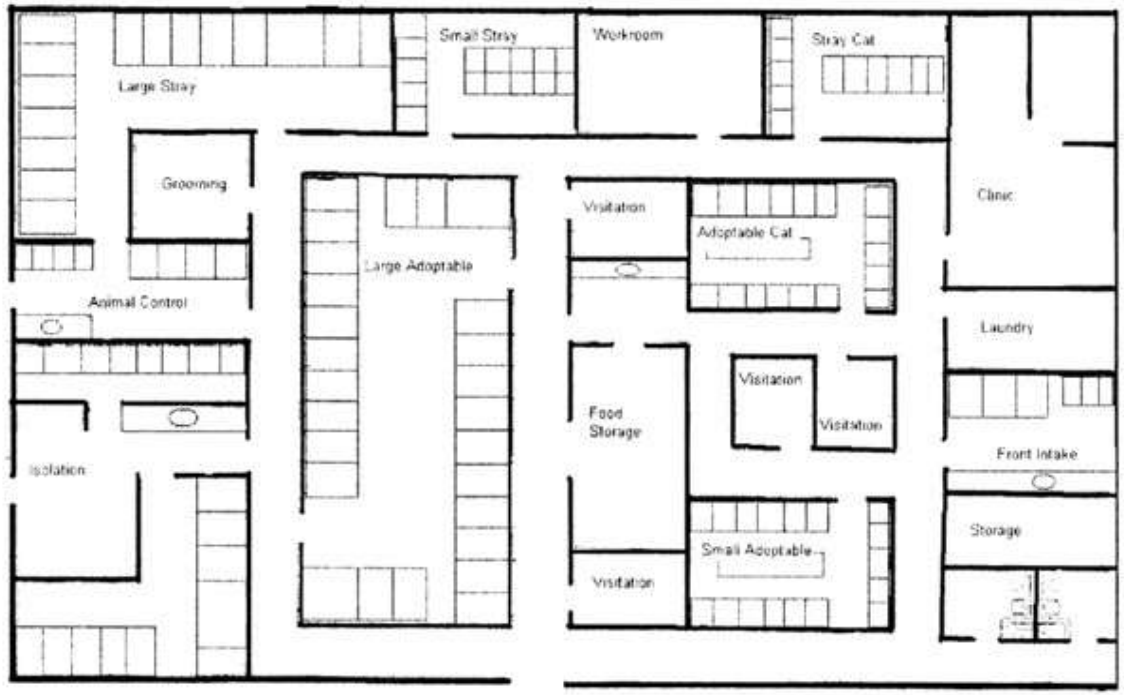
B



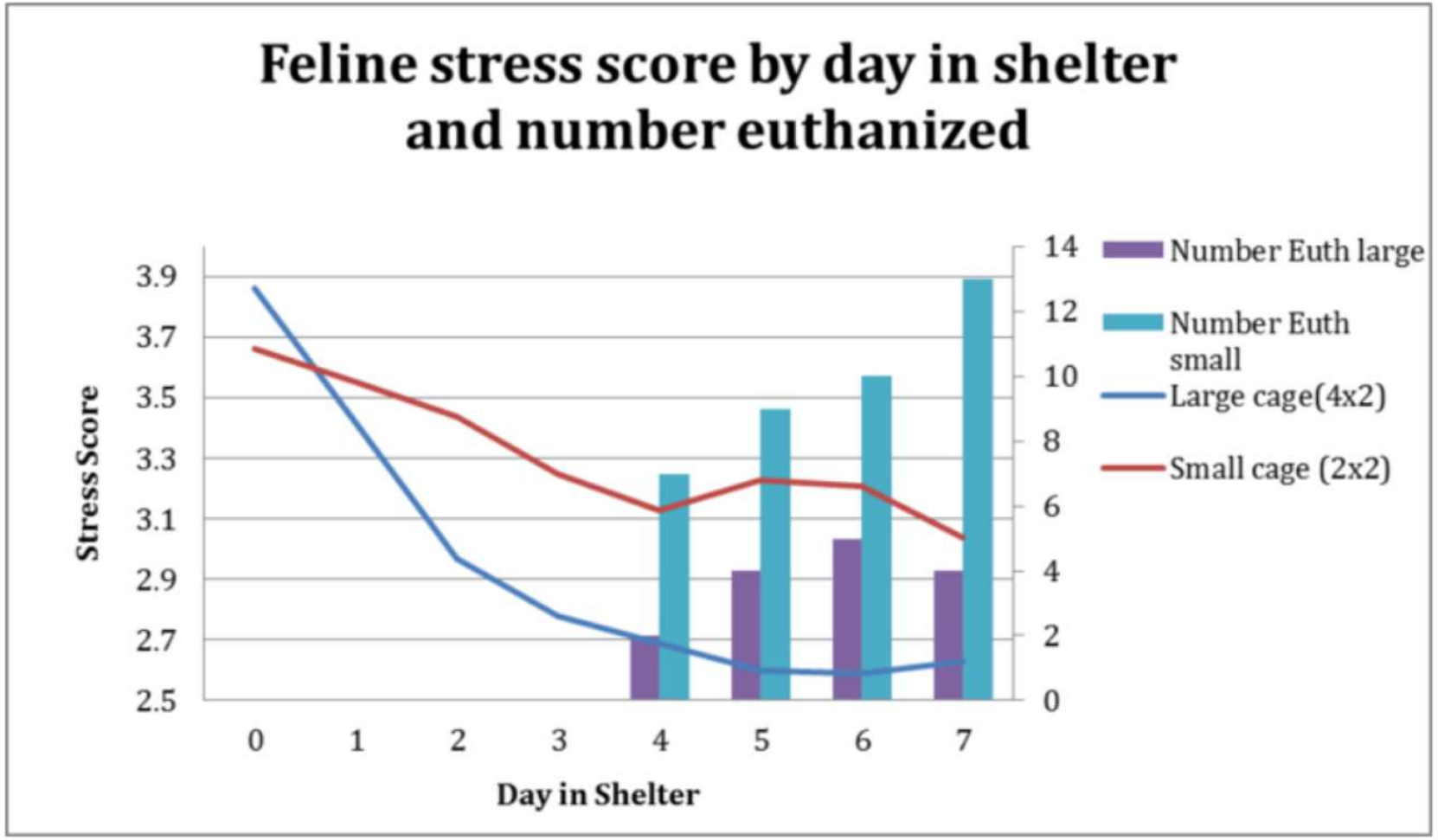
	Year -5	Year -4	Year -3	Year -2	Baseline	Year 1	Year 2
Shelter intake	16	16	16	13	16	15	14
Euthanasia	12	12	10	8	10	7	7
Spay/neuter	9	8	9	8	11	12	12

Facility Design





Relationship between housing, stress, and euthanasia



According to the ASV standards

"Poor cat housing is one of the greatest shortcomings observed in shelters and has a substantially negative impact on both health and well-being"

Portals


13 B


In loving memory of
Ms. Beth Galey

Take Home Points

- Shelters must operate within their capacity for care
- Daily rounds are a must
- Higher shelter intake does not equate to more lives saved
- Good animal housing will minimize disease transmission, staff burnout, and improve live release rates

Preventive medicine

Microchips, vaccination,

endoparasite control

Microchips

Lord, LK, Ingwersen W, Gray JL, et al.

- >7000 dogs and cats
- 53 shelters in the US

RTO Rates	Stray Dogs	Stray Cats
Without microchips	21.9%	1.8%
With microchips	52.2%	38.5%

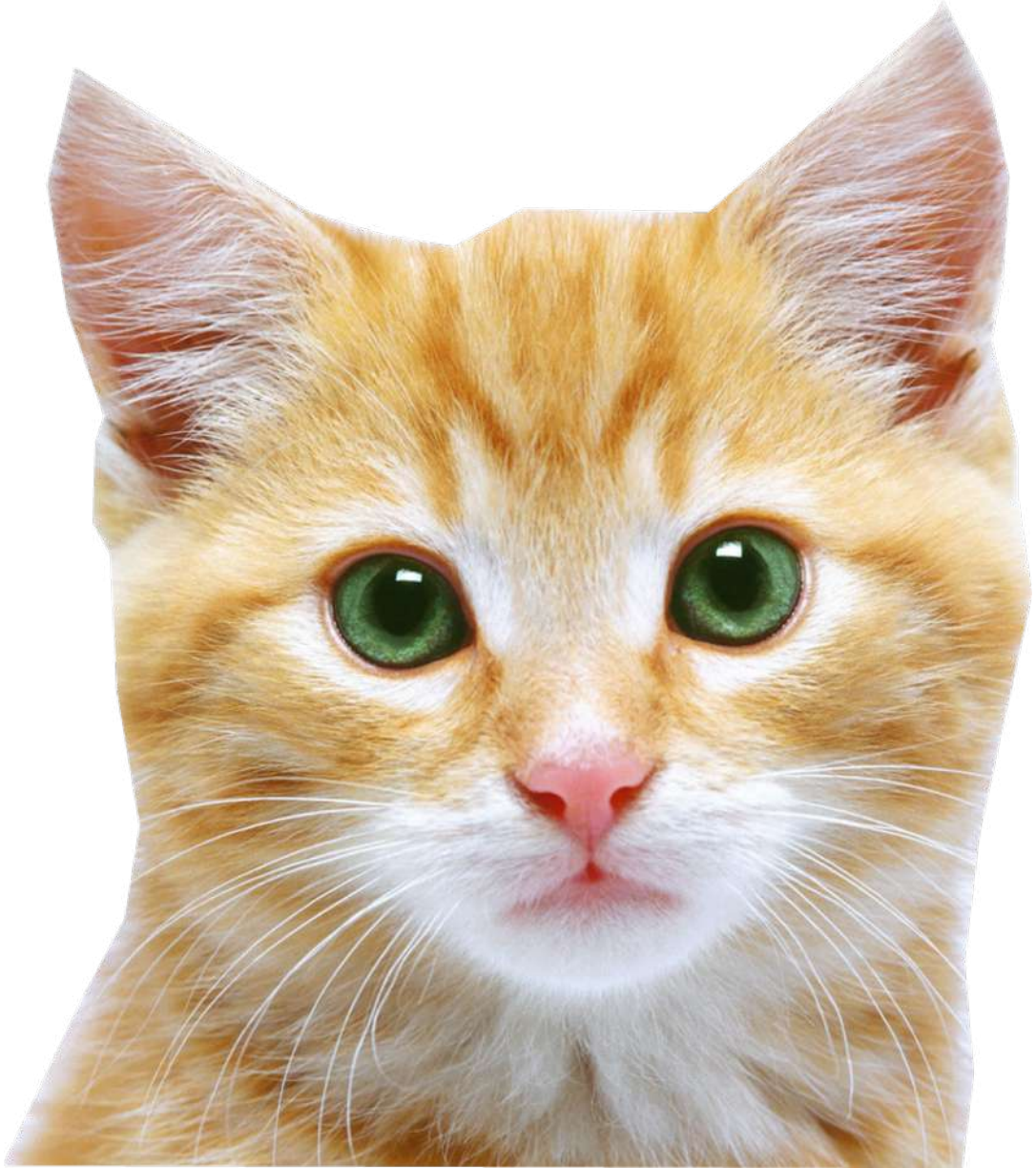
J Am Vet Med Assoc. 2009 Jul 15;235(2):160-7. doi: 10.2460/javma.235.2.160.

Characterization of animals with microchips entering animal shelters.

Lord LK[1], Ingwersen W, Gray JL, Wintz DJ.

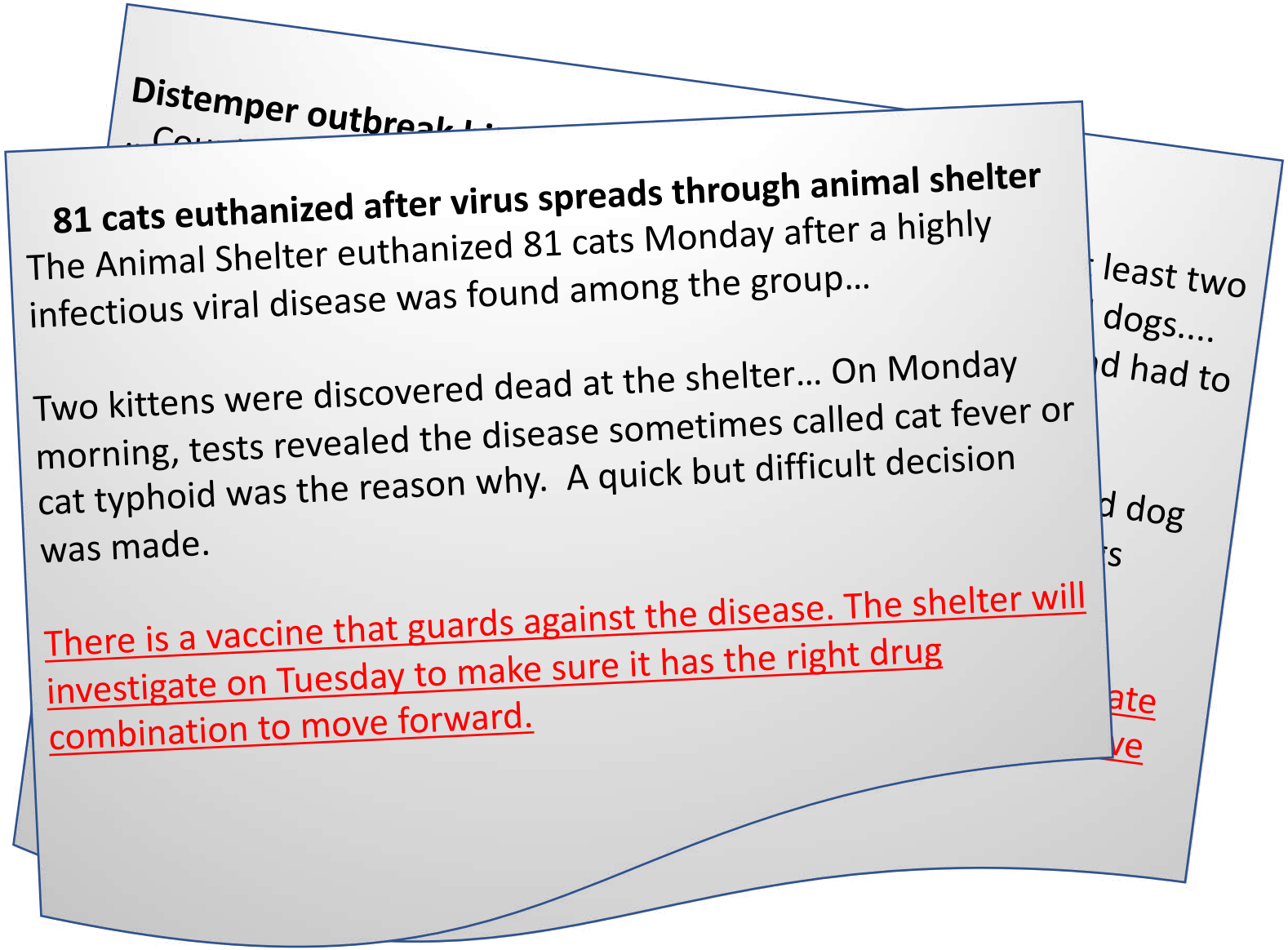
Shelter Intake Treatments

- Vaccination
  - Is it necessary?
  - Does it matter when vaccination occurs?
  - Does the type of vaccine matter?
  - Vaccine protocols
- Parasite Control



Vaccination

- Is it necessary?

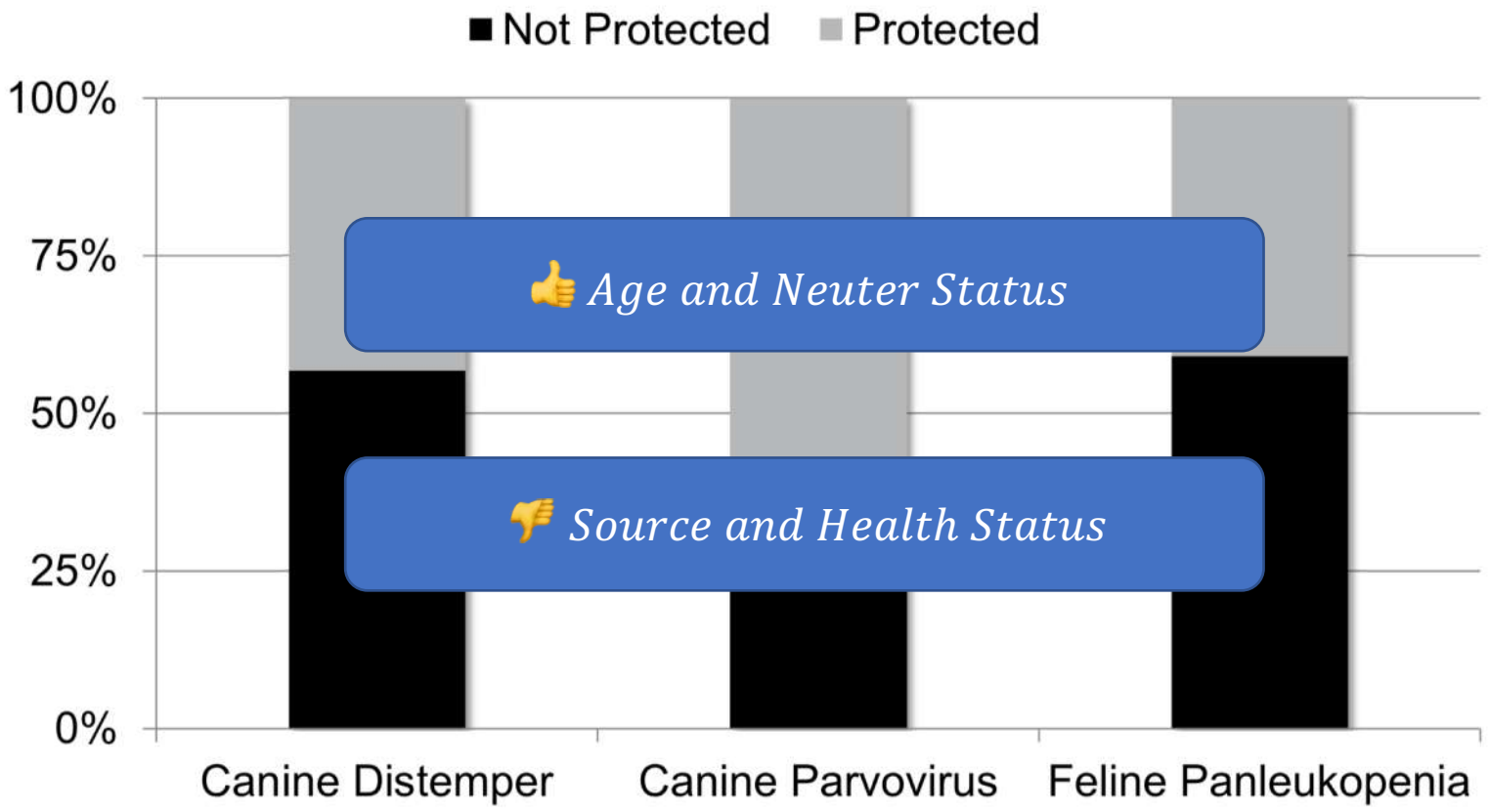


Vaccination

- Does the type of vaccine matter?

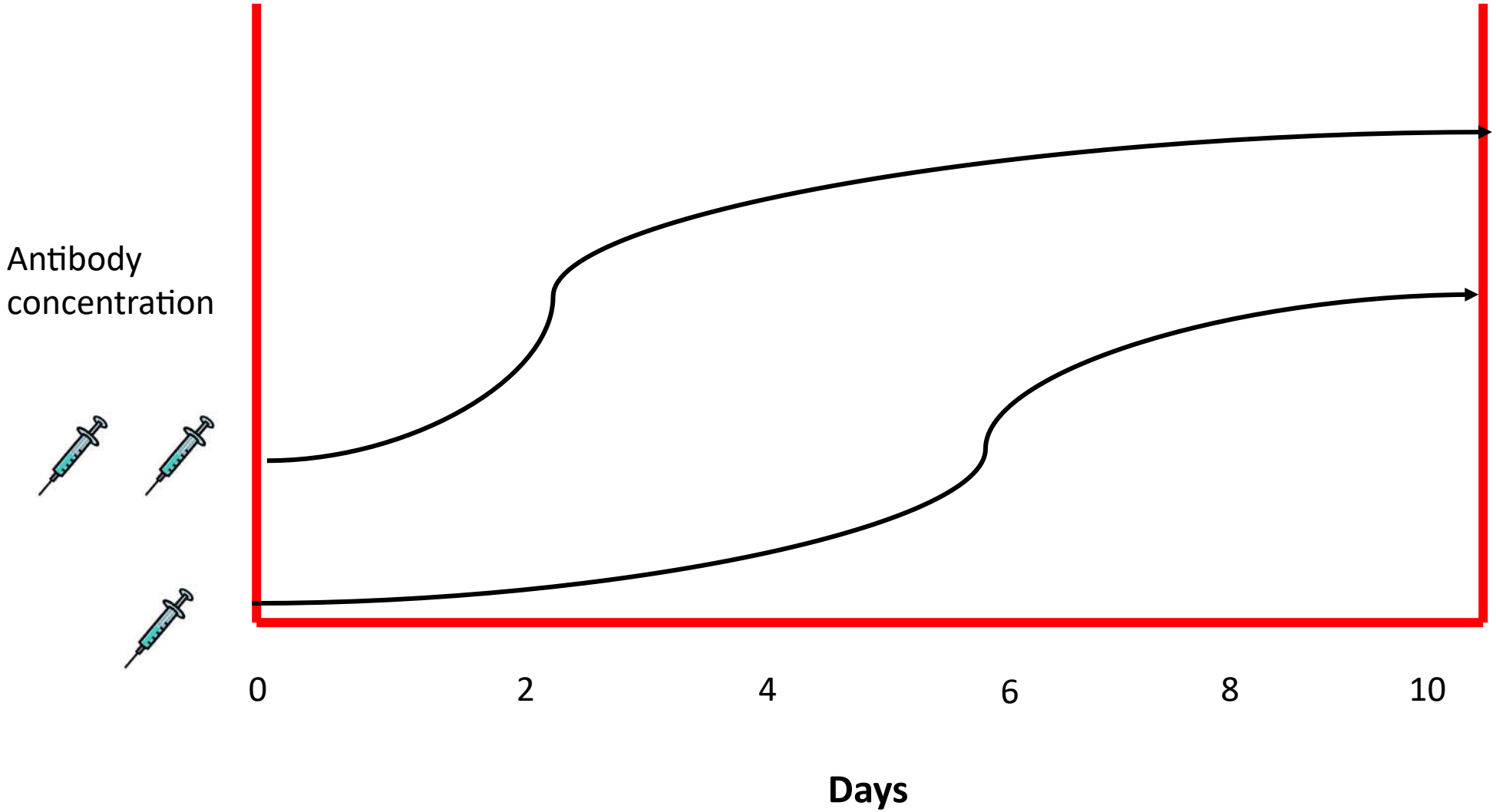
Infections (MLV)		Non-infectious (Killed)	
Pros	**Cons**	**Pros**	**Cons**
More rapid onset of immunity	May cause disease in developing fetuses	No risk to developing fetuses	Less able to overcome maternal antibody
Better able to overcome maternal antibody	May cause signs of disease	Not capable of causing signs of illness	Require adjuvant which may increase reactions

Vaccination - Protective antibodies

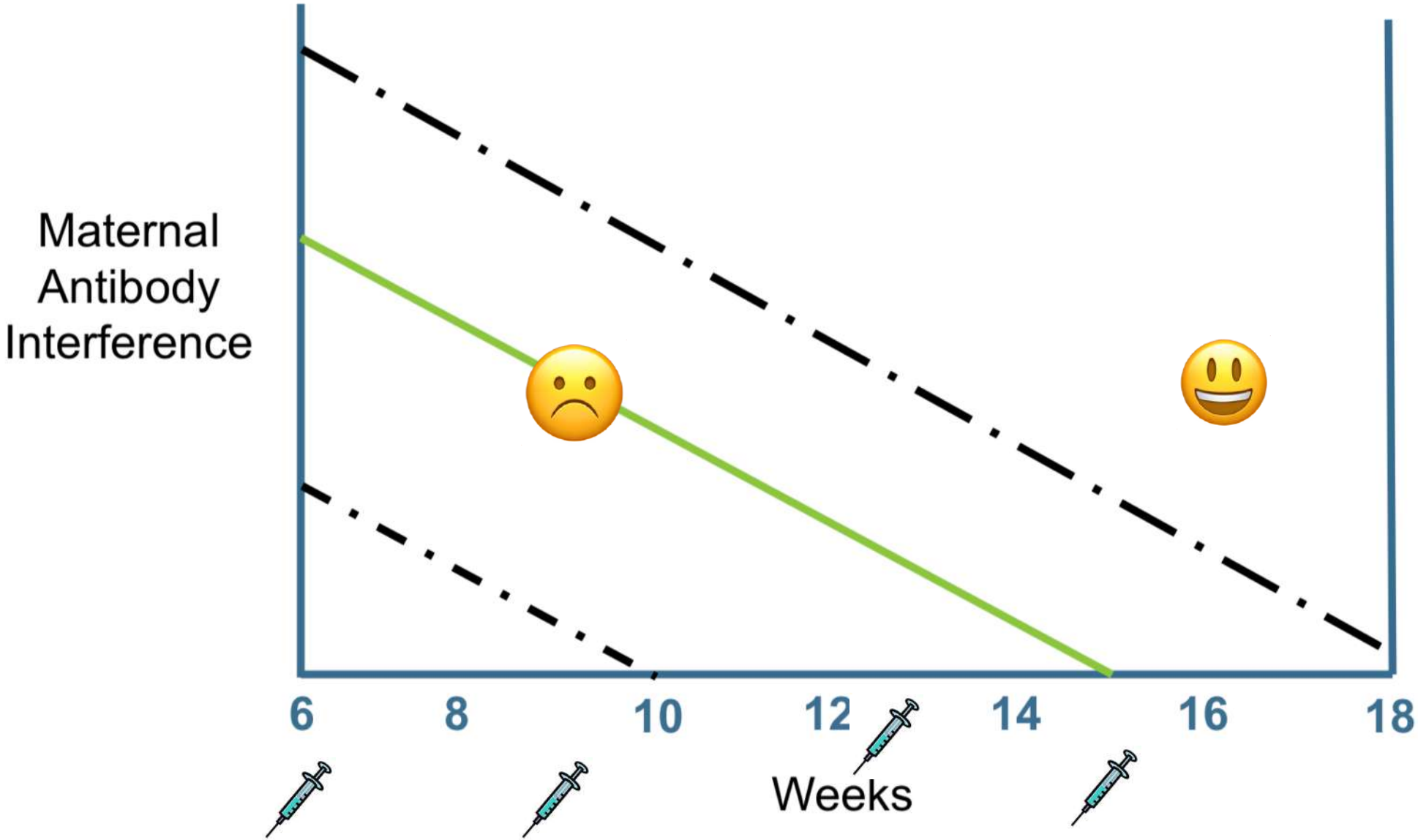


Lechner, et al, 2010
DiGangi et al, 2012

How long does it take to respond to a vaccine?



How long does it take puppies or kittens to respond?



Vaccination – Time to protection

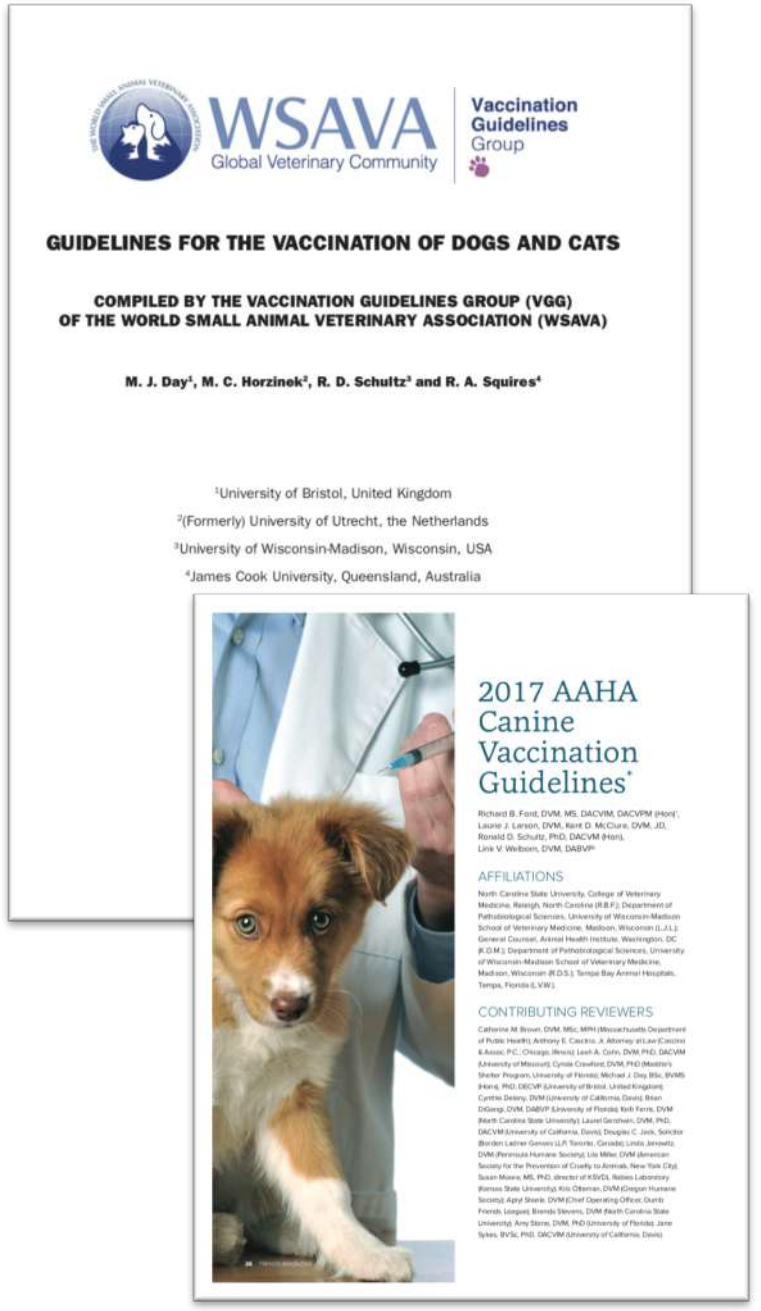
Does it matter when vaccination occurs?

Reference	Disease	Time to protection	Protection determination	Type of vaccine
Brun, 1979	FPV	3 Days	Challenge	MLV
Carmichael, 1983	CPV	5 Days	Titers	MLV
Larson, 2006	CDV	4 hours	Challenge	Recom.
Cocker, 1986	FHV-1	2 days*	Challenge	MLV-IN
Larson, 2009	FCV	7 days	n/a	MLV
Gore, 2005	Bordetella	2 days*	Challenge	MLV-IN

**Remember, these vaccines are not designed to prevent infection, just to minimize the duration and severity of illness*

Canine Vaccination

- DA2PP
  - Administer 1 dose on admission
  - Begin at 4-6 weeks of age
  - Repeat at 2-4 week intervals until 18 weeks of age
  - In adults, repeat in 1 year
- Bordetella bronchiseptica (intranasal)
  - Administer 1 dogs on admission
  - Begin at 3 weeks of age (IN)
  - Repeat in 2 weeks if <6 weeks of age
  - In adults, repeat every 6-12 months
- Rabies



Vaccination

- What about intranasal vaccination for respiratory diseases?
  - Stimulates immunity at the site where infection occurs
  - No interference with maternal antibodies
  - May provide stronger, faster protection against respiratory pathogens

Exception: Intranasal vaccines for feline panleukopenia do not provide a strong enough immune response rapidly enough to be effective in the shelter environment.

Vaccination Key Points

1. Vaccine all animals regardless of health status or source
2. Vaccinate animals before or as soon after intake as possible
3. Use modified-live virus products

Parasite Control

- Internal parasites
  - Administer a broad-spectrum dewormer on admission
  - Repeat in 2 weeks, then monthly
  - In puppies and kittens,
    - Begin at 2 weeks of age until 4 months of age
  - Treatment choices include:
    - Pyrantel Pamoate
    - Fenbendazole
    - Ivermectin
    - +/- ponazuril for puppies and kittens
- External parasites

CAPC
Companion Animal Parasite Council™

Sanitation

Disease Transmission

Direct

Oral/Ingestion

Airborne

Environmental

The sanitation process & products

Optimizing the sanitation process

The Process

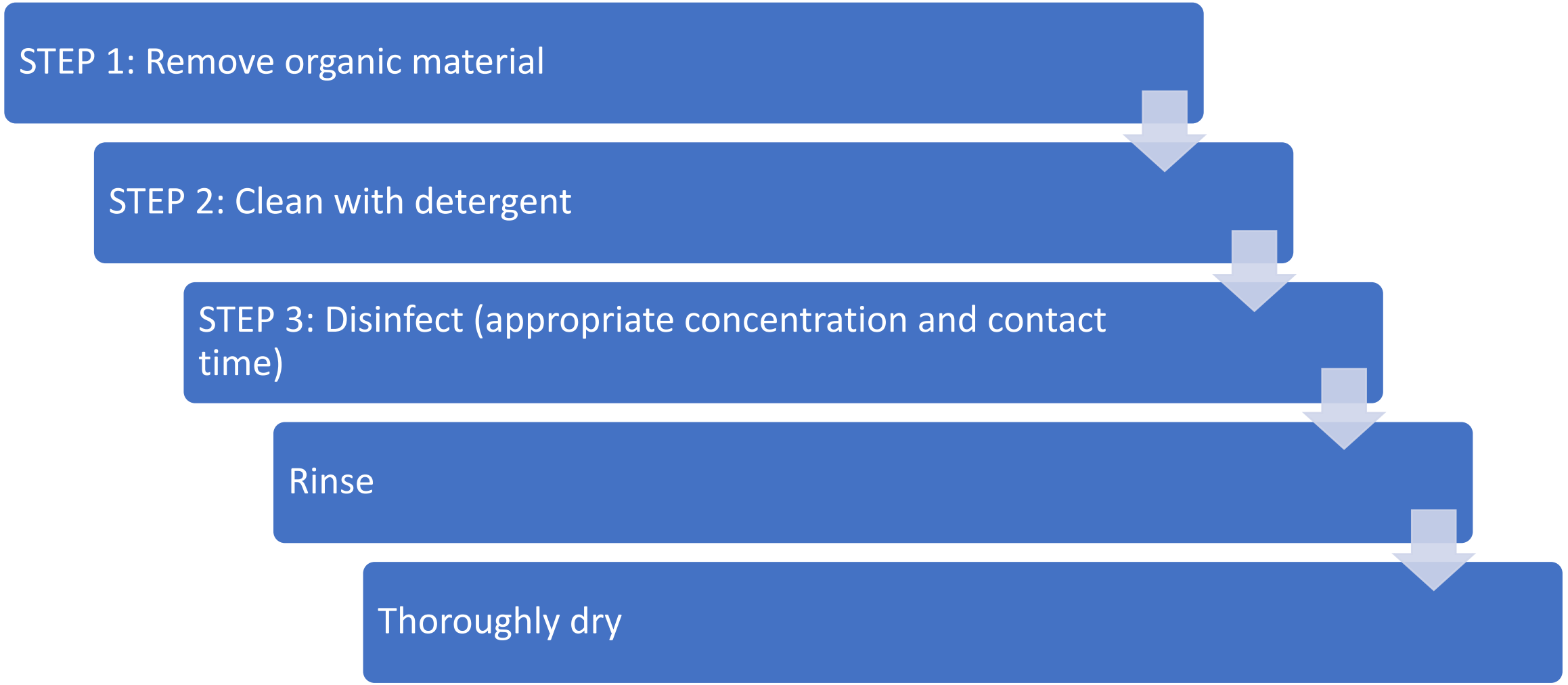
The Places

The Order

Staffing and Training

Reviewing common disinfectants

The actual process



The places

Goal: Focus on high-risk areas and animals

Shared spaces/equipment	Heavily contact areas	High risk & vulnerable animals
• Vehicles • Carriers • Intake • Surgery • Housing • Restraint items	• Intake • Clothing • Hands • Countertops	• Intake • Holding • Juveniles • Isolation • Quarantine

The order of cleaning matters

Goal: Prevent potential disease transmission

Adoptable juveniles

Adoptable adults

Stray healthy juveniles

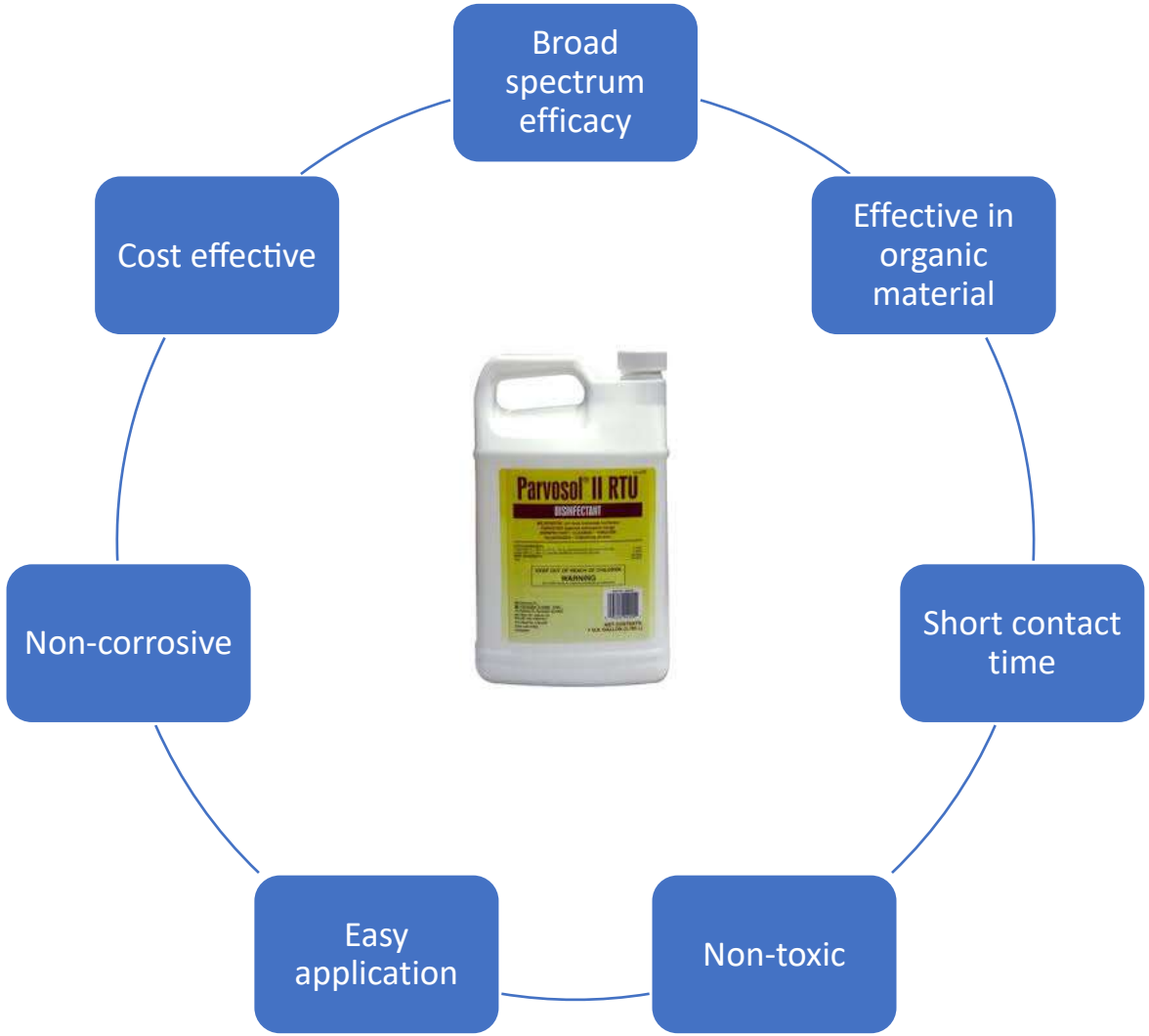
Stray healthy adults

Quarantine*

Isolation*

*Separate staff and/or equipment

The ideal disinfectant



Types of products

- **Soap/detergent.** Cleaning agent which works by suspending dirt and grease and removing organic material. Does not kill harmful microorganisms.
- **Disinfectant.** Chemical agent which kills harmful microorganisms. Does not necessarily remove dirt or grease.
- **Degreaser.** More powerful soap/detergent specially formulated to penetrate layers of dried-on body oils and other greasy debris. This product is used infrequently to remove built-up grease or body oil.(e.g. when dogs rub repeatedly against a wall or door jam).

ASPCA
WE ARE THEIR VOICE.®

Shelter Disinfectant Quick Reference

Disinfectant	Accelerated Hydrogen Peroxide	Potassium Peroxymono-sulfate	Quaternary Ammonium Compounds *(Quats)*	Calcium Hypochlorite	Regular Household Bleach* *(Sodium Hypochlorite)*
Effective against non-enveloped viruses?	Yes, dilute 1:32	Yes at 1%	Not according to independent published research	Yes	Yes, dilute 1:32 (1/2 cup per gallon)
Effective against ringworm following effective pre-cleaning?	Yes, dilute 1:16	Yes at 2%	Yes, if labeled fungicidal against *Trichophyton* spp.	Not according to independent published research	Yes, dilute 1:32 (1/2 cup per gallon)
Inactivated by organic material?	Minimal	Slightly; less inactivation than bleach or quats	Mildly inactivated	Yes	Yes
Requires cleaning as separate step?	Some detergent activity, but cleaning beforehand recommended for heavily soiled surfaces	Some detergent activity, but cleaning beforehand recommended for heavily soiled surfaces	Variable detergent activity, requires some cleaning beforehand	No detergent activity, always requires extensive cleaning beforehand	No detergent activity, always requires extensive cleaning beforehand
Stability when diluted	90 days	7 days	Varies	24 hours	24 hours
Recommended contact time	10 minutes for 1:32 dilution 5 minutes for 1:16 dilution	10 minutes	10 minutes	10 minutes	10 minutes
Rinse required?**	No	No	Yes	Yes	Yes

* Regular household bleach is most commonly 5.25%, however always check the concentration of the bleach product you are using and prepare dilutions accordingly; use our interactive Bleach Dilution Calculator for finding the proper bleach to water ratio for disinfecting.

** To remove any residual disinfectant, rinsing housing areas and food/water dishes is always recommended regardless of which product is used.

ASPCApro

Guidelines for Using Bleach

Sodium hypochlorite is the chemical compound commonly known as bleach. Bleach is utilized as a component of the cleaning and disinfection protocol for many animal hospitals, shelters, and spay-neuter clinics. It is well-known for its ability to kill many bacteria, viruses and fungal hyphae (and at proper dilution, fungal spores). It is especially helpful for its ability to kill non-enveloped viruses, such as Canine Parvovirus, Feline Panleukopenia and Feline Calicivirus. The following guidelines should be followed when using bleach as a disinfectant to ensure its effectiveness:

1. **Bleach must be applied to a surface that has previously been cleaned with an appropriate detergent.** Bleach is solely a disinfectant and can be inactivated by microscopic organic debris. Care must be taken to completely rinse all detergent residues and thoroughly dry the surface prior to applying bleach so as not to further dilute the bleach solution.

2. **A 1:32 solution of regular household bleach (8.25% sodium hypochlorite) is appropriate for daily use.** Bleach solutions at concentrations less than this may not be effective. Bleach solutions at concentrations greater than this will cause facility corrosion and respiratory tract irritation in both people and animals.

   To make a 1:32 solution, add…
   - 1/3 cup of bleach per gallon of water
   - 17 ml of bleach (1 TBSP + ½ TSP) per 32 ounce spray bottle

3. **Bleach solutions should be stored in opaque containers and must be made fresh at a minimum of every 24 hours.** Bleach rapidly degrades in the presence of light and when mixed with water.

4. **Bleach solutions require a full 10 minutes of contact time to ensure complete disinfection.** If bleach solution evaporates in less than 10 minutes, a greater volume of solution should be applied.

5. **After disinfection with bleach solutions, surfaces should be rinsed and dried.** Bleach can be irritating to skin and mucous membranes, so any residue should be removed prior to returning animals to the environment.

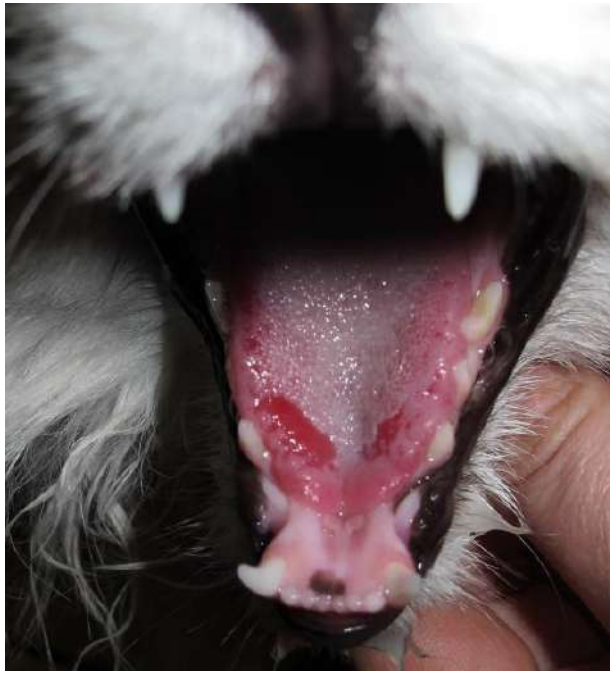
If using bleach for periodic deep cleaning and/or for the purpose of killing fungal spores (e.g. ringworm), bleach should be diluted with water at a concentration of 1:10. *Note that studies have shown that disinfectants other than bleach may also be effective for this purpose.*

This is equivalent to:
- 1 cup of bleach per gallon of water, or
- ¼ cup of bleach per 32 ounces of water.

Animals must be removed from the area and people should wear appropriate personal protective equipment when using 1:10 bleach solutions!

Quaternary ammonium products

- Not reliably effective against non-enveloped viruses
- Can be toxic if incorrectly diluted
- Relatively inactivated by organic mater



What about ringworm?

Many over-the counter disinfectant products with antifungal label against Trichophyton mentagrophytes are effective when the surface is properly prepared.

Most important!

- Mechanical removal of spores/hair
- Wash with a detergent until visibly clean
- Follow-up with disinfectant – apply liberally for 10 minutes

Vet Dermatol. 2013 Dec;24(6):621-3, e151-2. doi: 10.1111/vde.12074. Epub 2013 Sep 17.

Efficacy of eight commercial disinfectants against Microsporum canis and Trichophyton spp. infective spores on an experimentally contaminated textile surface.

Moriello KA[1], Kunder D, Hondzo H.

Laundry - Ringworm

1. Separate exposed laundry
2. Don’t overload – want maximal agitation
3. Any temperature
4. Two washes, longest cycle
5. Bleach doesn’t matter

J Feline Med Surg. 2016 Jun;18(6):457-61. doi: 10.1177/1098612X15587575. Epub 2015 May 26.

Decontamination of laundry exposed to Microsporum canis hairs and spores.

Moriello KA[1].

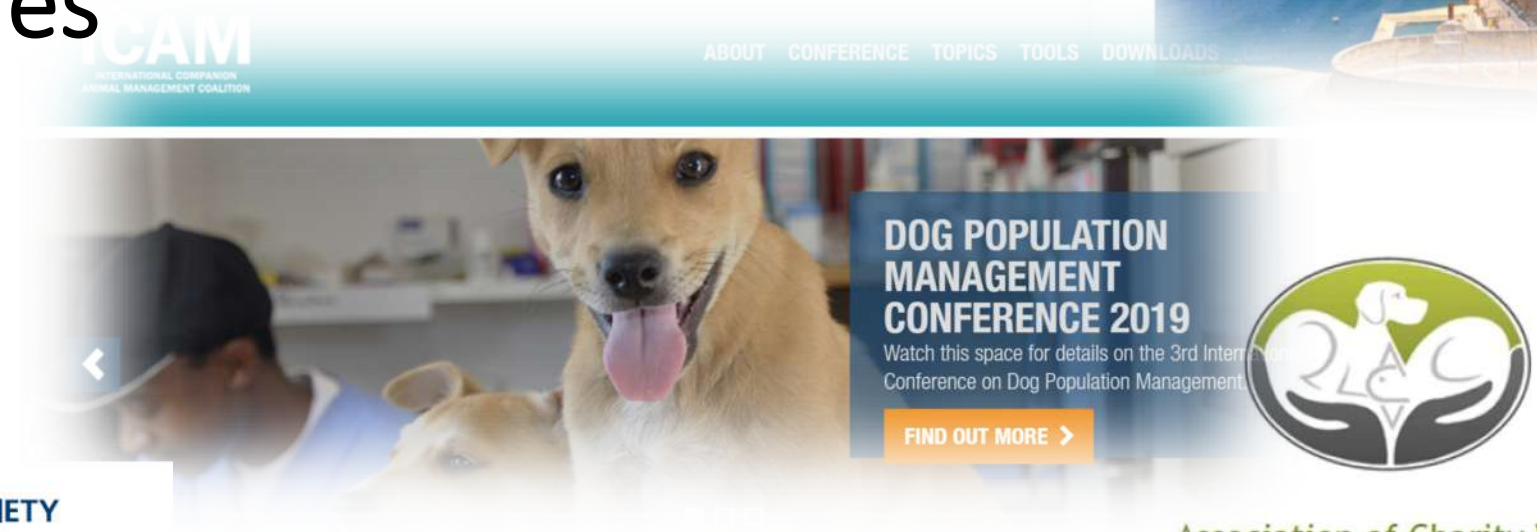
Footbaths - Don’t use them

1. Little contact time
2. Organic matter
3. Lack of scrubbing
4. Shallow water

Morley PS, Morris SN, Hyatt DR, et al. **Evaluation of the efficacy of disinfectant footbaths as used in veterinary hospitals.** *J Am Vet Med Assoc* 2005;226:2053-2058.

Opportunities

Professional Development Opportunities



THE HUMANE SOCIETY OF THE UNITED STATES

Presents

ANIMAL CARE EXPO

Association of Charity Vets

Conference Program 2019

Saturday 12 January

9.30–10am	Arrival and registration
10–10.45am	Lecture: Dentistry on a shoestring Louise Allum
10.45–11.15am	Coffee and voting for Chair
11.15–12pm	Lecture: Keeping cats happy in shelters Daniel Cummings
12–12.45pm	Workshops: Session 1 (choose one)

Shelter Medicine Online Courses

Core courses include:

- Integrating Veterinary Medicine with Shelter Systems
- Shelter Animal Physical Health
- Shelter Animal Behavior and Welfare
- Veterinary Forensic Medicine

Questions?