

Canine Infectious Respiratory Disease Complex: Prevention



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Dear Dr. Hurley...

- I think the biggest problem we are having right now is kennel cough. It has been endemic in our dog population since I started working here over 2 years ago. One of the big problems we have is that we are constantly **over crowded** and have very **limited isolation** space available (there are around **70 dog kennels with only 8 of those kennels** designated for isolation). When there is space in our isolation kennels we move dogs under treatment there, but it quickly gets full and I am forced to treat dogs out in the main kennel. I also have to move dogs back out to the main kennels that are done with treatment even though they are likely still shedding. Lately the **disease has gotten much worse and many dogs are coming down with pneumonia.**

Continued

- Another thing that concerns me is that I have a set of 4 separate runs for injured dogs, and even they get kennel cough, so I **worry about our ventilation system**, or if employees are spreading it that effectively. Historically, **we will keep dogs until they are adopted** or sent to rescue, with some dogs being here over 2 months. This of course contributes to our overcrowding and I think I have finally convinced our staff that **warehousing dogs for the sake of saying we kill very few is not helping** our general population.

What to do?

- (We are) getting some funds for **building improvements** and I would like to see the money spent in the dog kennels but we are not sure what the best use of our money will be. We have a few ideas like **changing the kennel doors from chain link** to something more solid to **decrease the amount of aerosol** barking and coughing dogs spread to neighboring kennels, but not sure if that will be helpful or not. I also need some help in deciding on the **best cleaning protocol** for our kennels. We do a lot of pressure washing which I am worried is just spreading disease around the kennels on the water particles. We also do not have any **hot water in the kennels**.

What to do???

Build more kennels?

Clean more vigorously?

Switch vaccines?

Decrease mixing of dogs in playgroups?

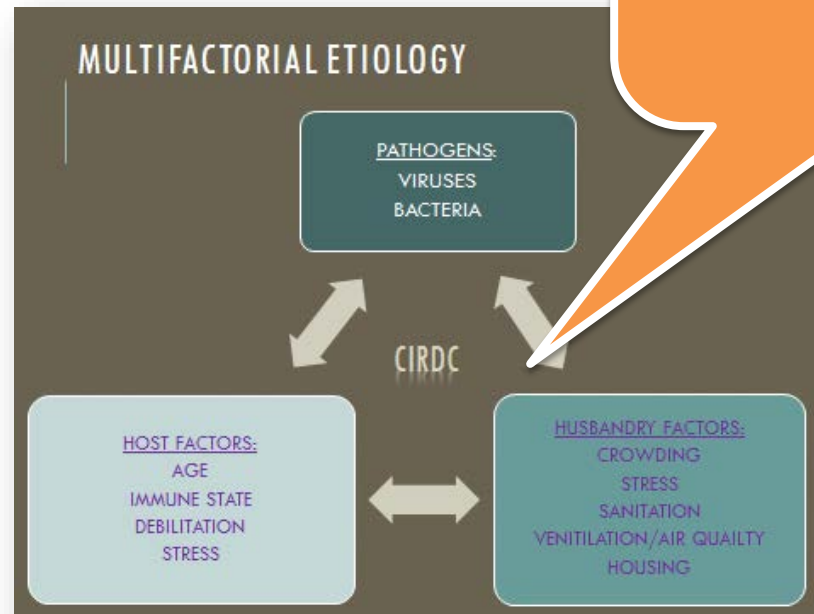
Euthanize sooner?

Cover the fronts of kennels?



What causes CIRDC?

What can we change about this?





Tools for prevention: support the host

- Vaccination
- Airway protection
- Stress reduction





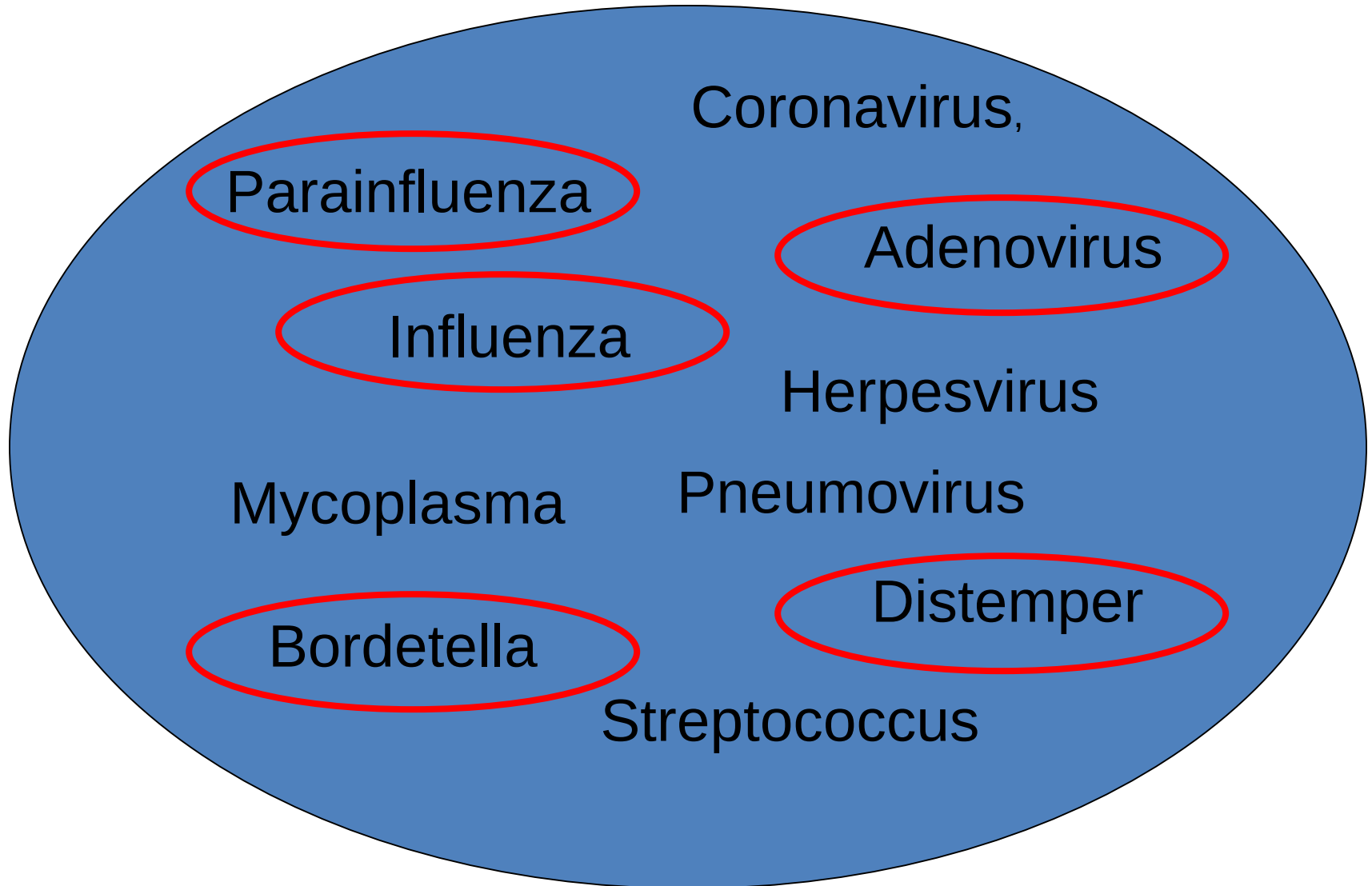
Tools for prevention: lower the dose

- Ventilation
- Sanitation
- Density reduction



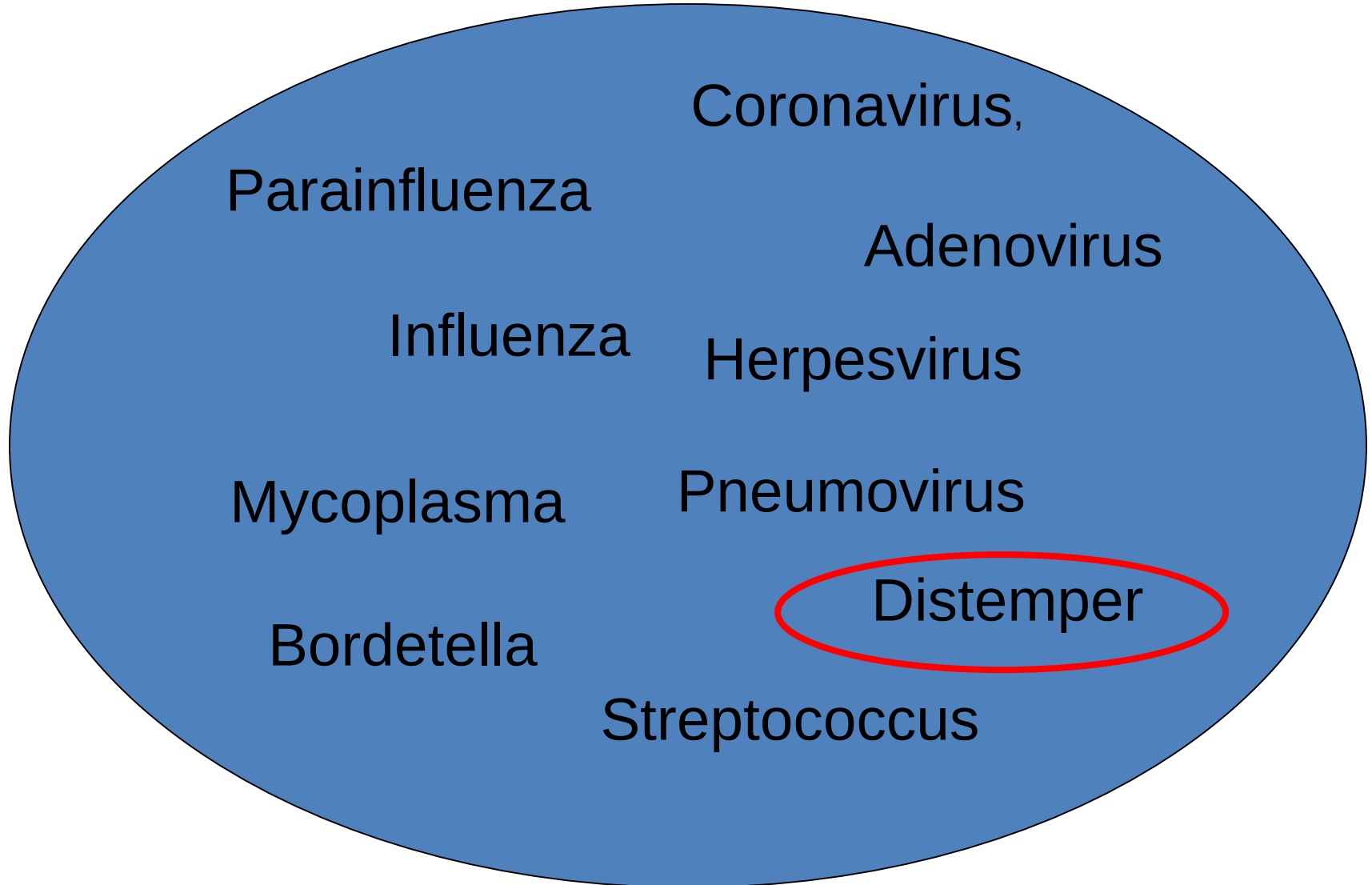


Vaccine available?

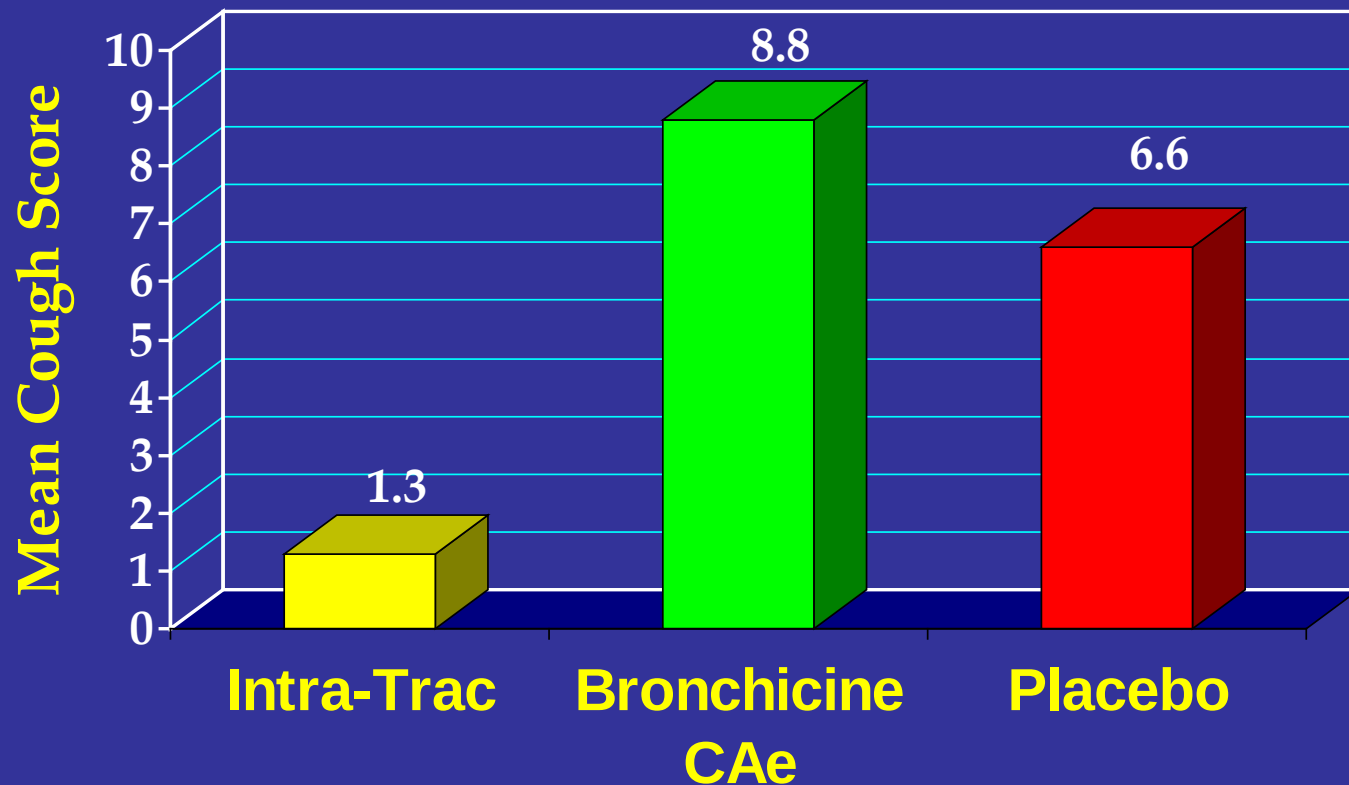




Awesome vaccine available?



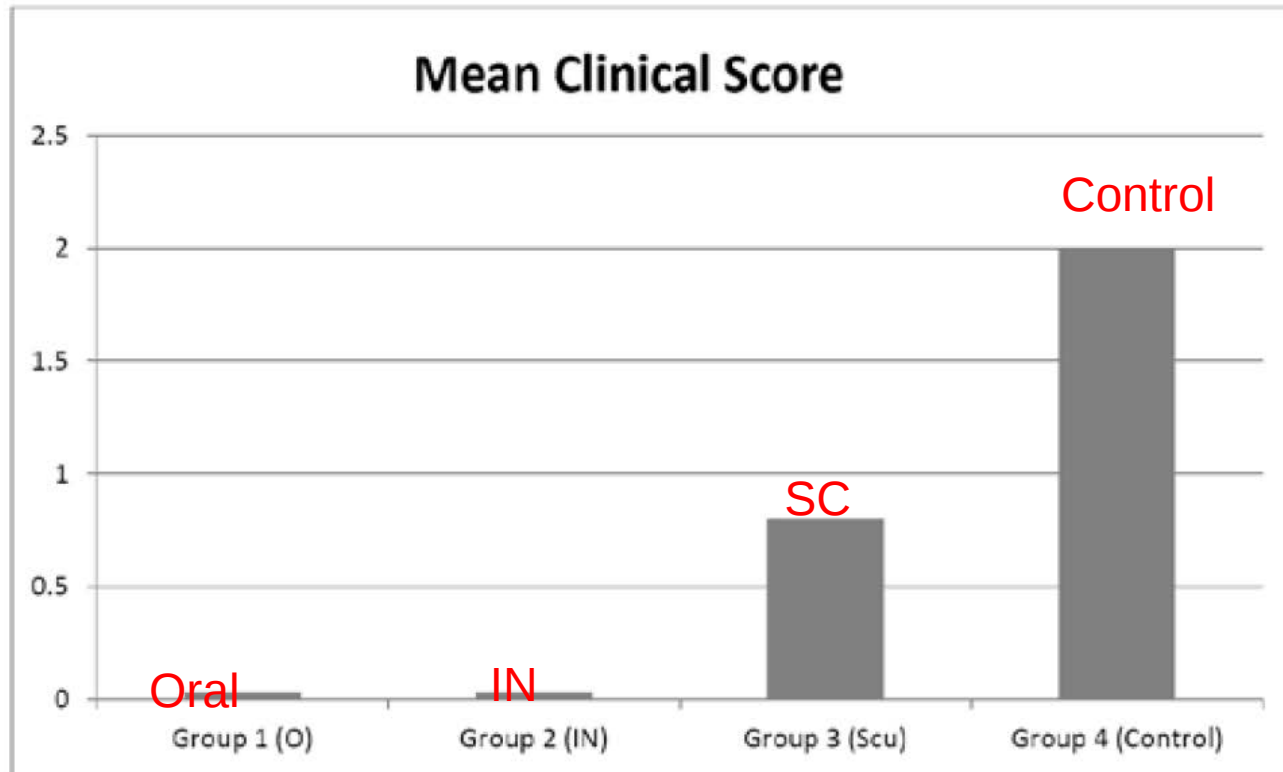
IN vs SC?



*Davis, R., et al. (2007). Veterinary Therapeutics **8**(1). Pages 32-40.

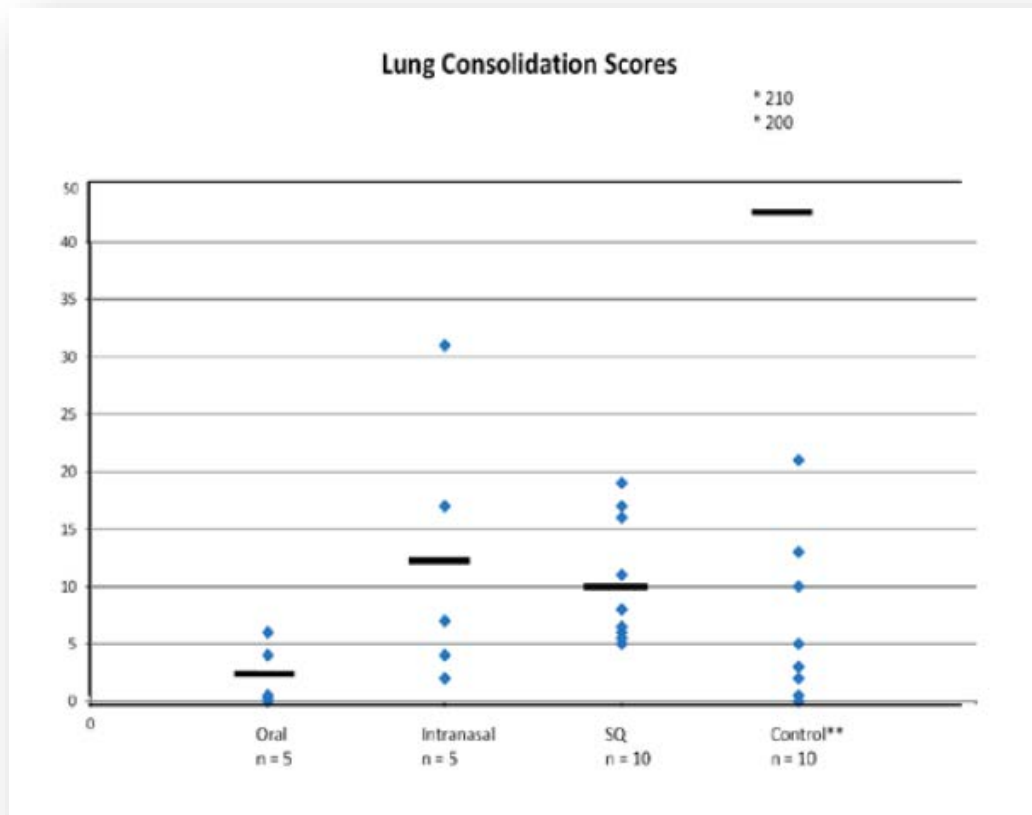
Oral versus IN versus SC

Graph 1. Cumulative Mean Clinical Score (Higher number indicates more significant clinical disease)



Larson, L. and R. Schultz (2013). "Comparative study of oral, IN and parenteral **Bordetella** vaccines." Int J Applied Res.

All vaccine routes provide lower respiratory protection



“Kennel Cough” vaccination

- IN *Bordetella*
 - + parainfluenza
 - +/- adenovirus
- Oral Bordetella if you can't do IN
- SC for unruly dogs or staff
- Once immediately on intake for all dogs 2 weeks of age and older
- Repeat once after 6 weeks in pups vaccinated before 6 weeks (at least 2 weeks apart always)



A bit of good “news”

- Twenty-one susceptible puppies in 10 litters were vaccinated with a single dose of combined canine distemper-infectious canine hepatitis modified live virus tissue culture vaccine **simultaneously with introduction into a canine distemper contaminated environment**. One of 21 vaccinated puppies and 14 of 16 nonvaccinated littermates died of a canine distemper infection.

Schroeder, J. P., D. W. Bordt, et al. (1967). "Studies of canine distemper immunization of puppies in a canine distemper-contaminated environment." Vet Med Small Anim Clin 62(8): 782-7.

Vaccination for distemper

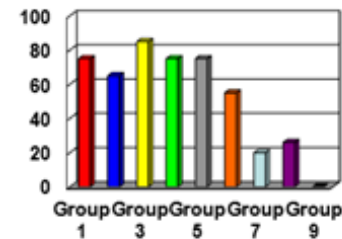
- Injectable, **modified-live** for most shelter pups and dogs
- On intake for dogs 4-6 weeks and older
- Repeat Q 2 weeks to 18-20 weeks
- For puppies 2- 4 weeks:
 - Merial Recombinant Ferret Vaccine **PureVax**
 - Use 1/3 dose in vial provided for ferrets



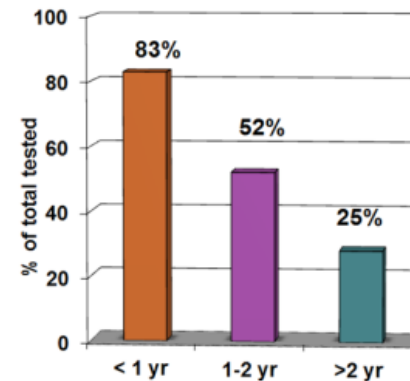
Almost but not quite a magic bullet

- Distemper vaccine provides protection within hours...
- ... but does not prevent mild signs, infection, shedding or synergistic disease
- Maternal antibody interference is a reality
- But, not all pups have maternal antibody
 - E.g. 12% of pups entering Florida shelter had protective antibodies

Percentage of puppies with significant antibody response to 8 different vaccines



• Age of dogs entering a north Florida shelter without protective antibody titers to CDV



Canine influenza vaccine

- Killed SC H3N8
 - 2 doses 2-4 weeks apart, then 1 week for full protection
- Reduces severity, duration and shedding
- For dogs transferred to endemic shelters
- For shelters transferring from endemic communities
- For low risk, long stay shelters in endemic communities
- For pet dogs in endemic communities



Barking reduction

- Traffic flow management
- *Partial* visual barriers
- Quiet time in and out of kennel
- Bucket enrichment
- “Click for quiet”



http://www.animalsheltering.org/resources/magazine/jul_aug_2011/getting_real_asv_standards_austin_humane.pdf

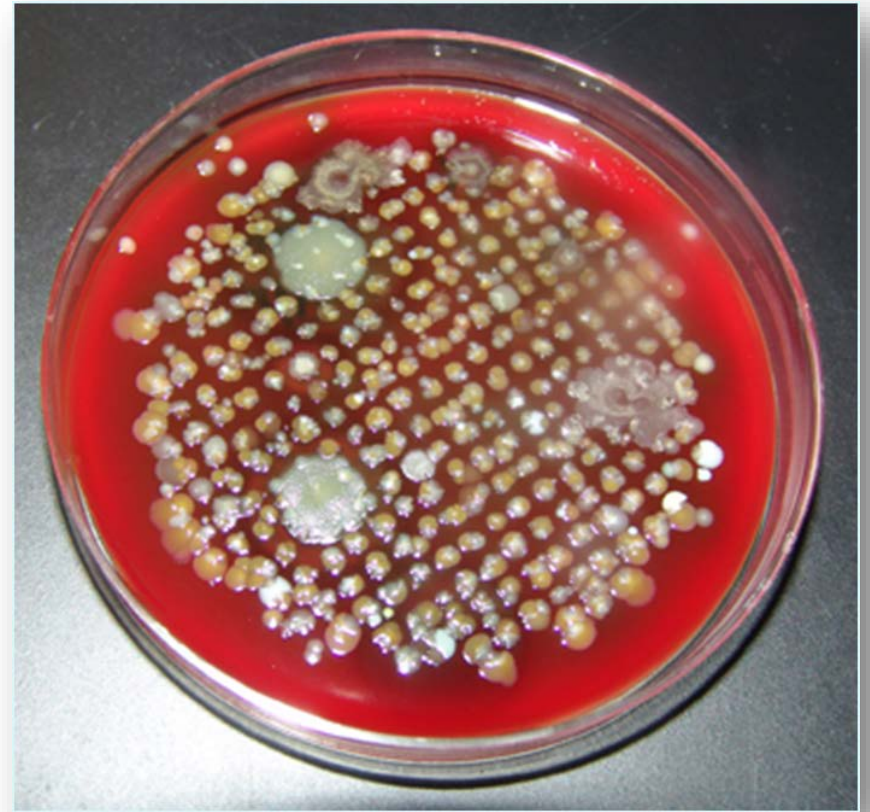
Stress reduction

- Environmental control
 - Hiding places
 - Choice of height
 - Indoor vs out
- Physical stimulation
 - Playgroups
- Mental stimulation
 - Food toys
 - Clicker fun
- Quiet time



Air quality

- Maximize outdoor air where possible
- Double check ventilation system during high risk periods/periods of increased disease
 - Spring/Fall with some systems
- Limit aerosolization of disinfectant
- Dry kennels thoroughly
- Decrease density



Quality of the microenvironment



Preventive Sanitation

- Double-compartment housing in good repair
- Effective products
 - Canine respiratory disease not especially resistant
- Clean when & where it counts
 - Between animal occupants
 - High-contact surfaces
- Dry surfaces thoroughly



First, do no harm

- Use double compartment housing correctly if available
- “Move down one” cleaning or outdoor enclosures if stuck with single housing
- Hosing dogs in a run is an unacceptable practice



Isolation and segregation

- Daily rounds prior to cleaning and animal movement
- Isolate symptomatic dogs +/- treatment
- Usually not necessary to segregate post recovery
- Separate supplies, protective clothing, gloves and boots for staff in each area



Case study: a few simple changes

Changes made:

- Dogs with clinical signs of CIRDC no longer treated in general population, but moved to assigned isolation ward as soon as clinical signs noticed and started on appropriate Doxycycline dose.
- Written protocols for CIRDC were made and distributed to the entire clinic staff
- Daily rounds every implemented morning
- Dogs in Isolation ward walked last by volunteers

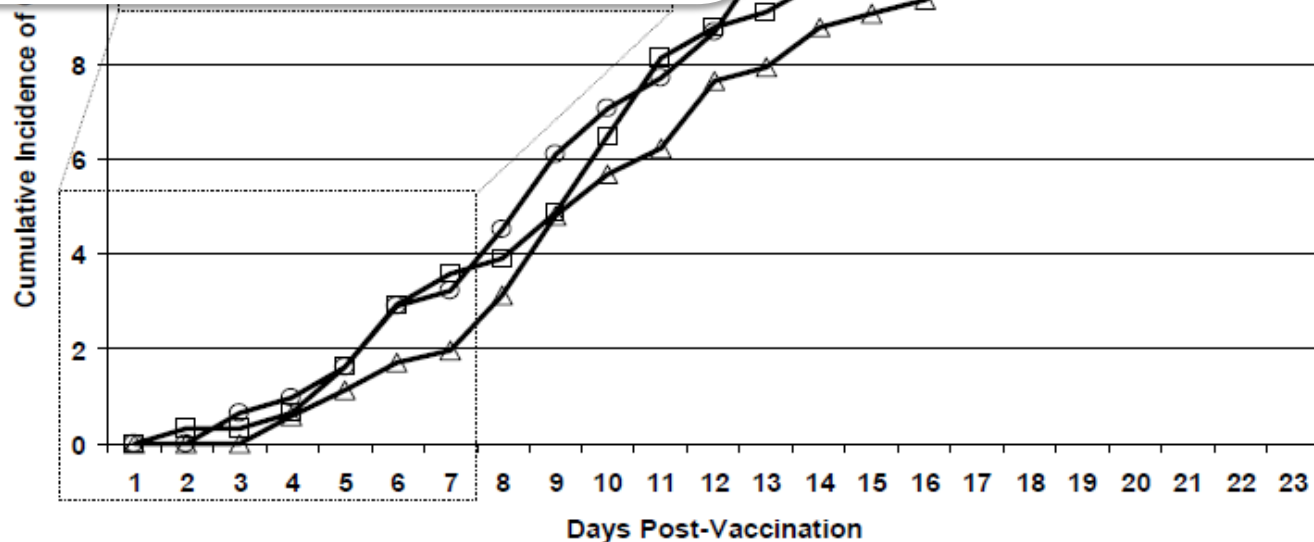
Measurable results

Medication	Doses Administered 2009	2010
Cephalexin 250mg (caps)	906	
Cephalexin 500mg (caps)	1966	
<u>Clavamox</u> 62.5mg (tabs)	1300	8
<u>Clavamox</u> 125mg (tabs)	1436	8
<u>Clavamox</u> 250mg (tabs)	1228	8
<u>Clavamox</u> 375mg (tabs)	1490	56
<u>Doxycycline</u> 100mg (tabs)	4298	2,60
Total doses	12,624	7,590

5,034 medication doses given

Biggest risk factor?

The strongest prognostic factor for coughing (regardless of vaccine group) was the number of days spent at the shelter, with each additional day increasing the risk of coughing by 3%



Biggest risk factor?

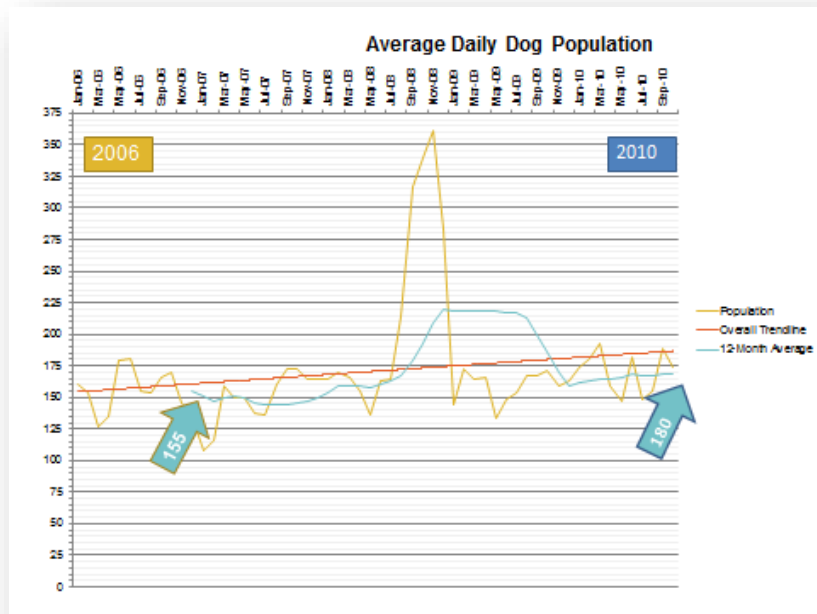
Serologic prevalence of antibodies against canine influenza virus (H3N8) in dogs in a metropolitan animal shelter

David E. Holt, BVSc, DACVS; Michael R. Moyer, VMD; Dorcas Cimino Brown, DVM, MSCE, DACVS

Logistic regression analysis was performed to evaluate the association of factors (body condition score, nasal discharge, coughing, rectal temperature, number of days in the shelter, and relinquished vs stray) with positive results.

Number of days in the shelter was the only factor significantly associated with positive serologic test results. For every 3 days in the shelter, the odds of a positive serologic test result increased significantly by 2.2.

Case study



Marketing changes

- YouTube Videos
- Staff Picks
- Petango Memos
- “Coming Soon” webpage
- Social media
- iPhone app
- Streamline adoption paperwork
- Variable Pricing
 - Lower prices for slow trackers
 - Ending in ‘9’

Gandalf's Staff Pick and Petango Memo:
“Greyhame, Mithrandir, Stormcrow.. he may have many names, but Gandalf is the one he knows! Brent chose Gandalf as his staff pick because although he is very playful, he possesses a wisdom and power beyond his age. And although he may know sit, he is not some conjurer of cheap tricks! **YOU SHALL NOT PASS** on this great dog!”



Hard to resist



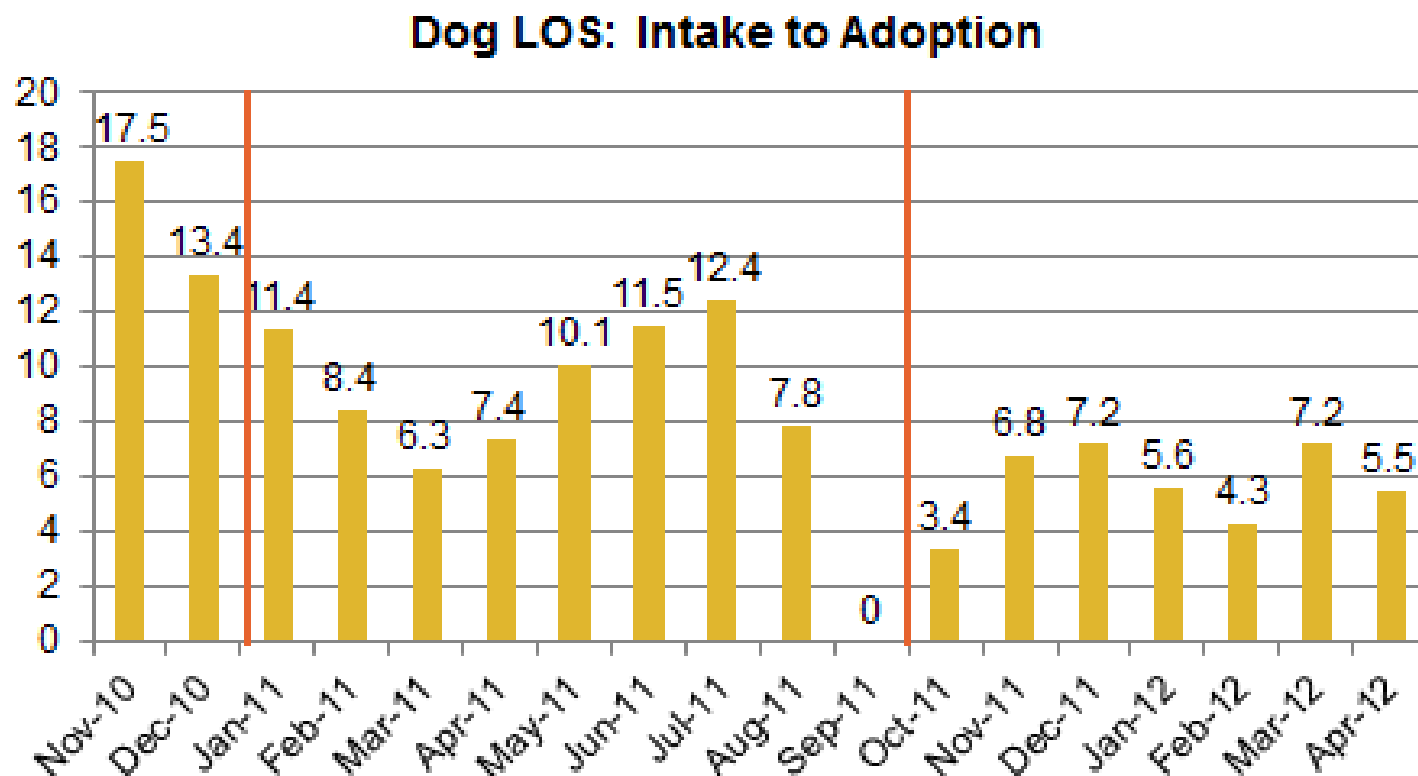
<http://www.wihumane.org/adopt/animal?id=25334209>

Operational changes

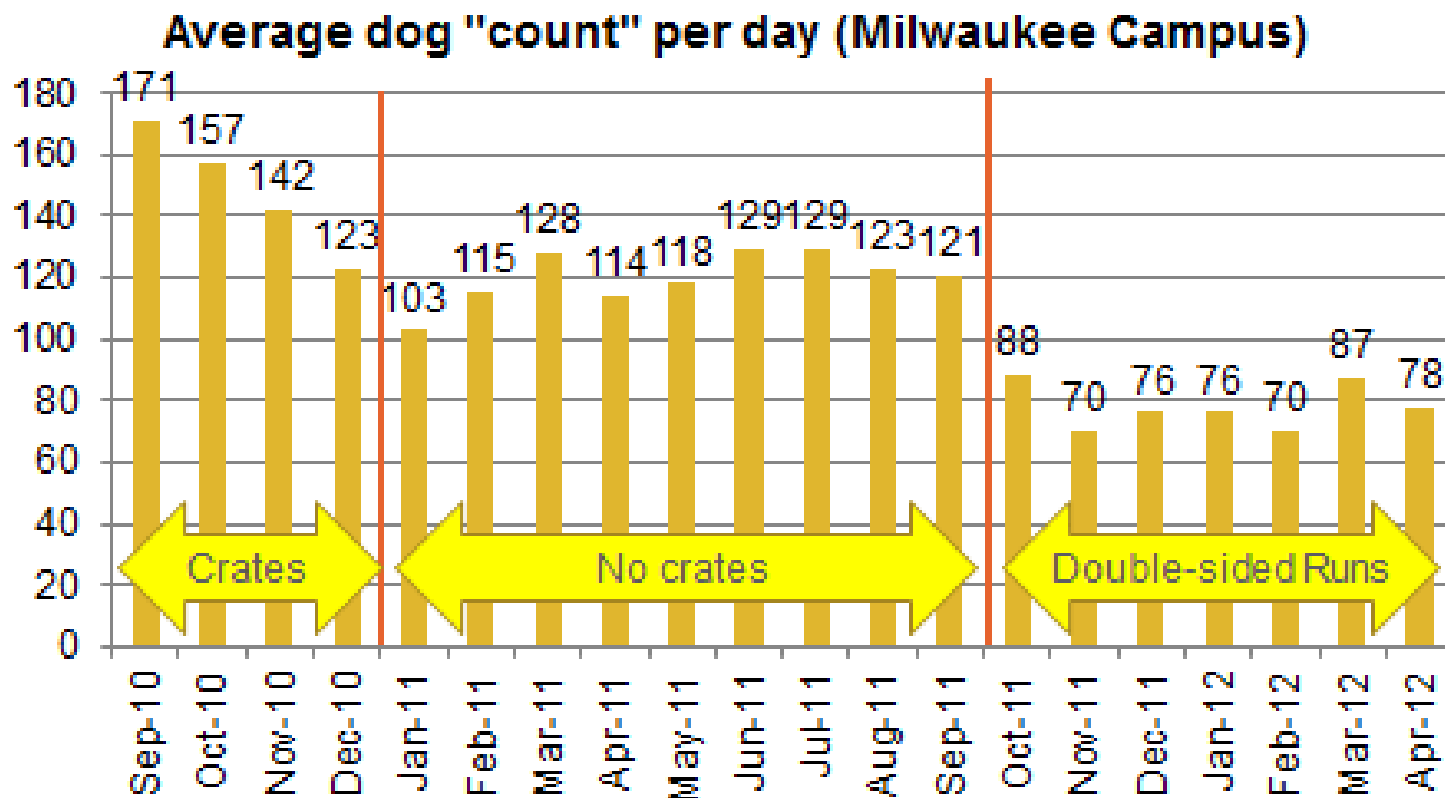
- Fast track/slow track planning
- More frequent, smaller transfers
- Timing of services
 - E.g. a.m. behavior eval vs. p.m.
- Expansion of volunteer roles
- Disease transmission management
 - New isolation areas
 - New diagnostics



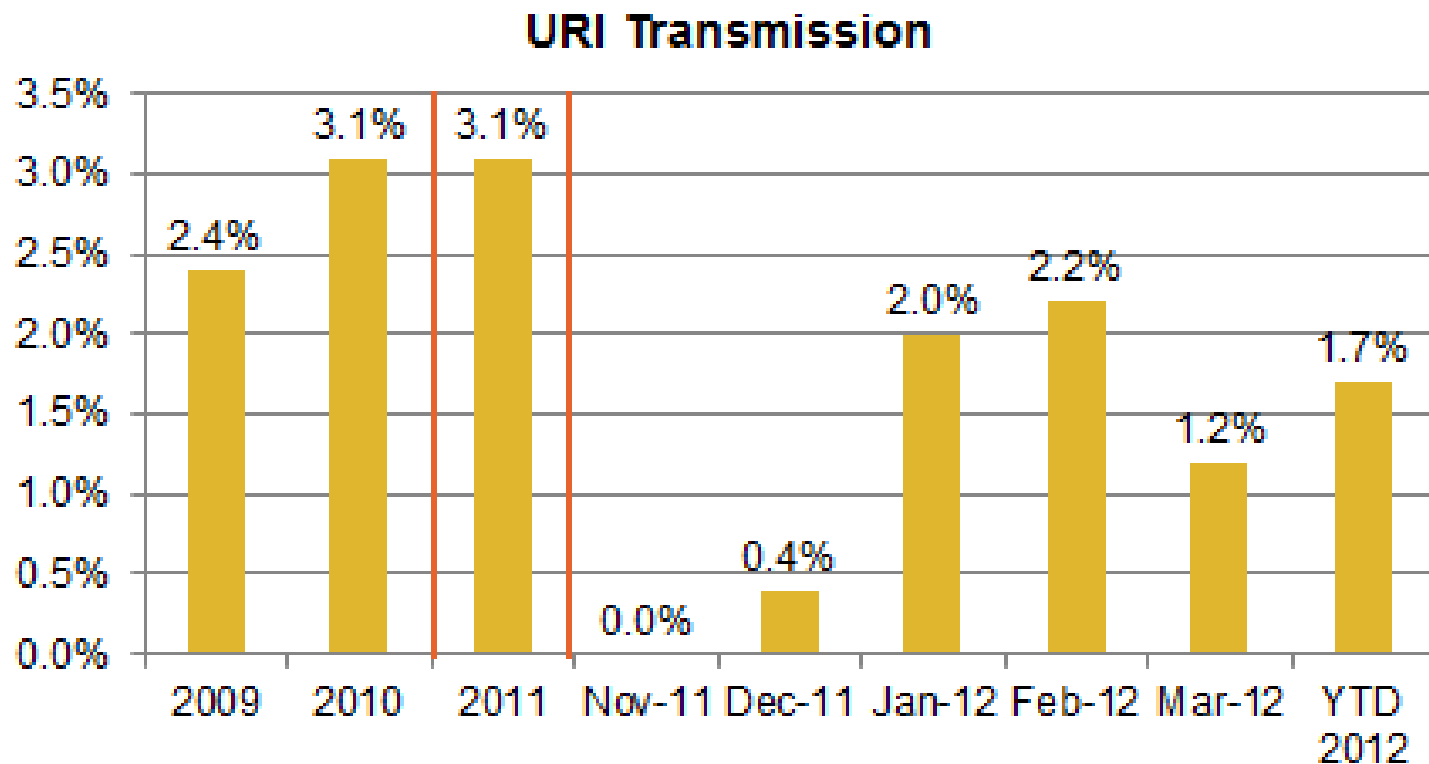
Results



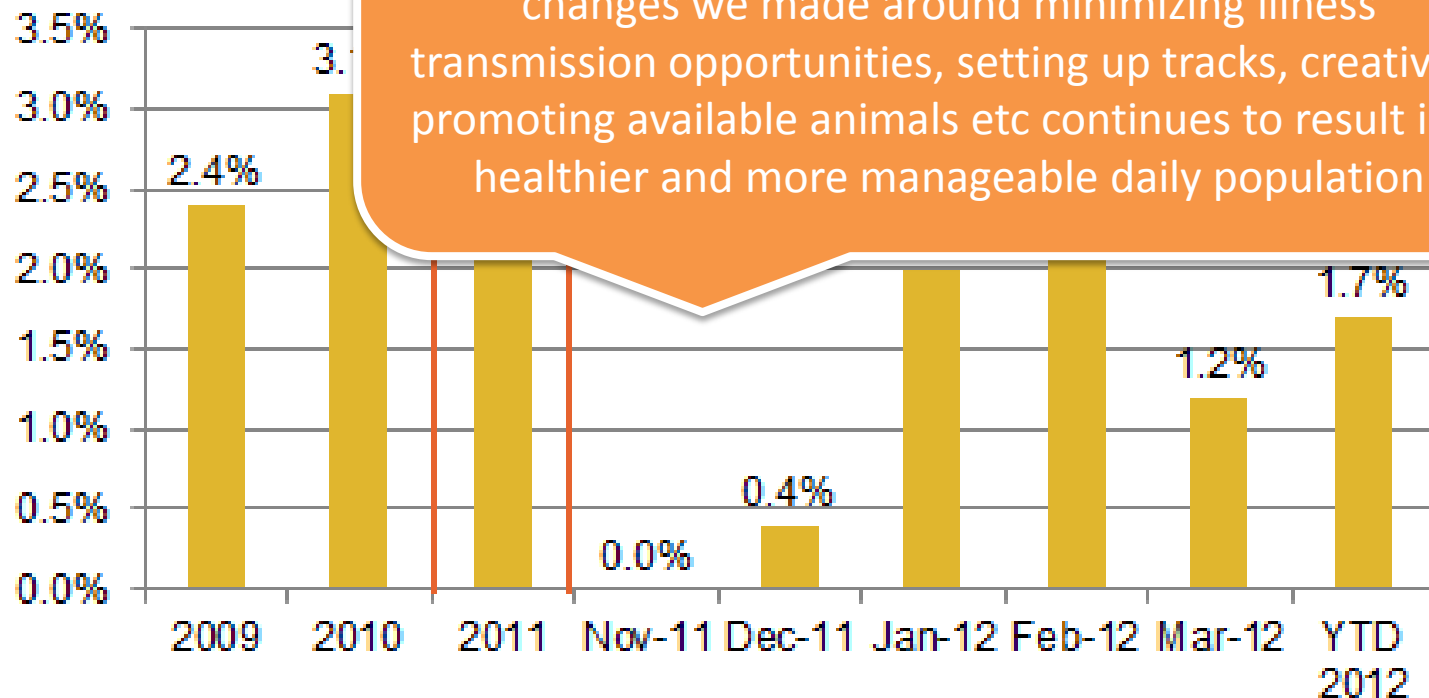
Results



Results



Results



Side benefit



Reducing time, making space

- ✓ Create pathway plan starting at intake
- ✓ Eliminate un-necessary holds
- ✓ Make animals available throughout stay
- ✓ Fast track highly adoptable animals
- ✓ Ensure sufficient staff for necessary transition points
- ✓ Perform daily rounds, make daily decisions, take daily action



Breaking news!

06/15/2015

Decreasing shelter length of stay means animals live, not die

Are you confused about what "reducing length of stay" means for your animal shelter or rescue group?

Few things can save more animals than reducing length of stay. It not only means more animals get adopted, but increases the number of animals the organization can care for in any given year.

There's a lot of confusion, however, in the shelter and rescue world about what "length of stay" really means, and the implications of reducing it.

In the literal sense, "length of stay" is exactly what it sounds like: How long pets are in the shelter's care on average. Keeping the math at its simplest:

- If you have 10 pets and they all stay 1 month each, then your length of stay is 1 month.
- If you have 10 pets and five stay two weeks and five stay four weeks, your average length of stay is 3 weeks.



<http://maddiesinstitute.typepad.com/chewonthis/2015/06/decreasing-shelter-length-of-stay.html>

Pathway planning

- Starting at intake:
- What is the right outcome for you?
- What do you need to get from here to where you need to go as fast as possible?
- Is there enough room on the train today?



Minimize optional intake quarantine

- Keep track of date of disease onset for all animals
- Evaluate quarantine benefit routinely : *just* long enough to catch majority of problems
 - May vary by source
 - Consider titers to identify healthy animals at low risk for parvo/distemper
- 3-5 days max for vaccine protection

Daily monitoring form

Characteristic	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
General appearance/attitude							
Appetite							
Stool							
Urine							
Respiratory							
Skin							
Behavior							
Other							
Initials of person monitoring							
Comments (please date and initial):							
General: N = bright, alert, responsive, Q = quiet, D = depressed Appetite: N = normal, ↓ = decreased, ↑ = increased (use only if dog seems ravenously hungry) Stool: N = normal, O = loose present, S = soft but formed, D = diarrhea, B = bloody, M = mucous, C* = see comments for other Urine: N = normal, O = loose present, ↑ = increased, A = abnormal (describe in comments) Respiratory: N = normal, C = coughing, D = nasal discharge (describe in comments - color, which nostril), E = ocular discharge, C* = see comments Skin: N = normal, I = itchy, A = hair loss (alopecia), C* = see comments for other observations (ie wounds, parasites) Behavior: N = unchanged, ↓ = getting worse (describe in comments), ↑ = getting better (describe in comments)							

Adoption readiness

- List procedures that need to be done before an animal is made available for adoption
 - Does it need to be done?
 - Can it be done during hold?
 - Can in be done while available for adoption or after adoption?
- Is there sufficient staff to do it 7 days a week?
 - Train more staff/volunteers
 - Strategic timing for intake/available staff



Daily rounds: for each animal

- ✓ Evaluate paperwork, computer record as well as animal
 - ✓ Dates correct?
 - ✓ ID noted?
 - ✓ Description accurate?
 - ✓ Owner, interested party, rescue contact?
 - ✓ Required services due or overdue?
 - ✓ Right location and status?
 - ✓ Encouraging picture and description on paper and web?
 - ✓ Medical, behavioral or comfort needs?
- ✓ Is it time to take extra steps?

Animal No: A257781
City of Las Vegas Animal Control

Kennel No: DRC146

Name: SAMSON
Color: BROWN
Breed: ST BE
Sex: NEUT
Coll: 8088
Markings:

Intake Date: 11/07/2007
Review Date: 11/08/2007
Intake Type: OWNER SUR
Intake Time: 8:58 am

Found @ / Comments: MOVING
Scanned By: [Signature]
Intake Shots: [Signature]
Moved By: [Signature]

Printed On: 11/7/2007

Handwritten notes on a yellow sticky note: "Chellie 11-7-07" and "Rescue".

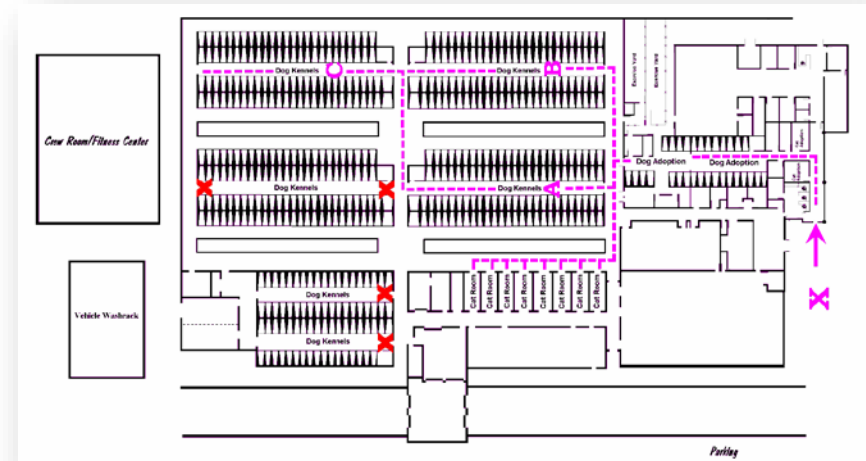
Turning up the flow

- Promote adoption early, often and by a variety of means
- Population
 - Don't wait for crowding to trigger specials
- Individual
 - Special effort based on adoptability, not time
- Rescue
 - Don't wait til animals make the euthanasia list before selection

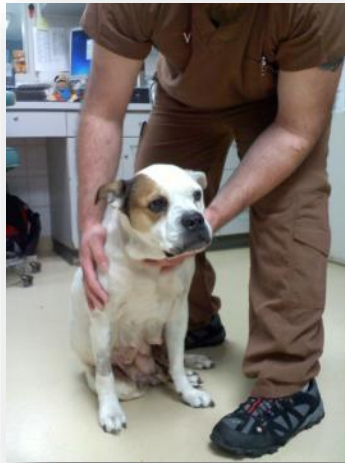


“Open Selection”

- Allow viewing of most pre-adoption animals
- Determine process for multiple interested parties
- Document contacts and flag records clearly
- Designate restricted area for dangerous animals, legal holds, treatment, +/- dogs with ID



Surprising choices?



Fast track

- Highly adoptable dogs, puppies, rescue candidates
- Jump to the head of the line for processing, movement to adoption
- Prioritize clean, low disease housing for fast trackers
- Prioritize enrichment and promotion for slow trackers



Same space, different time



Time to make a difficult decision?

- Are there more animals in need of shelter than released alive in your community?
 - What are the options?
- Are there more animals admitted to your shelter than released alive?
 - What are the options?

The Problem

- There is a **disparity** between the number of animals the community surrenders to AHS and the capacity in the community for placement of those animals.
 - 21,000 surrendered vs. 11,000 placements



Can we change this??



Do You Suffer From Decision Fatigue?



http://www.nytimes.com/2011/08/21/magazine/do-you-suffer-from-decision-fatigue.html?pagewanted=all&_r=0

What is decision fatigue?

- “No matter how rational and high-minded you try to be, you can’t make decision after decision without paying a biological price. It’s different from ordinary physical fatigue — you’re not consciously aware of being tired — but you’re low on mental energy. The more choices you make throughout the day, the harder each one becomes for your brain, and eventually it *looks for shortcuts*.”

Planning

- Share the load: stakeholders agree on decision criteria ahead of time
- Make the default choice a good one: provide rules to follow most of the time
- Trust that working within capacity at any one time, grows capacity over time

Introducing Pet Admissions By Appointment (Managed Admissions)



http://animalhumanenm.org/pets/about/managed_admissions.php

Remember me?

- I think the biggest problem we are having right now is kennel cough. It has been endemic in our dog population since I started working here over 2 years ago. One of the big problems we have is that we are **constantly over crowded** and have very limited isolation space available (there are around **70 dog kennels** with **only 8 of those kennels designated for isolation**). Right now our policy has been to treat all dogs with kennel cough. When there is space in our isolation kennels we move dogs under treatment there, but it **quickly gets full** and **I am forced to treat dogs out in the main kennel**. I also have to move dogs back out to the main kennels that are done with treatment even though they are likely still shedding. Lately the disease has gotten much worse and **many dogs are coming down with pneumonia**.

Two years later

- Things are actually going much better now. We seem to have our overcrowding under control due to decreased intake and increased transfer to rescues and other shelters and steady adoptions...We also started isolating all our kennel cough dogs in a section of the kennel that is separated from the main kennel with a door that stays closed...We still have kennel cough but it seems that for the last year is at a much lower level and the dogs that get it do not get very sick. Mostly just sneezing/reverse sneezing, watery noses and some coughing without fevers. Our dogs used to get really sick- have heavy mucopurulent nasal discharge, fevers, depression, sometimes pneumonia, coughing. I'm sure that keeping the recovered dogs isolated until adoption and overall decreased numbers of dogs is the main factor. Overall I am really happy with the difference and pray that it lasts!!

Still room for improvement?

2014 Annual Report

Message from the Executive Director



In October, we consulted with the Capacity for Care team of veterinarians from the U.C. Davis Koret School of Shelter Medicine to improve the care and health of our animals. On their advice, we changed our intake procedures to better control the flow of animals through the shelter. We now accept pets from owners by appointment, which allows us to obtain more information about each pet, and provide counseling and alternatives when appropriate. We also changed our hours, opening the shelter at 11:00 each weekday, which allows staff time to provide even better care for the animals. This has already led to faster placement and higher adoption rates.

ment?

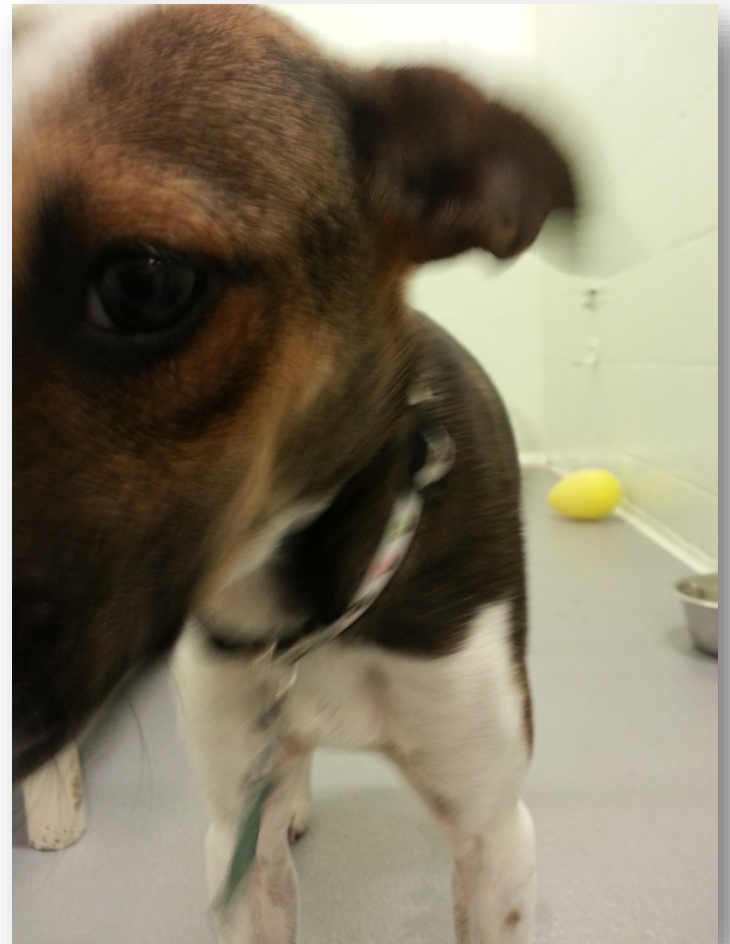


More changes

**Switch to one step cleaning protocol,
move dog out of cage**

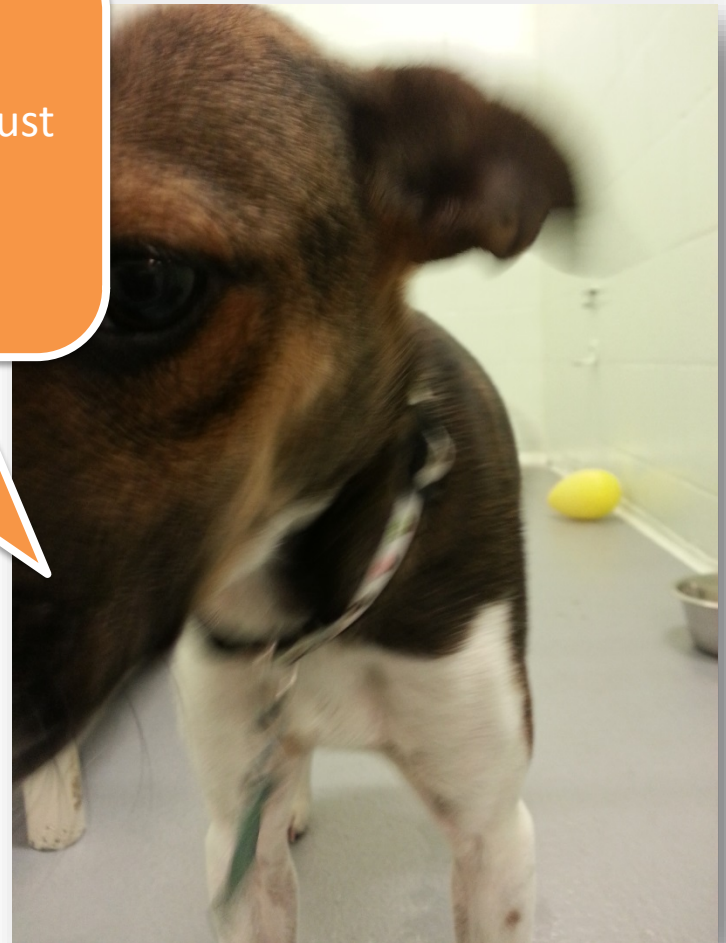


More changes



More changes

I couldn't get Belle to back up for her Kodak moment....
BUT before giving her treats, she was just lounging on her bed. They are helping her build confidence and come to the front of her kennel.



Happier dogs, more staff time for care = ?

Length of stay ↓ 28% (from 6.69 to 4.79)
Inventory ↓ 35% (from 103 to 67)
Live release ↑ from 84% to 90%



Update

- Wow! Its been a while. Barely remember sending that e-mail! Currently our canine respiratory disease is essentially nil. We only have two dogs in our kennel cough isolation section and neither one are very sick. Mostly just some mild intermittent coughing, sneezing/snuffling and no nasal discharge. Almost seems more like a reaction to vaccination than actual kennel cough. In the 9.5 years that I have been here, I have consistently noted that when our numbers are down (and the dogs are not crowded) the number of dogs that get respiratory signs are fewer and they are less sick than when we are crowded. The things that we have changed lately that may be helping (along with reduced population) is not hosing out the kennels with the dogs in them, less dogs per kennel, and all dogs are now getting bedding. Keeping them dry and comfortable I'm sure is helping their immune systems stay strong.

Thank you!

