

Feline Upper Respiratory Infection: Prevention



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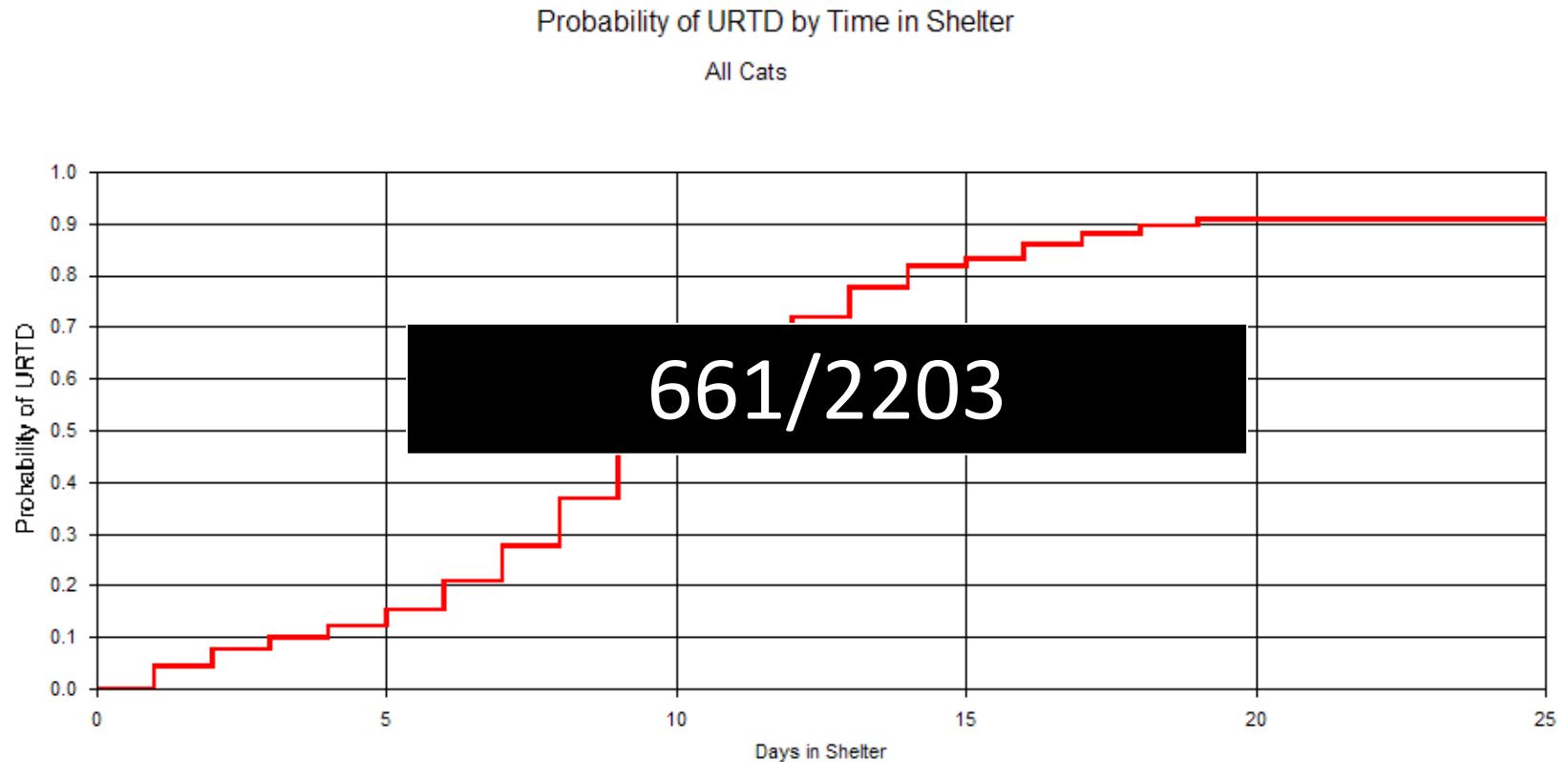
My first encounter with feline URI



Help!!!



Disease risk in a pretty typical U.S. shelter



Dinnage, J. D., J. M. Scarlett, et al. (2009). "Descriptive epidemiology of feline upper respiratory tract disease in an animal shelter." J Feline Med Surg.

Disease risk at 5 U.K. cat centres

Fig. 1. Bar chart showing the frequency of cats with different RDE clinical scores ($n = 1434$ cats from five UK shelters, 2002–2003).

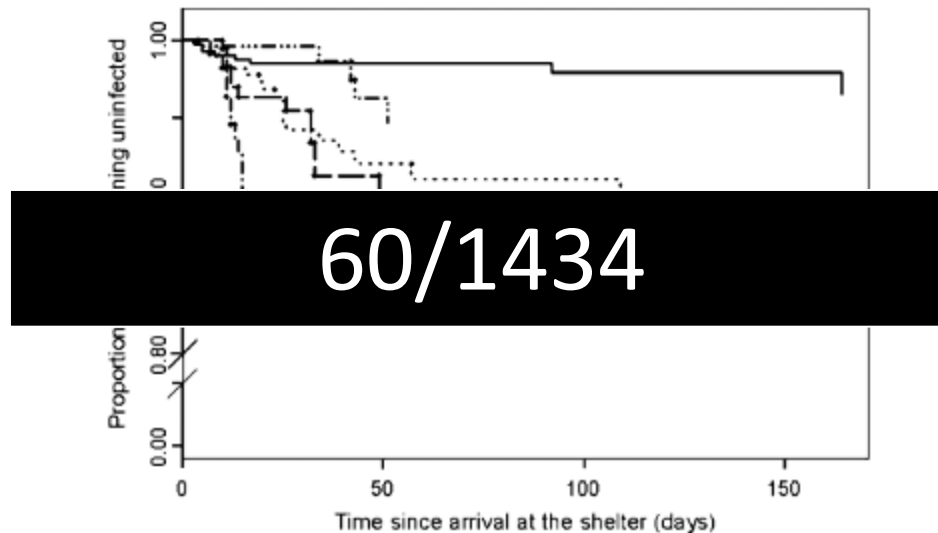


Fig. 2. Kaplan–Meier plot showing how the proportion of cats remaining uninfected (i.e. first RDE not reached) declines with time from a cat's arrival at the centre, separately for each adoption centre ($n = 1434$ cats from five UK shelters, 2002–2003): (—) Centre A, (· · ·) Centre B, (— —) Centre C, (— · —) Centre D, (— · ·) Centre E.

Edwards, D. S., K. Coyne, et al. (2008). "Risk factors for time to diagnosis of feline upper respiratory tract disease in UK animal adoption shelters." *Prev Vet Med* 87(3-4): 327-39.

WHY???



What causes it?

Pathogens:

- Feline herpes virus type 1 (FHV-1)
- Feline calicivirus (FCV)
- *Chlamydia felis*
- *Mycoplasma felis*
- *Bordetella bronchiseptica*



What causes it?

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- ~~*Bordetella bronchiseptica*~~



What causes it?

- Ineffective vaccination?
- Improper disinfection?
- Too many pokey little fingers in the cage?
- Lousy air quality?
- No place to hide?

Vaccination basics: shelter



- Mitigates severity but does not prevent infection; takes time to protect
- SC MLV FVRCP for all > 4-6 weeks on entry + 2-3 week booster
 - 2 weeks *before* entry if possible
- Revaccinate kittens SC every 2 weeks while in high risk environment, every 3-4 when not
- Final vaccine at 20 weeks in whatever environment
- Mixed reviews on the IN vaccine
 - In the face of an outbreak?
 - For kittens in addition to SC?

Non-specific protection

Efficacy of Intranasal Administration of a Modified Live Feline Herpesvirus 1 and Feline Calicivirus Vaccine against Disease Caused by *Bordetella bronchiseptica* after Experimental Challenge

A. Bradley, J. Kinyon, T. Fr

Background: Studies suggest that intranasal

Hypothesis: A modified live feline herpesvirus

Animals: Twenty specific pathogen-free 12-we

Methods: Experimental study. Cats were rand

Results: In the first 10 days after *B. bronchis*

Conclusions and Clinical Importance: Intranasal vaccin

Key words: Cat; Innate; Immunity; Respiratory; Virus.

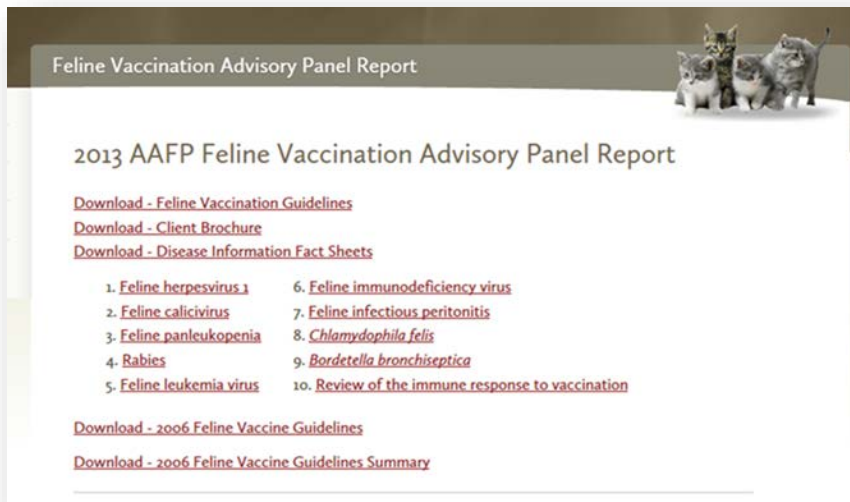
Reduction in frequency and severity of clinical signs in vaccinates versus controls when challenged 7 days after vaccination

challenge ($P = .006$).

against FHV-1 and FCV decreased signs of illness due to an infectious agent not contained in the vaccine. This

Vaccination basics: high risk pet

- E.g. kitten or cat foster providers, shelter or veterinary staff/volunteers, long stay shelter/sanctuary/clinic resident felines
- 2 way calici vaccine?
- Revaccinate annually for FVRC especially after hiatus from exposure?
- Chlamydia and Bordetella prior to kitten season?



<http://www.catvets.com/guidelines/practice-guidelines/feline-vaccination-guidelines>

Disinfection basics

- Calicivirus
 - Bleach and its ilk, potassium peroxymonosulfate, accelerated hydrogen peroxide
 - NOT: quats, chlorhexidine
- Stress, fomite transmission and respiratory irritation can cause more harm than good
- Spot clean during residence, focus cleaning on high contact surfaces
- Sometimes compromise on sterility is worth a decrease in stress



Feline cage/condo cleaning

- No spraying; single use rag or paper towel with detergent for wiping up messes
- Leave clean-ish dishes and bedding
- Carriers can help in single cages
- Ok for mildly ill cats too
- Change gloves between risk groups/ between sick cats in private practice or transfer shelter



Don't forget
to open the
door!



Role of nutrition?

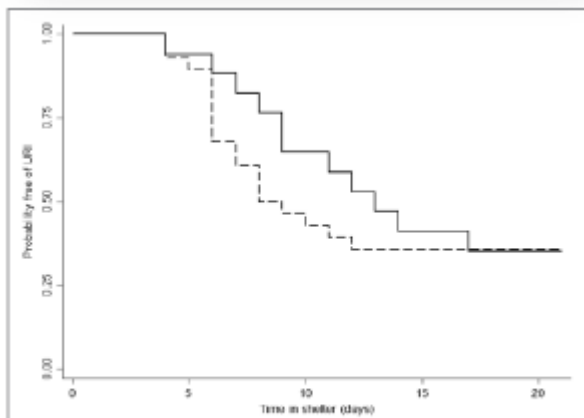
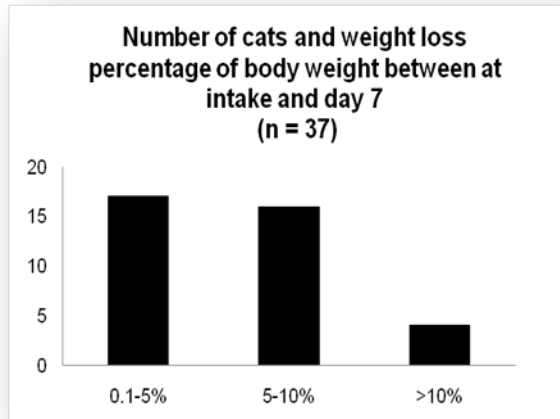
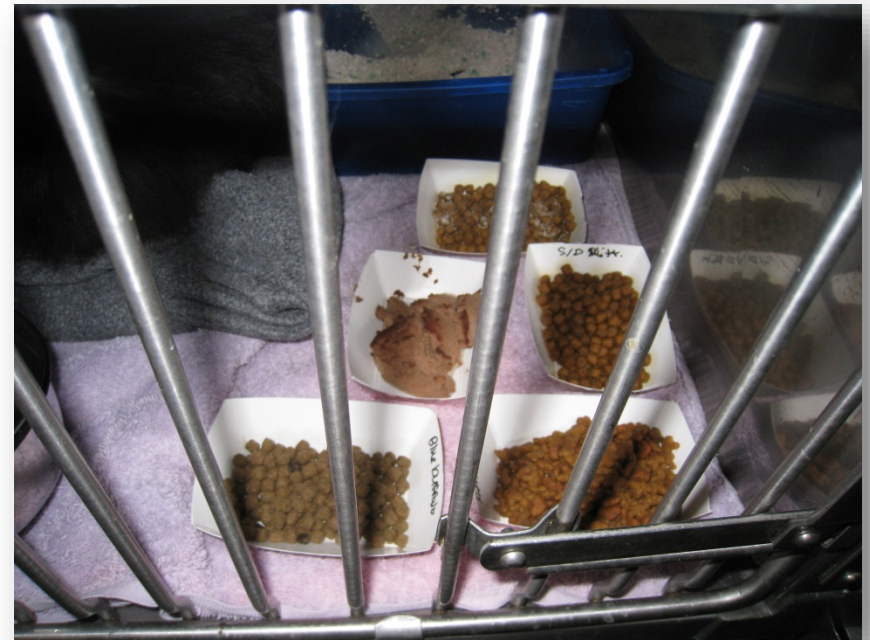


Figure 1—Kaplan-Meier survival curves of days to development of URI among adult cats that lost weight (n = 34; dashed line) or did not lose weight (24; solid line) during their first week of shelter stay. Curves are not significantly different.

- 37/58 cats lost average 6 % body weight in 7 days
 - Weight loss in week 1 correlated with URI in days 4-14
- 15/24 remaining another 7 days also lost weight
- Weight loss significantly correlated with stress score
- *Food intake may be a sensitive and easily measured indicator of stress and URI risk*

Nutrition basics

- Offer palatable, highly absorbable, consistent diet
 - Have variety on hand for picky eaters
- Separate food and litter by at least three feet
- Tailor eating experience to cats
 - Social vs shy eaters
- Avoid pairing feeding with aversive activities
 - Smells, sounds, disruption



Air *quality* basics

- ✓ Droplet spread possible up to five feet
- ✓ At least 1.5 open cage/condo sides if possible
 - ✓ More important the smaller the cage
- ✓ Minimize irritants
 - ✓ Spot clean, no spray
- ✓ Use fans after cleaning
- ✓ Open doors and windows
- ✓ Utilize outdoor space whenever possible
- ✓ Don't hang your hopes on air filters



Hiding place basics

- High shelf may be preferable to box if floor space is limited
- Box maybe preferable to shelf is height is limited but floor space is adequate
- Partial front cover and towel over bed may be best choice if both floor space and height are limited
- Tailor to individual cat in small small cages



<http://www.sheltermedicine.com/shelter-health-portal/information-sheets/building-an-elevated-bed-for-use-in-shelter-cat-housing>

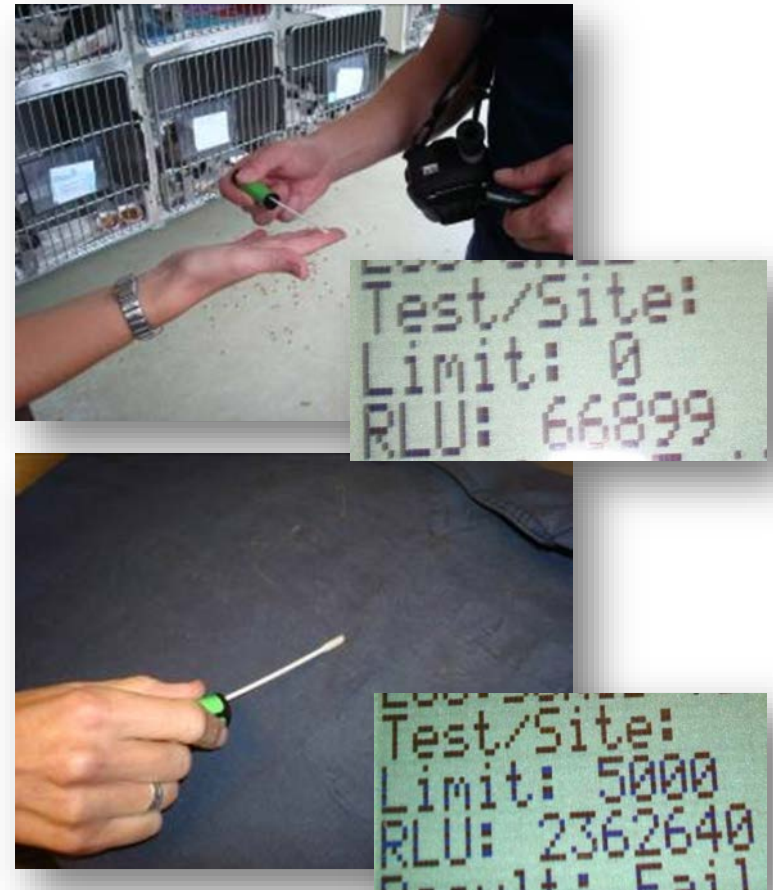
Curtails...curtains for stress curtailment



http://www.sheltermedicine.com/cage_covers

Socialization without stress?

- More for less is more
 - Kitty butlers versus kitty cuddlers
- Evaluate beforehand:
 - Cat?
 - Cage?
 - Signs?
- Control for cat (carrier ideal)
- Contact enhances adoption and reduces length of stay



LET PEOPLE PET THE KITTEHS!!!



Safe kitty recess time



- Away from cage fronts by at least 5 feet
- Visual barriers/hiding spots
- Ideally, walk-in for people
- Consider health and behavior first
 - Adult cats vaccinated at least 3-5 days
 - Discontinue during outbreaks
- Make sure staff/volunteer time *and skill* is adequate

<http://www.sheltermedicine.com/shelter-health-portal/information-sheets/facility-design-and-animal-housing#time>

What if you tried all this and you're still looking for answers?

VIN 

Front Page | Message Boards | **Search** | Rounds | Library | CE | My VIN | Help | FAQ

SEARCH prevent shelter URI??? [Need Help Searching?](#)

Search Cats Search Last 7 years only **SEARCH** **CLEAR** **MORE OPTIONS**

[Try the new search on Beta!](#)

Search results for **prevent shelter URI** in **All Resources**. Documents 1 to 25 of the best **57** matching your query.

All Resources | Message Boards | Journal Abstracts | Drug Resources | Conference Proceedings | Clinical Resources | Client Education | PubMed

Search URL: <http://www.vin.com/Members/Search/Search.plx?B=1&S=how+do+i+prevent+shelter+URI&SP=3&PD=3>

Quick Links:

» [Add Search Results to MyStuff](#)

☒ CHECK ALL ☐ UNCHECK ALL ☒ VIEW CHECKED ☐ Highlight Search Terms In Checked Results

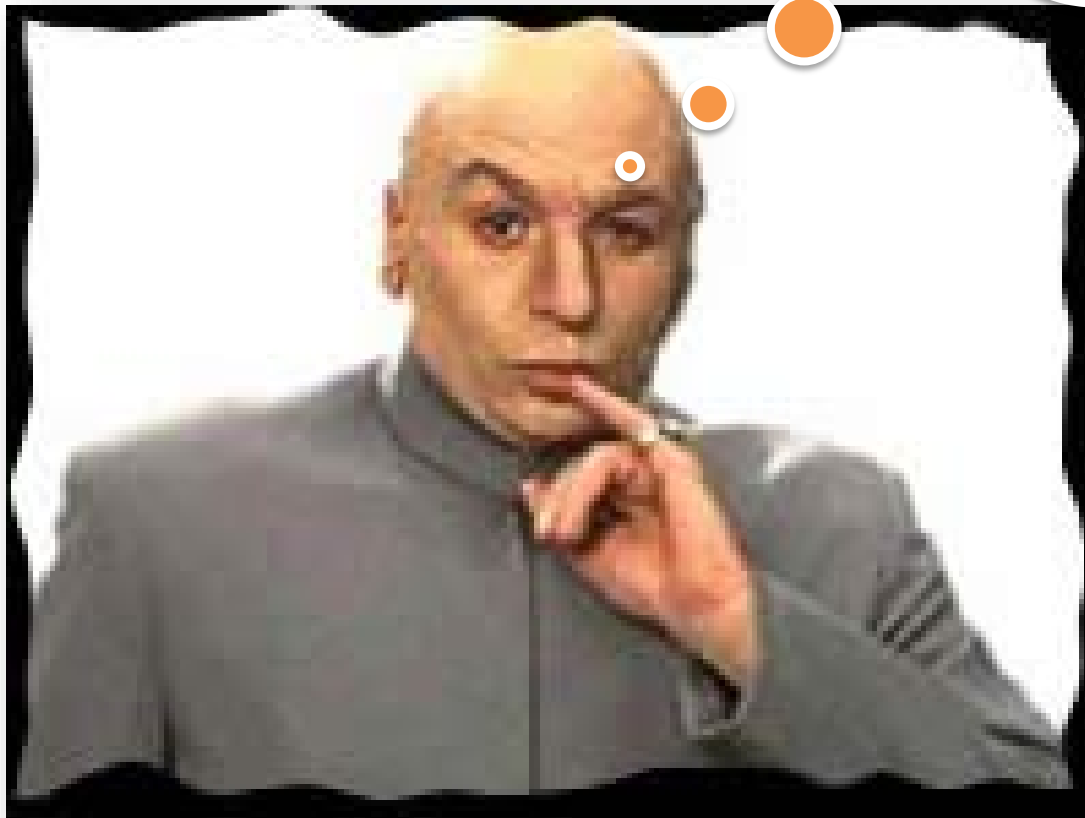
- ☐  1. [Management And Housing To Treat And Prevent Upper Respiratory Infections In Shelter Cats](#)
* Message Boards: **Shelter Medicine Folder, August 09 2011** » [Add to MyStuff](#)
- ☐  2. [Using Lysine Supplementation To Prevent Herpesvirus Infections In Shelter Cats](#)
* Message Boards: **Shelter Medicine Folder, November 05 2010** » [Add to MyStuff](#)
- ☐  3. [Efficacy Of L-Lysine And Famciclovir For Feline Herpesvirus And Other Respiratory Infections In Cats](#)
* Message Boards: **Internal Medicine - Feline Folder, July 06 2010** » [Add to MyStuff](#)
- ☐  4. [Usefulness Of Lysine And Famciclovir For Conjunctivitis And Upper Respiratory Infections In Cats](#)
* Message Boards: **Internal Medicine - Feline Folder, February 09 2010** » [Add to MyStuff](#)

VIN, Shelter Medicine Folder, 8/2011

- I work at a non-profit, open admissions shelter... In the past, the summer months have brought us rampant URI in cats, and our live release rates have been less than ideal (2010 was 54% for the month of July). We have an amazing new building that opened in 2009, and has 126 Shorline cages for cat holding (in addition to the adoption floor, which has two "kitty cities" for group housing and 16 cat "condos" that are basically tiny rooms instead of cages).

In 2010 we adjusted the temperatures in the cat lofts higher so the kitties wouldn't be as cold, we added hiding boxes and Kuranda beds, but we didn't see any changes in the URI rates. Cats were being euthanized daily because the URI was so widespread, and the severity of the illnesses were much greater than you see in private practice URI. Cats would go to foster for URI and be there for MONTHS with sneezing or conjunctivitis.

Hmm...now
what?



Environmental and group health risk factors for feline respiratory disease

UC Davis URI Project- Enrollment Questionnaire

17. For a typical healthy cat please estimate the number of moves into a different cage either in the same room or into a different room during the first week of stay? (Do not include moves in and out of the same cage.)

☐ No moves occur. Cat remains in same cage, room/area from intake through day 7.

☐ 1-2 moves

☐ 3-4 moves

☐ > 4 moves

Other (please specify) _____

18. For a typical healthy cat, please estimate how many times it gets moved out and back into its cage for cleaning, socialization, assessments, etc during its first week in the shelter. (Do not include the moves to a new cage. Do not include moves from one side to the other of a double sided cage.)

☐ None

☐ 1-2 moves

☐ 3-4 moves

☐ 5-7 moves

☐ >7 moves

Other (please specify) _____

19. Select enrichments included in cat cages for the first 7 days of shelter stay? (Select all that apply)

☐ Shelf

☐ Soft place to lie on

☐ Toys

☐ Scratching area/post

☐ None of the above

☐ Other

Other (please specify) _____

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UC Davis URI Project- Enrollment Questionnaire

20. Litter box size in inches?(If several different litter box sizes please give size of litter box used in housing area for first week of stay).

Length _____

Width _____

Height _____

21. Do cats in cages have 3 feet distance between litter box and food?

☐ Yes

☐ No

Other (please specify) _____

22. When cats are handled what precautions are taken (on routine basis) to decrease the spread of infectious disease? (Select all that apply)

☐ Individual use gloves changed per individual cat

☐ Individual use clothing changed per individual cat (gown etc)

☐ Clothing (gown etc) used in individual room or area.

☐ Use of hand disinfectant or washing hands after each individual cat is handled

☐ Use of hand disinfectant or washing hands when leaving individual room or area

☐ None

☐ Other

Other (please specify) _____

23. Name and active ingredient of disinfectant(s) used to clean cat cages (Ex: Trifectant, potassium peroxymonosulfate)

24. In general what are your daily cleaning procedures of cages housing cats?

☐ Thorough cleaning, cat is moved to new cage

☐ Thorough cleaning, cat is moved back into same cage

☐ Spot cleaning

☐ Other

Other (please specify) _____

25. Describe your cleaning protocol for cat cages or email your cleaning protocol.

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49 questions including cage size, material and number, hiding place, handling, infectious disease control, vaccination, feeding, timing of S/N, air quality, natural light, dog exposure

After all that, what mattered most?

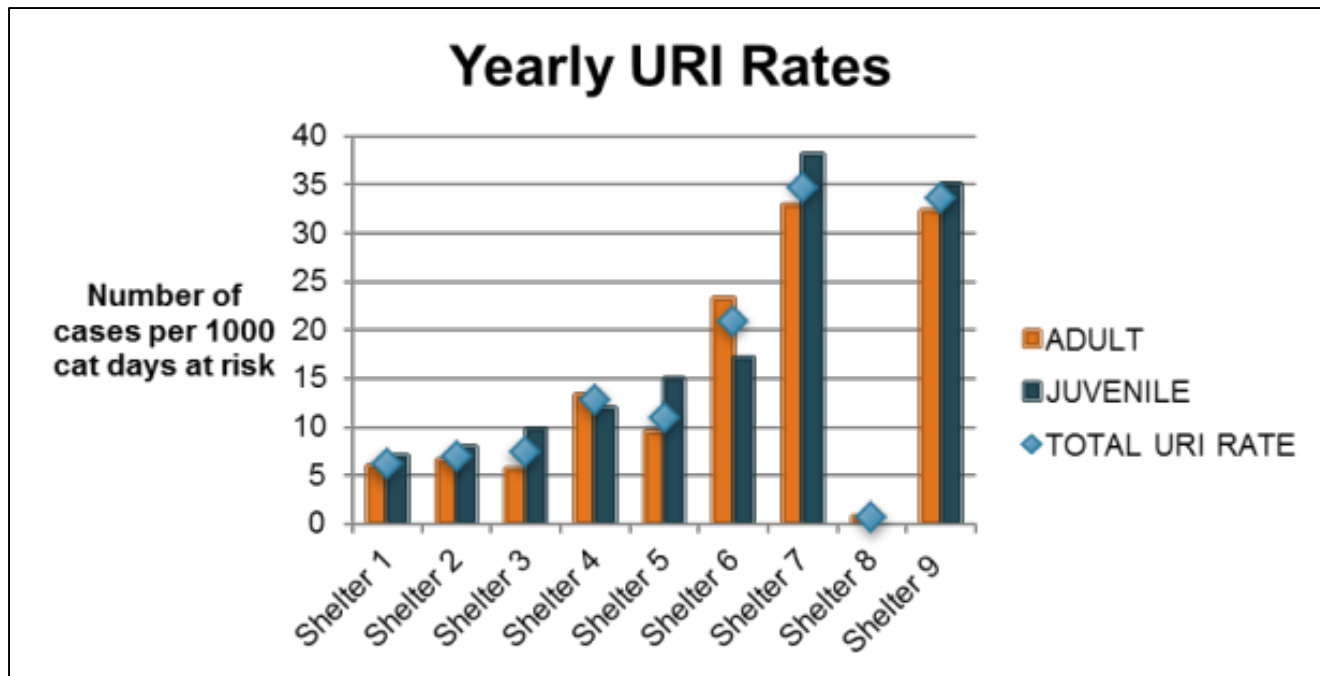
all_URI_GT2	IRR	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
new_cifs_2	.8466349	.1243785	-1.13	0.257	.6348145	1.129134
new_cifs_3	.4896522	.0598454	-5.84	0.000	.3853484	.6221882
mixed	.3275651	.1583542	-2.31	0.021	.1269998	.844875
ln_total_cve	1.179146	.3084261	0.63	0.529	.7061895	1.968857
Movement_1ve	.1891859	.0390889	-8.06	0.000	.1261876	.2836357
Intranasalve	1.463807	.3018267	1.85	0.065	.9771741	2.192782
new_hs_2	1.050598	.4976885	0.10	0.917	.415151	2.658687
new_hs_3	.7965236	.2267483	-0.80	0.424	.4559162	1.391593
new_season_2	.722167	.0468721	-5.02	0.000	.6359025	.8201339
new_season_3	.7874888	.0896001	-2.10	0.036	.6300792	.9842234
new_season_4	.9176195	.1682131	-0.47	0.639	.640656	1.314318
Total_healvs	(exposure)					

Greater than 9 square feet of floor space but not 6-8
compared to < 6

Limited movement in first 7 days

All large cages were compartmentalized

Big differences



From 0.69% to 33% of intake

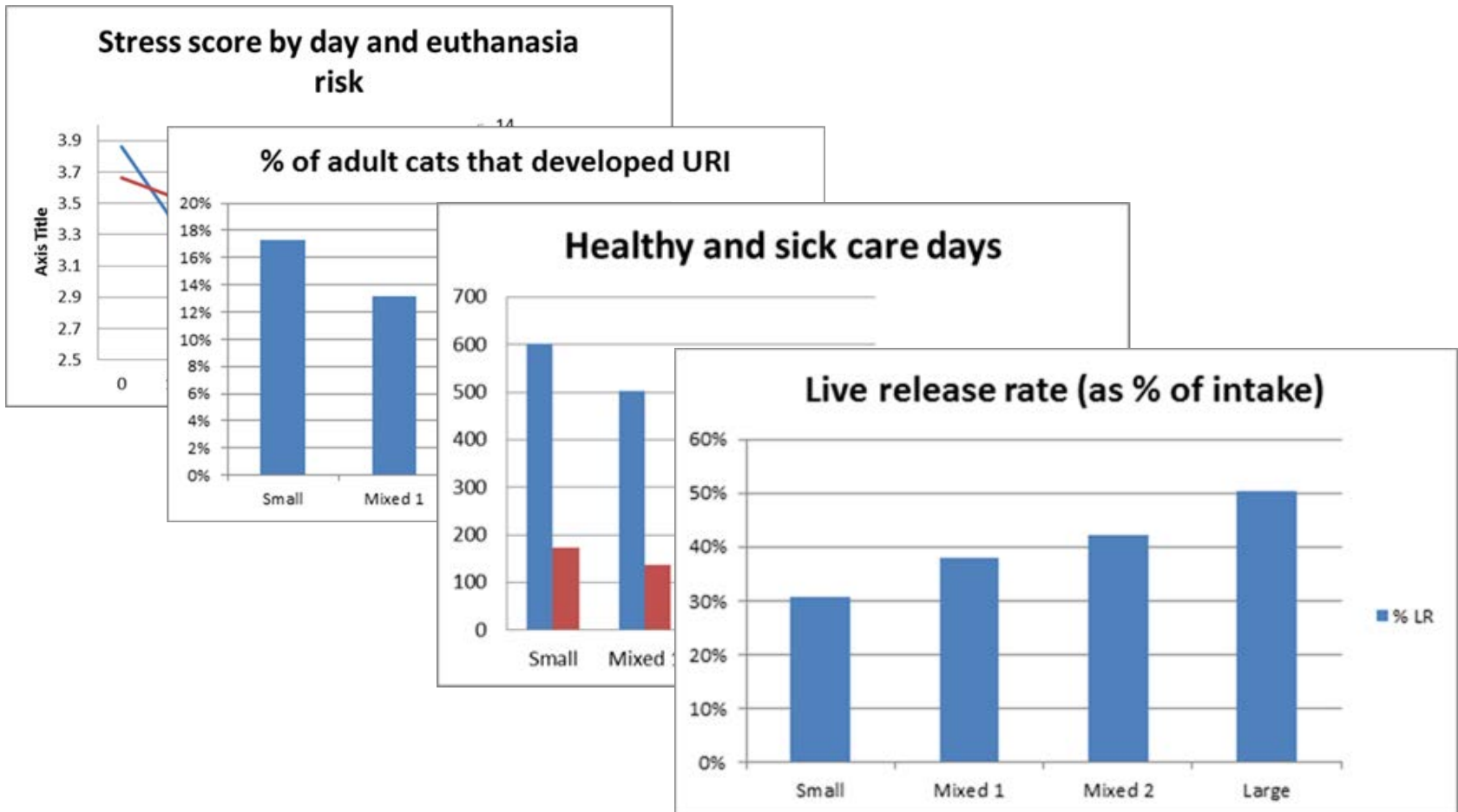
Does this really work?

- In February 2011, we took a huge step and cut holes in between cat holding cages, and inserted PVC portholes, effectively doubling the space available to each cat and cutting the number of cages we had in half. Actually less than half - because each loft had an odd number of cages, there is a set of triple cages in each loft. We've now got 60 separate cat holding cages. These portholes were designed to be permanent openings, we did not make any "doors" to close because then it's too tempting to revert to less space and more cats. We had many staff and volunteers who were very leery of the change, fearing that more cats would be euthanized because we lacked space.

Poll question: What do you think happened?

- They went to all that trouble for nothing – it didn't make any difference in the URI rate and the same number of cats were euthanized
- There was less URI but more cats were euthanized due to lack of space at the shelter
- There was less URI and no change in euthanasia but they had to send all their extra cats to Kate Hurley's house due to lack of space at the shelter
- There was less URI and fewer cats were euthanized due to the miracle of the space/time continuum

Cage size, stress, health, length of stay and live release



Magic

- We saw some effects right away. The lofts were immediately quieter, cats seeming more relaxed. There were very few cats "fake sleeping". The longer term effects are just starting to show up. Cat isolation is empty today, because our URI rates have plummeted. Cats aren't breaking with URI right before or after adoption. And now that the statistics for July are in, we found that our live release rate for felines in July 2011 was 70%. In 2010 it was 54%. We euthanized 140 fewer felines in July 2011 compared to July 2010 - and those numbers include the cats we euthanize on intake for lack of space.

“Capacity for Care” (C4C)

- Meeting the five freedoms for every animal in the shelter
- Good housing is the foundation
- Length of stay gets you there
- Independent of intake and outcomes but tends to make both better



Win, win, win

Hi, I really wanted to share the success that the South Peace shelter has had based on the many wonderful ideas presented by Dr. Hurley in the capacity for care workshop. As a manager of a **very small branch servicing a very large area** and a supporter of welfare based care, I have struggled with the large quantities of cats entering our facility vs. providing optimal care.

We have managed to reduce our in care inventory from an average of 120 animals to under 50. I have attached a picture of Saturday's "emptied by adoption" cat room that is ready for the next weeks surrenders....What has been crystal clear here is that this model works and the real winners are the cats. In a recent conversation I had to think very hard about when I last saw a cat with herpes URI symptoms at the Shelter. What we did see is an increase in cat adoption.



Our cat adoption rates looked like this:

<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>
43%	68%	54%	60%	102%



Still not sure?

I still don't see how we can
keep fewer cats on hand
but still save more cats... it
seems like magical
thinking. How does it
work?



Housing, health and LOS

- Adequately sized, double compartment housing for newly admitted cats reduces risk of URI
- Reducing URI reduces LOS

all_URI_GT2	IRR	Robust Std. Err.
new_cifs_2	.8466349	.1243785
new_cifs_3	.4896522	.0598454
mixed	.3275651	.1583542
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new_season_2	.722167	.0468721
new_season_3	.7874888	.0896001
new_season_4	.9176195	.1682131
Total_heal~s	(exposure)	

The biggest surprise with C4C was going from isolation being full all the time...



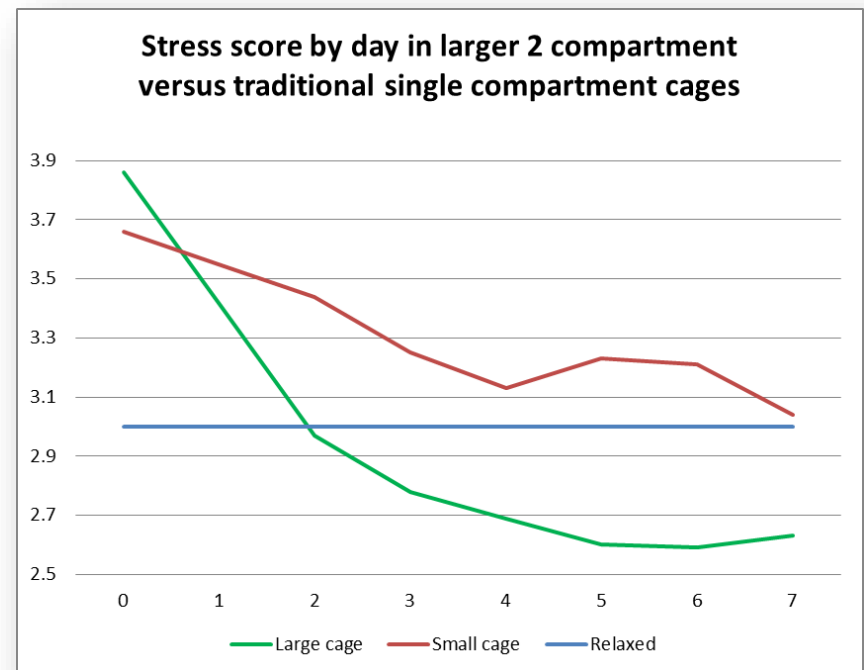
To Isolation looking like this – **ALL THE TIME**



Kim Monteith, BC SPCA, Vancouver, BC

Housing, stress and LOS

- Adequately sized, double compartment or group housing reduces stress and encourages friendly, active behavior
- Adopters respond to friendly, active behavior
- Reduced stress and friendly, active behavior reduce LOS



“Everyone is less stressed...euthanasia is down 40%...we can now take in more surrenders and strays”



Housing, staff time and LOS

- Adequately sized, double compartment housing takes less time to clean and helps reduce disease spread
- Staff that spend less time cleaning and more time interacting with adopters will reduce LOS



“Adoptions are up,
sickness is down, staff
have more time.”



Number of animals housed and LOS



- More individuals waiting does not change the rate of outcome
- For a given rate of outcomes, *length of time* waiting is determined by the *number* of individuals waiting
- Self sustaining *at any level*
- **Fewer, better quality housing units means fewer individuals waiting**

“Euthanasia down by
15%...length of stay
decreased by an
amazing 63%”



Want to try this at home?

- Keep cats healthy and reduce stress to minimize length of stay
- Identify and stay within your optimal number to maximize adoptions
- Present cats well so they fly out the door



More details

Adoption Driven Capacity: Your shelter's key to saving lives and providing great care

What is the perfect number of animals to have up for adoption at any one time?

We know from the retail world that this is a critical question, all the more so when we're dealing with living, feeling beings. Too few animals for adoption and willing adopters may walk out of the shelter empty-handed because they couldn't find the pet of their dreams.

Too many animals for adoption and costs and length of stay are needlessly increased, conditions for care may be compromised, and in the worst case scenario adopters are so overwhelmed by choices that they don't take any animal home at all.

Just the right number, and welfare and health are maximized while cost is minimized, more animals are served over time, and everybody wins!

We know which of these three options we want, but how do we determine that elusive "just right" number? To help each shelter answer this question, we've developed this article and the associated [Adoption-Driven Capacity \(ADC\) Calculator](#). We hope these tools are useful for you!

<http://www.millioncatchallenge.org/resources/capacity-for-care/adoption-driven-capacity>

Yet more details



<http://www.animalsheltering.org/resources/magazine/>, May/June issue

Still not perfect

- We still have to remind ourselves occasionally that we don't have enough homes to save every cat we otherwise could right now. But making the euthanasia decision earlier on is saving a lot of staff time and stress, and in the long run we've got healthier cats to adopt. Healthier cats will make a difference in the reputation we have, and pave the road to even higher adoption numbers.

Balancing intake and outcomes

Managed Admission Results

- "We were confident we would see positive results with the implementation of a managed admissions process but we had no idea it would happen so quickly. By evaluating cats during the appointment, we were able to get cats to adoption and into new homes quickly. Before we knew it, URI was virtually non-existent as we watched healthy, happy cats leave our shelters in half the time."

from 31.3 days to 11.0 days



Balancing intake and outcomes

Cats: San Jose shelter spays,

Carolyn Jones, Chronicle Staff Writer
Tuesday, January 3, 2012

PRINT E-MAIL SHARE COMMENTS (50)



John Sebastian Russo / Special
San Jose veterinary technician Becky Thomas shaves the
stomach of a 5-month-old kitten before she is spayed.

IMAGES



View All Images (4)

MORE BAY AREA NEWS

- Sheriff charged with three crimes linked to abuse allegations 01.13.12
- \$1.4 million settlement agreement in

street in

San Jose

country

and str

aren't a

and releases

from which they came.

“Sometimes we just have to laugh because it almost seems impossible that one program can impact the numbers so significantly. This was one of those areas of the operation that we didn’t even know would improve until after we started the program and realized what a positive impact it was having on the incidence of URI and our capacity to handle URI.”

2011-12

Want to try ALL this at home?



ONE MILLION LIVES
COUNTING ON YOU.

MILLION CAT CHALLENGE IS A JOINT PROJECT OF:
UC DAVIS KORET SHELTER MEDICINE PROGRAM
MADDIE'S SHELTER MEDICINE PROGRAM AT THE UNIVERSITY OF FLORIDA

 "The Million Cat Challenge thanks Maddie's Fund for their generous sponsorship and their dedication to saving the lives of our nation's cats." "

Lives Saved*
0,228,847

www.millioncatchallenge.org