Analyzing the Safewalk® Program with SAS®: Saving Shelter Dogs One Walk at a Time

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Background



- The MSPCA Angell is an Animal Shelter located in Boston,
- Helping animals for 140 years

hamsters, guinea pigs, rats, etc.

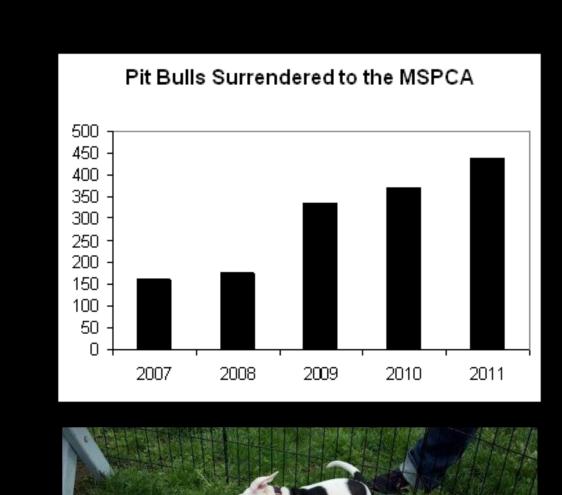
- Not affiliated with any other organization
- "Open" admission: no animal is turned away for any reason • 7,000 animals taken in each year: dogs, cats, birds, rabbits,
- Approximately 1,400 dogs each year taken in



Dog population consists of:

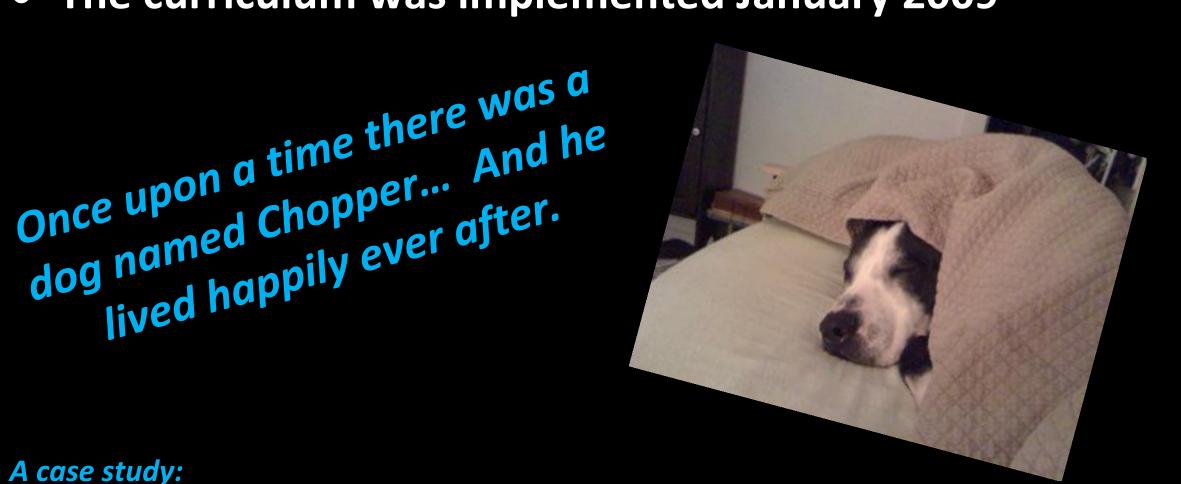
- owner-surrenders
- strays who could not be sent back to the town they were
- medical cases from Angell Animal Medical Center whose owners could not afford care
- abandoned (tied to a fence on the property) Other Shelters in the area and state are "limited" admission, and refer all problematic surrenders to the MSPCA.
- Pit bulls constitute a significant proportion of the dog population at the MSPCA The number of pit bulls
- increased when another large shelter in Boston became "limited" admission in January
- No other shelters in the area currently receive pit bulls

Systems Approach Model





- Safewalk is a curriculum to change the behavior of
- shelter volunteers who handle homeless dogs In September 2008, a curriculum was developed at the MSPCA for volunteer training based upon Dick and Carey's
- The curriculum was implemented January 2009



A case study:

On August 20, 2007, a tallish one-year-old male black and white pit bull named "Chopper" was surrendered to the MSPCA because the owner was moving and could not take him to their new apartment. Chopper settled in nicely to the Shelter routine: two walks, two meals, and a look-see by the public every afternoon. He was adopted on September 18, 2007, by a middle-aged retired Marine who had a big, fenced-in back yard and who was quite experienced with owning a big dog in the past, a German Shepherd. He and Chopper hit it off, and Chopper went home. On November 5th, a mere 48 days later, Chopper was returned, for "being destructive when left alone outdoors." (Chopper chewed up the porch stairs and bits of the family van.) At the Shelter, Chopper exhibited the most typical adolescent behaviors: he jumped on people, he was mouthy and bit the leash, and he was a strong leash-puller. Though he could not be safely walked by inexperienced volunteers, he was very responsive to rewards-based training. Without diligent training, his behavior would worsen, and he would no longer be a candidate for adoption. A behavior plan was written for Chopper that included training and extra walks, and volunteers and staff implemented it consistently. After 172 days, he was successfully adopted to a young man who gave him a great and permanent home. The idea of training people to help dogs was

Safewalk®

Dogs were classified with a "color" system, in order to improve

- "green" dogs= easy to walk, harmless
- "yellow" dogs= strong, few if any behavior issues
- "purple" dogs= need training, behavioral problems such as pulling on the leash, mouthing, jumping, reactive towards

Color levels and leveled training for humans were also devised:

- "Keepers (blue)"- observe and train dogs on Adoption Floor "Green" = Level 1- can walk "green" dogs (easy dogs)
- "Yellow"= Level 2- can walk bigger dogs that may or may not
- need training; harder to physically handle. "Purple"= Level 3- can walk non-staff dogs in Dog Receiving, as well as dogs with great training needs on Adoption Floor

Training Examples:

- Training for all dogs while in the kennel on the Adoption Floor in "adoptable" behaviors such as sitting at the front, and following trained commands
- 3-5 walks per day for all dogs, with rewards-based training during walks, as well as off-leash play time in the fenced-in
- Clicker-training of Obedience skills, such as sit, down, looseleash walking, and tricks, both while on walks, and for pit bulls, in a weekly class taught especially for them
- Take puppies to socialization classes
- *Take pit bulls to a series of Obedience, Canine Good Citizen Prep, and/or Rally Obedience classes taught by MSPCA instructors and attended by owned dogs (rather than Shelter
- Clicker-training to teach dogs to walk on a treadmill Clicker-training to teach dogs to pull a donated dog-powered

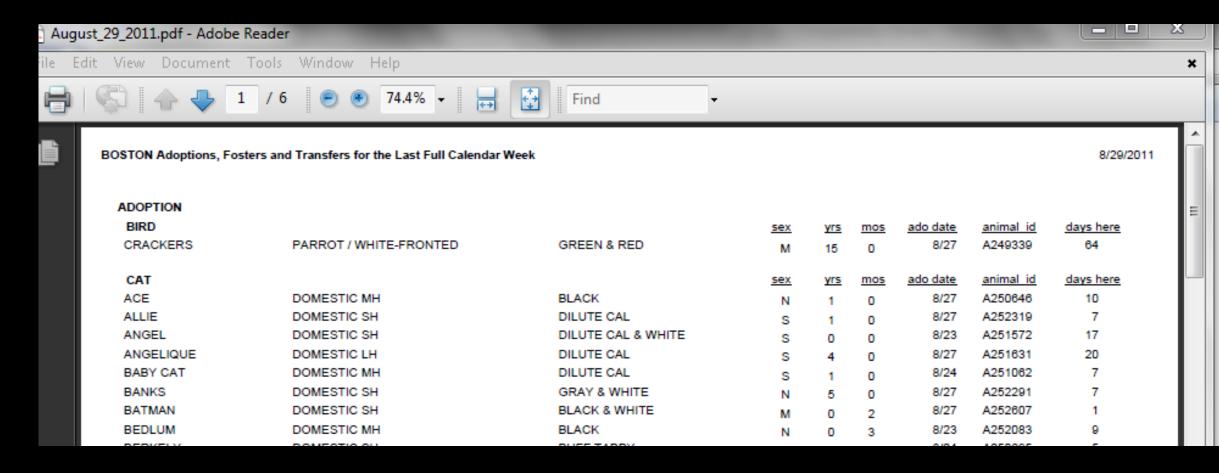


We had the place, and the program – but we didn't have a method to measure the effectiveness of Safewalk. We observed

- Enrichment and training was now available to pit bulls, the population that suffered most from being cooped up in a kennel for a long period of time.
- Dogs' behavior improved by training and they went successfully to new homes.
- We hypothesized that dogs could now withstand being homeless longer in the shelter and be adopted, because Safewalk was working.

We needed some way to prove it.

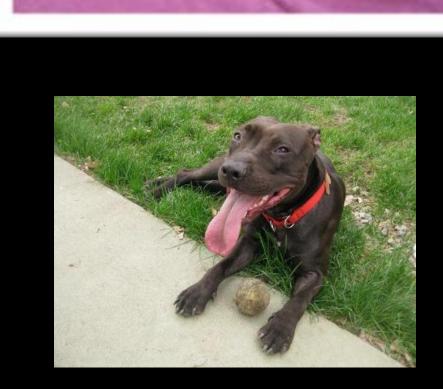
The MSPCA collects data on every animal that enters its care using the Chameleon® system.



From reports on the data we were able to determine some of the fields available for analysis in the system. Among these were animal type, animal name, primary breed, primary color, sex, age in years and months, adoption date (outcome date), animal id, and days here (los.) Behind the scenes we assumed variables indicating date of birth and outcome type.

Reports such as the one shown above was not enough to tease out details. We requested a "data dump" in Excel format with the fields shown in the reports, plus some "assumed" variables such as date of birth. We imported the data set, and ran contents, frequencies, crosstabulations and means on all variables to get to know the data. We ran duplicate checks (one beagle appeared six times!) Some checks resulting in additional data requests (for example whether a dog was ever made available for adoption).

























Our hypothesis was that more pit bull type dogs were getting adopted, and staying longer to receive enrichment services, as a result of Safewalk. We took a quick look at dispositions by pit bull type dogs versus other breeds pre and post Safewalk. Results were very discouraging; how could this be? Post Safewalk, 12% more pit bull type dogs were being euthanized, and 11% fewer were getting adopted than pre Safewalk. Notably, higher euthanasia rates and lower adoption rates ALSO existed for non-pit bull type dogs post Safewalk.

Could the program really be working? Intuitively we felt that Safewalk had to be helping dogs, yet the numbers showed otherwise. More dogs were being euthanized, and the LOS was shorter post-Safewalk.

| | Prior to Safewalk | | Post Safewalk | |
|----------------|-------------------|-------------|-------------------|-------------|
| Statistic | Pit Bull Type Dog | Other Breed | Pit Bull Type Dog | Other Breed |
| Intake | 251 | 1,199 | 570 | 1495 |
| Adopted | 100 (40%) | 703 (59%) | 170 (29%) | 798 (53%) |
| Euthanized | 75 (30%) | 145 (12%) | 244 (42%) | 260 (17%) |
| Length of Stay | 19.9* days | 15.0 days | 16.9 days | 12.0 days |

Know Thy Data

and, know the environment in which your data exists. Breed-specific legislation in Boston already in place; not the answer

- The large number of home foreclosures and an increase in rental units not allowing dogs during the time period led to more surrenders and abandonments
- MSPCA became only open admission shelter in Boston in January 2009 (coincidentally when Safewalk began) explaining dramatic increase in pit bull type and other

We explored the outcome and sub-outcome variables. These helped inform future analyses but did not explain the gap between our hypothesis and the analytic results.

Dogs come into the shelter for varying reasons. Among these are requests for euthanasia (if a dog is very ill or dangerously aggressive), severe health problems, and severe behavioral issues. Dogs are assessed by the behavioral staff shortly after arrival as to whether they are safe to be placed up for adoption. In some cases, being placed on the adoption floor is delayed for health reasons or because a dog is on a "stray hold". Dogs that do NOT make it to the adoption floor result in a higher rate of euthanasia and shorter LOS. Our sample was reduced to dogs who had been placed on the adoption floor and therefore had the opportunity to benefit from Safewalk, with outcomes of adoption or euthanasia.

Analysis

| | Prior to Safewalk | | Post Safewalk | |
|----------------|-------------------|-------------|-------------------|-------------|
| Statistic | Pit Bull Type Dog | Other Breed | Pit Bull Type Dog | Other Breed |
| Intake | 110 | 484 | 178 | 679 |
| Adopted | 85 (77%) | 476 (98%) | 157 (88%) | 666 (98%) |
| Euthanized | 25 (23%) | 8 (2%) | 21 (12%) | 13 (2%) |
| Length of Stay | 30.7* days | 18.5 days | 31.5 days | 15.5 days |

Both authors were familiar with statistics, but the audience for the information we wanted to share was not. After all, how many people know what a Bonferroni adjustment is? (Let alone what SAS procedure produces it!) We needed a way to convey statistical information about SAFEWALK to lay people and to those in the animal behavior community, so that funding and staffing for the program was ensured. Simple tables such as the one shown above would not cut it at a board meeting, even with nice pictures of happy dogs to accompany them.

The primary SAS tool we used was ODS GRAPHICS with SAS/ STAT. Including statistical graphics in our procedural calls gave us easy to read depictions of what was happening with our data.

- PROC SURVEYFREQ
- PROC UNIVARIATE
- PROC TTEST PROC ANOVA
- PROC ... ;

ODS GRAPHICS OFF;

ODS GRAPHICS ON;

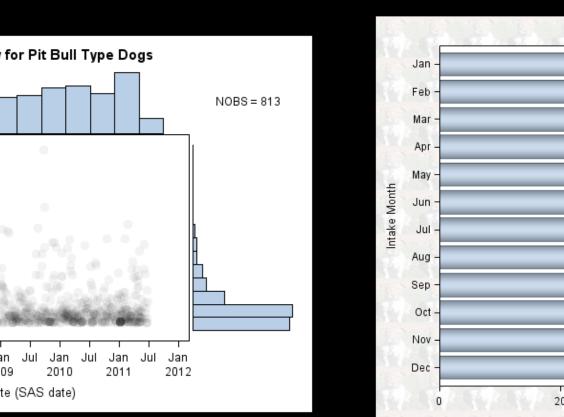
Analysis (cont.)

We also explored the SG procedures with annotation. This allowed us to personalize our graphic output. As of SAS 9.3, the SG procedures are part of base SAS and you do not need to

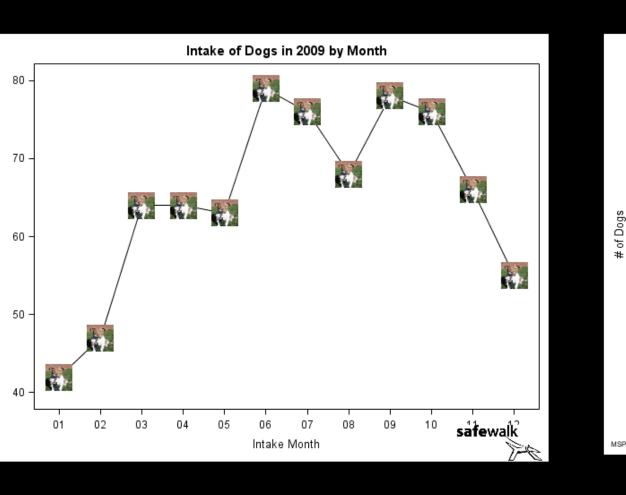
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PROC SGRENDER

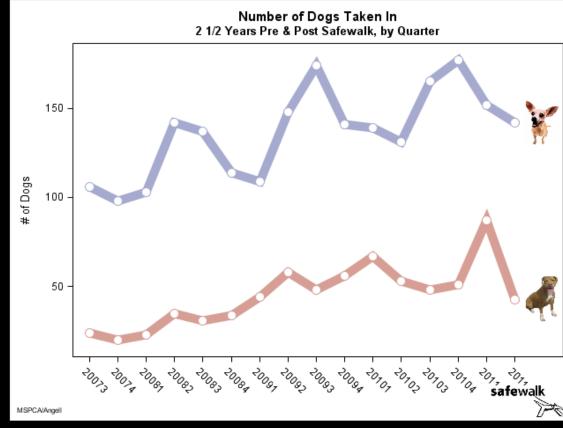
pictorial labels



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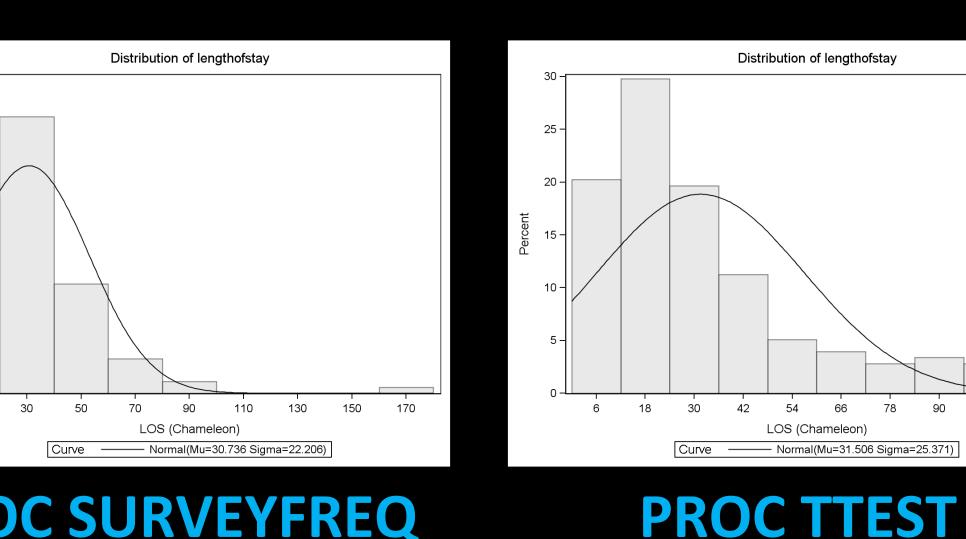


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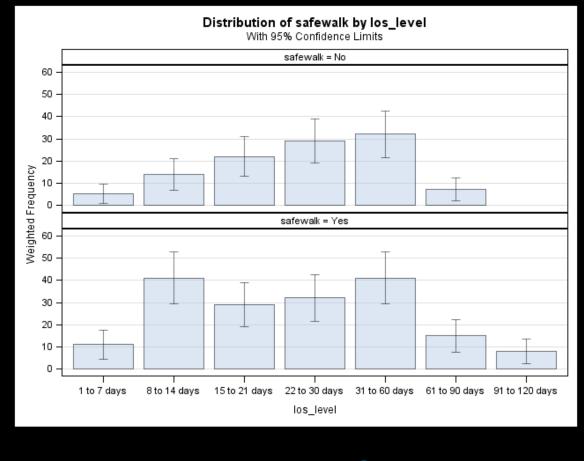


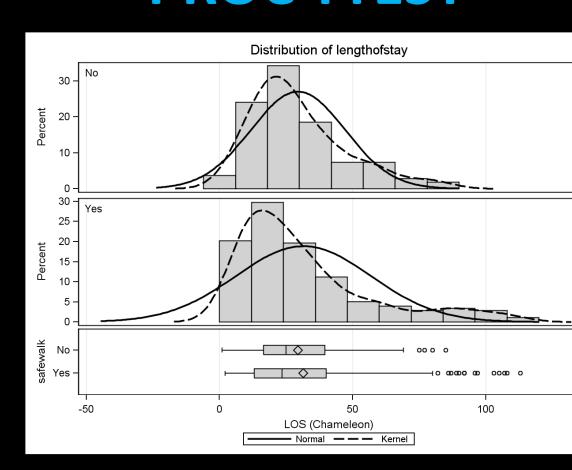
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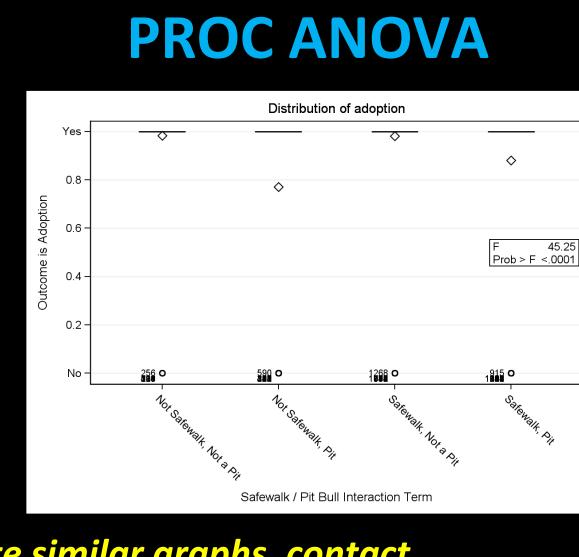
PROC SURVEYFREQ





Angel





For sample code to create similar graphs, contact



We do a good job at finding dogs new homes but as an "open admission" shelter, we take in lots of pit bulls, and these terriers need training and enrichment to flourish and to withstand the institutional lifestyle.

With the Safewalk program, pit bulls can withstand being homeless for longer periods, and get adopted at higher rates. SAS® analysis helped us visualize our data, and prove our hypotheses.



Contact Us!

Your comments and questions are valued and encouraged. Contact the authors at:

louise_hadden@abtassoc.com tbright@mspca.org

There are many shelters and rescue organizations that operate with the help of selfless, caring staff and volunteers. Some of these organizations operate on a national scale, like Best Friends or the ASPCA, but some of these organizations are in your own home towns - for example, BAD RAP and Monterey SPCA helped save some of the Vick dogs. Some of your fellow attendees are among these volunteers. These volunteers and organizations save lives every day. Volunteer, or give, to your local organizations.

































