Chapter 5

Advocacy Groups

As discussed more fully in the introductory section (Pages 19-20), the dynamic that can overwhelm a sheltering system's capacity is cumulative. The animals entering the system come from several discrete sources. Some have been abandoned by their owners, others have been relinquished by their owners to shelters, and still others have never had an owner to abandon or relinquish them. Some are in good health, others have health or behavioral problems, and others have been surrendered to shelters for reasons that have nothing to do with their health or behavior, such as when their owner is no longer able to care for them. No single source outstrips the capacity of a sheltering system. Only the total does.

Because the root causes of shelter overpopulation are diverse, no one group is in a position to provide the broad array of services needed to eradicate it. Different subsets of animals that have become homeless or are at risk of it are served by different groups and agencies. An advocacy group dedicated to eliminating shelter

overpopulation in its community can fill a critical need by coordinating the contributions of other groups and providing essential services and programs that the others are not able to provide themselves.

Public and private shelters and veterinary practitioners can provide protective programs and services to the animals they serve, but that typically does not include two populations: pets living in households that cannot afford veterinary care and homeless cats and dogs that are not in shelters. To eradicate overpopulation, an advocacy group will need to provide services to these underserved populations.

Making it even more complex, not only does shelter overpopulation come from several sources, each with a different root cause, each cause requires a different set of interventions[323] and the prevalence of each varies from one community to the next.[324] The outcome can be the same in different places—the capacity of a community's sheltering system is overwhelmed—while the causes differ.[325] As a result, the optimal allocation of resources requires the use of local shelter data to develop programs that target the particular sources of overpopulation in a community.[326] While there will necessarily be some differences in the plans developed in different communities because of the variation in local sources of overpopulation, well-designed community intervention plans share several common features.

I. Well-Designed Intervention Plans are Collaborative

As discussed earlier, animal care and control agencies can help reduce shelter overpopulation (Pages 27-42), as can veterinary practitioners (Pages 43-56) and humane societies and rescue groups (Pages 57-77). In many cases, each group is uniquely situated—because of its mission, resources, and authority—to provide an essential program or service that no other group can provide.

Their law enforcement powers give animal care and control agencies opportunities that no other group has. For example, differential licensing programs are associated with lower shelter intake rates (Pages 32-33). The benefits that can be derived from differential licensing laws can be generated, though, only when animal care and control agencies enforce them.

Other benefits flow from the enforcement of licensing laws. For example, lost

dogs that are wearing license tags are more likely to be returned home than those without tags.[327] This benefit, too, is uniquely within the power of an animal care and control agency to secure through its enforcement of licensing laws.

Humane societies and rescue groups can increase a community's pet sterilization rate and reduce future shelter intakes by ensuring that all the intact pets they re-home have been sterilized at the time of their placement. Even if shelters still account for only 13% of all new cat and dog acquisitions in the United States, as they did in 1996,[328] a community's pet sterilization rate will inevitably increase if all of the pets acquired from shelters have been sterilized. In the absence of a law requiring the pre-release sterilization of intact pets, it is the sole prerogative of each shelter to adopt such a policy.

Veterinary practitioners counsel pet owners about pet care on a daily basis and have what sociologists call Aesculapian authority, the increased credibility that cultures bestow upon those with the power to heal.[329] This may explain why pet owners in a Gulf Coast study reported that they valued the opinions of veterinarians about pet-related issues more than those of any other source.[330] Not only are practitioners best able to counsel clients about the protective benefits of sterilizing their pets and providing them with adequate identification, because of their ongoing relationship with owners they have the best opportunity to provide protective programs to their pets, such as puppy socialization and dog training classes.

For all of these reasons, it is critical that an advocacy organization effectively engage local animal control agencies, veterinarians, and humane organizations in a collaborative effort to eradicate shelter overpopulation in their community. Indeed it is doubtful whether the effort can succeed unless each group makes a substantial contribution.

II. Well-Designed Intervention Plans are Comprehensive

To eliminate shelter overpopulation, an advocacy group must effectively engage others in the effort, as discussed above. Each group and agency provides services that are of value in its community. Animal care and control agencies protect the public, manage local pet populations, prevent animal cruelty, and ensure that animals enhance people's quality of life.[331] Small animal practitioners protect and enhance the

health of their clients' pets. Humane organizations rescue animals that have become homeless, provide them with shelter, rehabilitate them if necessary, and attempt to place them in good homes. As worthy as the missions of these groups are, though, some programs and services that are essential to ending overpopulation do not fall within their missions and will need to be provided by an advocacy group.

Veterinary practitioners can provide services to their client's pets that greatly reduce the risk that they will become homeless, including sterilization, puppy socialization and dog training classes, and counseling about pet behavioral issues and the importance of providing their pets with identification. These services are critical to protect the health of pets, but low-income pet owners are not as likely to secure them as their middle- and upper-income counterparts. For instance, a 2007 survey of cat-owning households in the United States found that cats living in low-income households (i.e., with annual incomes of less than $35,000) were 9 times more likely to be unsterilized than those living in middle-income households (with annual incomes between $35,000 and $75,000) and 26 times more likely to be intact than those living in upper-income households (with annual incomes exceeding $75,000).[332] The feline sterilization rate for each group is shown in Figure 15.

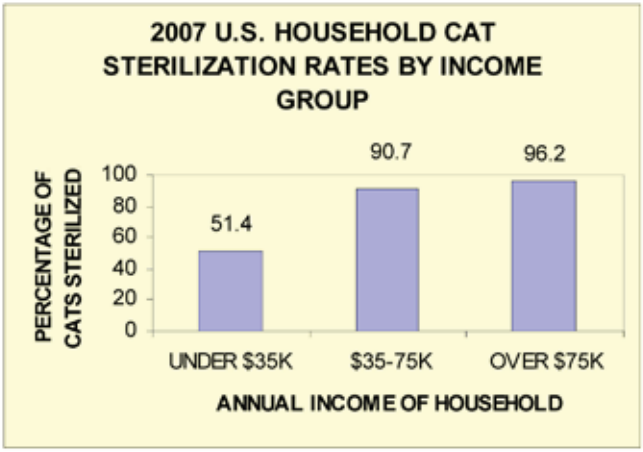

Figure 15.

More than three-fourths (75.8%) of all the intact cats in the surveyed households lived in the low-income households.[333]

Not only are low-income pet owners less likely to have access to pet sterilization, they are also less likely to have access to other veterinary services that are associated with a reduced risk of shelter admission, such as counseling about pet behavioral problems, puppy socialization classes, and dog training programs.

In some cases, shelters and practitioners may not be able to provide all the animals they serve with the full array of services and programs of protective benefit. A shelter may not be able to sterilize all the intact pets it places prior to their release or provide all adopted pets with identification. Or practitioners may not be able to provide their clients with dog training or puppy socialization classes as part of their practice. An advocacy group can assist by providing these services itself or providing funding or resources that enable others to provide them.

Free-roaming cats are another population that is usually underserved by shelters and practitioners. An advocacy group can help reduce the risk that they will be impounded and euthanized by operating trap/neuter/return programs or providing funding and other resources to other groups that operate them.

To address all of the major sources of shelter overpopulation in its community, an advocacy group must ensure that all the populations at risk of being admitted to a shelter receive a comprehensive set of protective services. Pet sterilization programs are necessary, of course, but are not sufficient by themselves to eradicate overpopulation. Approximately 40% of all relinquished dogs and 28% of relinquished cats have at least one unwanted behavior cited as the reason for their relinquishment, such as aggression toward people or animals, destructive behavior, or inappropriate elimination in the house.[334] Other major risk factors—such as a failure to participate in a dog training class, lack of frequent veterinary care, and inappropriate expectations of owners—require veterinary care and counseling and access to dog training classes. An advocacy group can fill a critical need in its community by providing subsidized pet sterilization programs, pet behavioral counseling, puppy socialization classes, and dog training programs to low-income pet owners.

III. Well-Designed Intervention Plans are Preventive

Over the years, three types of interventions have been employed to reduce the gap between a community's sheltering capacity and the number of animals that are admitted to its shelters: (1). programs to increase shelter and sanctuary space; (2). programs to increase the number of pets that are reclaimed by their owners and those that are placed with new owners; and (3). programs to reduce the number of pets that enter shelters in the first place. The last has proven to be the most effective.

Cats and dogs admitted to the 186 shelters included in the 1998 National Shelter Survey, on average, remained in a shelter only 9.5 days before exiting through euthanasia, redemption, or adoption.[335] Fifty-nine percent of the cats and dogs admitted to these shelters were euthanized.[336] Of this total, 34% were euthanized to make space for incoming animals.[337] The gap between our current sheltering capacity and intake rate is so great that if intake, adoption, and redemption rates remain unchanged, overall shelter capacity would have to be increased many fold each year for several years to build sufficient space for all the cats and dogs that are euthanized because of a lack of shelter space.

Shelter statistics from five states that have collected complete data for dog and cat intakes, adoptions, and euthanasias (Page 8) show that intake rates vary within a much larger range than adoption rates:

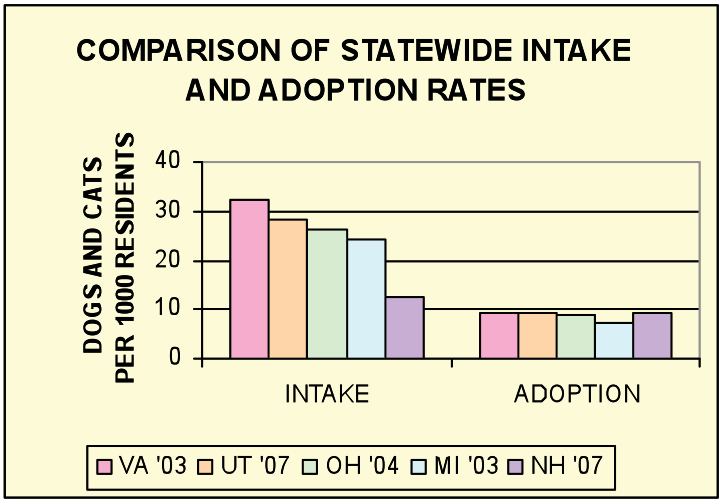

Figure 16.

These data also suggest that shelter intake rates are subject to much greater modification through effective interventions than adoption rates.

The relative cost of each strategy is a factor that must be considered, too. Reducing population control euthanasia rates through the construction and maintenance of increased shelter or sanctuary space is significantly more expensive than programs to increase adoptions or reduce intakes, because neither of the latter incurs the ongoing cost of maintaining sheltered pets for the balance of their lives.

The average cost of impounding, sheltering, and, if necessary, euthanizing the animals admitted to shelters included in the 1998 National Shelter Survey was $176 per animal.[338] It is difficult to measure the direct impact of subsidized spay/neuter programs, but many jurisdictions that have invested in such programs have seen a stabilization or actual decline in the number of animals impounded by local shelters.[339] In the first six years after New Hampshire established publicly funded neutering subsidy programs in 1994, 30,985 fewer cats and dogs entered its animal shelters than in the six years before the program started.[340] The total cost to operate neutering subsidy programs during this period was $1,008,024.[341]

In assessing the relative costs of various possible interventions, an advocacy group must consider the cost of each intervention to the animals affected, too. Sheltering and adoption strategies, even when they result in a successful placement, fail to prevent the significant stress and dislocation that an animal suffers as a result of becoming homeless and being admitted to a shelter. Shelter placements, too, can come at the expense of non-sheltered animals that are also homeless. In 1996, Americans took into their homes one non-sheltered stray or abandoned dog for every dog they adopted from a shelter and two and a half times as many non-sheltered stray and abandoned cats as those adopted from a shelter.[342] Increasing the number of cats and dogs that are adopted from shelters can reduce the number of non-sheltered stray and abandoned pets that find homes.

Historical data suggest that preventive strategies have the greatest likelihood of success. Shelter intake and exit data collected by the California Department of Health Services since 1970 show that between 1975 and 1995, canine shelter euthanasias at animal control agencies dropped from 550,943 in 1975 to 276,789 in 1995.[343] This drop in euthanasias resulted entirely from a decline in intakes from 789,443 to 467,481 during this period.[344]

The City of San Francisco achieved a substantial reduction in shelter euthanasias between 1990 and 2003, from 8,072 to 1,696.[345] A drop in intakes during this period of 5,925 animals was largely responsible for the 6,376 fewer animals that were euthanized.[346]

Shelters in New Hampshire saw a similar drop in shelter euthanasias during this period. In 2000, 8,919 fewer cats and dogs were euthanized in New Hampshire shelters than in 1993, in large part because 8,746 fewer cats and dogs were impounded.[347] These data suggest not only that intake rates can be modified to a greater degree than adoption rates, but also that they can be reduced sufficiently to eliminate shelter overpopulation.

IV. Well-Designed Intervention Plans Are Strategic

While preventive programs can end shelter overpopulation in a community, data accumulated to date suggest that this can only be accomplished over a substantial period of time. Canine intake and euthanasia rates dropped steadily in California over a 20-year period, from 1975 to 1995 (Page 7, Figure 1). It took that long for intakes to drop by 40% and euthanasias to be cut in half. After publicly funded neutering subsidy programs were established in New Hampshire in 1994, shelter intakes dropped by a third, but it took six years to achieve that (Page 34, Figure 10).

One factor that may limit the rate at which newly established spay/neuter programs affect a community's overall pet sterilization rate is the tendency of pet owners to have cats and dogs sterilized at an early age or not at all. More than three-fourths (78.5%) of dogs and 92.3% of cats sterilized through a Tennessee spay/neuter program over a two-year period were three years of age or younger:

Age at Sterilization of All Dogs and Cats
Sterilized at Spay Shuttle Program (Knoxville, Tennessee) 7/07-5/09

AGE AT STERILIZATION	DOGS	CATS
6 WEEKS—12 WEEKS	292 (5.7)	201 (3.6)
3 MONTHS—6 MONTHS	624 (12.2)	1399 (25.1)
6 MONTHS—1 YEAR	1190 (23.3)	1708 (30.6)
1 YEAR—3 YEARS	1904 (37.3)	1844 (33.0)
3 YEARS--5 YEARS	662 (13.0)	324 (5.8)
5 YEARS--7 YEARS	310 (6.0)	81 (1.5)
7 YEARS--10 YEARS	113 (2.2)	23 (.4)
OVER 10 YEARS	12 (.2)	0
TOTAL	**5,107**	**5,580**

Figure 17. [348]

A 1981 study of the age-dependent birth rates of dogs and cats in the Las Vegas, Nevada area found that the primary reproductive age of dogs and cats extended well beyond three years of age, to nine years for dogs and six years for cats.[349] As a result of the age-skewed rate at which pets are customarily sterilized, newly established programs will not achieve their full impact for several years, as cohorts of young females with higher sterilization rates age through their reproductive years.

The need to sustain its programs for several years affects the design of an advocacy organization's programs and their funding sources. Spay/neuter programs of short duration cannot achieve the necessary impact unless they achieve high volume and are repeated regularly over several years.

Adequate funding levels must be sustained as well. Periodic grants can be used to build infrastructure that generates sustained revenue—such as high-volume spay/neuter clinics—but cannot be depended on as a steady source of long-term revenue. If a clinic establishes a sliding-scale fee structure in which pet owners who do not meet income eligibility guidelines pay fees that exceed the clinic's per-unit cost (but which, due to the great productivity of a specialized clinic are less than the cost of services at a full service veterinary hospital), grants used to build the clinic can generate long-term revenue for the subsidy programs that are necessary to eradicate shelter overpopulation.

Public funding can provide sustained revenue, too, if it generates periodic funding that is deposited into a dedicated account for pet sterilization subsidies. Pet licensing fees can generate substantial amounts of funding if steps are taken to maximize compliance with local licensing laws.

To sustain its programs over the long term, an advocacy organization must not only develop programs with strategic designs and funding sources, it must also become a durable organization itself so that it can sustain the necessary programs over many years. As with any organization that achieves longevity, this will require investing in leadership and organizational development programs. To increase their durability, local advocacy organizations can also benefit by forming networks and alliances with their counterparts in other communities, to share information about their successes and failures. The stakes are high. The services a local advocacy organization provides are so critical that if the organization fails, the community plan will likely perish with it.

V. Well-Designed Intervention Plans Generate Adequate Revenue for Subsidies

Pet sterilization rates in the United States increased throughout the 1970s. For example, 16% of female dogs that received treatment in 1968 at Kansas State University's College of Veterinary Medicine were sterilized; by 1978 the percentage of pets

treated at the clinic that were sterilized had grown to 41.3%.[350] And between 1970 and 1983, the percentage of licensed dogs that were sterilized jumped in Los Angeles from a little over 5% to 49%.[351]

As the overall pet sterilization rate rose, some challenged the efficacy of allowing pet owners who could afford to pay the full cost access to reduced-fee pet sterilization programs.[352] A guide for establishing spay/neuter programs published in 1985 by The Humane Society of the United States (HSUS) advised against limiting publicly funded spay/neuter clinics to low-income pet owners:

> "If you regard a sterilization clinic as a solution to a serious community problem, it must be available to all residents. Also, the goal is to reduce the pet overpopulation problem as much as possible, and that depends on sterilizing as many animals as possible. In addition, limiting the clinic to low-income pet owners requires checking into their personal finances, which is time-consuming for the clinic staff and discouraging to pet owners, who may avoid the clinic as a result."[353]

Several open-access spay/neuter programs operated in New Hampshire throughout the 1980s, offering pet sterilization to all pet owners at about one-half the regular cost. The total shelter intake rate in the state remained relatively constant during this period, with a decline in dog intakes being offset by an increase in the number of cats that were impounded:

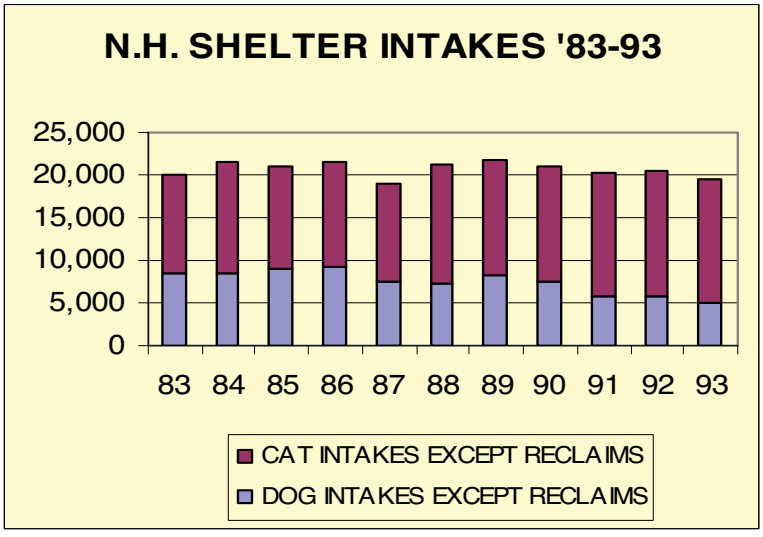

Figure 18. [354]

Beginning in July 1994, a program was established that enabled New Hampshire residents who met the income eligibility criteria for one of seven public assistance programs to have a cat or dog sterilized for $10, 10% or less of the full cost. During the first seven years after the program was established, shelter intake rates declined substantially:

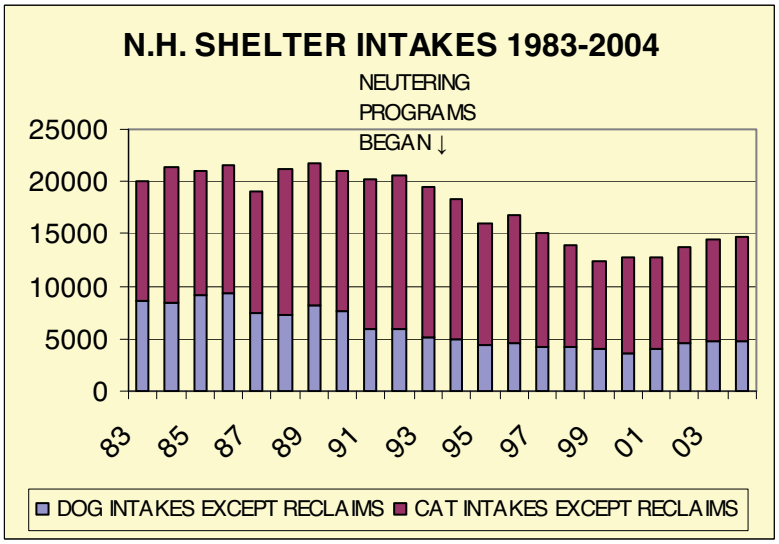

Figure 19.[355]

Cat intakes dropped by 29.7% during the first 10 years after the program was established, and dog intakes dropped by 6.9%. From the outset, many more cats were sterilized through the program than dogs, even though the eligibility criteria and amount of co-payment were the same for both dog and cat owners. For example, in 2004, 3,661 cats were sterilized through the program and 921 dogs.[356] As discussed earlier in this chapter, a national survey completed in 2007 found that more than three-fourths of all intact owned cats lived in households with annual incomes of less than $35,000.[357] It appears that a community cannot eliminate shelter overpopulation—at least for cats—without providing affordable and accessible pet sterilization subsidy programs for low-income pet owners.

Shelter intake rates also dropped in Jacksonville after a pet sterilization subsidy program was established in 2002 that made it affordable for low-income pet owners to have pets sterilized. During the first six years after the program was established, dog and cat intakes at local shelters dropped by 24.4%, from 33,847 in FY '03 to 25,603 in FY '09.[358]

The cost of maintaining a subsidized pet sterilization program for low-income pet owners can be estimated from a program operated in Alabama in 2000-2003. Over a 24-month period, 36,046 surgeries were performed through the program—an annual volume of about four surgeries per resident—at a cost of $2,384,414, about 27 cents a year per resident.[359]

In many communities, feral and free-roaming cats have come to make up a substantial share of all shelter admissions. Reducing the rates at which these cats are impounded can reduce shelter overpopulation. Population data from large-scale feral cat sterilization programs suggest that they can stabilize feral cat populations and result in a slow rate of population decline if the population is not replenished by immigrants.[360] Controlling the reproduction of owned pet cats that may migrate from households, then, is critical to effectively managing feral cat populations.[361] Since more than 97% of all feral cats are intact[362] and the great majority of owned intact cats reside in low-income households,[363] the establishment of adequately funded pet sterilization subsidy programs for low-income pet owners may be as important in the management of feral cat populations as it is to the prevention of shelter overpopulation.

The cost of maintaining a large-scale feral cat sterilization subsidy program can be estimated from one that operated in California in 1999-2002. Over a 33-month period, 170,334 feral cats were altered—an annual volume of about two cats per 1,000 residents—at a cost of $9,479,099 or about $.10 a year per resident.[364] In comparison, in 1998 public and private shelters spent approximately 1.4 billion a year to impound and shelter homeless animals, an annual cost of about $5 per resident.[365]

VI. Well-Designed Intervention Plans Include Legislative Programs

One of the primary challenges in establishing pet sterilization subsidy programs is to secure adequate and sustained funding for them. It would cost $120 million a year to fund low-income pet sterilization subsidy programs and feral cat sterilization subsidy programs throughout the United States, at a combined cost of $.40 per resident. It has been estimated that foundations will provide approximately $30 million in 2009 for spay/neuter and shelter adoption programs in the United States.[366] As a result, it is unlikely that foundations will be able to provide a level of funding sufficient to sustain necessary pet sterilization subsidy programs over the long term. That will require advocacy organizations to secure sufficient public funding.

Just as legislative initiatives can secure funding for subsidy programs that enable low-income pet owners to have their dogs and cats sterilized, they can also create the incentives others may need to have their pets sterilized, such as differential license fees (Pages 32-33). Pre-release sterilization laws (Pages 12-13) can help increase a community's pet sterilization rate, too.

To decide what types of legislation will be the most effective in reducing shelter overpopulation in its community, an advocacy group should follow the same evidence-based approach it uses to develop its strategic plan. Each community is unique in terms of the local sources and causes of shelter overpopulation and the primary barriers to increasing the local pet sterilization rate.[367] Communities that have achieved success have established multifaceted programs which address all of the populations that contribute significantly to local shelter intake and euthanasia rates.[368] Laws that create incentives for pet owners to properly care for their animals—and disincentives for irresponsible conduct—are an essential component of such a community plan.

VII. Well-Designed Intervention Plans Contain Educational Programs

The intake rate at shelters operated by the City of Los Angeles dropped by 50% between 1970 and 1983, while the sterilization rate of licensed dogs jumped from a little over 5% to 49%.[369] During that period, publicly funded pet sterilization clinics in the City sterilized about 8,000 cats and dogs each year.[370] While this volume was significant, more than four of five pet sterilizations were performed at private veterinary hospitals in the City each year.[371]

This is not unusual; the overwhelming majority of pet sterilizations in the United States are performed at private veterinary hospitals. In 2005, an estimated 11,000,000 pet sterilizations were performed by private veterinary hospitals, while 2,112,000 were performed through shelters, spay/neuter programs, and feral cat sterilization programs.[372] The high proportion of veterinary clients with neutered pets reflects veterinarians' and shelters' successful efforts in persuading owners to have their pets sterilized.[373] While targeted subsidy programs are an essential component of an effective community overpopulation plan, private veterinary clinics sterilize five cats and dogs without a subsidy for every one sterilized through a shelter or subsidy program. Public information and awareness programs about the benefits of pet sterilization are critically important to maintain this high volume of unsubsidized surgeries.

Subsidized and unsubsidized sterilizations do not have to be a zero-sum system in which low-cost sterilization programs only change the place where surgeries are performed, shifting the site from private clinics to a low-cost program. A study of targeted low-income spay/neuter subsidy programs operating in five states found that not only was the establishment of a subsidy program not associated with a drop in the number of non-subsidized surgeries performed at private veterinary hospitals, the volume of unsubsidized surgeries actually increased.[374] The marketing and publicity campaigns undertaken to promote subsidy programs emphasized the benefits of pet sterilization and may have created a "bandwagon" of social pressure to sterilize pets that reached the clients of private veterinary hospitals as well.[375]

While educational initiatives promoting pet sterilization have likely contributed to the dramatic increase in pet sterilization rates in the United States during the past 30 years, some work remains undone. Pet owners still have some mistaken ideas and lack of knowledge that contribute to higher relinquishment and pet reproduction rates. People who relinquish dogs and cats to animal shelters are more likely to have knowledge deficits about pet reproductive biology, appropriate methods of house training, and the availability of effective interventions for many problematic behaviors.[376] These deficits can create unrealistic expectations that lead pet owners to respond inappropriately to their pet's problematic behaviors.[377] Focused educational programs about the basic reproductive biology of pets and the availability of interventions that can modify many undesirable behaviors could reduce the number of cats and dogs that are relinquished and euthanized each year.[378]

One knowledge deficit that appears to have greatly compromised efforts to effectively manage dog and cat populations is the widespread failure of pet owners to realize that the optimal age to sterilize a female cat or dog is before her first estrus.[379]

Delays in having a pet sterilized frequently lead to unplanned or unexpected litters. A 1991 telephone survey of Massachusetts households found that the overwhelming majority of pet owners eventually had their pets sterilized, but not before 20% of the female cats and 21% of the dogs had given birth to at least one litter.[380] A 1993 survey of cat-owning households in parts of Santa Clara County, California found that 16.3% of the owned, altered cats had at least one litter before having been spayed,[381] and a 2007 national telephone survey found that 18.3% of sterilized female cats had given birth to at least one litter before having been sterilized.[382]

Owners frequently delay having a female pet sterilized until well after her first estrus. The following table shows the age at which female cats and dogs were sterilized through a Tennessee spay/neuter program:

Age at Sterilization of Female Dogs and Cats
Sterilized at Spay Shuttle Program (Knoxville, Tennessee) 7/07-5/09

AGE AT STERILIZATION	FEMALE DOGS	FEMALE CATS
6 WEEKS--12 WEEKS	140 (5.1)	97 (3.0)
3 MONTHS--6 MONTHS	312 (11.4)	707 (21.7)
6 MONTHS--1 YEAR	639 (23.3)	961 (29.5)
1 YEAR--3 YEARS	1012 (36.9)	1185 (36.4)
3 YEARS--5 YEARS	396 (14.4)	235 (7.2)
5 YEARS--7 YEARS	174 (6.3)	54 (1.6)
7 YEARS--10 YEARS	65 (2.4)	15 (.5)
OVER 10–YEARS	3 (.1)	0
TOTAL	**2,741**	**3,254**

Figure 20. [383]

Only 16.5% of dogs and 24.7% of cats were spayed at 6 months of age or younger; more than 60% of dogs and 45% of cats were at least one year old when they were spayed.

Recent data confirm that while the great majority of cat and dog owners ultimately have their female cats and dogs sterilized, many delay the sterilization until the pet has had one or more litters. The frequency with which female cats and dogs sterilized at a Tennessee spay/neuter program between July of 2007 and May of 2009 had litters is shown on the next page:

Numbers of Pre-Sterilization Litters of Female Dogs and Cats Sterilized at Spay Shuttle Program (Knoxville, Tennessee) 7/07-5/09

NUMBER OF LITTERS BEFORE STERILIZATION	NUMBER OF FEMALE CATS (% OF TOTAL)	NUMBER OF FEMALE DOGS (% OF TOTAL)
NONE	2426 (75.3)	2100 (77.7)
ONE	469 (14.6)	346 (12.8)
TWO	198 (6.1)	154 (5.7)
THREE	63 (2.0)	66 (2.4)
FOUR	35 (1.0)	27 (1.0)
FIVE	8 (.2)	2 (.1)
SIX	7 (.2)	3 (.1)
MORE THAN SIX	16 (.5)	6 (.2)
	3,222	**2,704**

Figure 21. [384]

The average litter production rate of cats spayed through the program during this period was .43 litters of kittens; the litter production rate of the dogs spayed through the program averaged .38 litters of puppies. Using an average of 5.73 kittens per litter,[385] each cat sterilized through the Tennessee program would have had an average of 2.46 kittens before being sterilized, above the reproductive fertility rate of a stable population. Using an average of 7.57 puppies per litter,[386] each dog sterilized through the program would have had an average of 2.88 puppies before being sterilized, which also exceeds the replacement fertility rate. If this frequency of pre-sterilization litters is representative of cats and dogs in the United States, with the current birth and death rates the entire female population of cats and dogs in the country could be sterilized without achieving population stability, unless the rate of pre-sterilization litters is reduced.

Even small reductions in the incidence of pre-sterilization litters could contribute greatly to population management efforts. For instance, in 1996 12.67 million kittens and puppies were born to female dogs and cats in U.S. households, 3.61 million more than the 9.06 million household dogs and cats that died.[387] If 80% of the 12.67 million puppies and kittens born that year came from female dogs and cats that were sterilized later, a total of 10.14 million kittens and puppies would have been born to female

pets that were ultimately sterilized. Reducing the frequency of these pre-sterilization litters by 35% would have resulted in 3.55 million fewer kittens and puppies being born. Because births of household cats and dogs exceeded deaths by 3.61 million that year, as mentioned above, reducing the number of litters that resulted from "spay delay" by 35% would have stabilized the size of the household cat and dog populations by bringing the birth rate into balance with the death rate. Plainly, public information and awareness campaigns about the critical importance of timeliness in pet sterilization deserve to be a central part of the effort to effectively manage cat and dog populations.

---

[323] Patronek GJ (1996). Promoting successful pet ownership: challenges for shelters and veterinarians. Proceedings Shelter Veterinarian Educational Program. Denver, Colorado: American Humane Association, 1.

[324] Wenstrup J & Dowidchuk A (1999). Pet overpopulation: Data and measurement issues in shelters. *J. Appl. Animal Welfare Sci.* **2** (4): 308.

[325] Hurley K (2004). Implementing a population health plan in an animal shelter. Shelter Medicine for Veterinarians and Staff, L. Miller and S. Zawistowski (eds.) Ames, Iowa: Blackwell Publishing, 213.

[326] Wenstrup & Dowidchuk, Pet overpopulation: Data and measurement issues in shelters, 308.

[327] Lord LK, Wittum TE, Ferketich AK, Funk JA, & Rajala-Schultz PJ (2007). Search and identification methods that owners use to find a lost dog, *J. Am.Vet. Med. Assoc.* **230** (2): 214.

[328] New, Jr. JC, Kelch WJ, Hutchinson JM, Salman MD, King M, Scarlett JM, & Kass PH (2004). Birth and death rate estimates of cats and dogs in U.S. households and related factors. *J. Appl. Animal Welfare Sci.* **7** (4): 238.

[329] Scarlett JM, Salman MD, New, Jr. JC, & Kass PH (2002). The role of veterinary practitioners in reducing dog and cat relinquishments and euthanasias. *J. Am. Vet. Med. Assoc.* **220** (3): 306.

[330] hsus.org/web-files/PDF/messaging_spay_neuter_report-_-final.pdf, 46.

[331]Handy G (2002) Animal Control Management: A Guide for Local Governments. Washington, D.C.: International City/County Management Association, 1.

[332] Chu K, Anderson WM & Rieser MY (2009). Population characteristics and neuter status of cats living in households in the United States. *J. Am.Vet. Med. Assoc.* **234** (8): 1026.

[333] Ibid.

[334] Scarlett JM (2008). The interface of epidemiology, pet population issues and public policy, *Prev. Vet. Med.* **86**:193.

[335] Wenstrup & Dowidchuk, Pet overpopulation: data and measurement issues in shelters, 309.

[336] Ibid., 310.

[337] Ibid., 309.

[338] Ibid., 311.

[339] Handy, Animal Control Management, 37.

[340] Ibid.

[341] Ibid.

[342] New, Jr. et al. Birth and death rate estimates of cats and dogs in U.S. households, 238.

[343] Christiansen, Bob (1998). Save Our Strays: How We Can End Pet Overpopulation and Stop Killing Healthy Dogs and Cats. Napa, CA: CLC Publishing, 12.

[344] Ibid.

[345] http://www.spayusa.org/main_directory/02_facts_and_education/stats_surveys/graphs.asp.

[346] Ibid.

[347] N.H. Federation of Humane Organizations, Consolidated Shelter statistics, 1993, 2000 (unpublished).

[348] Intake summaries 7/07—5/09 (unpublished), Spay Shuttle Program, Knoxville, Tennessee.

[349] Nassar R, Mosier JE, & Williams LW (1984). Study of the feline and canine populations in the Greater Las Vegas area. *J. Am. Vet. Research* **45** (2): 284.

[350] Nassar R & Mosier JE (1980). Canine population dynamics: A study of the Manhattan, Kansas canine population. *J. Am. Vet. Research* **41** (11): 1802.

[351] Rowan AN & Williams J (1989). The success of companion animal management programs: A review. *Anthrozoos* **1** (2): 119.

[352] How to Establish Spay/Neuter Programs and Clinics (1985). Washington, D.C.: The Humane Society of the United States, 3.

[353] How to Establish Spay/Neuter Programs and Clinics, 15.

[354] N.H. Federation of Humane Organizations, Consolidated Shelter Statistics 1983-1993 (unpublished).

[355] N.H. Federation of Humane Organizations, Consolidated Shelter Statistics, 1983-2004 (unpublished).

[356] N.H. Department of Agriculture, Markets and Food, Animal Population Control Program Summary, 2004.

[357] Chu et al., Population characteristics and neuter status of cats, 1026.

[358] Consolidated Jacksonville shelter statistics, 2002-2008 (unpublished).

[359] http://maddiesfund.org/FundedProjects/TargetedSpayNeuter/Completed.html=Maddies%20Big Fix%20for%20Alabama.

[360] Levy JK & Crawford PC (2004). Humane strategies for controlling feral cat populations. *J. Am.Vet. Med. Assoc.* **225** (9): 1358.

[361] Natoli E, Maragliano L, Cariola G, Faini A, Bonnano R, Cafazzo S, & Fantini C (2006). Management of feral domestic cats in the urban environment of Rome (Italy). *Prev. Vet. Med.* **77** (3-4): 184.

[362] Wallace JL & Levy JK (2006). Population characteristics of feral cats admitted to seven trap-neuter- return programs in the United States. *J. Fel. Med. & Surgery* **8**: 282.

[363] Chu et al., Population characteristics and neuter status of cats, 1026.

[364] http://maddiesfund.org/Funded_Projects/Targeted_SpayNeuter/Completed.html#The%20 California%20Veterinary%20Medical%20Association's%20Feral%20Cat%20 Altering%20Program.

[365] Wenstrup & Dowidchuk, Pet overpopulation: Data and measurement issues in shelters, 311.

[366] http://www.maddiesfund.org/Documents/No%20Kill%20Progress/Getting%20to%20No%20Kill%20 by%2015.pdf, 5.

[367] ASPCA Position Statement on Mandatory Spay/Neuter Laws. http://www.aspca.org/about-us/policy-positions/mandatory-spay-neuter-laws.html, 2.

[368] Ibid.

[369] Rowan & Williams, The success of companion animal management programs, 119.

[370] Ibid, 120.

[371] Ibid.

[372] Briggs J (2006). Analysis of the annual spay/neuter surgeries in the United States, Proceedings of the Third International Symposium on Non Surgical sterilization, "The math, myth, and the management of pet populations," http://www.cdoca.org/test/share/files/Math%20Myth%20 Management.pdf, 68.

[373] Scarlett, The role of veterinary practitioners in reducing dog and cat relinquishments, 309.

[374] Frank JM & Carlisle-Frank PL (2007). Analysis of programs to reduce overpopulation of companion animals: do adoption and low-cost spay/neuter programs merely cause a substitution of sources? *Ecological Economics* **62** (3-4), 745.

[375] Ibid.

[376] New Jr. JC, Salman MD, King M, Scarlett JM, Kass PH, & Hutchinson JM (2000). Characteristics of shelter-relinquished animals and their owners compared with animals and their owners in U.S. pet-owning households. *J. Appl. Animal Welfare Sci.* **3** (3): 199.

[377] New, Jr. et al. Characteristics of shelter-relinquished animals, 200.

[378] Ibid.

[379] Ibid., 199.

[380] Dorr Research Corporation. (1991). MSPCA spay/neuter survey summary. Boston: Massachusetts Society for the Prevention of Cruelty to Animals, 2.

[381] Johnson K, Lewellen L, & Lewellen J (1994). National Pet Alliance's Survey Report on Santa Clara County Pet Population. *Cat Fanciers' Almanac*, **January 1994**, 75.

[382] Chu et al. Population characteristics and neuter status of cats, 1025.

[383] Intake Summaries 7/07—5/09 (unpublished), Spay Shuttle Program, Knoxville, TN.

[384] Ibid.

[385] New, Jr. et al., Birth and death rate estimates of cats and dogs in U.S. households, 235.

[386] Ibid.

[387] Ibid., 233-234.