Chapter 3
AN OUNCE OF PREVENTION

"The heartbreaking story about the single puppy lost at sea will make us cry more quickly than a dry account of a million children killed by malaria…. Reason is our only rock against (these) tides of unconscious bias. It is our lighthouse and our life jacket. It is—or should be—our voice of conscience."

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"When scientists study epidemics, they don't study individuals. It is true that epidemics preferentially strike the vulnerable; a person with AIDS has a greater risk of catching the flu than a healthy person. But if you want to stop an epidemic, you don't go after the individual patients or the idiosyncratic things that place individuals at risk. You look for cures or vaccines and ways to halt the epidemic before it spreads. In the case of malaria, you stop an epidemic by preventing the breeding of mosquitoes…. Mosquito eradication is a more effective way to stop a malaria epidemic than treating individual patients one-by-one with quinine."

Shankar Vedantum (2010), *The Hidden Brain*. Spiegel and Grau: New York, N.Y.

STOP's Millenium Plan was ambitious, to say the least. Our goal was to end the killing of cats and dogs in our state's shelters for treatable illnesses or to make space for incoming animals by the year 2000. No one had managed to do something like this before but the passage of the state-funded spay/neuter programs in 1993 gave us such a boost that it began to seem possible. We didn't commit ourselves to any single approach. We knew that past attempts to cut down shelter euthanasia rates had succeeded more often by reducing the number of animals that entered shelters in the first place than by increasing the number who left alive. But we didn't care which approach worked, as long as fewer animals lost their lives. So, as mentioned in the last chapter, our spay/neuter group worked to increase the pet sterilization rate and shelters tried to increase adoption and reclaim rates. It was a contest to save lives.

> "Nationwide, per capita shelter intake and euthanasia have been in a steady decline for the past several decades and research indicates that the main reason for this decline is the increasing incidence of spayed and neutered animals in the population."
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> American Society for the Prevention of Cruelty to Animals (ASPCA), *Position Statement on Mandatory Spay/Neuter Laws*

During the seven years of the Millenium Plan, the statewide shelter euthanasia rate dropped to less than a quarter of what it had been in 1993. Adoption of cats and dogs grew by a third—from 7612 in 1993 to 10,225 in 2000. Eight thousand more cats and dogs were adopted during this seven year period than if adoptions had stayed at the 1993 rate. As remarkable as this was, reduced shelter intakes saved many more lives. Almost thirty thousand fewer cats and dogs entered our shelters from 1994-2000 than if the intake rate had remained the same as it was in 1993.

The same thing happened in San Francisco. The shelter euthanasia rate there in 2003 was less than a quarter of what it had been in 1990. In 2003, 6466 fewer cats and dogs were euthanized than in 1990, mostly because 5925 fewer animals entered local shelters that year than thirteen years earlier.

> **LESSON:** Communities that have greatly reduced shelter euthanasia rates have usually done that more by reducing shelter intakes than by increasing adoptions.

The same thing had happened in other parts of California. Between 1970 and 1975, the number of dogs that entered animal control shelters rose in the state by a quarter, reached a peak, and then dropped steadily for the next twenty years. Euthanasias followed intakes like a shadow (see Figure 1 on Page 7 of *Replacing Myth With Math*). As intakes went up, euthanasias did, too. And then they fell steadily from 1975 to 1995 as intakes dropped, too.

While intakes and euthanasias changed a great deal during these 25 years, adoptions hardly changed at all (See Figure 3 on Page 8 of *Replacing Myth With Math*). Whether intakes and euthanasias went up or down, adoptions stayed about the same. Statistics from other shelters consistently show the same thing: intakes affect the number of animals euthanized much more strongly than adoptions (for example, see Figure 2 on Page 7 of *Replacing Myth With Math* which shows intake and euthanasia statistics from Hillsborough County Animal Services in Tampa between 1997 and 2009).

As more and more states compiled statistics from all their shelters, the reason for the link between shelter intake and euthanasia rates became clear. The intake, adoption, and euthanasia rates for seven states that have collected complete shelter data are shown in Figure 1 below. It turns out that shelter adoption rates vary within a very small range, whether the local intake rate is high or low or somewhere in between. Places with high euthanasia rates usually have high intakes rates, too. Often their shelters adopt out as many animals as shelters in other places, sometimes even more. For instance, Virginia—the state with the highest euthanasia rate of the states on the chart below—also has one of the highest adoption rates.

STATE	YEAR	ADOPTION RATE *	INTAKE RATE*	EUTHANASIA RATE*
Delaware	2003	8.8	30.2	16.8
Maine	2000	9.6	18.4	6.6
Michigan	2003	7.2	24.2	13.2
New Hampshire	2007	9.4	12.6	2.1
Ohio	2004	9.0	26.4	14.9
Utah	2007	9.1	29.2	12.9
Virginia	2003	9.2	32.2	18.1

* CATS AND DOGS PER 1000 HUMAN RESIDENTS

CORRELATION BETWEEN INTAKES AND EUTHANASIAS = .97

CORRELATION BETWEEN ADOPTIONS AND EUTHANASIAS = -.33

Figure 1.

As these statistics show, intake rates vary much more than adoption rates. For this reason, they drive euthanasia rates, consistently and persistently. As a result, efforts to modify intake rates can save lives much more readily than attempts to modify adoption rates. So even if a state like Ohio, with a euthanasia rate of 14.9 Pets Per Thousand People (PPTP) in 2004, was somehow able to in-

crease its adoption rate by 4 PPTP, far above any of the other states listed, its euthanasia rate would still be five times higher than New Hampshire's.

GETTING TO ZERO:
THE VALUE OF PER CAPITA DATA

As mentioned in Chapter 2, dividing a community's shelter statistics by the size of its human population provides per capita rates that can be used to compare the intake, adoption, redemption, and euthanasia rates of different communities through their Pets Per Thousand People (PPTP) rates.

Per capita rates reveal things that raw statistics don't. For instance, here are the raw shelter intake, adoption and euthanasia statistics for the seven states listed in Figure 1 (on the previous page) for the years shown in that chart:

State	Adoptions	Intakes	Euthanasias
Delaware	7,125	24,510	13,653
Maine	12,019	23,456	8,455
Michigan	72,256	243,488	133,293
New Hampshire	12,222	15,674	2,694
Ohio	103,611	302,412	170,672
Utah	23,319	74,500	32,035
Virginia	68,174	237,804	133,800

These numbers don't tell you very much. When they are broken down into PPTP rates, though (as in Figure 1), they show that the euthanasia rates in some states are much higher than others and that the intake rates in these states are also much higher.

The raw adoption statistics don't tell you very much either. But when they are broken down into PPTP as in Figure 1, it's easy to see that adoption rates do not vary a great deal, however high or low the state's shelter intake and euthanasia rates may be.

The bad news, then, is that it's difficult to change adoption rates very much, perhaps because they are limited by things that shelters and rescue groups can't change, like a dog's breed or an animal's age. Even in places where reduced intakes have freed up more resources for adoption and rehabilitation programs—like New Hampshire and San Francisco—the adoption rates there have not gotten as high as 10 PPTP. That's because as intake rates decline, shelters see fewer kittens and puppies and other easy-to-place animals, making it difficult to find homes for even as many pets as they used to.

There is good news, though. Intake rates are not nearly as unyielding. They can be changed. They have been. The intake rate at U.S. shelters reached 75 PPTP in the 1970s, about triple today's rate. If increased pet sterilization rates hadn't knocked them down, shelters would now be putting down four times more animals than they do.

CONVENTIONAL WISDOM: "Throwaway animals" will always overwhelm the ability of shelters to care for them all. They are the inevitable products of irresponsible pet caretakers and a disposable culture, so shelter intake rates can never be reduced very much.

FACT: Shelter intake rates have been reduced to a third of what they were 35 years ago. Effective preventive programs have reduced intake rates even further in some communities.

SOURCE: California Department of Health Services, Annual Reports of Local Rabies Control Activities, 1975-2005; Hillsborough County (Florida) Animal Services Shelter Statistics, 2005-2010; Duval County (Florida) Animal Care and Protective Services Shelter Statistics, 2005-2010; New Hampshire Federation of Humane Organizations Consolidated Shelter Statistics, 1994-2010; San Francisco (California) Consolidated Shelter Statistics, 1990-2003.

More recent history brings even better news. Adequately-funded data-driven programs can drive down the number of homeless cats and dogs so far that shelters no longer have to put down healthy or treatable animals to make room for new arrivals. For instance, in 2009, the nine larg-

LESSON: The great progress that we have made over the past 40 years to reduce the shelter death toll has mostly come from reducing shelter intake rates. In most places, even more progress can be made this way.

est shelters in New Hampshire put down 468 dogs with severe health or behavioral problems. During that year, these same shelters placed 2039 dogs and puppies from high-euthanasia areas of the country into new homes in the state. These shelters did not put down a single dog or cat to make room for another animal that had become homeless.

The effectiveness of different approaches isn't the only factor that must be considered. Cost is a critical factor, too. Returning to the example of the malaria epidemic mentioned at the start of this chapter, even if a mosquito eradication program is a more effective way to reduce malaria cases, if the cost of providing quinine to the victims is far less than the eradication program, providing quinine may be the only practical and cost-effective approach.

CONVENTIONAL WISDOM: We can end shelter overpopulation by getting more people to adopt cats and dogs from shelters instead of buying them from pet shops or breeders, increasing the shelters' "market share" of new pet acquisitions.

FACT: People buy far fewer pets from pet shops and breeders that the number that are euthanized in shelters. In 1996, people bought 1,120,000 dogs and 270,000 cats from pet shops and breeders, less than half of the number now put to death in shelters each year.

SOURCE: New, Jr. JC, Hutchinson JM, Salman MD, King M, Scarlett JM & Kass PH. Birth and death rate estimates of cats and dogs in U.S. households and related factors. *J. Appl. Animal Welfare Sci.* 7 (4): 229-241.

At the height of the U.S. polio epidemic in the early 1950s, researchers working to develop a vaccine became concerned that their work was being starved of funding by "iron-lung syndrome" in which sympathy for polio victims led us to spend much more on equipment for victims than on vaccine-related research. Doctors and hospitals responded that there was no guarantee an effective vaccine could ever be found or that we could afford the cost of finding it.

"The death rates from malaria, cholera, typhus, tuberculosis, scurvy, pellagra and other scourges of the past have dwindled in the U.S. because humankind has learned how to prevent these diseases… To put most of the effort into treatment is to deny all precedent."

John Cairns, "The Treatment of Diseases and the War on Cancer," *Scientific American* 253 (November, 1985) 51- 59, an article which attributes disappointing gains in cancer mortality rates to having spent four times more for treatment-based research than for research on prevention.

Thirty years ago, the same could have been said about

spay/neuter programs. No one knew how effective they would be or how much they would cost. We've completed the research and development phase of pet sterilization programs, though. We know how much they cost and how well they work.

Data are also available about the cost of sheltering programs. The most complete fiscal information came from a 1998 survey of 186 animal shelters throughout the United States. At that time, these shelters spent an average of $176 for each dog or cat they impounded. Only 39% of the impounded animals were returned to their home or placed in a new one, so the average expense for each animal placed was more than $450.

Shelters that euthanize a smaller percentage of impounded animals usually keep each animal longer, on average, before placing it, which results in even more expense per adopted animal. For instance, in 2007, the sheltering budgets of the eight largest shelters in New Hampshire totaled more than six million dollars. They placed 12,222 cats and dogs in new homes that year, an average sheltering cost of more than $500 per adopted animal.

Statistics are also available about the cost of large-scale spay/neuter programs and their impact on local shelter admission rates. It cost a little more than a million dollars to operate New Hampshire's publicly-funded spay/neuter programs from 1994-1999. During that time, 30,985 fewer cats and dogs entered shelters in the state than in the six years before the program began, an average cost of less than $35.00 per reduced impoundment. Other programs probably contributed to the drop in shelter intakes during this period—such as the public information and awareness programs described in the first chapter and STOP's own spay/neuter programs—but none entailed great expense.

Fiscal costs are not the only ones that must be taken into account. A broader and more humane analysis considers the cost to the animals themselves.

All things considered, cats and dogs benefit greatly from sterilization. The health benefits far exceed the increased health risks. Sterilization also brings important behavioral benefits. Surgical sterilization greatly reduces the risk a cat or dog will become homeless and later be euthanized in a shelter—either after having migrated from home to join a free-roaming colony or having been relinquished by its caretaker—a risk far greater for pets in the United States than dying from any infectious or non-infectious disease.

Successful adoptive placements benefit shelter animals greatly, too, but only after they have survived the trauma of becoming homeless and being impounded, costs the animal would not have suffered if its homelessness had been prevented.

Although successful placements benefit shelter animals that find new homes, they come at a cost to other homeless animals. On average, an open admission shelter in the United States has the capacity to keep an impounded animal for about ten days before having to euthanize an animal for space. When a shelter has reached its carrying capacity, every ten days that an animal is sheltered before being adopted costs another shelter animal its life.

Successful placements come at a cost to non-sheltered homeless animals, too. Unless people in a community start to keep more cats and dogs in their homes, as more and more animals are adopted from shelters, fewer and fewer stray and free-roaming homeless animals will be taken into homes.

Beside effectiveness and cost, a third factor must be taken into account—the extent to which each approach furthers long-term goals. Returning again to the example of the malaria epidemic, even if the mosquito eradication program worked better and cost less than providing quinine, if it required the wide-scale use of pesticides that killed or injured animals or degraded the environment, it may not end up being the best strategy.

Advocates fighting human homelessness would hardly be satisfied if they only stopped homeless people from dying tragic and needless deaths. Their ultimate goal is to end homelessness altogether.

It's no different for us. As satisfying as it will be to end the killing of adoptable shelter animals, as will be discussed in the Afterword, that cannot be enough. The wide-scale use of euthanasia in shelters to make room for incoming homeless animals is just a symptom of the epidemic. Homelessness is the epidemic.

The ultimate value of different approaches, then, must be measured by how well they help us reach a more ambitious goal: ending the homelessness of dogs and cats. As a result, the impact of different strategies on all populations of dogs and cats who are homeless (or at risk of becoming homeless) must be considered, whether they are in a shelter or not.

While more than seven million homeless dogs and cats enter shelters in the United States each year, at least an equal number of homeless cats do not. They live in streets and alleys and neighborhoods from one end of the country to the other. Many of the adult animals are unsocialized and can only be placed in homes with great difficulty, if at all, so shelters and adoption programs are of little value to this population.

Fortunately sterilization programs can help. Trap /Neuter/ Return (T/N/R) programs can stabilize the size of a feral colony, if a sufficient number of the cats are sterilized and the migration of

household cats to the colony is prevented. Sterilization of household cats can help with that, too. Timely sterilization usually stops them from leaving home for good. In the end, though, T/N/R programs—like sheltering programs—can improve the lives of homeless animals, but only after they have survived the trauma of becoming homeless. Almost all of them would have been better off if they had not become homeless to begin with.

Sterilization can also help shelter animals. After six months, one adopted animal in five is no longer in its adoptive home. Pre-release sterilization programs can help adopted animals stay in their new home by reducing the troublesome behaviors that can lead to relinquishment.

CONVENTIONAL WISDOM: We will always have populations of free-roaming cats. Even if many are killed through trap-and-euthanize programs and others die of natural causes, enough household cats will migrate from their homes to replenish these populations.

FACT: Less than 3% of the feral cats trapped in seven large T/N/R programs had previously been sterilized. Adequate pet sterilization programs can prevent most immigration of household cats because household cats that have been sterilized rarely migrate from home to join free-roaming colonies.

SOURCE: 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 : 279-284.

Consideration must extend even further, beyond animals that are already homeless to household pets threatened with homelessness. Sterilization programs can keep them in homes and out of shelters or free-roaming colonies by reducing the risk they will be relinquished or migrate away from home.

Because they help all three populations—homeless animals living in the community, shelter animals, and household dogs and cats who may become homeless in the future—sterilization programs can take us much farther toward ending homelessness than adoption programs, which can only help homeless shelter animals. They can prevent animals from becoming homeless and—because euthanasia rates are largely determined by intakes—are a much more powerful tool to drive down euthanasias than adoption programs.

All of this doesn't mean adoption programs don't deserve to be an important part of every shelter overpopulation program. They do. And it doesn't mean that they don't deserve substantial funding. It only means they are not strong enough to do most of the work that needs to be done. Adequate resources must be spent on preventive programs, too.

It also doesn't mean preventive programs can only be funded at the expense of adoption and sheltering programs. Well-designed preventive programs can save money by reducing the number of animals that end up in shelters, freeing up resources to shelter, rehabilitate, and place those that do. As mentioned above, substantial investments in preventive programs have allowed shelters in New Hampshire to spend more to rehabilitate and place each animal than shelters in other states can. And over the long term, the great advances in veterinary care that many private clinics now provide to their clients' pets will probably only become available to homeless animals when there are fewer of them.

Fortunately, well-designed pet sterilization programs are so effective at reducing homelessness they don't need the lion's share of funding or even close to it. For instance, as mentioned above, the eight largest New Hampshire shelters spent over six million dollars on sheltering, rehabilitation, and adoption programs in 2007. That year public and private funders in the state spent about eight hundred thousand dollars to sterilize shelter animals, feral cats, and pets living in low-income households. As discussed in the previous chapter, the ratio between the two can be expressed in a fraction called the Prevention Quotient or PQ:

$$\frac{\begin{array}{l}\text{MONEY SPENT IN N.H. ON PROGRAMS TO}\\ \text{PREVENT ANIMALS FROM BECOMING HOMELESS}\\ \text{(TARGETED NEUTERING ASSISTANCE PROGRAMS}\\ \text{ FOR SHELTERED PETS, THOSE LIVING IN LOW-}\\ \text{INCOME HOUSEHOLDS, AND FERAL CATS)} \quad \$805{,}778\end{array}}{\begin{array}{l}\text{MONEY SPENT IN N.H. ON PROGRAMS FOR} \quad \$6{,}649{,}120\\ \text{ANIMALS WHO HAVE ALREADY BECOME HOMELESS}\\ \text{(IMPOUNDMENT, SHELTERING, ADOPTION}\\ \text{ \& EUTHANASIA-RELATED EXPENSES)}\end{array}} = .121$$

New Hampshire's Prevention Quotient, then, is about 12. The national PQ is much smaller, about 7. In the United States, we spend about $105 million every year to sterilize shelter animals, feral cats, and pets living in low-income households and about $1.5 billion on sheltering and adoption programs. To raise our PQ to a reasonable level, we only need to spend another $100 million a year on well-designed preventive programs.

Suggesting that we double the amount of money we spend on preventive programs may seem radical. It's not. *Continuing to spending almost fourteen times more to shelter and place homeless cats and dogs than we do to prevent them from becoming homeless in the first place is what's radical.*

Returning to our malaria example, it's as if we spent more than nine dollars out of every ten on quinine to treat victims—even though it fails to prevent half of them from dying—instead of on an affordable vaccine that has already been discovered and has shown it can halt the epidemic.

The history of our work is instructive. Over the years every attempt to end shelter overpopulation by using adoption programs as the primary tool has failed. There's no reason to believe it's any different now. All available data say that it isn't. As we plan future shelter overpopulation programs, we need to keep in mind George Santayana's warning that "those who forget history are condemned to repeat it."

Recalling what others have done can have a positive side, too. It doesn't only have to be about avoiding past mistakes. For many years, we thought shelter overpopulation was a tragic—but unavoidable—part of our life. We thought the prolific reproductive capacity of cats and dogs and the irresponsibility of many of their caretakers made it inevitable. We now realize that isn't true. Some places have altogether stopped killing shelter animals to make space for new arrivals. In almost every case, the successful strategy has been the same: adequately-funded and well-designed preventive programs. This is an important lesson.