



HASS Playbook: Intake-to-Placement Supporting Evidence

This document contains a list of supporting evidence on intake-to-placement interventions and support needs. Organizations may wish to use this information to guide programming aimed at increasing live outcomes and expediting those outcomes to reduce the time pets spend housed in shelters. The following topics are included:

- [Access to Care and Pet Support Needs](#)
- [Applications/Interest in Adoption or Foster](#)
- [Foster Programming](#)
- [Impact of Kennel Housing/Kennel Stress](#)
- [Intake Reasons Data Collection](#)
- [Managed Intake](#)
- [Marketing](#)
- [Matchmaking](#)
- [Outcome Solutions](#)

Access to Care and Pet Support Needs

- [Social Return on Investment \(SROI\) in Supporting Human-Animal Bonds Resource Collection](#) (Lynch & Kalman, 2023)
 - Resource by Human Animal Support Services: “The following is a **curated collection of research studies and other supporting resources** detailing evidence for the many benefits of human-animal bonds along with obstacles to maintaining them.”
 - For resources on access to care and pet support needs, see the following section: **“Obstacles to Maintaining Human-Animal Bonds & Paths to Solutions”**

[Back to top](#)

Applications/Interest in Adoption or Foster

- [Impact of Cat Fostering on Older Adult Well-Being and Loneliness: A Feasibility Study](#) (Sanderson et al., 2023)
 - “Fostering a shelter cat with the option for adoption may be an effective solution for alleviating loneliness and improving mental health in older adults. **Interest in adopting foster cats was high when perceived barriers to adoption were removed.**”
- [Dog & Cat Foster Care in the United States: 2022 Survey Report](#) (Maddie’s Fund, 2023)

- *Summary of key findings available here: [5 important insights from our National Foster Survey](#) (Maddie's Fund, 2023):*
 - **“Organizations with stringent requirements to become a foster caregiver have fewer fosters than organizations with low-barrier processes**
The 2022 survey gave us insight into just how much certain requirements may be affecting the size of foster programs. Requirements that ask the most of fosters tend to impact program size the most, with home checks being the most impactful. Shelters that require a home check have an average of 74% fewer foster placements. Other requirements that significantly impact the number of foster placements are: meeting all pets living in the household, meeting all members of the household, landlord checks and reference checks.”
- [Consumer Adoption Survey](#) (Best Friends Animal Society, 2022)
 - **Adoption processes with barriers in place delayed or stopped people from adopting a new pet**, indicating the need for shelters to remove barriers from adoption policies and procedures.
- [The Impact of Incorporating Multiple Best Practices on Live Outcomes for a Municipal Animal Shelter in Memphis, TN](#) (Kreisler et al., 2022)
 - “In 2017, the municipal animal shelter in Memphis, TN (Memphis Animal Services) implemented five new strategies and analyzed their resultant life-saving data. The interventions included managed strategic shelter intake, pet owner safety net, community cat return to field, transition of field services from punitive to assistive, and **streamlined adoption and transfer protocols.**”
 - “Implementation of these best practices accelerated Memphis Animal Services' progress toward a live release rate of at least 90%, particularly for cats, dramatically decreased kitten euthanasia, increased the RTO rate for dogs and severed the historical correlation between euthanasia and intake.”
- [Inequitable Flow of Animals in and Out of Shelters: Comparison of Community-Level Vulnerability for Owner-Surrendered and Subsequently Adopted Animals](#) (Ly et al., 2021)
 - “The results of this research provide a basis for understanding **potential inequities in the use of shelter services to surrender or adopt an animal.** Furthermore, these methods allow animal shelters to assess community needs and create interventions to reduce intake and increase adoption of animals. Finally, these data provide further support that **animal sheltering is best considered from a One Welfare perspective.**”
- [Maddie's Fund® Final Report Saving Seniors: An Evaluation of Strategies to Increase the Adoption of Senior Dogs](#) (Lunghofer, 2020)
 - **“Trust matters and is reflected in relationships** among shelters, rescues, donors, adopters, and the broader community.”
- [Adoption Barrier Study](#) (Best Friends Animal Society, 2016)
 - “Barriers to adopting from shelters and rescues are directly related to issues encountered during the most recent experience.”
 - “Rescues/Shelters are both rated low on:
 - **Too much paperwork/ Length application process / Strict requirements**
 - **High fees**

- No response / Lack of follow up
 - Overcrowded
 - Not conveniently located”
- *Summary of key findings available here: [Pet Adoption: Barriers and Solutions](#)*
 - “Phase 2: When inquiring about an individual pet, many adopters run into shelters or rescues that:
 - Don’t respond to their questions via phone or email or are delayed in responding.
 - Refuse to provide details about a pet until an adoption application is submitted and approved.
 - Refuse to place a pet outside of their geographic location.”
 - “Phase 3: When applying to adopt, many find that the applications:
 - Have extensive and strict requirements and/or are very lengthy.
 - Are rejected based on criteria, e.g. the adopter doesn’t have a yard or works long hours.
 - Require additional steps (background search, home checks, references) before being approved or denied.”
- [Do Policy Based Adoptions Increase the Care a Pet Receives? An Exploration of a Shift to Conversation Based Adoptions at One Shelter](#) (Weiss et al., 2014)
 - “This study examined the quality of care and attachment in two groups of adopters, a group that adopted while policy based adoptions were in place and a group that adopted when policies were eliminated. There were no substantial differences between the two groups. This important finding indicates that **those that adopt through conversation based adoptions (policy-free) provide similar high quality care and are just as likely to be highly bonded to their pet as those that adopt through policy based adoptions.**”

[Back to top](#)

Foster Programming

- [HASS Research and Development: Evidence-based Solutions for Increasing Live Outcomes for Dogs in Animal Shelter Care](#) (Human Animal Support Services, 2023)
 - *See the “Detrimental Impact of Kennel Housing” and “Foster” sections in this report. This report is filtered to reflect the topic of the crisis facing many shelter dogs in need of live outcome solutions. Readers are encouraged to utilize the evidence provided in this report to inform program development to address extended lengths of stay for dogs.*
 - “This report details the impact of kennel housing on pet wellness and **evidence-based solutions for increasing live outcomes for dogs in animal shelter care.** Guidelines on how to use this report, peer-reviewed research articles, research summaries, and practical applications for shelter operations are included. Solutions are discussed for the following:
 - Return to Home
 - Transfer
 - Foster
 - Behavior and Training
 - Playgroups
 - Free Adoptions

- Constructive Adopter Meet-and-Greets”
 - “Overall, the report concludes that **population management and proactive intervention programs** can improve shelter dog welfare, decrease their length of stay, and provide increased opportunities for live outcomes.”
- [Impact of Cat Fostering on Older Adult Well-Being and Loneliness: A Feasibility Study](#) (Sanderson et al., 2023)
 - “Fostering a shelter cat with the option for adoption may be an effective solution for alleviating loneliness and improving mental health in older adults. **Interest in adopting foster cats was high when perceived barriers to adoption were removed.**”
 - A press release by the Human Animal Bond Research Institute is available here: [New Research Indicates Shelter Cat Fostering Reduces Loneliness in Older Adults Living Alone | HABRI](#) (2023)
 - “Our results show that **by removing some perceived barriers to pet ownership, including pet deposit fees, pet adoption fees, pet care supplies and veterinary support**, we can not only help older adults live healthier, happier lives but we can also spur the fostering and adoption of shelter cats into loving homes,’ added Dr. Sanderson.”
- [Foster Puppies as Therapeutic Partners: A Model for Mutual Benefit](#) (Minnis & Platz, 2023)
 - *This article finds benefits for both people and animals when people foster a pet.*
 - “We present a model that **emphasizes approximate equal benefit for human and nonhuman animals**. A treatment approach is described that combines socialization and training of homeless dogs and puppies to increase adoption rates and assess for suitability as therapy or working dogs, with rehabilitating and supporting clients. This model of mutual benefit demonstrates prosocial behavior for clients who participate in the socialization and preparation of homeless puppies for permanent homes in combination with their existing therapeutic goals and is rich territory for symbolic exploration.”
- [Nocturnal activity as a useful indicator of adaptability of dogs in an animal shelter and after subsequent adoption](#) (Laan et al., 2023)
 - “Overall, this supports the conclusion that **dogs show a lower stress response in a novel home than in a shelter**, and therefore that dogs are better able to adapt to novel home environments than to novel shelter environments with particular stressors, but even in a new home dogs need time to adapt.”
 - “As individual differences matter for monitoring welfare, it is important to identify dogs that have more difficulty adapting to the shelter environment, to provide them with additional and individualized support where possible. **Dogs seem to rest and therefore adapt better in a novel home situation than in a novel shelter environment.** A shelter environment poses more challenges to dogs, especially when they did not have previous experiences with kennelling. But even when being adopted in a novel home environment after a shelter period, dogs need some time to adapt.”
- [Dog & Cat Foster Care in the United States: 2022 Survey Report](#) (Maddie’s Fund, 2023)
 - *Summary of key findings available here: [5 important insights from our National Foster Survey](#)* (Maddie’s Fund, 2023):
 - “**Organizations with stringent requirements to become a foster caregiver have fewer fosters than organizations with low-barrier processes**

The 2022 survey gave us insight into just how much certain requirements may be affecting the size of foster programs. Requirements that ask the most of fosters tend to impact program size the most, with home checks being the most impactful. Shelters that require a home check have an average of 74% fewer foster placements. Other requirements that significantly impact the number of foster placements are: meeting all pets living in the household, meeting all members of the household, landlord checks and reference checks.”

- [Early life adversity in dogs produces altered physiological and behavioral responses during a social stress-buffering paradigm](#) (Buttner et al., 2023)
 - *This article emphasizes the importance of raising puppies in healthy environments, such as foster homes, to support social behavior, in contrast to the harmful impacts of raising puppies in crowded housing with limited socialization and enrichment, such as is common in shelters.*
 - “The findings from this study provide further insight into how **early life histories influence biological systems that underlie the dogs' social behavior**. From an applied perspective, studies like ours could inform on the care and rehabilitation of dogs removed from adverse environments due to neglect and call attention to the detrimental effects. Though isolating one specific contributor to the altered physiological and behavioral outcomes of dogs from adverse environments is nearly impossible, **reducing overcrowded housing situations, implementing adequate human socialization, environmental enrichment, gradually weaning puppies from their mothers at a proper age, and providing quality medical care and nutrition could mitigate these effects.**”
- [The Influence of Brief Outing and Temporary Fostering Programs on Shelter Dog Welfare](#) (Gunter et al., 2023)
 - This study investigated the impacts of field trips and sleepover programs and helped launch 60 programs at shelters across the country. Researchers analyzed the data of nearly 2,000 field trip and sleepover dogs and over 25,000 control dogs.
 - **Dogs who participated in field trips were 5x more likely to be adopted.**
 - **Dogs who participated in sleepovers were 14x more likely to be adopted.**
 - Adoptions were seldom by caregivers themselves, although when this did occur, it was more often after a sleepover (rather than a field trip).
 - Programs with more community members participating were better performing.
 - Shelters with greater resources had higher-performing programs, highlighting the importance of human and financial resources in animal welfare.
 - Field trips were more often conducted by individuals from the community, whereas shelter volunteers were more involved in sleepovers. *This finding suggests that field trips may be a pathway to foster caregiver recruitment!*
 - For dogs that participated in a sleepover, we found that **more resident dogs in their home corresponded to a higher likelihood of the fostered dog being transferred out of the shelter and a much lower likelihood of being euthanized.**
- [An Assessment of Scientific Evidence Relating to the Effect of Early Experience on the Risk of Human-Directed Aggression by Adult Dogs](#) (Baslington-Davies et al., 2023)
 - *This research supports fostering puppies in home environments to mitigate the risk of them developing aggressive behavior later in their lives.*

- "...in short, it is suggested animals be **brought up in environments** where they have had a variety of experiences that enable them to **develop confidence and cope with frustration and where interactions with humans are consistent and positive.**"
- [Understanding the Motivations of Foster Caregivers at Animal Shelters](#) (Ackerman et al., 2023)
 - "This cross-sectional study explored the motivations and expectations of 131 foster caregivers from five shelters within the United States who completed a pre-foster survey between March 2022 and March 2023. The most common motivations were animal- or community-based, such as the desire to provide an animal with love or do something positive for the community."
 - "This study highlights the **importance of animal- and community-related benefits for foster caregivers and provides useful direction for shelters wanting to increase recruitment** to expand their foster care programs."
- [How Dallas Animal Services placed 160 dogs in 3 days by incentivizing foster and rescue transfers | Chew On This](#) (Maddie's Fund, 2023)
 - By offering gift cards through an **incentivized foster campaign**, Dallas Animal Services was able to place 160 large dogs in one weekend.
- [The Emotional Aspects of Dog Fostering: Both Ends of the Leash](#) (Reese et al., 2022)
 - *This research evaluates foster volunteer support needs and retention.*
 - "Findings suggest that emotional attachment to foster dogs is similar to attachment to pet dogs. Fostering animals does not appear to come without some emotional challenges for the human at the other end of the leash. Experiencing higher levels of emotional stress from fostering can have impacts on thoughts of quitting, which may hamper retention, particularly among the valuable volunteers who foster frequently. **Organizational support directed at the human volunteer can alleviate these feelings, potentially increasing retention.**"
- [Cat Foster Program Outcomes: Behavior, Stress, and Cat-Human Interaction](#) (Vitale et al., 2022)
 - *This study investigated how cats experience short-term foster care.*
 - "Therefore, the aim of this study was to empirically evaluate the social, behavioral, and stress response outcomes associated with placing shelter cats in an overnight or short-term foster environment. While neither overnight nor 1-week fostering lead to a statistically significant improvement in human-directed social behavior or stress levels, foster cats also did not display increased fear or aggression in the foster home and did not have higher cortisol levels. **Therefore, cat fostering—even short-term fostering—does not appear to be more stressful or problematic for this species than remaining in a shelter. This information could contribute to life-saving efforts by providing empirical evidence that cats can be safely moved into foster homes, even for short durations, when shelter space is limited.** More research is needed to evaluate the potential effects of longer-term fostering in cats, as well as cat fostering practices that could lead to greater welfare benefits."
- [Increasing Engagement in Kitten Fostering Programs: Lessons Learned From High Kitten Intake Zip Codes in Los Angeles County](#) (McDonald et al., 2022)
 - "Our study identified that a notable proportion of residents of HKSI zip codes in Los Angeles County were **already engaged in caring for cats and kittens in their**

neighborhood and had fostered kittens without the help of an animal welfare

organization. We identified several opportunities and barriers to engaging community members from HKSJ areas in fostering kittens in partnership with local shelters.

Opportunities for increasing engagement included, but were not limited to, improving the promotion advertisements using specific messaging approaches (i.e., animal welfare- and cost-focused) as well as improving the utilization and dissemination of Spanish-language materials. Helping community members have realistic expectations of the time, resources, and support they will get from the animal welfare organization may improve engagement in KFPs, as well as identifying alternative resources and supports to assist community members in serving animals in their community (e.g., safe and reliable transportation, pet deposits, pet rent).”

- [Emergency Fostering of Dogs From Animal Shelters During the COVID-19 Pandemic: Shelter Practices, Foster Caregiver Engagement, and Dog Outcomes](#) (Gunter et al., 2022)
 - “This study explores canine foster caregiving at 19 US animal shelters during the first 4 months of the COVID-19 pandemic. In our investigation, we found that shelters' utilization of foster caregiving increased from March to April 2020 but returned to initial pandemic levels by June 2020. Slightly less than two-fifths of **foster caregivers were community members with no prior relationship with the shelter, and these caregivers were over four times more likely to adopt their fostered dogs than those with a pre-existing relationship to the shelter.** Individuals fostering with the intention to adopt, in fact, adopted their dogs in nearly three-quarters of those instances.”
- [Fostering Rescued Dogs: An Exploratory Study of the Experiences of Foster Care Providers](#) (Daily, 2021)
 - *This article speaks to foster program support needs.*
 - “Current and former foster providers (N = 85) completed an online survey of their perceptions of the positives and negatives of the experience and measures of psychological outcomes of care work. The findings show that fostering rescued dogs comes with a mix of positive and negative experiences. Further, the **findings suggest the importance for rescues of being aware of the risk factors associated with compassion fatigue and protective factors predicting compassion satisfaction.**”
- [The 2020 Five Domains Model: Including Human–Animal Interactions in Assessments of Animal Welfare](#) (Mellor et al., 2020)
 - *Foster care promotes more positive than negative welfare events for animals.*
 - “Situations where human–animal interactions may have **negative welfare impacts** include: when animals have had little or no prior human contact, when human presence adds to already threatening circumstances, when human actions are directly unpleasant, threatening and/or noxious, when humans’ prior actions are remembered as being aversive or noxious and when the actions of bonded humans cause unintended harms. In contrast, situations where human–animal interactions may have **positive welfare impacts** include: when the companionable presence of humans provides company and feelings of safety, when humans provide preferred foods, tactile contacts and/or training reinforcements, when humans participate in enjoyable routine activities or in engaging variable activities, when the presence of familiar humans is calming in threatening circumstances and when humans act to end periods of deprivation, inhibition or harm.”

- [Characterizing Human-Dog Attachment Relationships in Foster and Shelter Environments as a Potential Mechanism for Achieving Mutual Wellbeing and Success](#) (Thielke & Udell, 2020)
 - “This provides evidence that social relationships formed between foster parent volunteers and foster dogs in the foster home may be more similar in nature to those formed in the typical home environment of pet dogs. Therefore, **fostering dogs may provide an important additional benefit, by increasing the likelihood that a dog will experience the establishment of a secure attachment to a caretaker before final adoption.** In studies with human children, this scenario not only allowed for better coping with stress in the short term, but also increased the likelihood that the child would develop a secure attachment to their caretaker in their final home upon being adopted. More research is needed to evaluate if the same is true for adopted foster dogs.”
- [Examining How Dog ‘Acquisition’ Affects Physical Activity and Psychosocial Well-Being: Findings from the BuddyStudy Pilot Trial](#) (Potter et al., 2019)
 - “In the BuddyStudy, we used dog fostering to mimic dog acquisition, and examined how taking a dog into one’s home affected physical activity and psychosocial well-being. Nearly half of study participants saw large increases in physical activity and nearly three-quarters saw improvements in mood after fostering for six weeks. More than half met someone new in their neighborhood because of their foster dog. **Most participants adopted their foster dog after the six-week foster period, and some maintained improvements in physical activity and well-being at 12 weeks.** The results of this pilot study are promising and warrant a larger investigation.”
- [Evaluating the effects of a temporary fostering program on shelter dog welfare](#) (Gunter et al., 2019)
 - “This study demonstrates that shelter dogs’ urinary **cortisol concentrations systematically decrease and bouts of uninterrupted rest increase when the dogs are placed into temporary foster homes,** as compared to in-shelter values obtained prior to and after the sleepover. This reduction in stress, observed at all five participating shelters, varied in its magnitude and was lost once dogs returned to the shelter, although bouts of restful behavior post-sleepover were longer than pre-sleepover durations. Dogs’ cortisol values measured in-shelter differed between shelters; and in some cases, these differences were larger than the reduction provided by the temporary fostering intervention. **In total, these findings suggest that while a reprieve from the shelter is positively impactful for the welfare of companion dogs, mitigating the stressors present in kenneling conditions that are likely contributing to higher stress responding should also be addressed to improve the overall welfare of shelter-living dogs.**”
- [Medium and Large Adult Dogs Foster Care Project](#) (Maddie’s Fund, 2019)
 - “The results from this study suggest that **dogs benefit dramatically from foster care.** Behaviors associated with well-being improved and those associated with poor well-being lessened. It is unknown whether social contact and a change in environment impacted the dogs’ behavior or whether the differences reported occurred because people subjectively perceive dogs more positively and less negatively when they are in homes. However, it is important to note that both are important when it comes to finding homes for dogs as a positive attitude about dogs is likely beneficial in finding them homes. **Shelters should utilize foster care to improve welfare and find homes for dogs, because it has a significant impact on behavior, well-being and adoption.**”

- Summary is available here: [Research study: Foster care has an impact on dogs' welfare and adoption | Chew On This](#) (Maddie's Fund, 2023)
 - "Dogs who stayed in the shelter did not show significant improvement on any of the behavior or wellbeing items. However, there was a significant decline in one area of behavior from the first survey to the second 7 days later: they were rated as being less sociable and displaying less friendly behavior toward other dogs.

Significant improvements were found for the dogs who went into foster care. When both groups were compared after seven days, **dogs who went to foster care showed a significant improvement on 17 out of 21 behavior variables compared to dogs who stayed in the shelter.** Dogs in foster care were rated as more playful, happier, friendlier to people and more confident than dogs in the shelter. Dogs in foster care were rated as being less insecure, anxious and insecure and doing less barking and repetitive behavior."

- [Factors Associated with High Live Release for Dogs at a Large, Open-Admission, Municipal Shelter](#) (Patronek & Crowe, 2018)
 - "Temporary placement into interim foster homes of dogs who were either not immediately eligible or not strong candidates for adoption due to reasons such as age or health, **increased the odds of live release after subsequent return to the shelter,** especially for adult dogs. Dogs returned to the shelter after unsuccessful adoption had a live-release advantage as well, which suggested that the **temporary experience in a home was not detrimental and may have facilitated the likelihood of live release after return, akin to a foster situation.**"
 - Summary of study available here: [Understanding The Factors That Lead To Successful Dog Adoptions](#) (Orzechowski, 2018)
 - "The vast majority of dogs in the shelter system, including those with behavioral issues, have the potential for successful adoption outcomes - even dogs who have already been "unsuccessfully" adopted and returned."
- [Changes Associated with Improved Outcomes for Cats Entering RSPCA Queensland Shelters from 2011 to 2016](#) (Kerr et al., 2018)
 - "This retrospective study of cat admissions to RSPCA Queensland shelters describes changes associated with improved outcomes ending in live release in 2016 compared to 2011. There were 13,911 cat admissions in 2011 and 13,220 in 2016, with approximately 50% in both years admitted as strays from the general public or council contracts. In contrast, owner surrenders halved from 30% to 15% of admissions. Percentages of admissions ending in euthanasia decreased from 58% to 15%. Only 5% of cat admissions were reclaimed in each of these years, but the percentage rehomed increased from 34% to 74%, of which 61% of the increase was contributed by in-shelter adoptions and 39% from non-shelter sites, predominately retail partnerships. **The percentage temporarily fostered until rehoming doubled.** In 2011, euthanasias were most common for medical (32% of all euthanasias), behavioral (36%) and age/shelter number (30%) reasons, whereas in 2016, 69% of euthanasias were for medical reasons. The number of young kittens euthanized decreased from 1116 in 2011 to 22 in 2016. The number of cats classified as feral and euthanized decreased from 1178 to 132, in association with increased time for assessment of behavior and **increased use of behavior modification programs and foster care.** We attribute the improved cat outcomes to strategies that increased adoptions and reduced

euthanasia of young kittens and poorly socialized cats, **including foster programs**. To achieve further decreases in euthanasia, strategies to decrease intake would be highly beneficial, such as those targeted to reduce stray cat admissions.”

- [Evaluation of a Novel Dog Adoption Program in Two US Communities](#) (Mohan-Gibbons et al., 2014)
 - *This research found that foster parents were reaching new groups of potential adopters who may not have come to the shelter otherwise. They also found a lower rate of return post-adoption for pets adopted from foster care compared to pets adopted from the shelter.*
 - “This research focused on a novel adoption program where shelter dogs were transferred into foster homes who were tasked with finding an adopter. Shelter dogs were placed in the path of potential adopters and bypassed the need for the adopter to go to the shelter. The results show that this novel program was effective in a variety of ways including getting dogs adopted. **Although length of stay was significantly longer for dogs in the program, the dogs were in a home environment, not taking up kennel space in the shelter. The program also had a lower rate of returns than dogs adopted at the shelter. The foster program tapped adopters in different geographical segments of the community than the dogs adopted from the shelter.** By bringing shelter dogs to where adopters spend their time (ex: restaurants, parks, hair salons), the program potentially captured a segment of the population who might have obtained their dog from other sources besides the shelter (such as breeders or pet stores). This novel approach can be an effective method for adoption, has many benefits for shelters, and can tap into a new adopter market by engaging their community in a new way.”
 - *This article was cited in this literature review by Protopopova and Gunter (2017): [Adoption and relinquishment interventions at the animal shelter: a review](#). The researchers highlighted:*
 - “More recently, Mohan-Gibbons et al (2014) examined an adoption programme implemented at two US shelters, in which foster homes provided daily care for the dogs and were responsible for placing them in their adoptive homes. **The authors found that return rates were lower for these dogs compared to dogs adopted at the shelter. Over 20% of owners that acquired their dogs through the adoption programme reported that information received from the foster home was helpful in their decision-making, compared to only 3% of adopters who interacted with shelter staff.** Prospective owners of programme dogs deliberated longer than adopters of regular shelter dogs when making their adoption decisions. This extra time, coupled with information from the foster home and opportunities to interact with the dog outside of the shelter environment, may have contributed to the higher adoption success.”

[Back to top](#)

Impact of Kennel Housing/Kennel Stress

- [HASS Research and Development: Evidence-based Solutions for Increasing Live Outcomes for Dogs in Animal Shelter Care](#) (Human Animal Support Services, 2023)
 - *See the “**Detrimental Impact of Kennel Housing**” section in this report. This report is filtered to reflect the topic of the crisis facing many shelter dogs in need of live outcome solutions. Readers*

are encouraged to utilize the evidence provided in this report to inform program development to address extended lengths of stay for dogs.

- “This report details the impact of kennel housing on pet wellness and **evidence-based solutions for increasing live outcomes for dogs in animal shelter care**. Guidelines on how to use this report, peer-reviewed research articles, research summaries, and practical applications for shelter operations are included. Solutions are discussed for the following:
 - Return to Home
 - Transfer
 - Foster
 - Behavior and Training
 - Playgroups
 - Free Adoptions
 - Constructive Adopter Meet-and-Greets”
- “Overall, the report concludes that **population management and proactive intervention programs** can improve shelter dog welfare, decrease their length of stay, and provide increased opportunities for live outcomes.”
- [Nocturnal activity as a useful indicator of adaptability of dogs in an animal shelter and after subsequent adoption](#) (Laan et al., 2023)
 - “Body weight decreased in the shelter but increased again after adoption. These findings suggest that overall, **dogs rest better in a novel home than in a novel shelter but, in both contexts, some form of adaptation takes place.**”
 - “Overall, this supports the conclusion that **dogs show a lower stress response in a novel home than in a shelter**, and therefore that dogs are better able to adapt to novel home environments than to novel shelter environments with particular stressors, but even in a new home dogs need time to adapt.”
 - “As individual differences matter for monitoring welfare, **it is important to identify dogs that have more difficulty adapting to the shelter environment, to provide them with additional and individualized support where possible.** Dogs seem to rest and therefore adapt better in a novel home situation than in a novel shelter environment. A shelter environment poses more challenges to dogs, especially when they did not have previous experiences with kennelling. But even when being adopted in a novel home environment after a shelter period, dogs need some time to adapt.”
- [Unfamiliar human-induced social buffering effect in kennel-residing Australian Cattle Dogs](#) (Pinelli et al., 2023)
 - “The results showed that **isolation led to a significant increase in cortisol levels, indicating a stress response.** However, in the presence of unfamiliar humans, cortisol levels did not increase significantly, suggesting a lack of stress response. This finding suggests that humans can serve as social buffers for dogs, even without prior bonding or socialization. Therefore, **dogs without systematic human socialization still benefited from the presence of unfamiliar humans.**”
- [Sensor-supported measurement of adaptability of dogs \(Canis familiaris\) to a shelter environment: Nocturnal activity and behavior](#) (Laan et al., 2023)
 - “**Shelter dogs significantly lost body weight after 12 days in the shelter compared to the moment of intake.**”

- **“Shelter dogs had disrupted nocturnal resting patterns and increased UCCR levels compared to pet dogs, especially during the first nights in the shelter.** These activity and UCCR levels decreased but did not return to pet dog levels after 12 days in the shelter, which suggests partial adaptation to the shelter environment, but not total adaptation. Sensor-supported identification of nocturnal resting patterns, using accelerometers, can be a useful addition to welfare assessments in animal shelters as shown by paralleled physiological and behavioural parameter outcomes.
This study highlights the importance of evaluating individual dogs when transferring to a new environment, raises concerns about the amount of nocturnal rest in the shelter, and provides opportunities to consider improving nocturnal rest by more suitable housing and management. In future studies, the effect of different properties of stressors in a shelter environment versus the novelty of the shelter environment can be studied by further evaluating responses of dogs after a change in environment, e.g. in shelter versus novel (re)homes as a control.”
- [Early life adversity in dogs produces altered physiological and behavioral responses during a social stress-buffering paradigm](#) (Buttner et al., 2023)
 - *This article emphasizes the importance of raising puppies in healthy environments, such as foster homes, to support social behavior, in contrast to the harmful impacts of raising puppies in crowded housing with limited socialization and enrichment, such as is common in shelters.*
 - **“The findings from this study provide further insight into how early life histories influence biological systems that underlie the dogs' social behavior.** From an applied perspective, studies like ours could inform on the care and rehabilitation of dogs removed from adverse environments due to neglect and call attention to the detrimental effects. Though isolating one specific contributor to the altered physiological and behavioral outcomes of dogs from adverse environments is nearly impossible, **reducing overcrowded housing situations, implementing adequate human socialization, environmental enrichment, gradually weaning puppies from their mothers at a proper age, and providing quality medical care and nutrition could mitigate these effects.**”
- [Medium and Large Adult Dogs Foster Care Project](#) (Maddie's Fund, 2019)
 - **“The results from this study suggest that dogs benefit dramatically from foster care.** Behaviors associated with well-being improved and those associated with poor well-being lessened. It is unknown whether social contact and a change in environment impacted the dogs' behavior or whether the differences reported occurred because people subjectively perceive dogs more positively and less negatively when they are in homes. However, it is important to note that both are important when it comes to finding homes for dogs as a positive attitude about dogs is likely beneficial in finding them homes. **Shelters should utilize foster care to improve welfare and find homes for dogs, because it has a significant impact on behavior, well-being and adoption.**”
 - *Summary is available here:* [Research study: Foster care has an impact on dogs' welfare and adoption | Chew On This](#) (Maddie's Fund, 2023)
 - **“Dogs who stayed in the shelter did not show significant improvement on any of the behavior or wellbeing items. However, there was a significant decline in one area of behavior from the first survey to the second 7 days later: they were rated as being less sociable and displaying less friendly behavior toward other dogs.**”

Significant improvements were found for the dogs who went into foster care. When both groups were compared after seven days, dogs who went to foster care showed a significant improvement on 17 out of 21 behavior variables compared to dogs who stayed in the shelter. Dogs in foster care were rated as more playful, happier, friendlier to people and more confident than dogs in the shelter. Dogs in foster care were rated as being less insecure, anxious and insecure and doing less barking and repetitive behavior.”

- [Positive human interaction improves welfare in commercial breeding dogs: Evidence from attention bias and human sociability tests](#) (Baqueiro-Espinosa et al., 2023)
 - *This example from research on puppy mills (which HASS does **not** support) does offer good evidence for the benefits of human interaction while dogs are in confinement.*
 - “Large-scale CBE dams spend most of their reproductive lives confined to kennels, with limited access to enriching experiences including positive human interaction. **Long-term confinement can have detrimental effects on dog welfare, inducing negative affective states like anxiety and depressive-like behaviour, and leading to the development of behavioural problems such as fearfulness towards unfamiliar people.**”
 - “This study demonstrates that a **positive human interaction used as a form of enrichment can improve welfare and sociability towards strangers** in commercial breeding female dogs. However, longer-term enrichment protocols may be needed to influence hair cortisol levels. Dams in large-scale breeding facilities would benefit from additional positive human interaction, particularly near the end of their reproductive life when they are rehomed as pets.”
- [Assessment of Stress Caused by Environmental Changes for Improving the Welfare of Laboratory Beagle Dogs](#) (Lee et al., 2023)
 - *This example from research on laboratory housed dogs (which HASS does **not** support) does offer good evidence for the benefits of toys and companionship while dogs are in confinement.*
 - “Thereby, we determined that **social housing, with appropriate companions and environmental enrichment materials, can reduce stress levels in captive dogs** more efficiently than in single housing without such materials. **Our study provides useful insights for captive animal organizations, such as kennel dogs’ management, to improve animal welfare.**”
 - Summary of study available here: [Improving The Welfare Of Dogs In Confinement](#) (O’Riordan, 2023)
 - “Providing toys and companionship to dogs in confinement may help reduce their stress levels.”
- [Challenges in Sheltering Seized Animals from Hoarders from a One Welfare Perspective](#) (Fossati, 2023)
 - See section: “6. The Lives of Animals in a Shelter” regarding kennel stress and the impacts of long-term confinement.
 - “**The quality of life and care in the shelter has an impact on the animals, and for some, it can be especially problematic.** This is particularly true for cats, which are greatly affected by stress from various factors in their shelter environment, where they can exhibit signs of fear and antagonistic behaviors [67,81,82,83,84,85,86], and **when animals are forced into long-term confinement that reduces animal welfare, inducing a decrease in activity, alterations in exploratory and locomotor behavior and sleep patterns, excessive**

autogrooming and vocalizations, and anxiety [87]. Furthermore, individual differences in reactions to environmental stress have been observed in some subjects in terms of the time spent in a standing posture vs. lying position, the degree of activity, sleep patterns, attention seeking, the resting time, and social behavior [87,88,89].

In any case, arrival in a new context, placement in inadequate space and often in poor environments, the **loss of affective bonds or otherwise habitual relationships with the person or people they know, and the presence of other unfamiliar animals are critical aspects for all animals**, in addition to the fact that, in the shelter environment, they are **over-stimulated in the auditory, olfactory, and visual senses, activating the stress response [78,90,91,92,93,94,95,96].** This is exacerbated if the facility is not functional, if supervision is inadequate, and if sufficient funding is not available [97]. Even in well-managed refuges, the presence of transient, displaced, and mixed animal populations promotes biological instability, which **increases the risk of pathogen exposure [98].** In addition, the effects of sheltering on animal behavior have been documented in the literature, with animals unable to cope successfully with the new environment and **often developing reduced behavioral variability, abnormal or stereotyped behaviors, as well as stress-related attitudes, such as lack of responsiveness, altered activity levels, or other specific signs, such as vocalizing, self-grooming, and coprophagy [53,99].”**

- [Ruff Morning? The Use of Environmental Enrichment during an Acute Stressor in Kenneled Shelter Dogs](#) (Dare & Strasser, 2023)
 - “One of the things welfare evaluations indirectly measure is an animal’s stress level. There are two types of stress, chronic (commonly studied) and acute. The latter includes short periods where an organism undergoes higher than normal stress levels, such as being restrained. **Loud and/or unpredictable daily cleaning would be a typical example of an activity that results in acute stress for a kenneled dog.** With this example, the dog undergoes at least one example of **acute stress** (i.e., daily cleaning) while dealing with the **chronic stress** of being in a new environment (the shelter). **Because chronic and acute stress has adverse health effects on animals [18], understanding the effect of husbandry on stress levels is a priority welfare concern.”**
 - “Cleaning in shelters is unavoidable. Unfortunately, this **cleaning also causes acute stress for shelter animals.** In dogs, this stress has been shown to lead to overactivation of the HPA axis and may be correlated with developing diseases such as arthritis, diabetes, and cancer (see 48 for a review) [48]. However, **this welfare issue can be improved relatively easily by the use of specific treatment enrichment items.** Although we did not examine euthanasia rates in this study, future studies could examine if reducing unwanted behaviors during acute stress events can indirectly reduce euthanasia rates.”
- [An Assessment of Scientific Evidence Relating to the Effect of Early Experience on the Risk of Human-Directed Aggression by Adult Dogs](#) (Baslington-Davies et al., 2023)
 - *This research supports fostering puppies in home environments to mitigate the risk of them developing aggressive behavior later in their lives.*
 - “...in short, it is suggested animals be **brought up in environments** where they have had a variety of experiences that enable them to **develop confidence and cope with frustration and where interactions with humans are consistent and positive.”**
- [It’s Not Paradise for the Dogs and Shelter Workers: Dog Welfare and Occupational Stress in Animal Shelters in Hawaii](#) (Morrison, 2023)

- “Our results thus far indicate that **high rates of euthanasia coupled with a hostile community attitude leads to stress**. The data from the shelter workers as well as the cortisol results from the dogs indicate that there are significant differences between the two sites, indicating differing cultural contexts for dogs. More significantly, we have conclusive evidence that neglected dogs suffer from chronic stress.”
- [The Guidelines for Standards of Care in Animal Shelters: Second Edition](#) (Association of Shelter Veterinarians, 2022)
 - “9.2 Stress and welfare: Admission to a shelter is stressful for the vast majority of dogs and cats.9,10,11 **Separation from caregivers, decreased and unfamiliar social interactions, confinement, loud noises, other stressed animals, and unpredictability all result in impaired welfare.12 Lack of control over one’s environment and separation from people are among the most profound stressors for companion animals.13** Shelters must have comprehensive protocols in place for recognizing and mitigating stress and associated negative emotions including fear, anxiety, and frustration.”
- [How environmental conditions affect sleep? An investigation in domestic dogs \(Canis lupus familiaris\)](#) (Schork et al., 2022)
 - *This example from research on laboratory housed dogs (which HASS does **not support**) does offer good evidence on sleeping conditions, stress, and welfare while dogs are in confinement.*
 - “In conclusion, our study shows that surrounding **environmental conditions affected sleeping behaviour, stress responses and general welfare of the studied dogs**. These findings suggest that **improvements in kennels are needed** to try to mitigate such issues. The construction of barriers to block street noise and kennels with comfortable light and temperature levels are suggested.”
- [Psychological Stress, Its Reduction, and Long-Term Consequences: What Studies with Laboratory Animals Might Teach Us about Life in the Dog Shelter](#) (Hennessy et al., 2020)
 - *This article that includes research on laboratory housed dogs (which HASS does **not support**) does offer good evidence on stress and welfare while dogs are in confinement.*
 - “Stress in shelters is of concern in large part because of the possibility it **will increase readily apparent behaviors such as stereotypy, hyperactivity, fearful behaviors, and continual barking** that will either discourage adoption or prompt recent adopters to return their dog to the shelter, e.g., [59,60].”
 - “Dogs exhibit a variety of initial reactions upon entering a shelter. While most show signs of fear, for some, the fear is extreme. These dogs may tremble, cower in the back of the kennel, and keep their tail tucked firmly between their legs. They may also show signs of fear-induced aggression [95,96], a situationally dependent form of aggression that occurs in some individuals when fear is high, and escape is thwarted. **As this aggression only occurs when dogs are severely frightened, such dogs may be excellent candidates for adoption as a pet in a typical home, but in the shelter they are often in great peril.**”
 - “Lasting behavioral consequences of stress exposure in translational laboratory experiments or in the dog shelter are rightfully considered to be negative outcomes if they serve as models of human suffering or pathology, or in the case of the shelter, **reduce welfare or the likelihood of successful adoption**. Yet many such outcomes appear to have derived from behaviors that were adaptive in natural environments.”

- [The 2020 Five Domains Model: Including Human–Animal Interactions in Assessments of Animal Welfare](#) (Mellor et al., 2020)
 - *Foster care promotes more positive than negative welfare events for animals. Kennel housing and long-term confinement in shelters creates more negative welfare events for animals.*
 - “Situations where human–animal interactions may have negative welfare impacts include: when animals have had little or no prior human contact, when human presence adds to already threatening circumstances, when human actions are directly unpleasant, threatening and/or noxious, when humans’ prior actions are remembered as being aversive or noxious and when the actions of bonded humans cause unintended harms. In contrast, situations where human–animal interactions may have positive welfare impacts include: when the companionable presence of humans provides company and feelings of safety, when humans provide preferred foods, tactile contacts and/or training reinforcements, when humans participate in enjoyable routine activities or in engaging variable activities, when the presence of familiar humans is calming in threatening circumstances and when humans act to end periods of deprivation, inhibition or harm.”

- [Evaluating the effects of a temporary fostering program on shelter dog welfare](#) (Gunter et al., 2019)
 - “This study demonstrates that shelter dogs’ urinary **cortisol concentrations systematically decrease and bouts of uninterrupted rest increase when the dogs are placed into temporary foster homes**, as compared to in-shelter values obtained prior to and after the sleepover. This reduction in stress, observed at all five participating shelters, varied in its magnitude and was lost once dogs returned to the shelter, although bouts of restful behavior post-sleepover were longer than pre-sleepover durations. Dogs’ cortisol values measured in-shelter differed between shelters; and in some cases, these differences were larger than the reduction provided by the temporary fostering intervention. **In total, these findings suggest that while a reprieve from the shelter is positively impactful for the welfare of companion dogs, mitigating the stressors present in kenneling conditions that are likely contributing to higher stress responding should also be addressed to improve the overall welfare of shelter-living dogs.**”

- [Adoption and relinquishment interventions at the animal shelter: a review](#) (Protopopova & Gunter, 2017)
 - *The “Behavioural interventions” section highlights research and solutions focused on mitigating kennel stress and increasing behaviors associated with adoption.*

- [Factors determining the effects of human interaction on the cortisol levels of shelter dogs](#) (Willen et al., 2017)
 - “**The stress experienced by dogs admitted to animal shelters not only impacts welfare, but may lead to behavior that threatens successful adoptions.** This stress is reflected in an elevation in the plasma cortisol levels of newly admitted dogs. We previously found 30 min of human interaction reduced the plasma cortisol response dogs showed to shelter housing. . . . These findings show that **as little as 15 min of human interaction can moderate cortisol levels of shelter dogs.** The cortisol reduction is repeatable and associated with positive behavioral change. However the effect is of short duration and appears to vary with the source of the dog.”

- [Common and Emerging Infectious Diseases in the Animal Shelter](#) (Pesavento & Murphy, 2014)

- See sections: “Intensive Housing” and “Stress”.
- “Intensive housing or functioning above shelter capacity is likely to increase direct and indirect (fomite) contact, **animal stress**, the number and complexity of circulating pathogens, and fluctuations in host population size. All of these factors are of primary importance in determining the forces that drive pathogen evolution.”
- “**Stress is a virtually inevitable outcome of keeping animals confined in kennel or cattery environments.** Barking dogs may be audible in feline housing areas, and small or inappropriately constructed housing may be suboptimal for typical animal behaviors such as normal postures, playing, elimination, and hiding. Kennels are often very loud; sound levels in animal shelters regularly exceed 100 decibels.[18] Diet changes, separation from an attachment figure, and transport can be stressful to dogs upon introduction to a novel kennel environment.[35,82]”
- “Shelter management strategies and emergent factors such as **intensive housing, stress, immunosuppression, modified live vaccination, and antimicrobial administration culminate in a biological “perfect storm,” contributing to the emergence and possible persistence of virulent infectious pathogens.** It follows that we see common pathogens causing more severe disease and newly recognized emerging pathogens becoming manifest in the shelter environment.”
- [Behavioral effects of auditory stimulation on kenneled dogs](#) (Kogan et al., 2012)
 - “Dogs are kenneled in professional facilities for a variety of reasons; however, **the kennel environment, even for short periods, is a potential psychogenic stressor for most dogs. Continual stress and the resultant anxiety are undesirable for both ethical and physiological reasons.** . . . It is suggested that playing classical music in a shelter environment may help mitigate some of the stress inherent for many kenneled dogs.”
- [Environmental Enrichment: Practical Strategies for Improving Feline Welfare](#) (Ellis, 2009)
 - “This article aims to assist general veterinary practitioners to **recognise how cats respond to confinement**, and to understand what constitutes environmental enrichment, to help them implement or advise on **appropriate enrichment strategies for cats confined** in a hospital cage, home environment (particularly an indoor-only home), or cattery or rescue shelter, based on published evidence to date.”
 - “What might induce a negative emotional state?
 - **Restricted or no outdoor access within the home**
 - Introduction to a new home
 - Change within the home environment, such as introduction of a baby, new cat or other animal (eg, dog)
 - **Lack of stimulation and/or resources (eg, limited litter trays, feeding stations, toys)**
 - **Confinement in a restricted environment (eg, veterinary cage or cattery enclosure)”**
- [A longitudinal evaluation of urinary cortisol in kennelled dogs, Canis familiaris](#) (Stephen & Ledger, 2006)
 - “**Cortisol levels in kennelled dogs were significantly higher** on all days except d 31 than the baseline measures taken from 20 dogs in their home environments.”

- [Noise in the Animal Shelter Environment: Building Design and the Effects of Daily Noise Exposure](#) (Coppola et al., 2006)
 - “Sound levels in animal shelters regularly exceed 100 dB. **Noise is a physical stressor on animals that can lead to behavioral, physiological, and anatomical responses.** There are currently no policies regulating noise levels in dog kennels. . . . Peak noise levels regularly exceeded the measuring capability of the dosimeter (118.9 dBA). Often, in new facility design, there is little attention paid to noise abatement, despite the evidence that noise causes physical and psychological stress on dogs. **To meet their behavioral and physical needs, kennel design should also address optimal sound range.”**
- [Plasma Cortisol Levels of Dogs at a County Animal Shelter](#) (Hennessy et al., 1997)
 - “**A dog confined in a public animal shelter experiences a whole array of psychogenic stressors,** including not only social separation and exposure to novel surroundings, but also noise, restraint, alteration of light-dark cycles and probably of circadian rhythms, disruption of familiar habits, and more generally, unpredictability and loss of control. **As expected, dogs housed under these conditions showed elevated cortisol levels.”**

[Back to top](#)

Intake Reasons Data Collection

- [A mixed-method analysis of the consistency of intake information reported by shelter staff upon owner surrender of dogs](#) (Ly & Protopopova, 2023)
 - “**Out of 40 possible surrender reasons, the number of unique reasons selected for each scenario ranged from 12–16, suggesting a variety of possible data entries for the same surrender narrative.** Agreement was also low for breed and color. **Shelter staff described a variety of different methods of determining the surrender reason for input into shelter software,** such as asking the owner for their most influential reason or inferring the underlying reason. Further research is required to understand how animal shelter data can be collected consistently in a way that can meaningfully inform shelter management decisions.”
 - “. . . many animal shelter data collection software only allow shelter staff to select a single reason for relinquishment from a long list of possible reasons, whereas the **circumstances that lead to pet relinquishment are often multifaceted** (Jensen, Sandøe, & Nielsen, 2020). For example, a pet owner may say that they need to surrender their pet because they are moving and cannot find a new home that allows their aggressive animal. In this case, shelter staff may select a category within “behavioral issues” or “housing issues” for the relinquishment reason.”
 - “Almost all participants agreed that there is **often more than one reason for surrender** (mean \pm SD = 6.26 \pm 0.97).”
 - “Through surveying of animal shelter and rescue staff in the U.S. and Canada, we found that, when staff are given the same complex fictional owner surrender narratives, agreement on the primary surrender reason, as well as the number and category of reasons that contributed to relinquishment of a dog was low. Further, participants were not consistent with the primary or secondary breed and color that was selected. **To improve the consistency of data both within organizations and across organizations, animal shelter professionals and researchers should consider creating operational definitions and deciding on a common method to select the reasons for surrender.** Furthermore, consolidating categories for variables may improve consistency.”

- [Animal sheltering: A scoping literature review grounded in institutional ethnography](#) (Koralesky et al., 2023)
 - “Shelter staff reported that **owners often express multiple reasons for relinquishing** an animal, and it is difficult to select a single reason as required by the database.”
- [Factors Informing the Return of Adopted Dogs and Cats to an Animal Shelter](#) (Hawes et al., 2020)
 - “Therefore, understanding the full scope of **issues related to the reasons for the return of adopted dogs and cats can inform the development of pet-support programs** that can help animal shelter and rescue organizations more effectively address pet retention issues.”
- [Owner-Related Reasons Matter more than Behavioural Problems—A Study of Why Owners Relinquished Dogs and Cats to a Danish Animal Shelter from 1996 to 2017](#) (Jensen et al., 2020)
 - “More importantly, **there is rarely just one reason for relinquishment**, and this may have caused some skewness in the results. For example, the reason reported may be moving house, but perhaps no effort was made by the owner to find a pet-friendly new house because the animal had also been difficult to house train. Thus, it has been argued that the reasons companion animals are relinquished are typically multifactorial [27]:”
 - “Because just one reason was reported in most cases, the possibility of several reasons playing a role could not be considered via our findings. In a study such as ours, this may not be methodologically desirable, as it was only the reasons that the staff deemed more important or dominant that were available to be considered. In addition, there is a risk of social desirability (SD) bias [28]. An owner may, for example, report allergy to be the main reason for relinquishment, rather than admitting that he or she was unable to handle the animal-related problem.”

[Back to top](#)

Managed Intake

- [The Evolving Role of Triage and Appointment-Based Admission to Improve Service, Care and Outcomes in Animal Shelters](#) (Hurley, 2022)
 - “The historical norm for many animal shelters has been to admit animals on an unscheduled basis, without prior assessment of animal or client need or regard to the shelter’s ability to deliver humane care or ensure appropriate outcomes. This approach allows little opportunity to provide finders or owners with alternatives to keep pets safe in their homes or community rather than being impounded. In addition to needlessly impounding animals and separating pets from families, unmanaged/unscheduled admission frequently results in animal influx exceeding shelter capacity, leading to crowding, stress, disease, and euthanasia of animals, as well as poor customer experience, compromised staffing efficiency and decreased organizational effectiveness. Many of these harmful consequences disproportionately impact vulnerable community members and their pets. **Triage and appointment-based services have been well developed in healthcare and other service sectors allowing organizations to prioritize the most urgent cases, align services with organizational resources and provide situation-specific solutions that may include virtual support or referral as appropriate.** This article discusses the trend in animal sheltering toward triage and appointment-based services that parallels the use of these practices in human healthcare. **Reported positive results of this approach are detailed including improved staff morale, reduced disease rates and substantially**

reduced euthanasia. These positive outcomes support the endorsement of triage and appointment-based services by multiple North American animal welfare professional and academic organizations, recognizing that **it better realizes the goals of shelters to serve the common good of animals and people in the most humane, equitable and effective possible way.**”

- [The Impact of Incorporating Multiple Best Practices on Live Outcomes for a Municipal Animal Shelter in Memphis, TN](#) (Kreisler et al., 2022)
 - “In 2017, the municipal animal shelter in Memphis, TN (Memphis Animal Services) **implemented five new strategies and analyzed their resultant life-saving data.** The interventions included **managed strategic shelter intake**, pet owner safety net, community cat return to field, transition of field services from punitive to assistive, and streamlined adoption and transfer protocols.”
 - “Implementation of these best practices **accelerated Memphis Animal Services' progress toward a live release rate of at least 90%**, particularly for cats, dramatically decreased kitten euthanasia, increased the RTO rate for dogs and severed the historical correlation between euthanasia and intake.”

[Back to top](#)

Marketing

- [Showcasing Adoptable Pets Through Photos and Videos: Increasing Visibility, Interest, Traffic and Maybe Adoptions Too](#) (Dowling-Guyer, 2018)
 - **Photo quality and conditions influence viewer perception of a pet.**
- [Speed of Dog Adoption: Impact of Online Photo Traits](#) (Lampe & Witte, 2015)
 - “A subjective global measure of **photo quality had the largest impact on time to adoption.** Other photo traits that positively impacted adoption speed included direct canine eye contact with the camera, the dog standing up, the photo being appropriately sized, an outdoor photo location, and a nonblurry image.”
 - “**Improving the quality of online photos of dogs presented for adoption may speed up and possibly increase the number of adoptions.**”

[Back to top](#)

Matchmaking

- [Selection Factors Influencing Eventual Owner Satisfaction about Pet Dog Adoption](#) (Dinwoodie et al., 2022)
 - “Participants that **prioritized personality as an adoption criteria** were more likely to be satisfied with their adopted dogs. A mast [sic] majority (91%) of participants reported they would consider adopting another dog in the future.”
- [Returning a Shelter Dog: The Role of Owner Expectations and Dog Behavior](#) (Powell et al., 2022)

- “Shelters may benefit from **utilizing adoption counselling to ensure adopters understand the potential for dog behavioral problems** in the early stages of ownership and develop appropriate expectations for the human–dog relationship. Post-adoption behavioral support may also help some owners to overcome behavioral difficulties as their dogs adapt to the new environment.”
- [Animal Placement and Follow-Up](#) (Protopopova & Bollen, 2022)
 - “In this chapter, the **history and current philosophy surrounding adoption of companion animals out of shelters** into new homes is discussed.”
- [Characterizing unsuccessful animal adoptions: age and breed predict the likelihood of return, reasons for return and post-return outcomes](#) (Powell et al., 2021)
 - “**Behavioral issues and incompatibility with existing pets were the most common return reasons.**” This suggests an opportunity for focused education on these topics during adoption counseling.
 - “Our findings highlight the importance of animal behavior in the retention of newly adopted animals and provide useful direction for allocation of resources and future **adoption counselling** and post-adoption support services.”
- [Meet Your Match Pet Adoption Program](#) (ASPCA, 2021)
 - “The research found **conversation and information received from the adoption counselor** gave adopters the info they needed to modify their expectations and increase the **likelihood of a successful match.**”
- [Effect of Visitor Perspective on Adoption Decisions at One Animal Shelter](#) (Southland et al., 2019)
 - “Shelters should work toward increasing chances for **pets to connect and interact with visitors and focus on educating and retaining the interest** of those who are not quite ready for a new pet.”
- [Factors Associated with High Live Release for Dogs at a Large, Open-Admission, Municipal Shelter](#) (Patronek & Crowe, 2018)
 - “**Temporary placement into interim foster homes** of dogs who were either not immediately eligible or not strong candidates for adoption due to reasons such as age or health, **increased the odds of live release after subsequent return to the shelter**, especially for adult dogs. Dogs returned to the shelter after unsuccessful adoption had a live-release advantage as well, which suggested that the **temporary experience in a home was not detrimental and may have facilitated the likelihood of live release after return, akin to a foster situation.**”
 - *Summary of study available here:* [Understanding The Factors That Lead To Successful Dog Adoptions](#) (Orzechowski, 2018)
 - “The vast majority of dogs in the shelter system, including those with behavioral issues, have the potential for successful adoption outcomes - even dogs who have already been “unsuccessfully” adopted and returned.”
- [Exploratory Study of Adopters’ Concerns Prior to Acquiring Dogs or Cats from Animal Shelters](#) (O’Connor et al., 2017)
 - “**Understanding pre-adoption concerns** at the time of adoption will assist in better preparing individuals for companion-animal guardianship.”

- [Adoption and relinquishment interventions at the animal shelter: a review](#) (Protopopova & Gunter, 2017)
 - “The **morphology** of shelter dogs plays a large role in in-kennel adopter selection, but their **behaviour** is also influential in out-of-kennel adopter interactions.”
- [Analysis of Dog Adoption Success and Failure Using Surveys With Vignettes](#) (Hill & Murphy, 2016)
 - “**Dog size, personality, behavior, and level of obedience training** were found to be significant perceived influencers of adoption success.”
- [Effect of Adopters' Lifestyles and Animal-Care Knowledge on Their Expectations Prior to Companion-Animal Guardianship](#) (O'Connor et al., 2016)
 - “An **understanding of adopters' expectations** prior to adoption will help animal shelters **better match, educate, and prepare adopters** for their lives with companion animals.”
- [Why Did You Choose This Pet?: Adopters and Pet Selection Preferences in Five Animal Shelters in the United States](#) (Weiss et al., 2012)
 - “Overall, the appearance of the animal, social behavior with adopter, and personality were the top reasons for adoption across all species and groups. **Most adopters obtain the information important for adoption selections by interacting with a staff member and directly with the animal.** The results of this study can be used to create better adoptions and prioritize shelter resources to increase adoptions.”

[Back to top](#)

Outcome Solutions

- [HASS Research and Development: Evidence-based Solutions for Increasing Live Outcomes for Dogs in Animal Shelter Care](#) (Human Animal Support Services, 2023)
 - *This report is filtered to reflect the topic of the crisis facing many shelter dogs in need of live outcome solutions. Readers are encouraged to utilize the evidence provided in this report to inform program development to address extended lengths of stay for dogs.*
 - “This report details the impact of kennel housing on pet wellness and **evidence-based solutions for increasing live outcomes for dogs in animal shelter care.** Guidelines on how to use this report, peer-reviewed research articles, research summaries, and practical applications for shelter operations are included. Solutions are discussed for the following:
 - Return to Home
 - Transfer
 - Foster
 - Behavior and Training
 - Playgroups
 - Free Adoptions
 - Constructive Adopter Meet-and-Greets”
 - “Overall, the report concludes that **population management and proactive intervention programs** can improve shelter dog welfare, decrease their length of stay, and provide increased opportunities for live outcomes.”

- [The Impact of Incorporating Multiple Best Practices on Live Outcomes for a Municipal Animal Shelter in Memphis, TN](#) (Kreisler et al., 2022)
 - “In 2017, the municipal animal shelter in Memphis, TN (Memphis Animal Services) **implemented five new strategies and analyzed their resultant life-saving data.** The interventions included managed strategic shelter intake, pet owner safety net, community cat return to field, transition of field services from punitive to assistive, and streamlined adoption and transfer protocols.”
 - “Implementation of these best practices **accelerated Memphis Animal Services' progress toward a live release rate of at least 90%**, particularly for cats, dramatically decreased kitten euthanasia, increased the RTO rate for dogs and severed the historical correlation between euthanasia and intake.”

- [Emergency Fostering of Dogs From Animal Shelters During the COVID-19 Pandemic: Shelter Practices, Foster Caregiver Engagement, and Dog Outcomes](#) (Gunter et al., 2022)
 - “This study explores canine foster caregiving at 19 US animal shelters during the first 4 months of the COVID-19 pandemic. In our investigation, we found that shelters' utilization of foster caregiving increased from March to April 2020 but returned to initial pandemic levels by June 2020. Slightly less than two-fifths of **foster caregivers were community members with no prior relationship with the shelter, and these caregivers were over four times more likely to adopt their fostered dogs than those with a pre-existing relationship to the shelter.** Individuals fostering with the intention to adopt, in fact, adopted their dogs in nearly three-quarters of those instances.”

- [Factors Associated with High Live Release for Dogs at a Large, Open-Admission, Municipal Shelter](#) (Patronek & Crowe, 2018)
 - “**Temporary placement into interim foster homes** of dogs who were either not immediately eligible or not strong candidates for adoption due to reasons such as age or health, **increased the odds of live release after subsequent return to the shelter,** especially for adult dogs. Dogs returned to the shelter after unsuccessful adoption had a live-release advantage as well, which suggested that the **temporary experience in a home was not detrimental and may have facilitated the likelihood of live release after return, akin to a foster situation.**”
 - *Summary of study available here:* [Understanding The Factors That Lead To Successful Dog Adoptions](#) (Orzechowski, 2018)
 - “The vast majority of dogs in the shelter system, including those with behavioral issues, have the potential for successful adoption outcomes - even dogs who have already been "unsuccessfully" adopted and returned.”

- [Changes Associated with Improved Outcomes for Cats Entering RSPCA Queensland Shelters from 2011 to 2016](#) (Kerr et al., 2018)
 - “This retrospective study of cat admissions to RSPCA Queensland shelters describes changes associated with improved outcomes ending in live release in 2016 compared to 2011. There were 13,911 cat admissions in 2011 and 13,220 in 2016, with approximately 50% in both years admitted as strays from the general public or council contracts. In contrast, owner surrenders halved from 30% to 15% of admissions. Percentages of admissions ending in euthanasia decreased from 58% to 15%. Only 5% of cat admissions were reclaimed in each of these years, but the percentage rehomed increased from 34% to 74%, of which 61% of the increase was contributed by in-shelter adoptions and 39% from

non-shelter sites, predominately retail partnerships. **The percentage temporarily fostered until rehoming doubled.** In 2011, euthanasias were most common for medical (32% of all euthanasias), behavioral (36%) and age/shelter number (30%) reasons, whereas in 2016, 69% of euthanasias were for medical reasons. The number of young kittens euthanized decreased from 1116 in 2011 to 22 in 2016. The number of cats classified as feral and euthanized decreased from 1178 to 132, in association with increased time for assessment of behavior and **increased use of behavior modification programs and foster care.** We attribute the improved cat outcomes to strategies that increased adoptions and reduced euthanasia of young kittens and poorly socialized cats, **including foster programs.** To achieve further decreases in euthanasia, strategies to decrease intake would be highly beneficial, such as those targeted to reduce stray cat admissions.”

- [Adoption and relinquishment interventions at the animal shelter: a review](#) (Protopopova & Gunter, 2017)
 - “Each year, nearly 4 million dogs will enter one of over 13,000 animal shelters operating in the United States. **We review programmes implemented at shelters aimed at increasing the likelihood of adoption.** The morphology of shelter dogs plays a large role in in-kennel adopter selection, but their behaviour is also influential in out-of-kennel adopter interactions. Previous studies suggest that dogs have the ability to readily learn new behaviours at the shelter, and programmes designed to improve behaviour of the dogs can increase adoption rates. Whilst **human interaction has been well-established to improve behavioural and physiological outcomes of dogs living in shelters,** analysis of the effects of sensory, environmental, and social-conspecific enrichment has not resulted in clear conclusions. We also review the literature on the relinquishment of owned dogs and return rates of previously adopted dogs. Whilst owner- and dog-related risks to relinquishment are discussed, we show that there is a notable lack of research into programmes that address issues that may prevent the initial surrender of dogs to shelters, or that could prevent re-relinquishment. It is likely that factors, unrelated to the dog, play a larger role than previously believed. Suggestions for further research include multi-site studies, investigations into the efficacy of in-shelter enrichment programmes, predictive validity of behavioural assessments, understanding of adopter behaviour at the shelter, and programmes within the community focused on keeping dogs in their homes.”
- [Evaluation of a Novel Dog Adoption Program in Two US Communities](#) (Mohan-Gibbons et al., 2014)
 - *This research found that foster parents were reaching new groups of potential adopters who may not have come to the shelter otherwise. They also found a lower rate of return post-adoption for pets adopted from foster care compared to pets adopted from the shelter.*
 - “This research focused on a novel adoption program where shelter dogs were transferred into foster homes who were tasked with finding an adopter. Shelter dogs were placed in the path of potential adopters and bypassed the need for the adopter to go to the shelter. The results show that this novel program was effective in a variety of ways including getting dogs adopted. **Although length of stay was significantly longer for dogs in the program, the dogs were in a home environment, not taking up kennel space in the shelter. The program also had a lower rate of returns than dogs adopted at the shelter. The foster program tapped adopters in different geographical segments of the community than the dogs adopted from the shelter.** By bringing shelter dogs to where adopters spend their time (ex: restaurants, parks, hair salons), the program potentially captured a segment of

the population who might have obtained their dog from other sources besides the shelter (such as breeders or pet stores). This novel approach can be an effective method for adoption, has many benefits for shelters, and can tap into a new adopter market by engaging their community in a new way.”

- *This article was cited in this literature review by Protopopova and Gunter (2017): [Adoption and relinquishment interventions at the animal shelter: a review](#). The researchers highlighted:*
 - “More recently, Mohan-Gibbons et al (2014) examined an adoption programme implemented at two US shelters, in which foster homes provided daily care for the dogs and were responsible for placing them in their adoptive homes. **The authors found that return rates were lower for these dogs compared to dogs adopted at the shelter. Over 20% of owners that acquired their dogs through the adoption programme reported that information received from the foster home was helpful in their decision-making, compared to only 3% of adopters who interacted with shelter staff.** Prospective owners of programme dogs deliberated longer than adopters of regular shelter dogs when making their adoption decisions. This extra time, coupled with information from the foster home and opportunities to interact with the dog outside of the shelter environment, may have contributed to the higher adoption success.”

[Back to top](#)
