

Impact of euthanasia rates, euthanasia practices, and human resource practices on employee turnover in animal shelters

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Objective—To examine the effects of euthanasia rates, euthanasia practices, and human resource practices on the turnover rate among employees with euthanasia responsibilities at animal shelters.

Design—Cross-sectional original study.

Sample Population—36 shelters across the United States that employed at least 5 full-time employees and performed euthanasia on site.

Procedures—By mail, 1 survey was sent to each shelter. Surveys were completed by a senior member of management and were returned by mail. Questions assessed characteristics (eg, euthanasia rates) and practices of the animal shelter, along with employee turnover rates. By use of correlation coefficients and stepwise regression analyses, key predictors of turnover rates among employees with euthanasia responsibilities were investigated.

Results—Employee turnover rates were positively related to euthanasia rate. Practices that were associated with decreased turnover rates included provision of a designated euthanasia room, exclusion of other live animals from vicinity during euthanasia, and removal of euthanized animals from a room prior to entry of another animal to be euthanized. Making decisions regarding euthanasia of animals on the basis of factors other than behavior and health reasons was related to increased personnel turnover. With regard to human resources practices, shelters that used a systematic personnel selection procedure (eg, standardized testing) had comparatively lower employee turnover.

Conclusions and Clinical Relevance—Data obtained may suggest several specific avenues that can be pursued to mitigate turnover among employees with euthanasia responsibilities at animal shelters and animal control or veterinary medical organizations. (*J Am Vet Med Assoc* 2007;230:713–719)

Each year, an estimated 3 to 4 million companion animals are euthanized in shelters.¹ Most typically, the task of euthanizing society's unwanted animals falls in the hands of animal shelter workers. To date, the factors associated with turnover rates among employees who have specifically been charged with euthanasia responsibilities are poorly understood.

Employee turnover is commonly cited as one of the most important human resource issues for an or-

ganization; the heavy costs of high turnover are well documented.²⁻⁴ When an employee leaves his or her job, the time and money spent on recruiting, hiring, and training that individual is lost and more time and money must be spent on recruiting, hiring, and training a replacement. Additionally, the loss of knowledge and expertise likely has a negative impact on organizational effectiveness and image and may create additional stress for remaining employees as they shoulder the burden of increased work and experience reduced morale (eg, feelings of disappointment at the loss of a valued colleague or friend). At the same time, turnover can often spur another employee who is undecided whether to stay in employment at that shelter to leave the organization.² The costs associated with employee turnover are typically amplified in animal shelter environments that are understaffed and underfunded. We do recognize, however, that turnover of poorly performing employees can be beneficial to an organization.

Given the substantial direct and indirect costs associated with employee turnover, research is needed to identify factors and practices that may reduce the likelihood of shelter employees leaving their organizations. Questions that are pertinent include whether employee turnover rates are related to animal euthanasia rates, euthanasia practices, or certain human resource practices (eg, methods used to screen and select new

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employees) within a shelter. Although other classes of variables may also be useful to explain shelter-level turnover, euthanasia rates, euthanasia practices, and human resource practices appear particularly salient, as substantiated by previous related work.⁵⁻¹¹

Euthanasia of animals is a physical, technical, and emotional act and by its very nature, an act that places an employee in direct contact with death. The scientific community has acknowledged the potentially disturbing psychological ramifications of euthanasia work.⁵ The most comprehensive study⁶ to date surveyed attendees of an animal welfare conference who worked at an animal shelter where euthanasia was performed. The data revealed that self-reported perceptions of euthanasia-related strain were fairly prevalent among employees with euthanasia responsibilities. Furthermore, the study identified a pattern of differences in stress and well-being between those who were directly involved with euthanasia and those who were not directly involved—persons who were directly involved in euthanasia reported significantly higher levels of work stress, stress-related somatic complaints, and work-to-family conflict and lower levels of satisfaction with the work they actually do. These results provided a quantitative confirmation of prior qualitative studies.^{7,8}

Given the impact of euthanasia on individuals and the fact that it is a unique type of stressor, it follows that shelters with higher rates of euthanasia should have greater collective negative impact (ie, more of the stressor) on employees and thus higher levels of turnover.

Despite the existence of a variety of guides and advice regarding so-called best practices for euthanasia of animals (eg, The Humane Society of the United States Euthanasia Training Manual¹²), shelters often vary with regard to specific aspects of the euthanasia process, such as how animals are selected for euthanasia, where and by whom euthanasia is conducted, and how the act itself is performed. In general, the following practices tend to be advocated: euthanasia by IV injection of sodium pentobarbital (as opposed to use of inhalants), rotation among employees who perform euthanasia, provision of a designated euthanasia room, absence of other live animals in the area in which euthanasia is occurring, and removal of euthanized animals from an area prior to entry of an additional animal to be euthanized. Each of these recommendations should help ameliorate employee stress directly (eg, rotation of responsibility) or indirectly by promoting the humane treatment of animals. Many employees are attracted to animal shelters because of a love and appreciation of animals, and some type of employee-animal bond is inevitable. These same employees will likely have to euthanize animals for which they have provided daily care and attention.^{7,8} As a result, employees may experience additional stress when these advocated practices are not implemented in their agency. This notion is consistent with findings of some interview research, which determined that worker distress and the amount of apparent emotional and physical suffering of the animal (attributable to the euthanasia method) are interrelated.⁹ In addition, some recent research on laboratory animals revealed that opportunities for enhancement of the comfort of the animals increases job satisfaction.¹⁰

For those shelters that conduct euthanasia activities, a decision-making system is often used to determine whether an animal should or should not be euthanized. Most shelters euthanize animals because of behavior and health reasons; however, shelters vary in the extent that the euthanasia decision is based on factors beyond health and behavior (eg, breed and age of the animal, whether the animal is pregnant, and the composition of the current animal population at the shelter). Euthanasia for nonbehavior and nonhealth reasons is not something shelter organizers aspire or desire to do, but depending on the extent of pet relinquishment, facility size, and other factors, it can become necessary.

The field of organizational science has promoted the importance of human resource practices to individual and organizational health, well-being, and effectiveness for approximately 70 years. Two practices that have received great attention concern employee selection and performance appraisal. With regard to the former, employee selection is presumably performed in all shelters. Shelters differ, however, with regard to the extent that organizers engage in what is considered scientifically sound selection by use of standardized tests that have been validated, professionally designed work sample selection tests, or structured (versus unstructured) interviews. Furthermore, the extent to which applicants are provided with a realistic job preview of the work conducted at a shelter prior to being hired varies among shelters. Provision of a realistic job preview allows an applicant to better understand what the work entails and adjust expectations or opt out of the selection process. With regard to performance appraisal, shelter managers vary with regard to the extent to which they use professionally developed, formal performance appraisal processes with employees. A formal appraisal process operates under the assumption that employee development should not occur by chance or be a disorganized experience. Instead, a well-planned approach to assessing employee strengths and growth areas should be undertaken regularly. In addition to helping promote employee development, a formal appraisal system facilitates management-employee communication. The use of these human resource practices helps to promote what is called the person-job fit. Research from organizational sciences has determined that enhanced person-job fit (ie, when the person has a personality and skills that fulfill job requirements) is associated with increased job satisfaction and reduced turnover.¹¹

The purpose of the study reported here was to examine the effects of euthanasia rates, euthanasia practices, and human resource practices on the turnover rate among employees who have euthanasia responsibilities at animal shelters. Our hypotheses were that euthanasia rates are positively related to the rate of turnover among those employees with euthanasia responsibilities; that the increased use of the advocated euthanasia practices will be associated with decreased turnover among shelter employees with euthanasia responsibilities; that shelters in which euthanasia is performed for reasons other than behavior and health issues will have greater turnover among shelter employees with euthanasia responsibilities; and that the use of scientific and

professionally developed selection systems, realistic job previews, and formal performance appraisal systems will be negatively related to employee turnover, such that their use is associated with decreased turnover. Overall, by testing our hypotheses, we endeavored to gain insights into employee turnover in shelters and also identify practices that animal welfare organizations and related organizations can adopt to ameliorate employee turnover, thereby benefiting organizational functioning.

Materials and Methods

Participants and procedures—Directors from 88 animal shelter facilities throughout the United States were contacted. These facilities were selected from a combination of sources including the Humane Society of the United States Animal Care EXPO conference registration lists and from shelter listings compiled by offices of the Humane Society of the United States. Although most of these directors agreed to participate, a large number of these shelters did not meet our participation criteria of having at least 5 full-time employees and performing on-site euthanasia. The 5 full-time employee criterion was used so that scores on the turnover index would be more stable and reliable (eg, to avoid the situation where a shelter employs 1 person, and when that person leaves, a value of 100% turnover is recorded). Thus, the study involved 36 animal shelters in 20 states. Each shelter received 1 survey by mail; the survey was completed by a senior member of management who had knowledge of administrative practices, financial issues, and other organizational information and returned by mail. The survey was not anonymous, but the results were kept confidential.

The shelters were located widely throughout the United States. Of the 36 shelters, 23 (63%) were private shelters and 13 (36%) were public (ie, municipal or government-owned) shelters. The smallest shelter had 6 full-time employees, and the largest shelter had 75 full-time employees. Four (11%) shelters had operating budgets < \$500,000, 21 (58%) had operating budgets of \$500,000 to \$1.5 million, and 11 (31%) had operating budgets > \$1.5 million.

Measures—Survey items were created by the researchers (SGR, CLR, CS, ND, OLC) to assess the key variables described in each of the 3 research questions. Given the need to keep the survey a manageable length to minimize the risk of nonresponse, the opportunity to comprehensively explore the focal interests or assess a wide range of additional factors was limited. The questions used were straightforward and related to objective policies, procedures, and organizational descriptors (as opposed to questions designed to assess psychological constructs). Although reliability and validity are still relevant in this survey context, the key criteria for assessing the quality of descriptive items (such as those used in the study reported here) typically consists of asking subject-matter experts to evaluate dimensions of the survey items (prior to administration). Such dimensions include clarity of content, appropriateness of content, and whether the respondent (ie, a shelter director or senior manager) could reasonably be ex-

pected to accurately provide the requested information. As part of the pilot testing procedure, answers to the survey questions were sought from 6 subject-matter experts (including 4 current or past shelter directors). On the basis of their feedback, the survey items were revised appropriately (only minor wording problems were identified).

A turnover index was created by combining 2 theoretically similar survey items that were also, as expected, positively correlated with one another ($r = 0.46$; $P < 0.05$ [a value of $P < 0.05$ was considered significant]). The first item was the percentage of employees performing euthanasia who had left the shelter's employment within the past year. The second item, the corollary to the first, was the current percentage of employees performing euthanasia who had been employed at the shelter for < 1 year. To calculate the actual turnover index score for a shelter, scores from each survey item were standardized into z scores and then combined.

Two indicators of euthanasia rates were used. The total number of dogs euthanized divided by the total number of dogs admitted to the shelter represented the euthanasia rate for dogs. The total number of cats euthanized divided by the total number of cats admitted to the shelter represented the euthanasia rate for cats.

The set of items used to assess euthanasia practices was answered by use of a 5-point scale (1, never; 5, always). Questions related to whether euthanasia responsibilities were rotated among employees, whether there was a designated area in which shelter staff performed euthanasia, whether other animals were in the room during euthanasia of an animal, and whether euthanized animals were removed from the room before other animals were allowed to enter. The methods used to achieve euthanasia at the shelter were explored. All shelters indicated that IV injection of sodium pentobarbital was the primary method; thus, this factor could not be used in any of the analyses because of a lack of between-shelter variability. Finally, a set of items was included to identify what factors are used at the shelter to determine whether an animal should be euthanized. All shelters euthanized animals for behavior and health reasons; however, shelters varied with regard to whether euthanasia was performed for reasons other than behavior and health issues (eg, on the basis of breed, pregnancy, and age [too young or too old]). Responses to these 5 items were averaged (coefficient α , 0.81) to obtain a single score representing the likelihood of euthanasia being performed for reasons other than behavior and health issues at each shelter.

Three items were used to assess human resources practices applied to shelter employees with euthanasia responsibilities. By use of a 3-point scale (1, method not used; 2, occasionally used method; 3, primary method), the use of systematic employee selection testing to screen applicants and make hiring decisions (eg, standardized tests, work samples, and formal assessment of skills with methods other than unstructured interview) were investigated. The 3-point scale was also used to assess whether the shelter required applicants to come to the organization to get a realistic preview of the work conducted. To answer the question of whether their organization had a formal performance appraisal

process, respondents indicated yes (coded as 1) or no (coded as 2).

Statistical analysis—All analyses were performed by use of computer software.^a To test our hypotheses, direct correlations between the hypothesized predictors and the turnover index were investigated. To maximize statistical power associated with conducting shelter-level analyses, a value of $P < 0.10$ was used as the decision rule to determine significance. To ascertain the combined effects of the significant predictors identified, a stepwise regression analysis was conducted. A stepwise regression procedure is a model-building process. The basic procedures involve identifying an initial model,

iteratively altering the model at the previous step by adding or removing a predictor variable in accordance with entry and removal criteria that are typically based on P values, and terminating the model generation process when no additional variables are meeting the entry or removal criteria. The entry and removal criteria used were P values of 0.10 for variable entry and P values of 0.15 for variable removal (these are fairly typical values used when conducting stepwise regression). Prior to examining the models involving the significant predictors, we decided to rule out potential confounding factors by statistically controlling for the size of the shelter, whether the shelter was public versus private, and the size of the shelter's operating budget.

Table 1—Descriptive statistics and correlations of the principal variables with the turnover index in a study of the impact of euthanasia rates, euthanasia practices, and human resource practices on employee turnover in 36 animal shelters.

| Predictor variable | Mean value | 95% confidence interval | Correlation with turnover index |
|---|------------|-------------------------|---------------------------------|
| Euthanasia rate for dogs | 0.43 | 0.34–0.51 | 0.36 ^a |
| Euthanasia rate for cats | 0.59 | 0.51–0.68 | –0.04 |
| Euthanasia responsibilities rotated among staff | 3.80 | 3.39–4.21 | –0.10 |
| Designated euthanasia room available | 4.74 | 4.49–5.00 | –0.35 ^a |
| Other live animals in room during euthanasia of an animal | 2.57 | 2.18–2.96 | 0.51 ^b |
| Euthanized animals removed before other animals enter euthanasia area | 4.00 | 3.64–4.36 | –0.33 ^a |
| Animals euthanized for reasons other than behavior and health issues | 3.55 | 3.21–3.88 | 0.28 ^c |
| Systematic employee selection system | 2.53 | 2.27–2.79 | –0.29 ^c |
| Realistic job previews provided for job applicants | 1.44 | 1.21–1.67 | –0.05 |
| Formal performance appraisal system used | 1.23 | 1.08–1.37 | 0.02 |

^{a,b,c}Superscript letters identify the P value associated with the correlation calculation ($P < 0.05$, < 0.01 , and < 0.10 , respectively).

Table 2—Stepwise regression models in a study of the impact of euthanasia rates, euthanasia practices, and human resource practices on employee turnover in 36 animal shelters.

| No. of variables in model | Predictors in model | β value | Significance level (P value) |
|---------------------------|---|---------------|---------------------------------|
| 1 | Other live animals in room during euthanasia of an animal | 0.39 | 0.01 |
| 2 | Other live animals in room during euthanasia of an animal | 0.35 | 0.01 |
| | Systematic employee selection system used at shelter | –0.30 | 0.06 |
| 3 | Other live animals in room during euthanasia of an animal | 0.33 | 0.01 |
| | Systematic employee selection system used at shelter | –0.29 | 0.07 |
| | Provision of designated euthanasia room | –0.27 | 0.10 |
| 4 | Other live animals in room during euthanasia of an animal | 0.32 | 0.01 |
| | Systematic employee selection system used at shelter | –0.25 | 0.10 |
| | Provision of designated euthanasia room | –0.30 | 0.06 |
| | Euthanasia performed for reasons other than behavior or health issues | 0.20 | 0.10 |

Models were controlled for variance attributable to the size of the shelter, whether the shelter was a public versus private organization, and the size of the shelter's operating budget prior to conducting these regression analyses.

Results

Shelters varied widely with regard to turnover index scores. Shelter turnover index scores were not related to the size of the shelter, whether the shelter was public versus private, or the size of the shelter's operating budget. Mean values and 95% confidence intervals and the correlations of the principal variables in the study with the turnover index were calculated (Table 1).

Euthanasia rates, euthanasia practices, and human resource practices—The euthanasia rate for dogs was, as expected, correlated ($r = 0.36$; $P < 0.05$) with the turnover index such that higher euthanasia rates were associated with increased employee turnover. However, the euthanasia rate for cats was not significantly related to employee turnover.

Two euthanasia practices were associated with decreased turnover: provision of a designated euthanasia room ($r = -0.36$; $P < 0.05$) and removal of euthanized animals from an area prior to entry of an additional animal to be euthanized ($r = -0.33$; $P < 0.05$). Two practices were also associated with increased turnover: presence of other live animals during euthanasia ($r = 0.51$; $P < 0.01$) and euthanasia of animals on the basis of factors not related to behavior or health such as breed, age, or pregnancy ($r = 0.28$; $P < 0.05$). In terms of human resource practices, the use of systematic employee selection systems was related to lower rate of turnover ($r = -0.29$; $P < 0.10$). Job rotation among employees performing euthanasia, the use of a formal performance appraisal system, and the use of a realistic job preview system were not related to turnover.

Combined model—The combined effects of the significant predictors identified were investigated by use of stepwise regression analysis. Four models were generated (Table 2).

The final 4-variable model fit the data extremely well and accounted for a large proportion of turnover variance (adjusted $R^2 = 0.43$). This model contained the following significant variables: other live animals in room during euthanasia of an animal ($\beta = 0.32$), systematic employee selection system used at shelter ($\beta = -0.25$), provision of designated euthanasia room ($\beta = -0.30$), and euthanasia performed for reasons other than behavior or health issues ($\beta = 0.20$).

Discussion

Excessive employee turnover can create a host of strains on an organization—especially if the organization is understaffed and underfunded as are many animal shelters. The overall objective of the present study was to gain insight into how shelter practices might influence employee turnover. Findings suggested that a multifaceted perspective is required to best understand turnover among employees with euthanasia responsibilities; factors related to euthanasia rates, euthanasia practices, and human resource practices must be taken into consideration. By doing so in the present study, a large proportion of the between-shelter variance was accounted for, suggesting that the key predictors identified in the final model are important factors.

Previous research⁶ has identified that euthanasia typically has a negative impact on an individual's health

and well-being; it is a unique type of stressor. Consistently, results of our study have provided evidence that the euthanasia rates for dogs are strongly associated with employee turnover. When the rate of dog euthanasia at a shelter increases, employees appear to be affected and turnover increases. This finding extends current thinking regarding euthanasia as a stressor by highlighting the fact that the amount of euthanasia performed in shelters is important for understanding employee turnover for both individual employees within a given shelter and also for the shelter in its entirety (ie, across all employees in a given shelter). The caring-killing paradox discussed by Arluke^{7,8} can help explain this finding. The caring-killing paradox describes how shelter workers are often asked to euthanize the animals for which they are caring. When euthanasia rates within a shelter are high, the paradox is even more prominent—a greater proportion of the animals for which workers are caring are in fact being euthanized. Thus, greater employee strain is most likely generated, resulting in higher levels of employee turnover.

It is noteworthy that euthanasia rates for cats were not related to turnover in the present study. To understand this finding, some experienced shelter workers were informally interviewed on completion of the study. The interviewees suggested that euthanasia of dogs is often psychologically more taxing for employees because shelter workers typically form greater attachment to dogs than to cats. This is attributed to the fact that dogs require a greater level of attention and interaction during basic cleaning and care. Furthermore, it is not atypical for some staff members to exercise the dogs, which only serves to heighten attachment. This is not to suggest that attachment towards cats is nonexistent, but rather that a greater level of attachment may develop with dogs. Such comparatively increased attachment to dogs may therefore provide insight into why euthanasia rates of dogs is of greater influence on employee turnover.

Veterinarians and others in the animal welfare community have long advocated for the humane treatment of animals during care and euthanasia. The definition of euthanasia implies killing in a painless or minimally painful manner and, when at all possible, only to end suffering. To achieve this ideal, a set of euthanasia practices have been put forward. Our study, which to our knowledge is the first of its kind to do so empirically, revealed a connection between these practices and employee turnover and retention. In particular, availability of a designated euthanasia room, absence of other live animals during euthanasia of an animal, and removal of euthanized animals from an area prior to entry of an additional animal to be euthanized are all related to decreased employee turnover. It may be that these seemingly positive practices help buffer the stress associated with performing euthanasia (especially with dogs). Overall, the results of the present study suggest that following best practices regarding euthanasia is rewarding, not just from an ethical or humane perspective, but also from the perspective of employee retention.

In addition, euthanasia of animals on the basis of behavior and health issues only (as opposed to reasons influenced by breed, age, or pregnancy) was associated with decreased turnover in the present study. This is

not surprising. Reduction or cessation of euthanasia of healthy animals is a positive goal for animal shelters, as supported by our data. However, this is a broad goal requiring a multifaceted approach that is dependent on several variables that are typically outside the control of shelter management (eg, facility size, funding levels, or donor support).

In the field of organizational science, it is generally accepted that implementation of scientific and professionally developed employee selection systems can result in substantial performance gains for organizations. In a recent study,¹³ 85 years of research involving 19 different employee selection processes was summarized and results indicated that the use of structured interviews (as opposed to informal, inconsistent, and unstructured interviews in which questions are not the same for all candidates) and work sample tests (during which job applicants are asked to perform actual tasks assigned to that position) were among the best hiring procedures in terms of predicting overall employee performance and, in many instances, probable employee retention. Development of these types of employee selection systems requires a careful analysis of the job to identify the specific knowledge, skills, abilities, and personality characteristics that the job requires. Once these are identified, structured interviews comprised of specific, job-related questions that are consistently asked of each candidate can be developed, with which a given job candidate's skill set can be evaluated in relation to what is required. Additionally, some basic tasks associated with the job can be identified and applicants can then be asked to actually perform some of those tasks. It may also be the case that specially developed job analysis questionnaires (such as the personality-related position requirements form¹⁴) could be used to identify specific personality characteristics that may prove critical to employee tenure. For example, it would seem to make sense that employees who conduct euthanasia should possess high levels of emotional stability. Overall, the results of the present study have confirmed the importance of adhering to systematic, professionally developed employee hiring procedures.

As with any study, especially those conducted in the field, limitations exist that temper implications derived from results and thereby fuel the need for additional research. To the best of our knowledge, this is the first and largest examination of turnover among shelter employees with euthanasia responsibilities. Despite the fact that data were collected from 36 shelters (located widely across the United States), from a statistical perspective, the sample size for data analyses was relatively small (this is an issue indigenous to organization-level research). Although a large number of robust predictors of employee turnover were identified, the study did not have the statistical power to examine the interactive effects of predictors. Furthermore, there was some range restriction on a few of the predictors that would probably not have occurred with a larger set of shelters; in particular, there was no variability in euthanasia method used by the shelters and little variability in job rotation, the use of realistic job previews, and the use of performance appraisal systems (which helps explain the null results). Besides seeking out a more

eclectic sample to assess these factors, we also suggest that the researcher should conduct personal interviews with shelter leaders to help assure that the information reported on the survey was done so accurately and that all questions were answered in the manner they were intended.

The present study was cross-sectional in nature, and consequently, our ability to make causal inferences from the data is limited. Future work should attempt to examine a small number of shelters and track employee turnover over time. Ideally, capturing turnover data before and after implementation of some of the positive findings of the study (eg, selection procedures) would offer conclusive evidence on causal directions. Finally, although a great deal of variance in employee turnover was accounted for, additional research should propose and test additional clusters of variables. One such cluster concerns the characteristics of the community in which the shelter is located, such as extent of financial support for the shelter from the community; undertaking of volunteer work at the shelter by community members; and perhaps of most relevance, identification of factors that typically drive animal relinquishment (eg, poor care or abuse).¹⁵ All these factors may relate to employee turnover at shelters because they directly or indirectly impact employee workload, feelings of support, rates of euthanasia, and the reasons for euthanasia.

Another cluster of variables worthy of examination concerns the characteristics of the individuals employed at the shelter. It would be interesting to examine the typical demographic profile of the employees (age, sex, and experience in animal welfare jobs) at shelters. Future studies should also examine how the extent of euthanasia training among employees at a shelter relates to turnover.¹⁶ Most importantly, some employees are more or less susceptible to emotional and psychologic strain associated with a stressor; thus, personality characteristics of the shelter staff should be evaluated.¹⁷

A third cluster of factors for investigation concern organizational variables at the shelters; the role of management style, pay, teamwork, peer support, organizational communication quality, and levels of organizational bureaucracy should be examined and related to employee turnover. Many of these factors are known to relate to individuals' decisions to consider searching for alternative employment.^{2,3} As for euthanasia factors, future studies should examine whether shelters allow technicians to opt out of euthanizing a specific animal to which they have become attached and whether such an arrangement is related to employee turnover. In addition, the findings of the present study suggest that it may be useful to examine employee turnover and the euthanasia rate of healthy or treatable animals and that of unhealthy or untreatable animals separately.

It is also suggested that additional investigations of shelter employee turnover should involve a change in the frame of reference. In the present study, aggregate turnover at the shelter was studied. In future work, the reasons that employees make a decision to leave the shelter's employment should be assessed. It would also be interesting to know the base rate of individuals that actually remain in shelter employment, even though

they are distraught, out of a perceived obligation to continue to help the animals.

Overall, our data have provided important insight into the turnover of employees with euthanasia responsibilities at shelters and perhaps suggest several specific avenues that can be pursued to mitigate this turnover. The findings of the study reported here are applicable to any organization in which euthanasia of animals is conducted, such as animal control facilities, animal shelters, or veterinary care establishments. Although changes in euthanasia rates may be a more difficult challenge because those rates are usually determined by societal neglect and assertive adoption practices, public education programs are encouraged. Furthermore, by more widely adopting advocated euthanasia practices and human resource systems, employee retention at shelters should be greatly improved, which serves to help the organization and its ability to promote animal welfare.

a. SPSS, version 13, SPSS Inc, Chicago, Ill.

References

1. HSUS Pet Overpopulation Estimates. Humane Society of the United States Web site. Available at: www.hsus.org/pets/issues_affecting_our_pets/pet_overpopulation_and_ownership_statistics/hsus_pet_overpopulation_estimates.html. Accessed Aug 21, 2006.
2. Holtom BC, Mitchell TR, Lee TW, et al. Shocks as causes of turnover: what they are and how organizations can manage them. *Hum Resour Manage* 2005;44:337–352.
3. Mueller CW, Price JL. Economic, psychological and sociological determinants of voluntary turnover. *J Behav Econ* 1990;19:321–335.
4. Sagie A, Birati A, Tziner A. Assessing the costs of behavioral and psychological withdrawal: a new model and an empirical illustration. *Appl Psychol* 2002;51:67–89.
5. Rollin BE. Euthanasia and moral stress. *Loss Grief Care* 1986;1:115–126.
6. Reeve CL, Rogelberg SG, Spitzmüller C, et al. The “caring-killing” paradox: euthanasia-related strain among animal shelter workers. *J Appl Soc Psychol* 2005;35:119–143.
7. Arluke A. Managing emotions in an animal shelter. In: Manning A, Serpell J, eds. *Animals and human society*. New York: Routledge, 1994;145–165.
8. Arluke A, Sanders CR. The institutional self of shelter workers. In: *Regarding animals*. Philadelphia: Temple University Press, 1996;82–106.
9. White DJ, Shawhan R. Emotional responses of animal shelter workers to euthanasia. *J Am Vet Med Assoc* 1996;208:846–849.
10. Chang FT, Hart LA. Human-animal bonds in the laboratory: how animal behavior affects the perspective of caregivers. *ILAR J* 2002;43:10–18.
11. Kristof AL. Person-organization fit: an integrative review of its conceptualizations, measurement, and implications. *Pers Psychol* 1996;49:1–49.
12. Rhoades RH. *The Humane Society of the United States euthanasia training manual*. Washington, DC: Humane Society Press, 2002.
13. Schmidt FL, Hunter JE. The validity and utility of selection methods in personnel psychology: practical and theoretical implications of 85 years of research findings. *Psychol Bull* 1998;124:262–274.
14. Raymark PH, Schmit MJ, Guion RM. Identifying potentially useful personality constructs for employee selection. *Pers Psychol* 1997;50:723–736.
15. New JC, Saman MD, King M, et al. Characteristics of shelter-relinquished animals and their owners compared with animals and their owners in U.S. pet-owning households. *J Appl Anim Welf Sci* 2000;3:179–201.
16. Reeve CL, Spitzmüller C, Rogelberg S, et al. Animal-shelter workers’ adjustment to euthanasia-related work: identifying turning-point events through retrospective narratives. *J Appl Anim Welf Sci* 2004;7:1–25.
17. Havlovic SJ, Keenan JP. Coping with work stress: the influence of individual differences. In: Crandall R, Perrewe PL, eds. *Occupational stress: a handbook*. Washington, DC: Taylor & Francis, 1995;179–192.