An Overview of AVMA Humane Endings

Introduction

Veterinarians are empowered to deliver euthanasia in a compassionate manner with a goal to create a peaceful and meaningful experience for owners. Most of the research to date has focused on the impact of euthanasia on the mental health of veterinarians in a clinical practice setting and on the human-animal bond of the owner with their pet.

There is also a significant proportion of veterinarians who work in other sectors of the profession and whose jobs also involve the euthanasia, slaughter, or depopulation of animals. These smaller communities include (but are not limited to) veterinarians that work in zoo, shelter, aquatic, wildlife, equine, livestock, poultry, and laboratory disciplines as well as others engaged in governmental oversight and regulations—all of whom are greatly outnumbered by small animal practitioners within the US. This can lead to feelings of isolation, being misunderstood, and potentially being unprepared to deal with the unique mental health challenges of their chosen fields.

Regardless of the species of animal and setting, moral conflict for veterinarians around the topic of humane endings arises when the practical realities of a situation interfere with the potential live outcome for an animal. The psychological impacts of this conflict are compounded by external pressures to “save” every animal and differing views on consumption of animals and their use for biomedical research and advancement of scientific knowledge.
These pressures may come from society, members of the local community, clients, and colleagues. Likewise, moral conflict can occur among veterinarians for a variety of reasons, such as euthanasia of animals for experimental outcomes, depopulation of an entire flock or herd due to highly pathogenic avian influenza zoonotic risks, or euthanasia of otherwise healthy animals due to lack of capacity to care for unmanned companion animals. Additional strain can occur when personnel form strong attachments to the animals throughout their time working with them in these various environments. Whether humane endings activities are related to euthanasia of individual animals, slaughter of animals for human consumption, or rare emergency situations warranting depopulation of a group, it is often the veterinarian's responsibility to oversee and conduct these humane endings. In addition, the veterinarians may be relied on to provide support to other personnel and communicate with external stakeholders throughout these processes. Therefore, this Viewpoint article aims to review the history of the AVMA Humane Endings guidelines; explore factors that can influence the psychological impacts of engaging in activities related to euthanasia, slaughter, or depopulation; and discuss actionable steps individual veterinarians and the profession as a whole can take to improve mental health outcomes for our colleagues.

History of AVMA guidance documents

During discussions on the 2013 revision to the AVMA Guidelines for the Euthanasia of Animals, it became clear that currently recommended euthanasia methods might not always translate to animals killed for food and fiber or to emergency situations where hundreds to thousands of animals may need to be killed in a short timeframe. In the context of euthanasia, the veterinarian's prima facie duty in carrying out euthanasia includes (1) their humane disposition to induce death in a manner that is in accord with an animal's interest and/or because it is a matter of welfare and (2) the use of humane techniques to induce the most rapid, painless, and distress-free death possible. These conditions, while separate, are not mutually exclusive and are co-dependent. However, there are certain situations in which meeting criteria for euthanasia is not appropriate or feasible. This realization led to the challenging task of developing the Humane Slaughter (2016) and Depopulation Guidelines (2019) that provide expert guidance on these unique situations. To develop the Guidelines for the Depopulation of Animals, the AVMA convened an exhaustive panel of subject matter experts, including an ethicist. To ensure comprehensive feedback from the veterinary profession was considered, AVMA members were invited to review and comment on the draft documents during a 90-day comment period. This resulted in hundreds of comments reviewed and reconciled by the Panels for their guidance documents prior to their official public release. New data and literature are collected and continuously reviewed by the Panels, and updates are made to the Guidelines as needed.

Depopulation

Depopulation is a process marked by quick and efficient destruction of a complete population of animals in response to urgent circumstances with as much consideration given to the welfare of the animals as practicable. These situations can affect all species, including production animals, wildlife and equids, research animals, and companion animals. It is important to note that the AVMA Guidelines for the Depopulation of Animals: 2019 Edition preferentially recommend using euthanasia or slaughter methods if circumstances permit, but in an emergency circumstance, those methods may not be practical or possible. Since depopulation involves the mass termination of an entire population of animals within a short time period, the use of euthanasia methods is not always possible. Likewise, these emergency methods may not be congruent with humane slaughter, as the purpose of depopulation is not necessarily for consumption or use, and depending on the emergency circumstances, resources may not allow for the use of slaughter methods.

The directive to depopulate can originate from a predetermined regulatory action, governmental body, or facility overseeing the care and use of animals. In these situations, veterinarians can be left with limited time and outside assistance to meet any regulatory requirements, which further compounds the burden of responsibility during these depopulation events. To make these situations even more challenging, the emotional burden does not solely exist with the veterinarian and their immediate staff, but likely includes the animals’ owners, caretakers, and others who potentially might assist with handling of animals during the depopulation situation. Altogether, these various pressures (number, time, healthy animals, emotional status of the owners, public support, media coverage, and the disaster itself) lead to a tremendous burden on the physical, mental, and emotional status of the veterinarians in charge, which, if not addressed, can lead to damaging psychological impacts.

Current Status of Humane Endings and Veterinary Mental Health

What we know

Veterinary and other animal-related professionals often have strong feelings and opinions about humane endings. Many consider euthanasia a gift; the ability to end an animal's suffering by providing a “good death.” Yet the act of ending animal life can often be imbued with both the moral complexity of the killing-caring paradox and significant emotional labor. Veterinarians and other animal-related professionals face the killing-caring paradox when they must euthanize an animal for which they have provided health care and/or animal husbandry. Emotional labor can be defined as the challenges as...
associated with managing one’s emotions to meet the requirements of a job—a frequent challenge faced by veterinary professionals. While both elements are commonly witnessed when euthanasia is conducted, they offer unique challenges to those engaged in humane slaughter and depopulation efforts.

Although the human-animal bond is typically used in reference to companion animals, there is no doubt that this bond can develop with any animal, and production animals intended for slaughter and animals in a research setting are no exception. The magnitude of an individual’s bond with an animal may vary based on species, life span, housing system, or production system. Despite raising these animals to eventually be killed, caretakers are committed to ensuring animal welfare for the duration of their lives. The loss of these animals may cause individuals to safeguard their emotions by avoiding a bond with them in the first place.

The culminations of the emotional labor and the moral complexity of the killing-caring paradox during depopulation events can result in painful psychological impacts for veterinary and other animal-related professionals. Since these situations inherently involve death, they meet the criteria for what the Diagnostic and Statistical Manual of Mental Disorders considers “trauma”—that is, “exposure to actual or threatened death, serious injury, or sexual violence in one (or more) of the following ways: directly experiencing the traumatic event(s); witnessing, in person, the traumatic event(s) as it occurred to others; learning that the traumatic event(s) occurred to a close family member or close friend.” Additionally, since depopulation involves veterinarians and other animal-related professionals actively engaged in the killing of animals, the experience can be described more precisely as perpetration-induced traumatic stress (PITS). Perpetration-induced traumatic stress is an important construct to understand because it helps us understand that people can have PTSD symptoms as a result of perpetrating trauma as opposed to being the victim of trauma. The symptoms of “traditional” PTSD and PITS are similar—it is the cause of the distress that is the important distinction. In other words, knowing that people could experience PTSD by causing harm or trauma to others in similar ways to if they experienced the trauma themselves can help us identify appropriate interventions. Hence why PITS can have a grave impact on the mental health of those involved by eroding the positive sense of identity they have as animal caregivers and stewards. Symptoms as a result of this traumatic stress include intrusive unwanted thoughts and images, nightmares and difficulty sleeping, trouble concentrating, hyperarousal (such as increased startle response), and avoidance or numbing of upsetting stimuli (especially through the use of substances to mask unpleasant emotions and memories). There are also often feelings of shame and guilt associated with moral injury—the emotional and mental effects of engaging in a behavior that goes “against the grain”—in this case, being a caregiver for animals.

Not everyone who engages in depopulation has significant longstanding emotional trauma. There are several factors that mediate how moral complexity and emotional labor of depopulation impact psychological health. This includes internal factors, such as personality, temperament, preexisting trauma, and cognitive factors, and external factors, including the context of the animal death and separate personal and global circumstances also contributing to psychological stress.

**Personality and temperament**

Personality styles impact how individuals interact with and experience their environment. One commonly used personality model is the Big Five personality traits. These 5 traits include openness to experience, neuroticism, extraversion, conscientiousness, and agreeableness. Research suggests that individuals with higher levels of neuroticism (increased sensitivity) tend to experience more mental distress than those with lower levels, including an increased tendency to develop posttraumatic symptomatology after a traumatic event. Another trait that appears to impact how one is impacted by trauma is sensory processing sensitivity. Also referred to as environmental sensitivity, people with this trait have increased awareness and sensitivity to their environment and often respond to external stimuli more deeply on both cognitive and emotional levels. These individuals are likely to spend more time reflecting, ruminating, or brooding on the experience instead of using distraction or cognitive reappraisal (the ability to reframe challenging situations in a more positive light) as coping mechanisms. Additionally, situational stressors as well as current global factors and an individual’s prior history of stress and trauma all impact how one is affected by the moral complexity and emotionality of depopulation.

**Preexisting trauma and cognitive factors**

Approximately 60% of the US population have experienced at least 1 adverse childhood experience. Examples of adversity in childhood include a parent with a mental illness, parental divorce or separation, or physical, sexual, or emotional abuse or neglect. As traumatic experiences accumulate in a person’s life, there is an increased likelihood of worse mental and physical health outcomes. The presence of developmental or adult-onset trauma predisposes people to experience prolonged traumatic stress after a traumatic event. "Dirty work," defined as jobs likely to be perceived as disgusting or degrading, often falls to people who are marginalized. These are the same groups more likely to have suffered earlier trauma and challenging life situations. These factors should be considered when assigning individuals to varying roles in depopulation efforts. It is important that they be invited to consider and respect their own trauma history factors and be given options for participating in roles the individual deems they are able to carry out safely; doing this as well as offering psychological assistance, can mitigate further psychological harm to these individuals who may be at higher risk.
Context

The context in which depopulation occurs can also influence the psychological impact for those involved. Contextual issues (such as [1] the reason the depopulation is occurring; [2] the nature of the relationship between the involved parties and the animals; [3] instrumental factors such as urgency, access to recommended methods for depopulation, proper training in implementation of methods; and [4] public response, including the role of social media) all influence the potential detrimental impact of involvement in depopulation efforts.

The rationale behind a decision to depopulate is critically important to those involved. Research exploring resilience among military personnel has shown that the ability to find meaning, for even the most traumatic parts of war, can be helpful in preventing and recovering from trauma.27 This has direct implications for depopulation efforts. It is easier to find meaning in depopulation aimed at reducing animal suffering; it is more challenging to find meaning in the necessary killing of healthy animals, as in the case of what was required in response to COVID-19’s effect on meatpacking plants. This challenge is not unique to food animals and can also apply to research laboratory environments. Better messaging related to the need to sometimes kill healthy animals, whether it is due to disease contagion or other uncontrollable elements such as natural disasters or COVID-19, is important in helping to mitigate negative psychological effects for those directly involved.

The relationship or bond between the animal and the person who is depopulating is also important. In laboratory animal environments, rotation of duties has been employed to try and mitigate the psychological impact of depopulation by helping create emotional distance between involved animals and people. For instance, identification of which animals must be euthanized and the performance of the task may be assigned to different people. Similarly, attachment to the animals is a consideration in the food system. Female caretakers of piglets on sow farms, for example, have more difficulty with euthanasia than those working in finishing units.28 Many of those involved with depopulation efforts have a long-standing, financially and emotionally complex relationship with the impacted animals. Attention to this relationship is an important factor to consider when trying to mitigate negative psychological effects of depopulation.

Additional factors such as time pressure, access to preferred humane killing methods, and adequate training for implementing these methods can impact psychological responses by limiting caregivers’ ability to emotionally prepare. In emergency depopulation of animals due to animal or public health crises, there is often a need to act immediately. This can negatively impact the ability of those involved to engage in preemptive self-care and regulation of thoughts and emotions. Even in situations where euthanasia is a necessary and expected part of the process, such as within research laboratory environ-

ments, timing and training are important factors to consider when supporting the people involved.

The animal food system has unique challenges, however, in that although it is expected that there will be disease outbreaks or other disasters that require depopulation, the unpredictable nature of these events can make managing the psychological impact difficult. Ensuring that the people involved have the appropriate tools for implementation and adequate training (including detailed information about the process and what to expect) are critically important to help protect their psychological health.

Times of imminent need for action, a lack of adequate resources to implement recommended depopulation methods, or both add complexity to a depopulation effort. Planning and training for these types of emergency situations, for both veterinary and other animal-related professionals, can be of benefit.

Lastly, the potential negative impact of public opinion and social media on those directly involved with depopulation cannot be overstated. The stress of making difficult depopulation choices is often compounded by a lack of understanding and judgment by those not involved.29 This can make individuals reluctant to seek out social support, a well-known and important tool for coping with difficult experiences. Depopulation is a complicated topic, one that friends, loved ones, and even other veterinarians may not understand or may have strong negative views about. As a result, many people directly involved in depopulation may feel unable to reach out to those close to them for emotional support. For those who do, all too often these interactions can be demoralizing, painful, and ostracizing; exacerbating the risk of feeling guilt and shame. Similarly, negative social media related to depopulation efforts can result in increased likelihood of trauma-related stress, psychological distress, and even fear related to one’s own physical safety. Incidents in which veterinarians and other animal-related professionals involved in depopulation efforts have been threatened or harassed are common.28,30

Call to Action

Overview

As one can see, the veterinary profession is at a turning point related to the psychological impacts of humane endings that has accelerated with the COVID-19 pandemic. This has highlighted the need to address what current resources are available to help those involved in euthanasia, slaughter, and especially depopulation of animals (eg, veterinarians, people performing humane killing methods, and people losing the animals) as well as various questions, including who is currently and actively addressing these issues, what current research is being performed, and why we, as veterinarians, need to support and invest in this issue. With a bold approach and open heart, the veterinary profession can address these issues and help create a safe space with open dialogue for veterinarians who have historically felt...
misunderstood by their fellow colleagues to actively support one another. Addressing the negative stigmas, increasing internal support through a cohesive veterinary profession, creating practical resources to prepare veterinarians for humane endings activities, increasing the depth of related education in the veterinary curriculum, and leveraging support from mental health professionals are keys to the psychological well-being of all veterinarians.

**Address negative stigmas**

For production animal veterinarians, society has expectations of having access to meat and dairy products that are safe, affordable, and readily available. There is a disconnect and general lack of knowledge among the public about where these products come from and what it takes to produce the food. In addition, there needs to be a general understanding, public education, and widespread acceptance for the necessity of increased prices that may come from the improvement in animal welfare. We need a safe place for production animal veterinarians to be recognized for their contributions to keeping the animals healthy and enhancing their welfare; a recognition is necessary of the day-to-day work that is required to care for vast herds and flocks of production animals and the management of workers who assist with the care and well-being of these animals.

Similarly, for laboratory animal veterinarians, there is a stigma and a misperception among the public. The public needs to have access to accurate information about the value of animal models and their association with new therapeutics and scientific discoveries. The current pandemic is a prime example of the value of animal models in responding to global diseases. Decades of research with animal models have contributed to the rapid response and development of vaccines and therapeutic treatments that have saved countless human and animal lives.

As stated in the veterinary oath, veterinarians have a shared commitment to enhance society by protecting animal health and considering the larger concept of public health, wellness, and advancing medical knowledge. The question then becomes how do we unify the profession to better support one another during challenging times associated with humane endings?

**Foster well-being through increased cohesiveness of the veterinary profession**

Veterinarians, by nature, tend to empathize with people as well as other animals. They are hardwired to come together to help others during times of need. For example, there are organizations dedicated to supporting the mental health of veterinarians through peer veterinarians who understand the struggles they endure, such as coping with end-of-life choices for the animals in their care. Bringing awareness that other animal health professionals share in the same struggles of depopulation and need support may cause veterinarians to ask, “What can I do?” These individuals can unify to embrace the mission of promoting the mental health and well-being of all individuals who work with animals.

This effort requires building bridges and cultivating compassionate awareness across all veterinary contexts, whether it involves humane endings in a clinic, a research institution, or a farm. We, as a profession, can accomplish this by bringing awareness to the industry leaders and the public as well as building resources for animal professionals.

These efforts are supported by the work of the AVMA volunteers and staff concerned with animal welfare, animal and public health, and government relations. Together these efforts can lead to improvements in one health and one welfare and a better understanding of veterinarians working in the numerous sectors of the profession.

**Provide practical resources to support veterinarians**

One concrete way to reduce negative psychological impacts on veterinarians is exploring ways toward improving the welfare of all animals, including at the end of their lives. The AVMA’s Humane Endings Guidance documents provide structure and support for preparation, decision-making, and implementation of euthanasia, slaughter, and depopulation of animals. Likewise, the AVMA’s Steering Committee on Human-Animal Interactions created the Psychological Impacts of Humane Endings Working Group to provide a more focused approach on meeting the needs of veterinarians impacted by euthanasia, slaughter, and depopulation events.

The practical resources and information created by the AVMA will be shared at a variety of continuing education conferences and through online platforms, including AVMA Axon and the AVMA’s Humane Endings Symposia. Symposia like this encourage cross-context emphasis, sensitize the veterinary community to different realms of veterinary medicine, and allow an open dialogue within our community about the psychological challenges facing many in our profession. The 3rd Humane Endings Symposium, scheduled for January 2023, will continue to hold space for productive conversations around methods and caring for those engaging in these activities.

**Education in veterinary curricula and the clinical setting**

US urbanization continues to increase, and since 1900, most people live in urban settings where children grow up without experiencing farm animals. Some children gain experience with animals in 4H and Future Farmers of America (FFA), with membership in FFA growing faster than student populations. Informing children about sources of their food and efforts to improve the welfare of farm animals is important. Thus the continued support of some background in animal science is encouraged for individuals interested in the veterinary profession. Likewise, exposure of students at a young age to animals in research and comparative medicine has

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the potential to increase acceptance of animals’ utilization in research as well as positive views on biomedical research and competence.

Veterinary education related to humane endings can help meet the Council of Education accreditation requirements under section 7.11, standard 11. These competencies include anesthesia and pain management (patient welfare), ethical and professional conduct (communication), emergency and intensive care case management, and critical analysis. However, current practicing veterinarians report that the number of hours of euthanasia training delivered over the course of the US veterinary curriculum is insufficient, and the same is likely true of depopulation, slaughter, and other humane endings topics. These limited hours are largely dedicated to the technical delivery of humane endings and may only briefly mention the impact on the veterinarian’s mental health. There is little room to comprehensively address the vast subject of humane endings in the standard veterinary curriculum, including in the clinical years. This education should be prioritized under the directive that curricula continuously develop in the context of ever-changing societal expectations. Education and training should also bring awareness that individuals other than veterinarians commonly perform depopulations and humane slaughter, and must acknowledge the need for improved training for these activities and the impact that they have on the mental health and well-being of other animal health professionals. To achieve the core competency of promoting the health and safety of people, veterinary educators’ responsibility should include directing these individuals to the appropriate mental health resources.

Education in the mental health professions

Education in the social sciences pertaining to the mental health needs of those involved in euthanasia or depopulation is still in its infancy. The Veterinary Social Work program at the University of Tennessee offers graduate and postgraduate certificates to mental health and animal-related professionals that can be earned primarily online. It provides one health-focused interdisciplinary education on the human needs that arise at the intersection of social work and veterinary practice. Program content includes education about grief and loss, compassion fatigue, and the moral stress associated with euthanasia as well as depopulation.

Certificate programs and undergraduate and graduate degrees related to human-animal interactions are still relatively uncommon, and most focus on animal-assisted therapy (eg, Oakland University’s Animal-Assisted Intervention and the University of Denver’s Equine-Assisted Mental Health Practitioner Certificate Program). Many of these programs, such as the one in Animals and Society at the University of Colorado, include elements of ethical and moral concerns, yet none have a primary focus on how to help support veterinary professionals with the challenges of euthanasia and depopulation.

When looking at more traditional undergraduate and graduate programs in psychology, social work, and counseling, there are numerous examples of programs that focus on grief and loss counseling related to human loss. These programs that teach mental health professionals how to support people coping with grief, loss, bereavement, and trauma could easily be adapted to encompass the needs of veterinary professionals. Another avenue for educating professionals to help veterinarians could be to make modifications in current pet loss grief support certifications. As their name implies, these programs focus on how to support pet owners; however, many of these techniques and skills could be modified to address veterinary professionals. For example, helping people navigate the complexities of the decision-making process involved in euthanasia and depopulation, as well as the moral injury that often accompanies such decisions, is an aspect in which pet loss counselors could be trained.

In summary, there are numerous avenues in which the pipeline to train mental health professionals to help support veterinarians with end-of-life issues could be expanded. Recognition of the mental health needs of veterinary professionals and support by major organizations in both the veterinary and mental health fields (eg, AVMA, American Psychological Association, National Association of Social work) are essential in making advances in this critical aspect of helping veterinary professionals.

Conclusion

Humane endings are a critical but often overlooked aspect of the veterinary profession involving thought-provoking, often emotional deliberations and challenging ethical dilemmas, which spurred this coalescing of experts to write this Viewpoint article. Special emphasis was given to production animal medicine and laboratory animal medicine. These fields consistently grapple with the emotional toll and impacts of all those involved in slaughter, mass euthanasia, and depopulation events. It is essential that the veterinary profession and animal health industry recognize and work to address the psychological impact of humane endings.

The AVMA has historically initiated and continues to lead the charge on the various issues and difficulties surrounding the delicate topic of humane endings. The conversation has been supported by the AVMA Humane Endings Symposia, which bring together experts and individuals who have firsthand experience with depopulation events and mass euthanasia and understand the nuances of the ethical and moral dilemmas and issues arising from this multifaceted and challenging topic. Overall, through ongoing leadership from the AVMA, these efforts will keep expanding, through continued enhancements to humane endings guidance documents, creation of better tools and resources, and taking the necessary steps to acknowledge the associated
psychological impacts on the veterinary community. These difficult discussions must continue as we attempt to unite our profession and to have an open and honest dialogue on humane endings.

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References

32. Animal research achievements. Foundation for Biomedical