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Fear in the veterinary clinic: History and Development of the Fear Free℠ Initiative

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Abstract

Concern for fear, anxiety, pain, and stress in companion animals in the veterinary setting has existed for decades. However, this concern did not translate into published material until approximately 2012. Gaps in material, education, and research may have led to the delay in change in the veterinary professional community. With the foundation of Fear Free, a certification program that aims to eliminate fear, anxiety and stress in the veterinary professional, a transition was developed. Tracing the history and development of the Fear Free℠ initiative, this research project will reveal a material gap starting in 1999, the absence of thorough animal behavior educational curricula, and the transition from the acceptance of fear, anxiety and stress (FAS) in the veterinary clinic to an expectation of FAS-free visits. This research project will not be outlining fear in domestic animals, but rather fear, anxiety and stress as it has been addressed in the veterinary community.

Introduction

Many pet owners are familiar with the endless search for their fear-stricken feline friend when the carrier has been presented or the dragging of nails while attempting to bring their petrified dog to the veterinarian for a wellness visit. Founded in 2016 by Dr. Marty Becker, the Fear Free℠ initiative promotes reducing fear, anxiety, and stress through various techniques (https://fearfreepets.com/). Through a certification program veterinary and behavior professionals, veterinary practices and pet-owners can be certified in Fear Free℠. Board certified veterinary behaviorists, veterinary anesthesiologists, and veterinary internists as well as behavior veterinary technicians and other specialized animal professions have developed courses included

in the certification program (https://fearfreepets.com/). Through certification, one gains necessary information to reduce and prevent fear, anxiety, and stress during veterinary visits. Fear, anxiety, and stress associated with the veterinary clinic has the potential to cause long-term behavioral as well as health complications. It is important that this is recognized and action is taken. Launched in 2016, Fear Free℠ reports approximately 33,000 veterinary professionals registered in the United States and Canada (https://fearfreepets.com/) in 2018. However, this progression did not emerge without years of research, practice, and support.

The following terms will be used throughout this research and should first be defined for clarification: fear, anxiety, and stress. It is important that they are acknowledged separately first, before they are utilized together as FAS. Tynes (2014) defined these behaviors. Fear is an emotion that induces an animal to avoid situations and activities that may be dangerous. This emotional response may occur when an animal perceives their environment is dangerous, whether or not it truly poses a threat. Anxiety is the anticipation of future danger that may be unknown, imagined, or real and can result in responses similar to those associated with fear. Responses may present as pacing, panting, trembling, hyperactivity, increased heart rate, blood pressure, and respiratory rate, as well as the exhibition of avoidance behaviors such as hiding or aggression. An animal may lose its bladder and bowel control or express its anal glands. Stress may be defined as any chemical, physical, or emotional force that threatens an organism's homeostasis. These terms are perceived, and an animal's perception is its reality.

Methods

The following databases were used in the conducting of this research: *OneSearch*, *Google Scholar*, and *PubMed*. Keywords used in this study included: *fear in veterinary clinic, stress in veterinary clinic, choice domestic animals, animal welfare concerns in veterinary*

medicine, ethics in veterinary medicine, fear-free and welfare, fear free veterinary, animal welfare curriculum, welfare standards, animal behavior veterinary, preference testing in canines, and *preference testing.* Utilizing these databases and keywords, articles were scanned, downloaded (depending on relevancy), and then summarized to later contribute to the research project as a whole. After all articles were collected, they were then organized based on their time of publication, subject, and findings to be included in the final paper. Additionally, informal interviews with local veterinarians were included in this research.

History

While Fear Free℠ was founded in 2016, concern for fear, anxiety, and stress for animals in the veterinary setting is not new. In 1981, Stanford conducted a study involving four-hundred and sixty-two dogs entering a vet clinic for routine examination and concluded that 70% of these dogs were reluctant to enter the veterinary clinic (Stanford, 1981). Simpson (1997) later reported the dangers of continuing to ignore the communications from our companion animals. Behavior signals that act as the canine's form of communication include everything from a howl or growl that is repeated, signaling a warning, raising the lip to signal an intended bite, panting, avoiding eye contact, yawning, grooming, or playing and a change in body language such as lowering itself to the ground or approaching directly (Simpson, 1997). Additionally, the position of the ears, eyes, and tail may communicate how a canine is feeling about a situation (Simpson, 1997). Non-wavering eyes may indicate threat, wide-eyes for fear, or a wavering gaze for "submissive" dogs. For example, according to Simpson, a high-positioned tail does not necessarily communicate a friendly dog. A high-positioned, wagging tail indicates a "dominant dog" and may be associated with a threat. A "submissive canine" might have a low tail that wags slowly. She explained stressed, fearful dogs may exhibit fear or defense driven aggression. Trembling,

freezing, and lowered body posture may indicate fear. Defensive aggression may appear as flattened ears, head down with wide eyes, freeze or flee behaviors, and jerking when touched by the fearful object or person. Simpson explained that handling dogs in the veterinary clinic with minimal resistance and stress is both beneficial to the animal's welfare and veterinary care efficiency. A key concept of Fear Free℠, she continued to stress that negative experiences create lasting memories, conditioning the animal to fear the clinic, and promotes stressful future visits and examinations.

However, it should be noted that the terms "submissive" and "dominant" utilized by Simpson have since been scrutinized and questioned due to misuse, controversy, and misinterpretation of their wolf pack ancestry, concluded by Bradshaw, Blackwell, and Casey in 2009 as well as the AVSAB in 2008. Simpson was twenty-years before Fear Free℠, yet they share similar viewpoints. Just a year after Simpson's publication (1997), Mench established behavior as an animal's "first line of defense." Understanding what animals are telling us through their behavior can prove to be beneficial for their health, safety, welfare, and veterinary care (Mench, 1998).

In 1999, Beaver concluded that in the past twenty-five years, it has been increasingly common for veterinarians to see animals presented for behavior issues. She acknowledged that sixty percent of dogs that visit the veterinary clinic for routine examinations show signs of fear, anxiety, and stress. That same year, Belew, Barlett, and Brown (1999) discovered that like humans, cats were subject to the "white-coat effect". This effect is represented by the rise of a patient's blood pressure to a level higher when they are in a medical setting than in their familiar outside environment. Ayman and Goldshine discovered this effect in humans in 1940; however, it was not until fifty-nine years later that Belew et al. explored this effect in domestic cats. The

study included thirteen cats (7 female and 6 male) that were implanted with radiotelemetric devices that measured their heart rate and blood pressure. Seven of these cats suffered from renal insufficiency (a commonality among cats with hypertension), the other six were healthy. These measurements were recorded while the research colony remained undisturbed in their cages and when the research team simulated a visit to the veterinarian's office. During the simulations, three "handlers" were identified to participate. The "owner" was an individual that fed and handled the cats routinely, thus creating a sense of familiarity. Both the "technician" and "veterinarian" were unfamiliar to the cats. These roles remained consistent throughout the simulated office visits. In total, the six healthy cats had six visits each and the seven with renal insufficiency had one visit each. The "white-coat effect" was taken to be the difference of the overall 24-hour average values for parameter of heart rate and blood pressure and the corresponding value during the simulated office visit (Belew et al. 1999). They found that the familiar white-coat effect seen in human medicine was evident in cats. While during and after each of the office visits, they found the magnitude of the white-coat effect to decrease with time with the change in blood pressure reducing, it did not disappear. Acknowledging that their results may be lower than what would be seen in companion animals, they show that veterinarians should be cautious of this white-coat effect when evaluating. They suggested providing a "quiet and undisturbed environment" along with sufficient time for acclimation as a "standard protocol" in veterinary offices to ensure accurate readings (Belew et al. 1999, p 141). Calling for action, this study provided clear data of the effects of fear, stress, and anxiety in the veterinary setting.

These early studies demonstrate a clear concern for FAS in companion animals, however, this concern did not transfer into veterinary practices until years later. A survey conducted the same year (Patronek and Dodman, 1999) found that behavior counseling represented less than

1% of veterinary visits. Additionally, only about 25% of veterinarians routinely inquired about behavior and only 30% of male veterinarians and 42% of female veterinarians believed that behavior concerns should be given equal amounts of attention as clinical disease. They also found that very few veterinarians out of the two-thousand surveyed felt confident in treating behavior problems.

In the following years, available material began to decline. Searches through *OneSearch, Google Scholar, and PubMed* revealed fewer articles concerning FAS in the veterinary setting than before and this decline caused a significant delay. Figure 1.1 shows not only is there a material gap between 1999 and 2002, but an even larger gap exists from 1990 and 1997. While publishing companies were still running their businesses, the research, studies, and literature that involved FAS was not making it through the doors. Possible reasons for this decline will be later discussed. It is not until the early 2000's that "fear" and "stress" in the veterinary clinic becomes popular in material once again.

Figure 1.1 Shows the number of peer-reviewed articles published across years that reference fear, anxiety, and stress in the veterinary setting.

In 2004, a team of certified applied animal behaviorists and a veterinarian collaborated to provide a new approach to this dilemma; this team included Suzanne Hetts, Marsha Heinke, and Daniel Estep. Acknowledging a need for change, this article suggested and promoted a systematic way to bridge the gap between animal behavior and veterinary medicine. By first understanding a pet's unresolved behavior problem may result in a terminal condition, authors emphasized the power of educating clients. Unfortunately, a large majority of pet owners do not bring their pets into a veterinary clinic for an annual wellness exam. There are often large gaps in time from when an animal is presenting to when they were last seen. In educating clients, veterinary professionals may be able to address problems earlier, before they become serious. They urged veterinarians to evaluate behavior wellness annually, educate clients on behavioral needs, promote socialization at an early age, and build plans of action to address particularly "difficult-to-handle" pets to help them gently and gradually acclimate their pets to handling, mild restraint, and unfamiliar places (Hetts et al. 2004). Interestingly, the article also suggested that owners bring their pets in for "socialization visits" where pets visit the veterinary clinic to only receive treats and petting. This visit promotes positive experiences in the hope that negative associations with the veterinary clinic are diminished. This idea reemerged years later, in the founding of Fear Free℠.

Evidence for stress and fear among patients in veterinary medicine continued to be found in a number of studies. Va¨isa¨nen, Valros, Hakaoja, Raekallio, and Vainio (2005), showed the effects of pre-operative stress on female canine patients that were to undergo elective ovariohysterectomy at Helsinki University Small Animal Hospital. Behavior of the patients was recorded using an ambulatory electrocardiogram while they remained undisturbed in their kennel within the veterinary clinic. Researchers also recorded and analyzed the patients' heart rates and

heart rate variability as well as their response to human touch after being disturbed. They found that among their pre-operative patients, observed stress behaviors such as licking, panting, and howling were present. They also observed increased heart rates without acclimation in all studied dogs, concluding, "there is no doubt that hospitalization is a stressful experience" (Va¨isa¨nen et al. 2005, p. 164). The research team also acknowledged that there has been a significant lack of attention for pre-operative stress in veterinary medicine. Recognizing a clear need for more research, their study was a building block for the road to Fear Free℠.

That same year, Lind, Hydbring-Sandberg, Forkman, and Keeling (2017) evaluated the behavior of one hundred-five dogs to assess stress when visiting a veterinary clinic and seek a systematic scoring guideline for veterinary clinics to use when scoring patients' signs of FAS. It is important to note that while the research was conducted in 2005, it was not published until 2017. They used a multitude of tests and evaluated in two different locations, inside and outside the clinic. In their "treat" test where dogs were evaluated on their willingness to take and eat a treat, 89% of dogs ate the treat at both locations. Of the dogs who ate the treat, 63% ate it without hesitation while inside the clinic, however this number increased to 74% when outside the veterinary clinic. In their "play" test, only 38% of the dogs played in both locations, while a majority of the dogs who played, played more outside. This suggested that the dogs perceived the clinic as being more negative and were less comfortable. They concluded that over half of the dogs (52%) entering the clinic had behavioral problems (Lind et al. 2017).

After the lack of available material between 1999-2002 in Figure 1.1, there is a notable spike in articles from 2002-2010. During this time, there is evidence of animal behavior and concern for FAS slowly rising in the veterinary profession. In 2006, Mills, Ramos, Estelles, and Hargrave researched the effect of Dog Appeasing Pheromone on anxiety related behavior of

"problem" dogs in the veterinary clinic. They recognized the findings of Stanford (1981) and the fear and anxiety that patients associate with the veterinary clinic. Dog Appeasing Pheromone, or DAP, is a synthetic mixture of fatty acids manipulated to mimic the secretions of sebaceous glands in the intermammary sulcus of lactating female dogs shortly after parturition, identified by Pageat and Gaultier (2003). This mixture can been used as a spray or plug-in heated diffuser. While Pageat and Gaultier's research found DAP to have calming effects in dogs with separation anxiety and travel in cars, the effects of DAP in stressed dogs in the veterinary clinic was not tested until Mills et al. in 2006. In their research, all participants had previously shown signs of fear, anxiety, or aggression while being examined at the veterinary clinic (Mills et al. 2006). They utilized a plug-in heated diffuser in the clinic's waiting room as well as the consulting room. Participants were required to visit the clinic on two separate days, three weeks apart. The study utilized a placebo of 100% mineral oil as a control. They concluded that during clinical examination in the veterinary clinic, the use of DAP was associated with greater relaxation (Mills et al. 2016). However, their study could not conclude that DAP had any effects on aggressive behavior. Their study promoted use of DAP in veterinary clinics to reduce the amounts of FAS in canine patients and recognized the need for change.

In 2007, Godbout et al. found fear, stress, and anxiety related behavior in puppies visiting a veterinary clinic. Within their study, three different locations of examination were utilized: "Free-Floor Evaluation", "Physical Examination On the Table" and "Manipulations of the puppy on the floor" (Godbout et al. 2007). Evaluations were split into six different behavioral categories when examined free on the floor (FF). These included: activity, exploration, facial expression, interaction with the veterinarian, vocalization, and ear position. Physical examination on the table (PET) and manipulation of the floor (MF) also studied the nature of the interaction

and facial expressions. Evaluations found that the behavior among the puppies varied widely; however, there were "extreme behaviors" observed among the puppies. These extreme behaviors included hyperactivity, active avoidance, increased locomotion and panting, and increased vocalization (Godbout et al. 2007). Horwitz, Mills, and Heath previously studied these behaviors in collaboration with the British Small Animal Veterinary Association where they were found to indicate increased stress (Horwitz et al. 2002). These "extreme behavior puppies" included approximately ten percent of the one hundred two puppies examined. Additionally, they were able to identify a distinct preference between examinations on the floor versus the table. This study provided clear empirical evidence of FAS starting at a young age in association with the veterinary clinic and suggested utilizing each individual dog's preference (table or floor examination) to decrease the FAS present at the time of examination. Preference is a very large part of understanding animal behavior and by recognizing its significance, a patient's surroundings can be manipulated to ensure a stress-free veterinary clinic atmosphere tailored to each patient.

The importance of preference was identified prior to the Horwitz et al. study, in 1990 by Dawkins. "An animal's preferences…gives its first view of the world" (Dawkins, 1990). In her article, she discussed the historical background of giving choice and stated that preference can be measured both directly and indirectly. Direct methods of measuring preference include offering the animal a number of options and recording which one(s) it chooses, also referred to as a choice test. Indirect methods of measuring preference include asking an animal to make a response, such as pressing a level or pecking a key to produce or avoid certain consequences (Dawkins, 1990). Dawkins explained that these methods have been used in many studies over the years, dating back past 1973. Once an animal's preference has been determined, its value can

then be determined. Animal welfare can then be directly impacted by identifying these preferences.

Since Dawkins' explanation, preference has continued to be used in studies and in the improvement of quality of life. Feuerbacher and Wynne (2014) found that through direct preference testing, most domestic dogs preferred food to human contact (petting). Their study gave participating dogs a choice between two humans, one who provided petting and the other who provided food. The study utilized three different environments: a dog daycare (a familiar environment) where their owner provided petting, a laboratory room (an unfamiliar environment) where strangers provided both food and petting, and the laboratory room where the dog's owner provided petting without separation from the owner prior. Participants included were owned dogs at local dog daycares, owned dogs that went to the laboratory room with their owners, and shelter dogs. Their study concluded that dogs, in all groups, preferred food to petting (Feuerbacher and Wynne 2014).

Since their study, preference testing has been used beyond our domestic dogs. Dorey, Mehrkam, and Tacey (2015) conducted a study using captive wolves to assess preference for environmental enrichment and training within a zoo. Results revealed two of the wolves preferred training and two of the wolves preferred the free-choice environmental enrichment activity. They found that both sets of wolves had strong preference for their respective preferred activity (Dorey et al. 2015). Dorey et al. concluded that preference differed by individual. All wolves showed strong preference when given a choice, further supporting the importance of giving choice. Their study acknowledged the significance of preference in animals and showed that each individual may have their own preferences. Preference and choice continues to be a topic of discussion in animal welfare and has become a core concept in the Fear Free℠ initiative.

Dawkins (2008) discussed the long-time concern for animal behavior and welfare and the recent growth of interest that has reached zoos, farms, research laboratories and the general public eye. This is consistent with the amount of material that begins to emerge from 2002 to 2007 and into 2009. Dawkins acknowledged the improvements that have been made such as laws, guidelines, regulations, practice standards and codes, indicating the strength of concern and growing interest.

While improvements begin to be made, unfortunately FAS continues to be observed in veterinary clinics. Döring, Roscher, Scheipl, Küchenhoff, and Erhard (2009) delved further into "the issue of fear-related behavior in veterinary practices". Observing one hundred thirty-five dogs clinically identified healthy animals, Döring et al. recorded each dog when they entered the treatment room, once they were inside the treatment room, during a standardized test examination on a treatment table, and when the dogs exited the treatment room. Each standardized examination lasted approximately 10 minutes and included examination of the eyes, ears, oral mucosa, palpation of mandibular lymph nodes, rectal body temperature using a digital thermometer, heart rate, respiration rate, and palpation of abdomen (Döring et al. 2009). The owner was asked to lift the dog on or off the table or to allow the dog to jump off the table on its own. The dog's as well as the owner's behavior was recorded during the entirety of the examination. The study also utilized a questionnaire given to the owners after examination, of which 127 were completed. The questionnaire consisted of two parts, the first asking information about the owner and dog's origin, the second asking about the dog's behavior, specifically, previous fear-related behavior, previous behavior in the veterinary clinics, and behavior during the current visit (Döring et al. 2009). The dogs were categorized by a 5-point scoring system. Dogs were classified as "relaxed" if they scored 0-1 points and "fearful" if they reached 3-5

points. To classify for a point, dogs must have exhibited any of the following behaviors: staring fixedly ahead, lowered or tucked tail position, crouched body posture, trembling, pressing itself against its owner, hiding behind its owner, or attempt to jump from examination table.

While 45.9% of the dogs entered the clinic without needing assistance from their owner, 36.6% walked hesitantly or hide behind their owner, 13.3% had to be dragged or carried in, and 4.4% walked in pulling on the leash. In the treatment room they found 56% of the dogs exhibited panting, 61.5% exhibited trembling on the examination table, 71.9% showed avoidance behavior, 77.8% had a crouching posture, and 75.6% had their tail tucked or lowered. Overall, 78.5% of the 135 observed dogs were classified as fearful. A disturbing conclusion, their study reflected the intensive need for change in approach, veterinary clinics, and in the overall concern of FAS in our companions. Döring et al. urged owners and veterinary professionals to be knowledgeable of the signs and begin the change needed.

While FAS continued to be an issue in the field of veterinary medicine, a transition period from 2010 to 2015 began to make the necessary changes and evidence of Fear Free℠ emerged. Vogt et al. (2010) suggested various techniques of reducing stress during feline veterinary visits. Starting with the transportation to the clinic, they recommended applying a calming synthetic pheromone to the feline's carrier or putting an article of clothing from the owner in the carrier to help reduce stress and well as covering the carrier in the process of transportation. Once at the clinic, they advocated having a separate waiting area for feline patients, reducing wait time, keeping the examination rooms and tables warm, avoiding large sounds, allowing time for acclimation, utilizing minimal restraint, avoiding direct eye contact, and distracting with "tasty treats" (Vogt et al. 2010).

Hunthausen (2012) addressed fear-related aggression in veterinary clinics and discussed what veterinarians and practices can do to reduce the FAS. The ideas resembled many of the key concepts introduced in Fear Free℠ a few years later, urging veterinarians to start working with and acclimating dogs as soon as possible. Hunthausen recommended keeping treats in examination rooms and rewarding throughout the exam and visit so the puppy or adult dog begins to associate the clinic and a veterinarian's touch positively. The veterinarian promoted a similar idea to Fear Free℠'s "happy visits" and recommended owners drop by the clinic once or twice a week for their pet to receive socialization and treats only. This visit does not involve diagnostics or vaccines. This helps break the negative association of fear and the veterinary clinic. When working with an aggressive patient, Hunthausen introduced the idea of using pharmaceuticals to help relax the pet. Introducing techniques like happy visits and pharmaceuticals, this article took a large step towards Fear Free℠ and enlightened both veterinary professionals and pet owners.

While concern has now transitioned into recommendations and plans of action, FAS was still present in the veterinary profession. In 2011, Quimby, Smith, and Lunn conducted a similar study to Belew et al. in 1999. In their study, thirty healthy cats were evaluated both at home and at Colorado State University's Veterinary Medical Center. Utilizing the Doppler systolic blood pressure, temperature, heart rate, and respiratory rate, values were compared between those at home and at the veterinary clinic (Quimby et al. 2011). A significant difference in values between the home and veterinary clinic was found, indicating that the "white-coat effect" found in 1999, had been preserved throughout the years and had continued to be a problem. Nibblett, Ketzis, and Grigg found evidence through comparisons of blood glucose levels between home and the veterinary clinic as well as a behavior analysis that the clinic remains a stressful

environment in 2014 for feline patients (Nibblett et al. 2014). Mariti et al. assessed dog welfare in the waiting room of the veterinary clinic a year later in 2015. Forty-five dogs were recorded for a total of three minutes in the waiting room of a veterinary clinic and then evaluated by both a veterinary behaviorist and the pet's owner. They observed the following behaviors that were used as behavioral signs of stress: nose licking (82.2%), panting (55.6%), lowered ears (44.4%), crying (40.0%), autogrooming (37.8%), yawning (35.6%, paw lifting (22.2%), lowered tail (20.0%), attempting to hide (20.0%), jumping on owner (17.8%), excessive walking (15.6%), attempting to exit (13.3%), shaking (13.3%), trembling (11.1%), crouching (4.4%), and circling (2.2%). Overall, two-thirds of dogs spent more than 20% of the time displaying at least one indicator of stress and 53.3% displayed four or more behavioral indicators of stress. Evaluations completed by the veterinary behaviorist indicated that the level of stress in the waiting room was considerably high in 28.9% of the cases (Mariti et al. 2015).

However, in a more recent study lead by Dawson, Dewey, Stone, Guerin and Neil (2018), forty-one veterinary clinics were observed and evaluated for their behavioral animal welfare practices. Five of these participating clinics were certified by the American Animal Hospital Association and five were participants in the AAFP Cat Friendly Practice® program. Results concluded that 83% of veterinarians observed showed confidence in their ability to offer behavior advice, 77% of veterinary clinics used appropriate approaches to minimize patient fear, 100% of clinics rated sufficient in the use of treats and positive reinforcement as well as in confidence to provide behavioral advice and/or relationship with a behaviorist or trainer. Additionally, 93% of veterinarians usually allowed feline patients time to exit the carrier on their own and rarely assisted by pulling the cat out, 77% of veterinarians routinely removed the top of the carrier if the design allowed, and 79% of veterinarian used towel wraps when handling feline

patients (Dawson et al. 2018). A strikingly recent study, this study showed a promising future for change in the veterinary profession and for FAS overall. However, this study also found lingering evidence of insufficient approach and recognition of FAS. Fifty percent of studied veterinarians were rated insufficient in their recognition of aggression in both dogs and cats and 40% were rated insufficient in information to prevent behavior problems in puppies in kittens. Additionally, the study concluded that approximately half of the clinics regularly utilized scruffing as a handling technique, and the others used scruffing in limited situations. In only one fifth of the analyzed appointments, towel or blanket wraps were used to handle feline patients. In approximately 75% of all feline appointments, a staff member had to assist with exit of the carrier by either tipping the carrier or by lifting, pulling and/or scruffing the cat to be forcibly removed (Dawson et al. 2018). Ultimately, Dawson et al. showed both the incredible improvement that has been made in the veterinary profession over the last few decades and also the great amount of improvement that has yet to be made. FAS continues to be a problem; however, there is a rise in concern, knowledge, and passion growing around the world and the future of Fear Free℠ will continue to expand.

Discussion

Over the past decades, tremendous change has taken place. Yet, the following questions linger: why did this change take so long? Why do we see time laps in material available? What milestones has the profession met; and what milestones are left? This research will delve further into these questions and uncover the possible explanations.

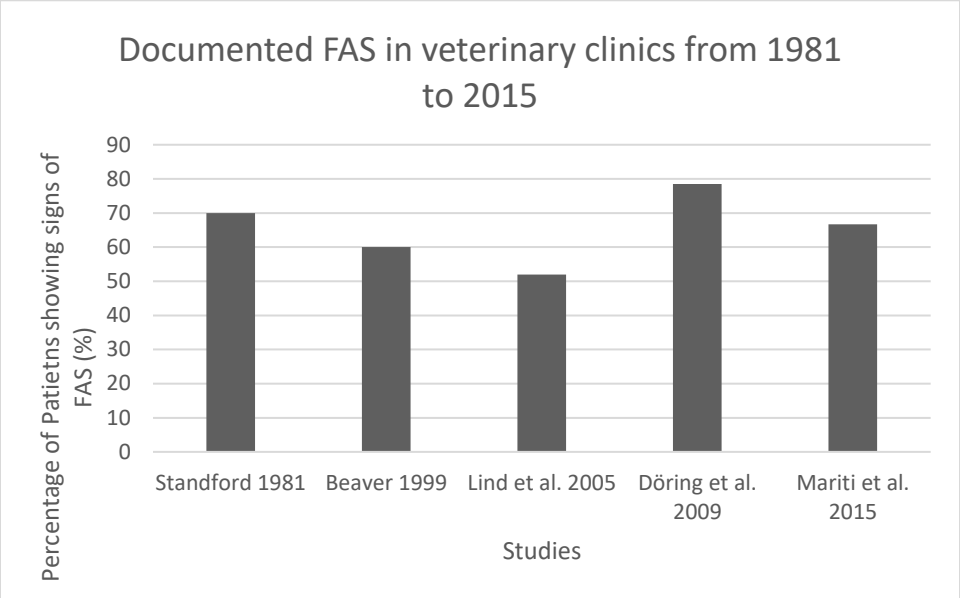

Figure 1.2 Shows evaluated fear, anxiety, and stress in various studies across years in the veterinary setting.

From 1981 (Standford) to 2015 (Mariti et al.), five different studies observed measurable fear, anxiety, and stress in their participants during research. Within these studies, different methods of data collection, procedures, and number of participants existed. However, they share a similar classification and concern for the fear, anxiety, and stress exhibited in veterinary clinics and show a skeletal evolution of FAS. Shown in Figure 1.2, from 1981 to 2005, there was a steady decrease in documented FAS going from 70% to 52%. However, in 2009 this decrease reversed and spiked to 78.5, higher than in 1981. A recent study in 2015 corrected the trend, and found 66.7% of their observed participants experiencing FAS. While it is encouraging to see the steady decline from 1981 to 2005, it is concerning that in 2009 such a high number patients were experiencing FAS. Could this drastic increase had been related to other events or factors happening at the same time? The following will further discuss this issue.

Reducing and preventing fear, anxiety, and stress in the veterinary clinic has proven to be difficult. While transformation requires time itself, other factors may have contributed to the delay still evident today. Volk, Felstead, Thomas and Siren (2011) discussed and confirmed an alarming decrease in patient visits in veterinary clinics that started a little before 2006. They proposed the economic recession of 2007 to 2009 had a negative impact on many companion animal veterinary practices in the United States, suggesting that the cost of care in veterinary practices outweighed the risks and pet's health, and less patients were being seen at veterinary practices. Reviewing Figure 1.2 reveals that in 2009, Döring et al. found FAS to be 78.5%, higher than previous studies. It is possible when the recession was ending and the economy was beginning to grow, pet owner's began budgeting veterinary visits and bringing their pets back into practices more often. With an increase of pets visiting the veterinarian, more fear, anxiety, and stress was observed, explaining the possible spike in Figure 1.2. The cost of care continued to be a popular concern among owners in the study, in which they found that 53% of pet owners agreed that the costs of veterinary care are usually extensively higher than expected, therefore reducing the amount of patient visits (Volk et al. 2011). The AVMA published data in 2007 that confirmed annual dog and cat visits to veterinarians declined in 2006 compared with 2001. However, while visits were declining, the pet population was experiencing a considerable increase (Volk et al. 2011).

Veterinary practices are not only a hospital, they are also a business. If affected practices were experiencing less patients/new clients, less revenue, the pressure to complete stressful diagnostics with patients that did come into the clinic may have increased FAS. Additionally, the study concluded that use of the internet by pet owners also had a negative impact on the number of patient visits. Pet owners were frequently seeking advice from internet sources rather than

contacting professional veterinarians. In fact the Bayer veterinary care usage study found that 39% of pet owners admitted that they first search online if a pet is sick or injured and 15% of pet owners said that they rely less on their veterinarian because of the internet. This option continues to be a problem today due to the generally free resources on the Web.

Importantly, the study also found that the lack of knowledge extended to clients/pet owners left a considerable negative impact on how often pet owners were taking their pet to the veterinarian. Thirty-six percent of pet owners indicated that if it were not for needed vaccinations, they would not take their pet to the veterinarian. The importance of routine examinations was not being relayed adequately and this lack of understanding by clients and failure to educate by veterinarians resulted in a decline of veterinary visits. The study suggested that if pet owners clearly understood the health benefits of routine examinations and veterinary care for their pets, the declining number of veterinary visits would be reversed (Volk et al. 2011). Lack of education continues to be an issue today and will be further addressed.

Furthermore, through conducting pet owner focus groups, pet owners indicated that they found taking their animal to the veterinarian to be stressful for both themselves and their pet, particularly for felines.

During the focus group, cat owners communicated that they wished to avoid the stress and unpleasantness associated with bringing their cat into the clinic. Volk et al. found that 40% of cats had not been to the veterinarian in the past year compared to 15% of dogs. If veterinary practices were seeing less patients, especially the patients who associated the practice with fear and stress, then the prevalence of FAS in patients may have been misrepresented. As a result, the majority of the patient population may have only included patients with less FAS. Consequently, the observed severity of FAS was manipulated. This study not only provides an explanation for

the decline in veterinary visits and delay of addressing FAS, but also connects the importance of addressing fear, anxiety, and stress.

In 1999, behavior counseling represented less than 1% of veterinary visits and only 25% of veterinarians routinely asked about behavior in appointments. Additionally, only 30% of male and 42% of females veterinarians believed behavior concerns should be given substantial attention (Patronek and Dodman, 1999). However in 2018, a majority of observed veterinarians received excellent scores for their confidence in their ability to address and offer behavior advice and/or having a relationship with a behaviorist or trainer (83%). Seventy-three percent of observed veterinarians recommended appropriate training methods for puppies and kittens and discouraged inappropriate training methods (Dawson et al. 2018). From 1999 to 2018, it is obvious substantial changes have been made in veterinary professional community. Behavior has become a more popular topic and concern in veterinary practices. What happened during the nineteen-year period that resulted in such transformation? A key term to understanding this transition is confidence. Generally, when someone has greater confidence in their understanding and knowledge of a subject, it is easier to discuss. In order to have confidence in a specific subject, one must usually have proper familiarity and education. In this case, the subject is behavior.

According to Patronek and Dodman (1999), only 8 out of 27 United States veterinary schools had a full-time behaviorist. According to Juarbe-Díaz (2007), 12 of 32 veterinary schools had a veterinary behaviorist on staff. Additionally, only 14 of the 32 veterinary schools had a normal animal behavior course, 12 had an abnormal/clinical behavior course, only 7 had recognized student chapters of the American Veterinary Society of Animal Behavior, and a shocking 4 schools had no behavioral medicine faculty, behavior courses, interested staff or a

student club. Of the colleges that offered the abnormal/clinical behavior course, the course was an elective (Juarbe-Díaz 2007). Interestingly, while there was a clear curriculum lack in the behavioral aspect, Juarbe-Díaz reported that students consistently expressed a need and want for more exposure to behavioral medicine.

Roshier and McBride (2013) surveyed six veterinarians on their experiences and perceptions. All veterinarians acknowledged that behavior was a component of their caseload and that clients expected them to provide behavior support. However, five of the six veterinarians felt they were unable to meet client expectations and four felt that their training had not prepared them sufficiently to meet these behavioral support needs. Only one of the veterinarians practiced behavior consultations, the other five preferred to refer their cases. The majority of the veterinarians (five out of six) scored their ability to manage behavior problems below the level of support they felt clients expected. All veterinarians indicated that behavior skills was a necessity for new graduates and provided suggestions (Roshier and McBride 2013).

However Sanchez et al. (2016) surveyed one hundred one fourth-year veterinary medicine students and revealed that communicating negative and emotional topics was an area that was covered insufficiently in veterinary curriculums and students often felt "unprepared". Participants of their investigation reported feeling "very comfortable discussing medicine with clients but less experienced discussing finances and delivering bad news" (Sanchez et al. 2016). Having the skill of communication is a critical tool in behavior medicine and it is important that the veterinarian is comfortable explaining and discussing difficult topics such as euthanasia, behavior consultations, etc. Unfortunately, clients do not always agree with a veterinarian's professional opinion or do not want to hear the unpleasant news. Veterinarians must remain stable and confident in these situations. A large part of Fear Free℠ is being able to recognize the

behavior signals from patients and understanding when to stop diagnostics, procedures, or examinations in order to reduce the amount of fear, anxiety, and stress a patient undergoes. While most pet owners are understanding and acknowledge the dangers of continuing, unfortunately some clients do not possess the correct knowledge to understand and will push to continue and ask, "Why can't you just do it?" As Fear Free℠ continues to grow, the importance of effectively communicating to clients about their pet's behavior, even if it is a difficult discussion, is crucial. It is concerning that a survey as recent as 2016 is reporting a lack in preparedness in veterinary schools and the clear curriculum lack of behavioral medicine may be proving to be detrimental. Veterinary students have reported asking for change; however when will this change take place?

It seems the curriculum of many veterinary schools have already began changing to include more behavioral courses. In 2016, *Veterinary Week* reported results from a Colorado State University research indicating that out of 17 global AVMA COE-accredited institutions, 10 offered a formal welfare course, 9 offered a formal animal behavior course, 8 offered a formal animal ethics course, and 5 offered a combined animal welfare, behavior, and ethics. Of the 30 AVMA COE-accredited US institutions, a curricula review indicated that 6 offered a formal course on animal welfare, 22 offered a formal course on animal behavior, and 18 offered a formal course on animal ethics (*Veterinary Week,* 2016). Compared to the reports of Juarbe-Díaz in 2007 that stated only 14 of 32 veterinary institutions had a normal animal behavior course, as of 2016 there was 22 (out of 30 veterinary institutions), there has been improvement. While there is change to be celebrated, news editors recognized there is still much improvement to be made and indicated that their results "suggested that AVMA COE-accredited institutions need to

provide more formal education on animal welfare, behavior, and ethics so veterinarians can be advocates for animals and assist with behavioral challenges" (*Veterinary Week*, 2016).

Veterinary curriculum has not only been inadequate in behavioral studies, but also in ethics and welfare. Christiansen and Forkman (2007) assessed 32 follow-up studies that made reference to key terms such as "animal welfare", "quality of life", and "well-being" and utilized the studies for a qualitative analysis of veterinary treatment of canine and feline patients, 19 of these "follow-ups" were by veterinarians. Christiansen and Forkman found that only a few of the follow up studies from the veterinarians went beyond evaluation of the medical condition and treatment and considered animal welfare. Their findings indicated that there was a lack of attention of animal welfare in the clinic setting and that change must take place in the future.

However, Christiansen and Forkman were not the only ones to recognize a deficiency in the education of animal welfare. Boissy et al. (2007) stated that while there has been are large increase in the interest of animal feelings and emotions in the last decades of the 20th century, scientific investigation and research has continued to be neglected. They urged for change in the educational system and recognized that with a better understanding of "how animals feel" or animal behavior, "welfare issues can be better addressed" (Boissy et al. 2007). Animal welfare is directly linked to animal behavior and if people are able to understand behavior and what an animal is trying to relay through actions and signals, their welfare can directly be improved. For example, if a dog is waiting in the lobby of a veterinary clinic and is licking his lips frequently, trained personnel can quickly assess that the patient is stressed due to his behavior of frequently licking his lips. Of course, one must have the educational background to recognize stress signals in canines and understand the connection of lip licking and stress, confirmed by Beerda et al. in 1998.

While it is clear there must be a change in education of animal welfare, also sometimes incorporated with ethics, this change has been delayed for years. According to Lord et al. (2017) in a 2011 survey of veterinary institutions located in Canada, the United States and the Caribbean, only 62% of participating schools (13 of 21) reported that ethics was a "core component of the curriculum". A mean of 15.5 h of ethics instruction occurred over the curriculum and only 33% of responding schools (7 out of 21) reported that students were formally assessed for ethical knowledge and decision-making (Lord et al. 2017). In 2014, World Animal Protection released a report asking veterinarians around the world to share their views on a new global standard to recognize excellence in animal welfare in veterinary schools. They stated, "The development of a global standard for animal welfare in veterinary schools aims to support OIE (World Organization for Animal Health) recommendations on the competencies required of graduating veterinarians and a "whole school approach to animal welfare education" (World Animal Protection, 2014). The director general of the OIE commented,

> "the ability of graduating veterinarians to identify animal welfare problems, participate in corrective actions, know where to find current and credible information regarding animal welfare regulations and standards, and to explain the responsibilities of those responsible or the care of animals is fundamental to the practice of veterinary medicine at both the private and public level" (World Animal Protection, 2014).

Understanding that this transformation must take place, World Animal Protection committed to beginning the process and acknowledged that this is a global issue.

World Animal Protection (2015) led in the design of the Animal Protection Index that "established a classification of 50 countries around the world according to their commitments to protect animals and improve animal welfare in policy and legislation." They assessed a country's

animal welfare standards on whether its education programs included animal care and protection and its promotion of communication and awareness. They utilized a rating scale that rated A for the highest score and down to G, the lowest score. Ranking the highest was the UK, New Zealand, Switzerland and Austria, an "A." The United States was ranked "D," considerably behind other countries. However, while the UK ranked highly, they did receive an "F" rating in education on animal care and protection (http://api.worldanimalprotection.org/). Unfortunately, the Animal Protection Index did not specify the meaning of each letter specifically and further information was not available through contacting the organization; therefore, the effectiveness of this tool in relation to this research was limited. Nonetheless, the index serves as confirmation that the United States is considerably behind in animal welfare but has made enough progress as of 2015 to be above other countries. The index indicated that animal welfare has not been a priority in many countries across the globe and there is a lack of concern still present. If the curriculum is not focusing on animal welfare, where is the focus? Magalhães-Sant'Ana et al. (2015) reported that veterinary Codes of Professional Conduct have been criticized for strongly focusing on standards of practice while ignoring "to a large extent" concerns about animals starting in 1983. Recalling that 20 years previously the AVMA Code of Ethics failed to address euthanasia of healthy animals but placed a considerable focus on regulating advertisement. A possible explanation for the United States' insufficiency, Magalhães-Sant'Ana et al. recognized a need for change.

Furthermore, Magalhães-Sant'Ana reported another possible explanation for the delay in veterinary curriculums regarding ethics. He discussed the problematic controversy around what an ethics curriculum consists of (Magalhães-Sant'Ana, 2014). Indicating that there is very limited agreement on what should be included, his reports suggested that because of this

controversy, change has been delayed. Hernandez et al. (2018) agreed that a complex controversy has always and will always surround ethics in veterinary medicine. The broad definition and challenging nature of ethics has led to a variable platform for veterinary curriculums. As of 2017, there was not a "gold standard" for veterinary ethics education and curriculum. Additionally, ethics is sometimes driven by personal viewpoints and this may cause conflict between veterinarian and patient interest and client interest (Hernandez et al. 2017).

The veterinary profession has been slow to ingrate ethics, animal welfare, and animal behavior into practice and curriculums. However, while there has been a delay, there has also been significant milestones along the way. These changes have taken place because those involved have acknowledged the importance. Veterinarians, students, researchers, animal lovers, and owners alike have begun to see the effects of change and the interest is growing. In the years preceding the Fear Free℠ foundation, Dr. Marty Becker began speaking about fear free concepts in 2012 (personal communication, June 5, 2018). When comparing this information to the increase in FAS related material shown in Figure 1.1, the spike in articles is consistent with around the time he began speaking. This correlation confirms the relatively recent change in concern and indicates a global grow of concern. Interestingly, the American College of Veterinary Behaviorists had a significant increase in certified Diplomates starting in 2012. They have continued certifying a higher number of individuals since then, as shown in Figure 1.3.

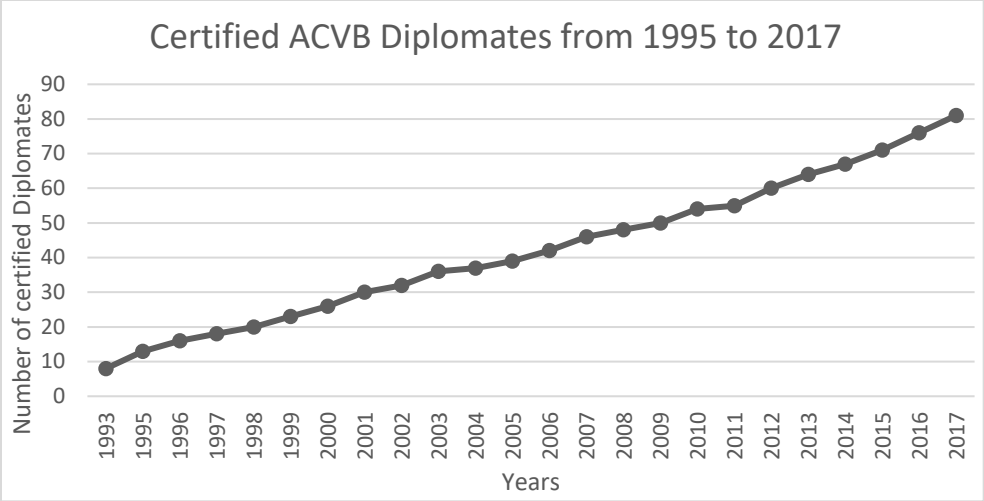

Figure 1.3 Shows the number of certified Diplomates since the first exam given in 1995 from the American College of Veterinary Behavior. Eight Diplomates were grandfathered into the organization in 1993 as the founding members of the college (ACVB, 2018).

The increase in 2012 is around the same time as the spike in material as well as when Dr. Marty Becker began speaking. It is possible that when the expansion of concern and interest of fear, anxiety, and stress in veterinary medicine took place (around 2012), new audiences were reached. With the increase in available literature, veterinary professionals may have been exposed to the rising crisis of FAS causing new concern and actions to be taken, such as progressing further in their education to focus on animal behavior. The rising concern for animal behavior in veterinary medicine may have directly influenced the number of certified ACVB diplomats and vice versa.

Furthermore, through brief informal interviews with five different veterinarians graduating in four different classes starting in 1985 from the same college of veterinary medicine, there is a similar transition of concern for animal behavior, welfare, and ethics. The veterinarian that graduated in 1985 informed me that during his time as a veterinary student, they (himself and his classmates) were each assigned a canine from a nearby shelter to utilize for

practice surgery. The assigned animal would be anesthetized and recovered for each surgery. Once the academic semester concluded, the animal would then be euthanized. The procedure remained very similar according to a veterinarian who graduated in 1988, however a new shelter animal was used for each practice and then euthanized afterward. According to the veterinarian that graduated in 2003, shelter animals were no longer being used for practice. Instead, 4th year students would practice on post-research animals that were scheduled to be euthanized at the college. Interestingly, a recent graduate (2018) stated that she had very little practice with surgeries, and was able to perform only two surgeries under supervision (ovariohysterectomy and castration). The veterinarian who graduated in 1988 stated that while she was a student, "no one was talking about using shelter animals for procedures or practice." However, after obtaining her DVM title, she become an associate on a veterinary board and stated "in the 1990s, there began to be a lot of talk about not using shelter pets and veterinary students began refusing to practice on shelter animals," admitting "there began to be issues with newer graduating veterinarians that had never worked on tissue!" (personal communication, May 29, 2018). The veterinary profession has integrated Fear Free℠ concepts gradually overtime. Curriculum changes, increasing ACVB Diplomates, practice modifications, etc. have finally began coming together to make a global change.

Advancements in this area have expanded beyond the veterinary profession. As the concern for FAS reached new audiences, pet owners began seeking for ways to reduce their own pets' fear, anxiety, and stress associated with the veterinary clinic. Mobile clinics have aided in this process. According to Geissler (2006), a niche market has been created for pet owners who prefer mobile veterinary clinics due to their convenience. A mobile clinic allows pets and their owners to escape the stress of the clinic environment. These clinics can do most standard

veterinary care procedures that do not require large equipment such as examinations, vaccines, blood collection, and corneal stains. This varies with accessibility; some veterinarians have access to portable ultrasounds and radiograph machines but others are very limited. Of course, mobile clinics usually cannot perform surgeries or intense diagnostics and refer these cases to local veterinary clinics in the area. Dr. Sholseth, an owner of a mobile clinic located in Canada stated "The ability to come to people's homes and offer these services is helpful because it relieves much of the stress to the pets that usually comes with having to take them to a clinic, and it's more relaxing for the owners as well." (Barron, 2012). With the rise in concern, these mobile clinics have continued to grow and bring in clients. Dr. Crowe with Taylor Hill Mobile Veterinary Service established his mobile veterinary clinic in 2010 and acknowledged his business was "growing steadily" (Showalter, 2010).

In an informal interview, veterinarian Dr. Jezylo (personal communication, May 29, 2018) described her experience managing her own mobile clinic that practiced for two years. After her two years of mobile practice, she then joined an associate clinic for personal reasons. When prompted with the following question, "Did you ever see changes in your patients [behavior and FAS] at the veterinary clinic versus their examinations via your mobile clinic?" Dr. Jezylo stated "Lots! Very often cats would come into the clinic and be stuck to the ceiling and I would suggest doing at-home visits. There would be a huge difference in relaxation." She did admit, "Cats were still a little nervous and would recognize me…you cannot eliminate the stress completely." Dr. Jezylo did also see several dogs that refused to enter the veterinary clinic due to their severe FAS, and she would then see them on her house-call days. During her time practicing from her mobile clinic, she would schedule expanded time with each of her house call

clients to allow time for acclimation and travel, a generally difficult thing to do in clinics due to the high traffic and business style.

In another informal interview, veterinarian Dr. Mead described her time practicing from her mobile clinic for 3.5 years. Initially, Dr. Mead practiced for some years in a veterinary clinic as an associate but left for personal reasons. When prompted about her clientele and the growth of interest from her community, she stated "at first 2/3rd of my clients were clients that followed when I left the clinic; however, gradually it got to a point where 1/3rd of my clients were established from the clinic and the rest were new owners seeking the advantages of house calls" (personal communication, June 11, 2018). She indicated that she did advertise her services but eventually had to stop advertising due to the large amount of requests! When describing her "ideal patients," Dr. Mead stated that her typical patients were the animals that did not do well at the clinic. These animals required more time for acclimation, needed to trust in their space, and were stressed and fearful when entering the clinic. In general, her patients responded well. While she indicated that she still had "super challenging" dogs, she would just take her time and figure out what worked for each pet with the help of their familiar environment and owner.

Overall, Dr. Mead found that if her patients had behavioral problems in the clinic, they were more manageable in their own home. She also found that the owners themselves were less stressed (personal communication, June 11, 2018). There is a future in house calls, and it is probable that with the increasing interests of pet owners, mobile clinics will become more popular for their reduced stress and fear as well as overall convenience for their patients and clients.

It is clear that there has always been concern about animal well-being; however, there has been a recent shift in interest, passion, and attention to FAS associated with veterinary clinics in

animals. With research, the history of this transformation has become more accessible and understood. Understanding animal emotions is essential to understanding animal welfare and animal behavior, according to Špinka (2012). Attention must be given to these subjects in order to affect and reduce the FAS. It is important that research continue into the future, and concepts such as Fear Free℠ are normalized and expanded.

In the past decades, the veterinary profession has made remarkable improvements. These improvements have included the reconstruction of in veterinary curriculums, the foundation of programs like Fear Free℠, the expansion of knowledge from pet owners to professionals, and the progression of animal welfare and ethics. These improvements have stretched beyond veterinary clinics and into shelters and zoos. According to Tynes (2014), in the past decade "zoo veterinarians have moved to less physical or chemical restraint and more training helping their patients participate in their own medical care." Additionally, Fear Free℠ has started being incorporated in other professions as well. In 2015, veterinary architects began incorporating Fear Free℠ concepts into their clinics. Lewis recommended having species-specific clinic entrances and waiting areas, eliminating noise with double doors, high ceilings, natural light, and using visual blocks.

Fear Free℠ has begun to make news in countries outside of the United States, where it was founded, and Canada. An article published earlier this year in the United Kingdom introduced Fear Free℠ as a model for veterinary medicine that is sweeping through North America. Explaining the benefits of this program, Waters stated that Fear Free℠ has the potential to transform veterinary medicine in the UK and other continents around the world. Many Fear Free℠ concepts have already been in practice for some time, however with a certification program, these methods have been researched and proven to reduce FAS in veterinary clinics

and professionals may train on these methods. Fear Free℠ provides a model of example and allows veterinary professionals and pet owners to come together for one purpose, their pets' health and well-being.

There are currently nearly 33,000 Fear Free℠ registered veterinary professionals in the US, Canada, and countries around the world (https://fearfreepets.com/). In 2018, Fear Free℠ launched its practice certification program in which professionals are given access to tools, protocols and knowledge to reduce fear, anxiety, and stress in patients, and to implement Fear Free℠ into their practices. In order to become certified, 25% of the clinics staff must be Level 1 certified and have an active membership. There are also pass/fail assessments incorporated into the process. Fear Free℠ practice certification is currently only available in the United States and Canada, but Fear Free℠ has indicated that this will expand in the future. As of May 2018, there are six Fear Free℠ certified practices in the United States and one in Canada (personal communication, May 29, 2018). Fear Free℠ has begun implementation in several veterinary institutions as well. These institutions include University of Florida, UC Davis, and Washington State University (personal communication, May 31, 2018). While Fear Free℠ indicated that these three are the major players that they know have adopted Fear Free℠ concepts, it is possible that others have implemented Fear Free℠ into their curriculum.

Conclusion

While there have been advancements, changes, and transformations along the way, fear, anxiety, and stress are still evident in today's veterinary clinics. However, with Fear Free℠, a new page has been turned and as Waters stated, it is "sweeping across North America." Veterinary institutions have begun to incorporate Fear Free℠ concepts, and a new standard is on the horizon. Veterinary professionals have acknowledged FAS and are working to eliminate the

association. There is still much work ahead for the veterinary profession, but it is clear that Fear Free℠ will continue to prevail. It can be expected that the number of Fear Free℠ certified practices and individuals will greatly increase in the years to come, curriculums will continue to increase incorporation of animal welfare, ethics and animal behavior, and the veterinary profession will continue to transform.

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