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## Minority Student Perceptions of the Veterinary Profession: Factors Influencing Choices of Health Careers

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MINORITY STUDENT PERCEPTIONS OF THE VETERINARY PROFESSION:  
FACTORS INFLUENCING CHOICES OF HEALTH CAREERS

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at the

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This thesis has been approved  
for the Department of **PSYCHOLOGY**  
and the College of Graduate Studies  
by

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## Dedication

As one who has lived all of his life in a relatively limited portion of the globe, stretching from Richmond, Virginia to Cleveland, Ohio, the last year and a half has suddenly opened up new vistas for me by exposing me to a quartet of extraordinary teachers who represent cultures originating from four different continents: Herb Stevenson, born into the Cherokee and Shawnee nations; Deborah Plummer, whose parents hail from Panama and Jamaica; Lisa Gaynier, born in Hawaii; and Steve Slane, a European American born in Idaho. All four are professors in the Department of Psychology, Diversity Management Program at Cleveland State University.

Under their watchful guidance, I became aware for the first time about human issues that reach into the deepest layers of our personal and social selves. Countless matters that I previously ignored or took for granted suddenly began to form cohesive patterns. My earlier view of the human condition was like a view of a stained glass window from a parking lot. There were bits of glass and streaks of color visible from the outside, but after I began to comprehend the complex discipline of diversity management, I felt I was inside the church, viewing the stained glass window from the pews. The colors were now brilliantly harmonious and the images and patterns made sense in a way that the blurred view from the outside would never have revealed.

The global interconnections among diversity issues explained by these extraordinary educators took on new meanings that my earlier observations could not have brought into full view. The abundant knowledge I've gained from these four remarkable educators has, I believe, made me a better human being.

## Acknowledgement

Reflecting on my career up to this point, I realize that each of us comes to a stage in our existence when we look back, evaluate what we've done so far in life, and wonder how much time we have left to accomplish the goals we dreamed about when we started our career journeys. I speak hereof for myself as an African American veterinarian in his sixties, who may or may not have much time left. I have practiced veterinary medicine for forty years, and lately, I've done some earnest thinking about what I have, and have not, achieved in these last four decades, and what it is that I would like to communicate now to future generations of veterinarians.

The mythic hero Sisyphus offended the gods and was punished by them by being condemned to the hopeless and endless task of rolling a huge stone up a hillside. Every time he approached the summit of the hill, the rock rolled back down of its own weight. Each time, Sisyphus had to start all over again. The gods designed this special punishment for him because he had dared to challenge them. I have no heroic stature, but as I battle social inertia and bureaucratic power, and the glacial pace of change in popular attitudes, I appreciate what it means to have to repeat the same task, like Sisyphus, without being assured of a meaningful end to one's efforts. I am convinced, though, that I must do what I can to enable as many qualified minority students as possible to enter veterinary schools in order to ameliorate the woeful inadequacies of racial and ethnic diversity that exist in the profession.

Mythic or religious heroes of antiquity show a remarkable pattern in the way they came of age. Heroes like Theseus, Hercules or Moses, even though each is very different, share what Joseph Campbell has called a "Separation – Initiation – Return"

pattern. Generally, the heroes are born to obscure or undistinguished parents, and fairly early in life, they are separated from their parental background. In their quest for new meaning, they are initiated by some teacher, mentor or other powerful figure into a fresh set of values or way of life. This pivotal guide opens up totally new vistas, and the mythic heroes discover their destiny. Subsequently, they return to their homeland and usher in a new era for their followers after going through numerous trials and tribulations. All such heroes are people of destiny who leave a permanent imprint on their chosen realm of endeavor.

We no longer live in the age of myths, but in our age of modern realism, there periodically emerge leaders who have the same status in practical fields of undertaking. They also leave their childhood context and go off into new settings where powerful mentors initiate them into demanding disciplines which they master, showing dazzling creativity as they rise to the top of their field. After their apprenticeship, they either return to their original homeland or practice their new skills in another chosen area that enables them to maintain their emotional and intellectual links with their place of origin.

My mentors at Tuskegee Institute and throughout my professional career, Dr. Eugene W. Adams and Dr. Walter C. Bowie, achieved truly heroic, legendary stature in the field of veterinary medicine. Coincidentally, both were born in the heartland of America, Kansas, a state which has a tradition of nurturing rugged individualism. Although in different classes, they both received their D.V.M. degrees from Kansas State University and went on to receive their Ph.D. degrees from Cornell University. They were both African American veterinarians long before Brown vs. Board of Education in the 50's, and the Civil Rights Movement of the 60's.

Dr. Adams went on to become pivotal in the early growth and development of the Tuskegee University School of Veterinary Medicine (TUSVM) and was the first African American veterinary pathologist to be certified as a Diplomate of the American College of Veterinary Pathologists. His singular influence encouraged over thirty TUSVM graduates to become Diplomates in that same demanding discipline.

In 1995, Dr. Adams published *The Legacy: A History of the Tuskegee University School of Veterinary Medicine*. He continues to research and publish information on African American veterinarians and, at age 91, is perhaps the most authoritative source of information in the country on minority participation in veterinary schools and in the veterinary workplace. His compelling research concerning veterinary education has been vitally instrumental in motivating and driving the nation's veterinary schools to address their relative failure to recruit and admit minorities into the profession.

Among his many other awards and recognitions, Dr. Adams was the 1999 recipient of The Iverson C. Bell Award for distinguished service in veterinary medicine.

Dr. Bowie was central in the infancy of the TUSVM, providing exemplary commitment, dedication and leadership. He became Chairman, Professor of the Department of Physiology and Pharmacology in 1947. In 1964 he became the first African American President of the American Association of Veterinary Physiologists and Pharmacologists. In 1972, he was appointed Dean of the TUSVM, serving in that high office until 1990.

One of the best cardiovascular physiology researchers in the field, his pioneering work in the development of the Bowie-Hawthorne equine heart-lung bypass machine

made possible the origination of sea change research that was inconceivable with smaller animal models.

Known warmly in the veterinary profession as the Dean of Deans, Dr. Bowie continues to provide invaluable insight into the complex issues facing veterinary medicine, relying on his unique status as a true renaissance veterinarian.

In all major fields of the modern world, there are pioneers who open doors for succeeding generations to enter and fulfill their potential. For example, in 1899, when Dr. W.E.B. Dubois published his classic study, *The Philadelphia Negro*, he almost single-handedly created the field of African American sociology and served as a role model for future scholars. In veterinary medicine, Dr. Eugene Adams and Dr. Walter Bowie played similar roles, not only with their pioneering achievements in veterinary pathology, physiology/pharmacology respectively, but also by being vitally instrumental in both the beginning and continuing history of the only predominantly African American school of veterinary medicine in the United States.

Young minority candidates for veterinary school today, for whom doors are becoming more open, probably have little knowledge of what outstanding pioneers like Dr. Adams and Dr. Bowie must have experienced as they entered fields previously closed to minority students. The prejudice, lack of funds, lack of role models and discouragement by hostile individuals are the counterparts of the legendary monsters faced by the mythic heroes of antiquity. Theseus had to fight with the Minotaur, the half-bull, half-human monster that inhabited the dark winding maze of the labyrinth. Just as Theseus slew this monster and brought deliverance to the Greeks, Dr. Bowie and Dr. Adams also battled and defeated the monsters of Jim Crow, prejudice, and segregation,



and brought deliverance to succeeding generations of minority veterinarians. Six decades later, over 2,000 graduates of the School of Veterinary Medicine at Tuskegee University are profoundly indebted to and stand proudly on the shoulders of these true living giants.

MINORITY STUDENT PERCEPTIONS OF THE VETERINARY PROFESSION:  
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EVAN M. MORSE

ABSTRACT

The lack of racial and ethnic diversity in the profession of veterinary medicine is widely recognized. Despite this recognition, minority representation in veterinary colleges remains very low. No demographic data shows exactly how many minority veterinarians exist; however, Elmore (2003) extrapolated numbers from recent graduates and suggested that about 91% of all veterinarians in the United States were white, 5% were Hispanic, 2% were African American, 1% were Asian/Pacific Islander, and less than 1% were American Indian/Alaskan Native. For minority groups, these percentages are significantly lower than the racial distribution in the population of the United States. Limited progress has been made toward achieving diversity in the veterinary profession.

Previous research (qualitative interviews) has identified several reasons for the lack of proportionate minority representation in animal-oriented fields including veterinary medicine (Brown, 2005):

1. Economic disparities
2. On-going civil rights struggle
3. Moral obligation to serve people
4. Unattractive career incentives
5. Inadequate career exposure and recruitment
6. Non-supportive environments
7. Negative images of the field

8. Little or no positive animal experience
9. Racial discrimination and prejudice

About 10% of veterinary students in United States colleges of veterinary medicine today are minorities. More quantitative research is necessary to understand the reasons for this lack of proportionate representation. The current study is the first large scale project to survey a group of high achieving underrepresented college-bound and undergraduate students that are in pursuit of mathematics and science-based careers in order to understand the reasons they are less likely to choose veterinary medicine than other health fields as a profession.

Results indicated that the following two factors were the most important in the decision to pursue a career in the field of veterinary medicine:

1. Acquaintance with a practicing veterinarian
2. The availability of shadowing or internship opportunities

Based on the findings of the survey, recommendations and strategies for increasing minority representation in the veterinary profession are presented.

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## CHAPTER I

### THE CONTEXT OF VETERINARY PRACTICE

Veterinary medicine is the least racially and ethnically diverse profession in the United States today. About nine out of ten veterinarians currently practicing in the country are white. (Elmore, 2003) In the state of Ohio, out of about 3300 veterinarians, fewer than ten are black. This trend will continue well into the foreseeable future, as only about one in ten students entering U.S. schools of veterinary medicine is a minority (see Appendix A,B,C,D,E,F,G,H). In 2003-2004, 1,232 students were enrolled at four of the twenty-eight accredited schools of veterinary medicine in the United States. Not one of them was black. (see Appendix I) Veterinary medicine is the most racially segregated field in graduate education. (*Journal of Blacks in Higher Education*, 2003/2004).

Through the years, many factors in our society have been implicated as contributing to the lack of racial and ethnic diversity in veterinary medicine. Estimating the relative influence of each of these factors in impacting this lack of diversity is difficult. Outlined below, in no particular order, is a list of often-mentioned factors:

- Insufficient number of mentors and role models to promote and educate the public as to what veterinary medicine has to offer.
- Historic lack of commitment from leadership to dedicate financial and human resources to pursue racial diversity within the profession of veterinary medicine.
- Perception that minority groups are inferior and/or other stereotypes that incorporate classism, racism and other biases.
- Insufficient programs to educate parents about the positive benefits of a college education and how to finance it.
- Lack of legislative commitment and initiatives at all levels of government to support programs designed for individuals whose access to educational opportunities is otherwise limited or denied.
- Lack of initiatives to partner with local school districts in low income and minority communities to assist with developing a multicultural/diverse curriculum to academically prepare these students for college and beyond.
- Lack of programs and initiatives that research and address areas of concern such as: animal ownership by race and ethnicity, exposure of urban students at an early age to rural animal environments and inner city housing that does not permit companion animals in residences.
- Relatively low starting salaries for veterinary graduates, which may steer some students to other health care professions where income may be greater. The fact that there has been considerable improvement in starting

salaries for recent graduates should be communicated to prospective veterinary students.

- Negative feedback from veterinarians who interact with children and clients in their practices and workplaces regarding the promotion of veterinary medicine as a career.
- Negative information and counseling from teachers and career advisors in primary and secondary education regarding careers in veterinary medicine.
- Insufficient commitment and dedication of resources to recruitment and retention of faculty and administrators of minority populations in some veterinary colleges/schools.
- Urbanization of the United States population, leading to less farm animals and ownership of fewer pets by city dwellers due to space limitations.

(AVMA Task Force on Diversity Final Report, 2006).

These societal and professional factors have a great degree of influence on the lack of racial diversity within the veterinary profession. Positive steps on individual levels and comprehensive organizational changes must be initiated or expanded upon to mitigate these factors to create a more racially and ethnically diverse profession.

A limited number of studies have been undertaken which shed light on the factors that deter minorities from veterinary medicine. The professional literature published in veterinary medicine focuses on racial and ethnic diversity among veterinary students and veterinarians with only a fraction of the attention paid by physicians and dentists to this crucial topic.



Kendall (2005) described the anomalous social situation created in the field of veterinary medicine by the near absence of African American veterinarians. He focused in particular on an important economic aspect of this overall situation: the debt burden of the average veterinarian who has graduated from veterinary school in recent years. According to a 1999 KPMG survey, during the period from 1998 to 2003, the average veterinarian emerged from veterinary school with a debt of \$73,000. It is true there was a commensurate increase in the average income of a veterinarian during the same period, but the significant point is that these average income increases represent the situation for white veterinarians. For minority veterinarians, taking on a debt of this magnitude is more negative than it is for a white veterinarian who has access to resources and credit markets that are simply not available to potential minority veterinarians.

Between 2002 and 2004, Kendall visited 30 veterinary schools. He confirmed the negative impact of the lack of racial diversity on minority candidates contemplating a career in veterinary medicine. Of particular concern were the implications of such disparities for the overall well-being of society.

Lloyd (2006) explored current population composition as well as future trends in relation to racial diversity in veterinary medicine. He noted that the proportion of under-represented minorities entering the profession rose from 4.1% in 1981 to 9.7% in 2005. His research indicated that in the foreseeable future, the proportion of nonwhite veterinarians, after allowing for predictable attrition, was likely to be considerably less than 10%. This was significantly lower than the 40-50% expected minority representation in the population as a whole in coming decades. He expressed serious concern over this approaching imbalance between under-represented minority

veterinarians and the total under-represented minority population. Clearly, the imbalance threatens the possibility of achieving racial diversity goals in the veterinary profession. Imbalances of this type, in conjunction with similar trends in many other areas, represent a serious threat to overall societal cohesiveness.

In support of the established explanations of the lack of racial diversity in veterinary medicine, Elmore (2003) proposed four likely reasons for this scarcity of diversity in the profession:

- Comparative lack of animal ownership by minorities
- Cultural and ethnic bias against animal ownership
- Lower average income of veterinarians as compared to physicians
- Scarcity of role models for young minority students

Elmore did not foresee any quick change in the future, and recommended encouraging animal ownership by more minorities. He urged veterinary associations to collect more reliable statistical data concerning minority representation in the veterinary field. Positive steps can only be taken on the basis of scientifically gathered facts.

Elmore did not raise the issue of the cost associated with pet ownership. Affordability cannot be separated from the desire for pet ownership among minorities. Most minority individuals have much less disposable discretionary income than average white individuals. Elmore noted that whites own 94% of all cats, and 91% of all dogs. A survey of the class of 2006 veterinary students showed that 99% own or owned a dog or cat, indicating a strong correlation between pet ownership and applying for admission to a veterinary school. It is possible that if one were to survey pet ownership among

affluent under-represented minorities, one might find pet ownership is on a par with that of a comparable sample of the white population.

In a follow-up article, Elmore (2004) noted that 27 times as many minorities entered the field of human medicine as entered veterinary medicine. Elmore suggested that this proclivity towards human medicine could partially be explained by unenergetic recruitment of minorities by colleges of veterinary medicine.

It appears that there is a significant link between the lower rate of pet ownership among minorities and this unenergetic recruitment of minority students. Cultural and ethnic biases cause minorities to have far fewer pets than their white counterparts. Elmore notes that admissions committees at veterinary schools have made it abundantly clear that they tend to favor accepting candidates with prior experience with animal ownership. Here we have a classic vicious cycle: young minority students have less experience with pets and consequently veterinary schools accept fewer of them. Therefore, under-represented minorities have fewer veterinarians among them and their culture continues to produce fewer candidates acceptable to admissions committees at veterinary schools. There are fewer veterinarians among the minority groups to serve as role models, a fact that reinforces the cycle. Until this cycle is broken, we will never reach a self-sustaining flow of minority candidates into veterinary schools.

Elmore (2004) also explored psychological dimensions of historical factors impinging on the development of attitudes towards animals. Historically, animals were intimately related to plantations and farms, and African-Americans who worked for centuries in rural settings in the South understandably equated emancipation with a flight from the rural South to the industrialized North. In practical terms, the migration from

rural areas like the Mississippi Delta was also a flight from the animals associated with life in the South. According to Elmore, pet ownership would be a psychological re-creation of the southern lifestyle that was so excruciatingly related to bondage or servitude.

An additional psychological issue should be noted. Anyone observing white children in general at play with their favorite pets is likely to be struck by the intensity with which the children relate to their pets as extensions of the family. The children talk affectionately, imitating their own parents' soothing conversation. From time to time, they also admonish their pets as if they were the parents of these animals. In other words, the children are play-acting and preparing for the day when, as adults, they will assume actual parental and societal power. This psychological pattern appears to be much less intense among black children in general.

It is sadly true that power is a commodity in short supply in black communities. There is little motivation for black children to practice power games because they do not see their parents wielding much power in any meaningful sense. This may also explain why pets generally play a more limited therapeutic role for black patients as compared to white patients. For white patients, playing with animals is a symbolic return to the halcyon days of childhood with the assurance of powerful parents taking care of them in comfortable settings. Since most black patients did not have the same kind of childhood in which pets were surrogate family members, caressing animals as adults is not as likely to evoke memories of happy, bygone days.

Lastly, lower pet attachment among minorities may have anthropological and climatic dimensions. Historically, white people came from cold climes in Europe, while

most minority people in the United States were originally from much warmer climates. Bacteria, parasites and associated infections and infestations thrive more readily in these hotter climates. Traditionally, therefore, there must have been a natural tendency for people in warmer climates to avoid animals that might have been the source of disease-carrying agents that thrive in warm, humid parts of the world. The first descendants of wolves that became dogs and were accepted as pets by white Europeans might not have been readily welcomed if the cold atmosphere had not kept possible diseases at bay. People in hotter continents such as Africa or southern Asia did not take to animals as pets in the same way because animals in these parts of the world were bearers of disease in far more threatening ways. In short, the explanations for pet ownership among different racial and ethnic groups probably have truly far reaching roots in history.

Elmore (2004) provided 10 practical steps for promoting racial diversity in veterinary classes:

1. Elicit help from American Veterinary Medical Association (AVMA), Association of American Veterinary Medical Colleges (AAVMC), American Animal Hospital Association (AAHA), American Association of Bovine Practitioners (AABP), American Association of Equine Practitioners (AAEP), American Association of Swine Veterinarians (AASV) and others for a public relations campaign
2. Promote animal ownership among all races
3. Dispel the myth that it is impossible to be admitted to veterinary school
4. Educate admissions committees about biases
5. Change admissions policies and procedures

6. Provide mentoring activities for under-represented minority students
7. Demonstrate the broadness of the profession
8. Increase scholarship funds to under-represented minority students
9. Provide academic support for disadvantaged students
10. Actively recruit under-represented minority students

Brown (2002) reviewed earlier research on human-animal interaction in the United States and found support for the following hypotheses:

1. Whites score higher on pet attachment scales than do African Americans.
2. African Americans are more likely than whites to view pets as utilitarian or instrumental entities.
3. Whites have higher proclivity to anthropomorphize pets to the point that they are viewed almost as children or as quasi-persons. The sense of personhood of pets was so strong among some white owners that they routinely allowed pets to sleep with them in their beds, etc.
4. Whites own more pets and more varieties of pets than do African Americans.

Given the limited exposure to pets brought about by economic limitations, most African Americans never developed the same intensity of pet attachment as their white counterparts. This helped explain an empirical fact: African Americans derived less comfort from therapeutic pets than did whites. Brown also reported that females, regardless of race, showed stronger pet attachment than males.

In a subsequent article, Brown (2005) investigated the reasons for under-representation of minorities in veterinary medicine by contacting 32 animal welfare organizations, of which 13 responded. Out of a total of 1,584 employees in these thirteen

organizations, 4% were African American. In the top job categories (officials, managers and professionals), the percentage of African Americans was even lower, 0.8%.

The reasons for these low percentages were subsequently explored by Brown (2005) using semi-structured interviews with nine senior-level African Americans in the fields of non-profit animal welfare organizations, animal control, animal shelters and veterinary medicine. The following nine reasons for the under-representation of African Americans in these fields emerged from these interviews:

#### Economic Disparities

Expenditures on animals are generally viewed by African Americans as peripheral, while expenditures for human shelter, food, etc. are viewed as central. Given the limitations of income, a large number of African Americans feel that they are obliged to attend to their central needs before they can take on the responsibilities of spending money on animal necessities and welfare.

Additionally, limitations of income also compel many African Americans to live in inner city rented housing or in subsidized residences that often do not permit animal ownership. More economically advantaged white Americans, who frequently live in the suburbs, are favorably positioned to own pets and pay for their care.

#### On-going Civil Rights Struggle

The complex issue of civil rights evokes a broad range of reactions. Some people view civil rights within a framework that also includes animal rights, while others feel insulted by the mere suggestion that animal rights belong on the same level of discussion

as human rights. So, there are African Americans who feel that the unfinished agenda of civil rights does not permit them to devote energy to animal rights, while there are others who want animal rights to be linked with the issue of civil rights. The overall result is that proportionately, far fewer African Americans are motivated to expend emotional energy on pets that in many instances they can barely afford.

#### Moral Obligation to Serve People

Having experienced suffering on a more acute level than most of their fellow citizens, many African Americans feel that urgent human problems such as cardiovascular disease, cancer, AIDS, high infant mortality, drug and alcohol related issues etc. must take priority over the needs of animals, however legitimate those needs may be.

#### Unattractive Career Incentives

In many instances, a large number of African Americans are the first generation individuals in their families or communities attending college and endeavoring to break out of a cycle of poverty. They are keenly aware of the pressure on them to select a career that will enable them to earn a meaningful livelihood in a competitive society. Many believe that a career in an animal welfare or nonprofit organization devoted to animal care does not hold the promise of a bright economic future.

#### Inadequate Career Exposure and Recruitment

A great many African Americans are not sufficiently exposed to information or recruitment efforts concerning careers in animal welfare. In many fields, there are well-



organized efforts to recruit and orient promising students to prepare themselves for a career in those disciplines. There are few comparable recruitment programs to encourage promising young African American students to enter animal welfare fields, especially a professional field like veterinary medicine.

#### Non-supportive Environments

Sometimes African Americans who have been hired by organizations are not nurtured and supported in their process of development; so when frustration causes them to leave the organization, there may be little more than pious hand-wringing over their departure.

#### Negative Images of the Field

A classic verbal put-down for someone we do not respect is the following: “He can’t even run for dog-catcher in this city!” Remarks such as these indicate the poor negative image sometimes held on the popular level in relation to people in animal welfare fields.

#### Little or No Positive Animal Experience

Basic attitudes toward animals are formed in early life. A large number of African American children grow up in the inner city where experiences with animals come through encounters with ferocious dogs, stray cats, or diseased rodents that do not endear children to animals. More white children have their early experiences with animals through cuddly, loveable creatures such as fluffy kittens or adorable puppies.

## Racial Discrimination and Prejudice

Given the fact that only 4% of employees in animal welfare fields were African American, the overwhelming majority of authority figures in the field were white individuals who mostly had limited experience with African American colleagues whom they could view as equals or potential equals. Brown documented many cases in which white authority figures discriminated against African American students or employees.

Brown also noted that some of the nine interviewees objected to the premise of questions seeking to discover why African Americans tended to a more utilization versus anthropomorphic approach toward animals. For example, one interviewee protested that just because an African American owner in the inner city might rely on a cat to catch mice, did not necessarily mean that he/she loved the cat less than a white owner in the suburbs who only expected companionship from a cat.

Another participant noted that while it was true that a majority of whites did care for their pets, they were also mainly the ones who hunt some animals for sport. They were also primarily the ones who initiated the practice of experimenting with research animals to advance the cause of medicine.

All nine participants agreed on one point: promoting racial diversity in animal welfare fields was essential and would be beneficial to all mankind.

Nelson (2004) confirmed the figures provided by Elmore (2003, 2004), and projected the likely statistics for the middle of this century. In 2004, minority enrollment in United States veterinary schools was 9.6%, while the minority share of the U.S. population was 30%. Nelson noted that the minority American population will be 35%

by 2010 and 50% by 2050. Therefore, reducing the disproportionate gap between 9.6% and 30% is essential.

The growing disparity between the proportion of minority veterinarians and the proportion of minorities in the population must be viewed with alarm because a harmonious society cannot be so misbalanced in relation to a vital sector that provides a service of crucial importance to human beings and their fellow creatures.

Nelson holds admissions officers responsible for not recruiting minority students more vigorously and imaginatively. For example, he points out that widespread perceptions of lower income for future veterinarians (as compared to the income of physicians) is no longer valid. Admissions officers must publicize this point for qualified minority applicants who might not be aware of the new possibilities related to future income and lifestyles of veterinarians.

The standards for admission into U.S. colleges of veterinary medicine are not as stringent and fearsome (compared with past decades) as some young candidates might imagine. There were only two applicants for each slot available for admission into U.S. colleges of veterinary medicine in 2003 - 2004 compared to the 10 or more in past decades. Admissions officers can reach many more qualified candidates if they publicize the improved possibilities for admission.

From 2001 to 2005, the applicant pool for veterinary schools did not increase, even though the pool for other health professions grew significantly in the same period. Ironically, the demand for veterinary services increased steadily.

According to the late Dr. Alonza Atkinson, Dean of Tuskegee University School of Veterinary Medicine, “Perception is reality; if potential applicants believe they won’t be accepted, they won’t apply!” (Atkinson, 2003, cited in Nelson, 2004).

The recruitment of students to veterinary schools is heavily reliant on the present manner of functioning of the colleges of veterinary medicine. Coffman (2002) suggested changes in the overall context of veterinary education by engaging a greater diversity of worldviews and a more flexible approach to role and reward systems. He pointed out that the traditional educators in veterinary medicine had focused on three matters: teaching, research, and clinical service.

It is important to note that these three factors did not operate in a vacuum. They were embedded in a social context, and that social context was changing rapidly. Until that time, most of the students entering veterinary schools were white males. Increasingly, the new students are female and/or members of minority groups. By 2050, half of the U.S. population will be composed of people of color, and since veterinary schools are not insulated from society at large, inevitably the new students of veterinary schools will reflect the changed demographic patterns. Coffman noted, however, that there were so few people of color in the veterinary field that this lack of representation of minorities in the field was an unhealthy fact of life that had to be overcome. The new demographic patterns in the United States will not be a matter of people of color possibly adjusting to patterns established by white Americans. Rather, there will be a complex process of give and take where the new groups will participate with the established white power structure in forging new standards for professional and social interaction.

In traditional academic fields, including veterinary medicine, it has been customary to recognize and reward individual accomplishments that can be measured. Well-known examples are publications and research dollars secured by faculty members. In most minority cultures, however, more value is placed on teaching and service that benefits the community. These cannot be measured as easily as publications or research dollars. So, there will have to be a process of adjustment in the academia of the future in which there must be compromises between past practices and future needs, particularly in relation to reward systems. Currently, research is rewarded far more than teaching and clinical service. Developing fresh models and fitting academia into changing diversity situations is only given lip service. New balances will have to be worked out by scholars, practitioners and administrators.

Additionally, veterinarians who are primarily involved in private practice will realize that being a successful veterinarian will not be just a matter of being an expert in veterinary medicine and surgery, but also a matter of knowing how to deal with social issues involving their clients and employees. In short, the art of managing a veterinary practice will be just as important as the intellectual task of mastering veterinary medicine.

In recent years, the task of promoting meaningful diversity in colleges of veterinary medicine has taken on special urgency (Greenhill 2007). The changing demographics of America have made it imperative for colleges of veterinary medicine to respond to shifts in population trends. In 2005, at the Fifteenth Iverson Bell Symposium, the Association of American Veterinary Medical Colleges launched its DiVersity Matters (DVM) Initiative, and recommended and expected that its members accept the challenge of promoting racial and ethnic diversity at colleges of veterinary medicine.

Essential among the goals of colleges of veterinary medicine should be promulgation of the idea that students from underrepresented groups can become successful practitioners of veterinary medicine. Too often minority students remain without access to information about careers in the veterinary profession. In minority communities, the public seems to be aware of the role of veterinarians in companion animal practice, but not the full range of the opportunities in the veterinary profession. Veterinarians just do not have a high enough profile in communities of color.

Secondary and postsecondary students in these communities are also usually not familiar with vital aspects of the services provided by veterinarians. Consequently, there is insufficient entry into the veterinary medical school pipeline by students in minority communities. One remedy for the problem is to significantly expand the scope and visibility of veterinary related programs.

These expanded programs must include mentoring because academic nurturing is essential for students at all stages. All medical careers involve high degrees of stress, and experience shows that mentoring networks provide one of the best ways of relieving anxiety and stress. New programs should balance cross-racial and same-race mentoring. The small number of minority veterinarians that currently exist cannot adequately address the task of mentoring the number of students. The entire profession has to shoulder the burden of mentoring.

Recruiting faculty from underrepresented minorities has to become a special undertaking of colleges of veterinary medicine and of the Association of American Veterinary Medical Colleges. Role models of the same race and ethnic background are special sources of inspiration for students. In dealing with racial diversity issues in the

health professions, the Sullivan Commission (2004) took note of the benefits of minority faculty mentoring “non-minority students by helping students deal with their cultural biases and the process of self-discovery wherein biases are self-identified, understood, and eliminated”. The leadership of colleges of veterinary medicine must reflect the racial and ethnic diversity of the nation, and within the colleges of veterinary medicine the diversity of the student body needs to be matched by diversity within the faculty.

Minority serving institutions at secondary and post-secondary levels must be brought into relationships with the veterinary colleges because pipelines that lead to veterinary medical institutions depend heavily on these educational organizations. Career counselors at historically black and tribal colleges and at institutions with high Hispanic enrollment can play vital roles by providing students with information concerning veterinary careers. Colleges of veterinary medicine must develop meaningful partnerships with such minority institutions, and the partnerships must be viewed as significant beneficial long term relationships.

Colleges of veterinary medicine must also develop partnerships with other agencies such as industry and governmental bodies working on behalf of educational and professional diversity. In the U.S. Supreme Court case *Grutter v. Bollinger*, (*Grutter v. Bollinger* 123 S. CT. 2325 (2003)., Justice Sandra Day O’Connor concurred that achieving a diverse student body is a goal that justifies the use of race, among other factors, in admissions processes. The internationalization of commerce and industry shows that diversity enables all enterprises to improve their competitive edge, and colleges of veterinary medicine must be in harmony with this steadily growing trend.

Census data of the last two decades indicate that financial prospects have improved for people of color, but the data also indicate that many still live below the poverty level. Financing a veterinary medical education is, therefore, a serious challenge disproportionately for minority students. The U.S. Census Bureau provides the following poverty rates for 2003: blacks 24%; Native Americans 23%; Native Alaskans and Hispanics 22%; Asians 12%; whites 8% (U.S. Census Bureau). These figures show that the financial burden is heavier for minority students. Colleges of veterinary medicine, therefore, need to develop programs that will make financial support available for deserving minority students.

In their efforts to promote racial and ethnic diversity, colleges of veterinary medicine must go beyond simple tolerance, and create an atmosphere on their campuses that actually encourages people to recognize differences among human beings as factors that significantly enhance learning and nurture collective well-being.

The DiVersity Matters Initiative can enrich veterinary medical education by providing new strategies for promoting ethnic and racial understanding. Long-term student and faculty success at colleges of veterinary medicine depends on the utilization of these strategies with full diligence. New racial and ethnic demographics make it essential for colleges of veterinary medicine to meet the challenges of a changing population. Promoting the DiVersity Matters Initiative will serve the cause of lifting the entire veterinary profession to a higher level.



## CHAPTER II

### GENERAL FACTORS AFFECTING CAREER DEVELOPMENT

Researchers have identified six types of factors that influence the process of career development: (1) familial, (2) societal, (3) socioeconomic, (4) individual, (5) psychosocial, and (6) emotional (O'Neil et al, 1980).

An individual's family background is considered by researchers to be the most important determinant in career development. Experiences in early childhood, male or female parents serving as role models, birth order, and other associated factors are important influences on career development.

Additionally, research shows that the choices individuals make in elementary school are determined by numerous factors such as status levels associated with different occupations, social class, perceptions of one's self, gender issues, parental influence, and so on. Even though many children change their occupational goals later, it is also the case that numerous children fix their career aims in the initial years of elementary school. Medical and scientific careers in particular tend to be planned early in these elementary years. However, for all careers, the early period is generally crucial, and the search for new knowledge regarding career development must continue to focus on this stage of life.

Regardless of whether or not children's career goals remain steady, there can be no doubt that these formative years are highly significant. Consequently, research must always be cognizant of this first part of the developmental stage.

Seligman (1994) noted that since Frank Parsons first introduced his view of career development and choice in 1909, many theories have been advanced on the topic, but no single theory has prevailed over the others. However, all of these theories share commonalities, including the following:

1. Career development is a process that follows relatively predictable stages throughout the life span. However, the nature of those stages varies between people. Counselors, then, should consider both general and unique individual processes of development.
2. Career information and counseling can be useful at multiple transition and choice points throughout the life span.
3. Career development is influenced by many personal factors including gender, family background and biology, personality, thinking and learning styles, values, interests, and abilities. All of these, both obstacles and resources, should be explored during career counseling to maximize self-awareness and facilitate career maturity.
4. The self-image is a particularly important influence on career choices. Awareness of self-concept can facilitate the making of rewarding career choices.

5. External factors such as time, society, environment, geography, economics, and chance also influence career development, and should be considered during career counseling.
6. People whose career choices are congruent with their personalities, and who have well-defined and prominent personality patterns, seem particularly likely to have stable and satisfying careers.
7. Career counseling should focus not only on occupational preferences but also on social and family goals, leisure interests, geographic choices, and other aspects of the lifestyle to reflect not just career planning but life planning.

Super's (1984) theory of career decisions has been particularly influential and is summarized in fourteen propositions:

1. People bring different abilities, desires, and self-concepts to bear on their decision-making processes in terms of their career choices.
2. People are not necessarily limited to choosing just one career. They may have the aptitudes suitable for a number of different types of careers.
3. Each type of job calls for certain sets of talents and certain kinds of individual qualities; and at the same time each occupation can accommodate more than one type of personality.
4. People's self-concepts are not static entities. They can change as the circumstances of work change or as people acquire new abilities. Over time though, self-concepts do have a tendency to stabilize between the periods of adolescence and attainment of full maturity.

5. The overall trajectory of growth or change is comprised of a series of life stages that add up to a “maxi-cycle” that has a sequence of five steps: (a) Growth, (b) Exploration, (c) Establishment, (d) Maintenance, (e) Disengagement. These five stages can be subdivided into periods demarcated by tasks that bring about specific types of development. For example, a “mini-cycle” may be defined by moving up from one stage of a career to a higher stage; or it may be defined by negative events such as illness, injury, or job downsizing. Such shifts in careers may involve reorganization of self-concepts and reestablishment of the self in a new job setting.
6. The general trajectory of one’s career is determined by a range of factors such as economic and intellectual resources made available by parents, innate abilities, educational attainments, personality traits, and by the scope of available opportunities.
7. Success in meeting career demands at any given stage is commensurate with the individual’s “career maturity”.
8. The term “career maturity” refers to a psychosocial concept that makes reference to the level of vocational growth attained by an individual in the transition from early growth to the final stage of retirement. “Career maturity” can be practically determined by setting the actual achievements of an individual against society’s normative expectations of an individual of a certain age. From a psychological point of view, “career maturity” can be measured by evaluating an individual’s intellectual and emotional capacities in terms of the intellectual and emotional strengths needed for a particular job.

9. Individuals can be guided from one stage to another by helping them to develop their skills, and by helping them to acquire a more mature understanding of their self-concepts.
10. Career growth can be equated with a developing self-concept in the context of the career. Such development depends on adapting one's inherited talents to the specific roles dictated by the needs of a specific job. It is essential for the individual worker to understand the degree to which he or she is meeting the expectations of superiors and colleagues.
11. The effectiveness of the fit between self-concept and the actual circumstances in which one has to function depends on the capacity to evaluate and profit from the feedback obtained through classes, groups, and reactions of colleagues and/or counselors.
12. A sense of fulfillment and satisfaction with one's work and life depends on the degree to which talents, predilections, and self-concepts find channels of expression. Harmonious integration of patterns of work into one's basic lifestyle is essential for achieving deep satisfaction.
13. The extent to which a person actualizes his or her self-concept determines the extent of meaningful career satisfaction.
14. The arena in which the self is organized is provided by the workplace. For some people, the workplace may be marginal for development of the self or personality; the home environment or leisure activities may play a dominant role for such individuals in personality development. Other factors such as

social traditions, racial issues, and pre-ordained sex-roles can also influence careers.

A widely used vocational guidance model (see Appendix J) developed by Holland (1985) emphasized the fit between characteristics of the person and attributes of the job. In his system, persons and vocations were classified in terms of their resemblance to each of six personality types: (1) Realistic, (2) Investigative, (3) Artistic, (4) Social, (5) Enterprising, (6) Conventional. Personal qualities and behaviors were associated with each type. The degree to which a person fit into a given type depended on the degree to which he or she displayed the behaviors associated with the type. The environments in which people work are classified into six model types that have the same labels as the six categories listed above.

The pairing of persons and environments leads to predictable outcomes that can be understood in terms of the personalities and environments. The outcomes include vocational choice, stability and achievement; educational choice and achievement; social behavior; personal competence; and susceptibility to influence.

Three working assumptions lie at the heart of the theory. They involve the personality types and environmental models; the way the types and models are ascertained; and the way they interact to produce the vocational, educational, and social factors that the overall theory is intended to explain. The three assumptions are:

1. In American culture, most people belong to one of the six educational types. Each type has certain attitudes and skills for dealing with issues in the environment. Each type deals with information in different ways, but all types have in common the desire for fulfillment through use of special skills appropriate for the attainment of

specific goals. The types are not passive in relation to environmental influence because success depends on a selective approach to tasks.

2. A given type dominates each vocational environment, and certain physical settings and problems are characteristic of each environment. Since different types have different interests, they are inclined to cluster around specific people who are compatible with their interests.

3. People seek environments that permit them to exercise their skills, express their views, and adopt suitable roles. Thus, congruence between person type and vocational type is assumed to produce the greatest success and satisfaction.

The theoretical foundations for the study of career development were formulated by Frank Parsons in his “three-step formula” (see Appendix K) in 1909. The “formula” provided, for the first time, a conceptual framework for making career decisions that could be used on a practical level by guidance counselors.

Parsons stated, “No step in life, unless it may be the choice of a husband or wife, is more important than the choice of a vocation. The wise selection of the business, profession, trade, or occupation to which one’s life is to be devoted and the development of full efficiency in the chosen field are matters of the deepest moment to young men and to the public. These vital problems should be solved in a careful, scientific way, with due regard to each person’s aptitudes, abilities, ambitions, resources, and limitations, and the relations of these elements to the conditions of success in different industries.” (Parsons, 1909, p. 3).

“In the wise choice of a vocation there are three broad factors: (1) a clear understanding of yourself, your aptitudes, abilities, interests, ambitions, resources,

limitations, and their causes; (2) a knowledge of the requirements and conditions of success, advantages and disadvantages, compensation, opportunities, and prospects in different lines of work; (3) true reasoning on the relations of these two groups of facts” (Parsons, 1909, p. 5).

Parsons was convinced that people would benefit immensely from active involvement in the process of choosing their careers. Relying on chance for choosing careers was definitely not desirable. Systematic thinking and planning, he believed, would lead to greater job satisfaction and efficiency on the part of employees and reduction of costs for employers. These simple ideas based on common sense are still the core of modern theories of career planning.



### CHAPTER III

#### MINORITIES IN THE WORKFORCE

Minority ethnic groups have generally not done as well as mainstream groups in the search for upper-level jobs and in obtaining equal pay. African Americans and Hispanics in particular fall below the average. However, there are exceptions to this overall pattern, so it is helpful to look at census figures. According to the census of 1983, 4.7% of executives, administrators, and managers in the United States were African American, and only 2.8% were Hispanic (Fullerton, 1989).

#### Hispanics

Very little is known about the career development of Hispanics (Arbona, 1990). Parental influence on young Hispanics is strong, and Hispanics are keenly aware of hurdles posed by discrimination and stereotypes. Work satisfaction among Hispanics is lower than is satisfaction among ethnic majority groups, but higher than that of African Americans. Status is a better determinant than income for measuring career satisfaction among Hispanics. Satisfaction in other areas of life seems to be commensurate with

career satisfaction. The least satisfied with their careers are the Hispanics with high school diplomas. Those who go to college are more likely to be in 2-year than in 4-year institutions. Males in 2-year institutions are likely to display higher educational aspirations. Males who attend 4-year institutions or graduate school have aspiration levels similar to those of their white counterparts.

Hispanic students appear to be less realistic about career planning than are their white counterparts (Pinkney & Ramirez, 1985). The fear of losing cultural identity weighs heavily on the minds of individuals in this group. Dillard and Perrin (1980) noted that Puerto Rican and African American high school males had higher career aspirations than did their white counterparts, but the gap between aspirations and actual expectations was narrower for the latter group. Consequently, the Puerto Rican and African American groups experienced greater career discouragement.

### African Americans

African Americans, in addition to experiencing the aspiration-expectation gap, also face most of the same problems as Hispanics, such as higher unemployment and lower rewards. In the last 20 years, economic gains for African Americans have not matched their educational advances. The income levels for whites match their educational achievements more closely.

Cheatham (1990) noted that “African tradition has no central emphasis on the individual; rather, the individual’s being is authenticated only in terms of others”

(p. 337). Work is perceived as group effort. Such cultural messages make it difficult for young African Americans to develop individual goals of the type inherent in competitive educational and work environments.

Mathematical and scientific fields show very limited participation by African American men and women, while education, social science, and social welfare show overrepresentation by African American women (Kammer, Fouad & Williams, 1988). African American women show a stronger tendency than Hispanic women to pursue career goals, but even they seem to get discouraged by the burdens of family tasks and by limited economic rewards.

#### Asian Americans

Asian Americans are the one minority group that is academically and economically more successful than whites. They are also more likely than whites to seek career counseling (Leong, 1985). Their preference for the physical sciences and technical trades causes them to experience what Leong has named “occupational segregation”. The overwhelming majority of Asian American graduate students (75%) are enrolled in science and engineering programs. Very few of them are to be found in fields that require higher verbal and social skills. They also seem to stress money and security more than intrinsic satisfaction (Leong, 1991). Asian American cultural values have often led individuals in this group to sacrifice personal interests for the sake of impersonal career success.

## Native Americans

There is insufficient information available concerning career development patterns in Native Americans, but Lauver and Jones (1991) have noted that Native American high school students believe they have more limited career options than other ethnic groups, and this perception leads to a self-fulfilling prophecy of limited achievement. Native American societies (like their African American and Hispanic counterparts) favor cooperation over competition. Consequently, they may experience difficulties with tests and other competitive tasks (Hood & Johnson, 1991).

## CHAPTER IV

### MINORITY CAREER DEVELOPMENT

Racial prejudice is the most frequently cited factor for explaining the lower achievements of minorities. Whites are perceived as being reluctant to allow minority individuals to assume significant positions, and this perception causes many minority individuals to fear potential loss of identity if they embrace the values required for success in arenas of work dominated by whites. The fears of minority individuals may cause them to aim too low or too high in relation to career goals (Cosby, 1974). The expenses involved in college education also tend to cause young minority individuals to avoid college education and to seek work instead in order to support their families.

Counselors must be sensitive to racial and cultural issues in relation to career development. In particular, when they work with minority groups, they should be wary of using data obtained through research on whites. For example, it is not clear whether data obtained by interviewing whites can be relevant in working with Spanish-speaking (Harrington & O'Shea, 1980) or other minority groups.

Hawks and Muha (1991) have offered four encompassing recommendations for enhancing the career development of minorities:

1. Develop minority motivation by recognizing student-generated knowledge alongside established programs of counselors.
2. Integrate students' language and culture into educational programs.
3. Persuade minority parents to take part in educational programs.
4. If the overall system conflicts with what appears to be a flaw in the students, then develop an advocacy system on behalf of the students.

Great disparities exist between the numbers of minorities and non-minorities employed in the healthcare industry. Despite the fact that minority groups comprised almost a quarter of the United States population in 2001, they only represented approximately 20% in the healthcare industry. A higher incidence of this disproportion was observed in urban areas and rural areas with disadvantaged residents. These areas are known as the health professional shortage areas (HPSA's). In 2001, a yearlong study was conducted by the New York State Area Health Education Center (Zayas & McGuigan, 2006) to identify reasons as to why the disparities exist and how they can be improved. The researchers postulated that promoting interest in healthcare careers in the youth living in underserved areas is one strategy to curtail the lack of minorities in the health professions. They used high school students already enrolled in a health profession introductory program as their test subjects.

The assessment identified experiences of high school students that had either encouraged or discouraged their interest in healthcare careers. Motivating factors to enter the careers included:

1. Having family members in healthcare professions
2. Living with family members who had health problems
3. Embodying an altruistic personality
4. Following the lead of a mentor who was in the field
5. Participation in health related curricula
6. Work or volunteer experience in a healthcare environment
7. Access to supportive staff at school
8. Healthcare-theme media productions
9. Peers interested in the health professions
10. Academic strengths in core subjects required for health professions

Experiences that discouraged interest in a healthcare career were also delineated:

1. Academic weakness in required subjects
2. Perceived level of academic commitment
3. Education costs of healthcare careers
4. Lack of school staff support
5. Limited social support networks
6. Reductions in education funding
7. Racism and discrimination in society
8. Negative experiences with the healthcare system
9. Negative media portrayal of healthcare occupations
10. Geographic isolation from healthcare practice sites
11. Limited information about the diversity of healthcare careers

Many urban and rural communities have limited resources, and are victimized by unsupportive experiences and inconsistent messages, which make it hard to encourage interest in healthcare careers among their students. Underserved communities face many hurdles, but if they integrate their formal and informal resources into cohesive programs, they can encourage more interest among minorities in healthcare careers.

There is an imbalance between the growth of ethnic and cultural diversity in the nation as a whole and the current decline of diversity in the physician workforce brought about by challenges to affirmative action (Murray-Garcia & Garcia, 2002). This decline in the medical school pipeline involves four groups (African Americans, Mexican Americans, Native Americans, and mainland Puerto Ricans) that are collectively the underrepresented minority (URM).

Murray-Garcia and Garcia considered evidence indicating that the practice of ability-tracking in public schools physically shut out URM students from advanced academic classrooms and stunted the growth of their self-confidence in their intellectual ability. Second, they examined the subtle ways in which public schools differentiated between mainstream students and URM students by projecting a sense of lower expectations from URM students. The URM students intuitively picked up this un verbalized assumption of limited ability and fell victim to negative self-fulfilling prophecy. Third, the themes of cultural and personal identity were explored that restrain URM students from entering the culture of professional medicine which is permeated by tacit assumptions of white dominance. (see Taylor & Rust, 1999)

“Ability tracking” is the practice in elementary and secondary schools of separating students into groups labeled “bright, average and slow learners, and into



separate programs for students expected to follow different career routes after high school graduation” (Oakes, 1995, p. 681-690). These tracks are based on criteria such as test scores, grade point averages, and teachers’ subjective evaluations. Supporters of tracking claim that homogeneous groups are conducive to better and more efficient teaching, while opponents note that tracking discriminates against URM students and that historically the practice unfairly relegated Eastern and Southern European immigrant children into tracks that led to menial or hard labor. Considerable amounts of objective data show that the system of tracking has been used unfairly in many parts of America. The net result has been to diminish the talent available in the medical school K-12 talent pipeline.

Data from all 50 states and the District of Columbia indicate that African American children are three times more likely than white children to be labeled “mentally retarded”, even though African American boys from wealthy families and white students are generally judged as being more intelligent than URM students. Murray-Garcia and Garcia deplore “the devastating potential of unjust tracking to leave behind URM children from all neighborhoods and economic backgrounds”.

Professor Lani Guiniere (Harvard Law School, 1994) and some colleagues conducted a study from 1987-1992 that showed how women at the law school of the University of Pennsylvania “came to believe that their place within the hierarchy should have been toward the bottom”. Murray-Garcia and Garcia believed that the potential of URM children in public schools was undermined in the same way the women’s potential at the law school was undermined.

Many URM students sensed that the ability-tracking system devalued their humanity starting at the kindergarten level, and so they opted out of the learning process and claimed that their peers who opted in were “acting white”. To remedy the problem, many pipeline programs began to work with URM students as early as kindergarten.

URM students striving for academic success in the medical school pipeline may have adopted individualist, aggressive professional styles that may have compromised their ethnic and cultural identity. (Valdes, 1996) (Tierney, 1999).

Even highly motivated and talented URM students faced serious obstacles in a system which harbored doubts about their inherent ability. If they were made to feel that their ethnic identity was on trial, they were likely to suffer from “stereotype threat”.

Murray-Garcia and Garcia recommended that medical educators move beyond downstream programs that try to enrich individual students in high school who were relegated to underachieving trajectories. Medical educators must enter into long-term partnerships with public schools for the purpose of diversifying the medical school pipeline and making it as effective as possible. The partnership between the Baylor College of Medicine and Houston’s public schools provides a fine model that is replete with examples of innovative programs.

Not only must the students who “opted in” be nurtured, but the students who “opted out” must be persuaded to leave their “spaces of despair” and to re-engage with the educational system. This goal can be achieved by teaching URM students the basic truths concerning racism and by showing them constructive ways of responding to discrimination. The parents and the community, too, must be included, wherever possible, in such positive racial socialization. The parents and the community must be

involved in the education of minority youth (Sanders, 1997). The Neighborhood Initiative Program of inner-city Los Angeles, run by the University of Southern California, provides a good model for development of students' cultural identity.

Unequal learning opportunities have been, and continue to be, serious impediments for URM students. Those who want a more diverse physician workforce should respectfully enter into meaningful long-range partnerships with public schools.

Ability tracking decreases the talent pool available in the medical school pipeline. This same system, which leads to unequal learning opportunities among students thereby inhibiting many URM students from entering the medical field, has the same negative impact on the veterinary medical school pipeline.

#### African Americans in Veterinary Medicine

Veterinary medicine is a relatively new discipline that started developing rapidly after World War II. Before the war, what little medical care was given to animals came mostly from physicians. The rural black residents generally worked for white owners of livestock. These white owners in the pre-war times would not consider having their livestock treated by a black veterinarian, assuming they could even find one.

Jim Crow unwittingly provided a much-needed impetus for the development of black physicians, insurance agents, bankers, lawyers, dentists, barbers and morticians (Cross, Winter 2003/2004). This was because qualified white people in these fields did not relish the idea of taking care of black patients or black clients. When it came to animals, however, there was a significantly different psychology at work. Animals could not be put into simple categories like "black" and "white," and consequently white

veterinarians had no compunctions about taking care of farm animals regardless of whether they belonged to black people or white people. Therefore, blacks were discriminated against in entry to veterinary medical colleges. In other words, veterinary medicine was one of those fields where the old expression, “Blacks need not apply,” was especially relevant.

In the 1960’s, the days of President Lyndon B. Johnson’s Great Society Movement, many new doors were opened for black educators, lawyers, businessmen, etc. but one field that did not open up in the same way was veterinary medicine. Not enough attention was devoted to animal care, as many people remained preoccupied with the excitement of civil rights.

This practice of certain groups being singled out or excluded because of prevailing social psychology is not limited to veterinary medicine or the United States. It is a universal issue. In many parts of Asia and the Middle East, women are not permitted to enter numerous fields of business. In some areas of the Middle East, women are not even permitted to drive a car. In all of these areas, however, there is one professional area where women are very prominent: “lady doctors.” Women, generally speaking, are treated only by “lady doctors.” Women’s husbands in these parts of the world will not permit a male physician to touch or examine their wives or daughters. Notice the parallel between these husbands and the white owners of livestock in the U.S. in pre-war days who would not consider the notion of a black veterinarian treating their animals.

There is another parallel between the dominance of women physicians in Asia and the Middle East in the field of female medicine and a relatively new phenomenon in the U.S. in relation to the veterinary profession. Over the last two decades, there has been an

extraordinary surge in the number of women applicants to veterinary schools. About twenty years ago, applicants to United States veterinary schools were equally divided between men and women. A decade later, the figure for women had risen to 70 percent. Cross (1996) speculated that this increase might be attributed to the much stronger affection women have for animals. For example, an article in the *Manchester Guardian Weekly* (1996, August 4) reported on a recent poll showing that, if given the choice, 73 percent of women in the United Kingdom would rather give up their husbands than their horses.

One major lesson to be learned from the literature is that it is deleterious for society to have a large psychological gap between trained professionals like veterinarians and the overall client base served by those experts. In pre World War II America, the white veterinarians were more at ease with the farm animals that they treated than with the minority farm hands who actually lived with the animals on a daily basis and tended to their needs. The social upheavals of the sixties and seventies bear eloquent testimony to the tensions that can bring society to the breaking point if there is no outlet for all the pressure building up as a result of callous neglect.

Cannedy (2004) surveyed twenty-seven accredited U.S. veterinary schools concerning diversity issues. Twenty-one institutions responded. The responses indicated that racial diversity and attempts to improve it have been woefully inadequate at U.S. schools of veterinary medicine. The survey also pointed to potential practices that would improve diversity. These included:

1. A person on faculty who has been specifically designated to be active in total recruitment efforts

2. Consideration of disadvantaged backgrounds for admissions process
3. Making diversity training and enhancement part of the orientation for every entering class
4. Promotion of diversity throughout the admissions process
5. Seeking outside funding annually for programs and scholarships that improve diversity
6. Changing admissions standards to improve the number of successful minority student applications
7. Visiting high schools with large minority student populations
8. Attending conferences where minority students can be recruited
9. Providing financial assistance once qualified candidates have been identified
10. Providing mentoring

The survey showed that despite steady increases in African American and Hispanic populations, the national average for black student enrollment in Doctor of Veterinary Medicine programs had remained unchanged at around 2%. In 2004, the figure declined to 1.7%, and nationally less than 1% of first-year students were black.

The participants also noted ongoing obstacles to increasing the preparation of minority students for schools of veterinary medicine:

1. The inadequate mathematics and science skills of minority students were a matter of painful awareness for all participants. Minority students tended to avoid occupations that required these skills
2. Students had to be informed about veterinary education and about the varied career opportunities available to veterinarians

3. Many well-prepared minority students preferred other medical careers
4. The lack of competent mentors
5. The lack of institutional commitment to diversity
6. Rigid admissions standards especially required minimum GRE scores and GPA's
7. Too much emphasis on private practice, research and animal experience

The challenges facing the profession have to be re-examined. The standards for judging applicants must be realistic, and attention has to be paid to students starting at the elementary level. There is an abysmal lack of public awareness of what it takes to become a veterinarian. Minorities in particular do not have adequate access to vital information. In order to redress many aspects of this situation, the Association of American Veterinary Medical Colleges (AAVMC) committed to launch a national campaign to seek scholarship funds for the purpose of supporting minorities interested in veterinary medicine, and to create a new position for an associate director of diversity.

Williams (2006) reported on the wide gap between the numbers of ethnic minority medical students in his classes (41%) as distinguished from the percentage of ethnic minority veterinary students (4%) over a three-year period. The Royal Veterinary College and the British Medical Association also reported similar figures for the composition of their classes. Polling of the medical students indicated that their parents overwhelmingly favored their children entering medical or legal professions rather than the field of veterinary surgery when there was the academic ability to enter these select fields. It is worth noting that Williams' findings matched roughly the enrollment figures in veterinary schools on the other side of the Atlantic in the United States and Canada.

## Historical Perspective of African American Veterinarians

Obscurity shrouds the history of African Americans and other minorities in the veterinary profession. The work of African American veterinarians is seldom noted in articles on the history of veterinary medicine. This neglect of a meaningful aspect of history has blocked appreciation of the contributions of African American veterinarians. The significant numbers of African American and other minority veterinarians who have achieved eminence represent living testimony in support of the case for championing the cause of equal opportunity for all. In the 59-year span between 1889 and 1948, a total of 70 African American veterinarians graduated from veterinary colleges in the U.S.A. and Canada (Adams, 1995). Insight into this historic lack of racial and ethnic diversity enables one to comprehend the current difficulties experienced by educators attempting to recruit minority candidates for veterinary colleges today. Proper comprehensive understanding is essential for acquiring sensitivity toward racial and ethnic diversity.

In the last half-century, circumstances have changed somewhat. Doors at veterinary colleges that used to be closed to minorities are now more open, even though recruitment efforts have not been particularly successful because in many cases racial issues have not been addressed properly. Standardized tests also placed minority applicants at a disadvantage because their backgrounds did not prepare them for such tests. Career opportunities for minorities, however, have broadened in the profession. The problem is analogous to that of turning around the proverbial supertanker.

Historically, the three career paths available to African American veterinarians were private practice, working for the federal meat inspection service, and working as college veterinarians at certain African American colleges (Adams, 1995). Private



practice was feasible only in areas where race was not an insurmountable hindrance. Dr. F. D. Patterson, who worked as college veterinarian at Virginia State College, said: “In Virginia I had a chance to see how wide open the field was for black people. In Pittsburgh, I treated livestock most of which belonged to whites without any feeling of animosity” (Patterson, 1991, pp. 84-97). Sylvanus Weathersby, who graduated in 1915 from the Department of Agriculture at Tuskegee Institute, was not able to enter any U.S. veterinary school. He did, however, graduate from Ontario Veterinary College in 1920, and later his two sons matriculated at the veterinary school at Tuskegee Institute.

Most African American veterinarians were unable to enter private practice because they could not get bank loans or buy or rent properties in good locations. They generally had to practice in combination residence-and-hospitals only in areas where African Americans were allowed to live. Some of them managed to establish successful practices despite these handicaps.

For half a century, the majority of African American veterinarians worked for the Federal Meat Inspection Service (FMIS) of the Bureau of Animal Industry (BAI). The majority of the large meat packing plants were located in the Midwest, where living conditions were better for African Americans than in the South. It was recognized that working for the BAI “offered no great mobility or challenge, but in segregated America, trained black veterinarians found few other job opportunities” (Patterson, 1991, pp.84-97).

Racial hurdles were not the only difficulty faced by African American veterinarians. Insufficient knowledge of career opportunities, paucity of role models, and inadequate academic backgrounds also prevented many of them from achieving their full

potential. As for the white majority, it did at times refuse to accept African Americans as qualified professionals, but it was also the case that most of the clients of black veterinarians were white. The overall achievements of the pioneering African American veterinarians were truly remarkable.

### The School of Veterinary Medicine at Tuskegee

The history of people of color in veterinary medicine has strong links with the School of Veterinary Medicine at Tuskegee Institute, founded in 1945. Other veterinary schools at that time generally did not accept African Americans as students. Establishing the veterinary school at Tuskegee required the founders to face daunting challenges. It was the first veterinary college to be established in 25 years. In that period, the veterinary college at the University of Georgia had to close its doors because of low enrollment (1933), and the school at Middlesex University was unable to obtain accreditation from the American Veterinary Medical Association (Adams, 1995).

Tuskegee was a private school in Alabama with very limited financial resources and no buildings to house the new school. Additionally, Alabama law at the time required strict segregation, so both faculty and students had to be African American. The BAI was the favored place for recruiting faculty for the new veterinary school at Tuskegee, founded by Dr. E. B. Evans and Dr. F. D. Patterson. The potential faculty members were graduates of northern schools who were painfully aware of the apartheid that prevailed in Alabama. Obtaining American Veterinary Medical Association accreditation for the new school was not an easy goal. Fortunately for Tuskegee, World War II was over and hundreds of veterans entered college under the G.I. Bill.

The veterinary school at Tuskegee opened with eight veterinarians serving as faculty members, none with previous experience in veterinary medical education. There were 39 students, 13 of these were first-year students and 19 were pre-veterinary students. On May 25, 1954, the AVMA's Council on Education voted full accreditation for the veterinary school at Tuskegee Institute.

## CHAPTER V

### MOVING TOWARD MORE DIVERSITY IN VETERINARY MEDICINE

Much of American social and economic life continues to be structured by race and ethnicity with minorities disadvantaged relative to whites. Racial and ethnic imbalances are found in numerous areas of American life. Hispanics, Native Americans, Pacific Islanders, African Americans, Native Alaskans, and some subgroups of Asian Americans are unequally represented in the lower socioeconomic classes, in poorer paying jobs, and in lesser quality schools. These imbalances can be tracked to many historical factors including documented patterns of legalized segregation and discrimination. Unfortunately, discrimination still persists. The veterinary profession is not insulated from these societal realities that impact all Americans.

The twenty-first century will be marked by increasing diversity in a multicultural society. Minorities, now roughly one third of the United States' population, are expected to become the majority in 2042, with the nation projected to be 54% minority in 2050. By 2023, minorities will comprise more than half of all children in the United States

(U.S. Census). Consequently, people of color will eventually represent half of the educated workforce in America. People of color will in the foreseeable future constitute a majority of the clients of veterinarians.

Educators in health professions will face new challenges that will compel them to be creative, and to develop new approaches to diversity. Special attention must be given to the goal of achieving racial, cultural and ethnic diversity in veterinary medical education (Adams, 1999; Coffman, 2002; Pritchard, 1989). For recruitment and admission purposes, standardized test scores and grade point averages must no longer be used in a mechanistic manner. Recruitment and admission are both science and art, and grade point averages and standardized test scores are not the sole determinants of future success (Wright, 2003).

At the 28 United States veterinary colleges, the concept of minority enrollment has not been clearly defined or thoroughly examined. The Tuskegee University School of Veterinary Medicine (TUSVM) is the most racially and ethnically diverse college of veterinary medicine in terms of its faculty and student body. At the beginning of the twenty-first century, there were about 2,000 African American veterinarians in the United States (Coffman, 2002). Most of these men and women were graduates of TUSVM. They are a second wave of African American veterinarians whose dedication and hard work is helping to erase stereotypes concerning minorities in the profession.

In earlier years, society at large may have assumed that minorities were not interested in veterinary careers, but the achievements of veterinary scientists of many races and ethnicities in the last half-century have shown that such assumptions were not correct. It is true, however, that in current years the recruitment of women into the

veterinary profession has outpaced the recruitment of racial minorities. The same is true in the field of human medicine. Admissions programs need to be strengthened by taking into consideration information about the impact of women and racial minorities, and the traditional criteria for admission into veterinary schools should be re-examined.

Awareness of the need to increase minority representation in the profession of veterinary medicine is increasing. This is evidenced by the number of diversity task forces, meetings, symposia, conferences and other initiatives devoted to this all-important topic over the last five years:

1. Establishment of the Diversity Task Force of the Ohio Veterinary Medical Association (2003)
2. “A Town Hall Meeting on the State of Diversity in the Veterinary Profession.” at the Midwest Veterinary Conference (2004)
3. AVMA Executive Board approved a statement on diversity (2004)
4. Veterinary Diversity Symposia at the American Veterinary Medical Association Annual Convention (2005, 2006, 2007, 2008)
5. AVMA Executive Board designates Dr. Martin Luther King, Jr. Day an official AVMA paid holiday for AVMA staff (2005)
6. The DiVersity Matters Initiative of the Association of American Veterinary Medical Colleges (2005)
7. Establishment of the Task Force on Diversity of the American Veterinary Medical Association (2005)
8. Establishment of the Associate Executive Director for Diversity position of the Association of American Veterinary Medical Colleges (2004)

9. Collection of membership demographic and diversity data by the American Veterinary Medical Association (2006)

In spite of these and other welcome initiatives, the fact remains that not enough reliable data currently exists concerning minority student perceptions of the veterinary profession. We simply do not fully understand why so few minority students pursue veterinary medicine as a career. This study makes a major empirical contribution to understanding the problem.

## CHAPTER VI

### METHOD

*Participants* were selected from the Venture Scholars Program ([www.ventures.org](http://www.ventures.org)), which targets high achieving underrepresented high school and undergraduate students nationwide. Participation was voluntary and 905 students completed the survey. 29.8% of respondents were Hispanic (N=270), 29% were African American (N=262), 8.3% were white (N=75), 3.5% were Native American/Pacific Islander (N=32), and 2% were Asian (N=18). 27.4% of respondents did not indicate a racial category. Students were not compensated for their participation. All responses were kept confidential and anonymous.

*Materials* - An instrument was designed to assess knowledge, perceptions, and attitudes about health-related careers. (See Appendix L) Several items concerned science-related judgments, interest in science-related careers, and interest in health professions. Additionally, seven professions included within the health field were ranked for number of years of schooling required, difficulty of attaining a degree, perception of status/image, availability of employment, income earned, and quality of life. Several



items related to interest in veterinary medicine. Pet attachment items were obtained from a survey by Brown (2004). Demographic items were included at the end of the survey.

*Procedure* - Participants were contacted via email to participate in the survey. The email included a link to the survey site, which was administered through SurveyMonkey. Participants were able to complete the survey at their convenience. After the data was collected, it was exported from SurveyMonkey to a statistical analysis program.

## CHAPTER VII

### RESULTS

The survey assessed students' attitudes in regards to interest in science, perceptions of health professionals, factors influencing interest in veterinary medicine, and pet attachment. The importance of these factors in predicting interest in veterinary medicine was assessed through a series of multiple regression analyses and t-tests.

In the first analysis, interest in pursuing a career in veterinary medicine was predicted by variables relating to interest in the veterinary field. All participants were included within this analysis and the variables were entered stepwise. Two variables contributed significantly to interest in pursuing a career in veterinary medicine.

Acquaintance with a practicing veterinarian was significant ( $R = .375$ ,  $p < .05$ ) with 14% of the variance accounted for within the model. Additionally, availability of shadowing or internships was significant ( $R = .388$ ,  $p < .05$ ) and accounted for 1% of the variance.

The second analysis looked at pet ownership and interest in science related to interest in pursuing a career in veterinary medicine. All participants were included within

this analysis and the variables were entered stepwise. Three variables contributed significantly to interest in pursuing a career in veterinary medicine. Agreeing that ‘no family is complete until there is a pet in the home’ was significant ( $R = .386$ ,  $p < .05$ ) and accounted for 14.9% of the variance. Additionally, acquaintance with a practicing veterinarian was significant ( $R = .498$ ,  $p < .05$ ) with 9.9% of the variance accounted for within the model. Finally, agreeing that ‘pets/animals should have the same rights as humans’ was significant ( $R = .518$ ,  $p < .05$ ) and accounted for 2% of the variance.

The third analysis was the same as the second analysis, except that African American students were specifically examined. The variables were again entered stepwise. Three variables contributed significantly to interest in pursuing a career in veterinary medicine. Availability of information about the field of veterinary medicine was significant ( $R = .472$ ,  $p < .05$ ) and accounted for 22.3% of the variance within the model. Agreeing that ‘pets/animals should have the same rights as humans’ was also significant ( $R = .580$ ,  $p < .05$ ) with 11.3% of the variance accounted for. Finally, experience with pets or animals was significant ( $R = .645$ ,  $p > .05$ ) and accounted for 8% of the variance.

The fourth analysis was like the second and third, except that Hispanic students were specifically examined. All variables were again entered stepwise. Three variables contributed significantly to the model. Availability of information about educational programs for training in veterinary medicine was significant ( $R = .468$ ,  $p < .05$ ) and accounted for 21.9% of the variance. Agreement with the statement ‘no family is complete until there is a pet in the home’ was also significant ( $R = .571$ ,  $p < .05$ ) with 10.7% of the variance accounted for. Finally, wanting to spend more time in school

studying science was significant ( $R = .610, p < .05$ ) and accounted for 4.6% of the variance.

The fifth analysis involved items that ranked the number of years of schooling required, difficulty of attaining a degree, perception of status/image, availability of employment, income earned, and quality of life across seven health-related professions. All participants were included within this analysis and the variables were entered stepwise. Six variables contributed significantly to the model. Status/image of veterinary medicine was significant ( $R = .249, p < .05$ ) and accounted for 6.2% of the variance. Quality of life enjoyed by veterinarians was also significant ( $R = .286, p < .05$ ) with 2% of the variance accounted for. Amount of income an optometrist earns was significant ( $R = .309, p < .05$ ) and accounted for 1.4% of the variance. Number of years of schooling after high school for veterinary medicine was significant ( $R = .325, p < .05$ ) and accounted for 1% of the variance. Additionally, availability of employment for dentists was significant ( $R = .339, p < .05$ ) with .9% of the variance accounted for. Finally, the amount of income a chiropractor earns was significant ( $R = .350, p < .05$ ) and accounted for .7% of the variance.

The sixth analysis was the same as the fifth, except that African American students were specifically examined. All variables were entered stepwise. Five variables contributed significantly to the model. Quality of life enjoyed by veterinarians was significant ( $R = .253, p < .05$ ) and accounted for 6.4% of the variance. Availability of employment for veterinary medicine was significant ( $R = .302, p < .05$ ) with 2.7% of the variance accounted for. The perception of status/image of veterinarians was significant ( $R = .322, p < .05$ ) and accounted for 1.9% of the variance. The difficulty of attaining an

optometry degree was significant ( $R = .361, p < .05$ ) with 2% of the variance accounted for. Finally, perception of status/image of pharmacists was significant ( $R = .384, p < .05$ ) and accounted for 1.8% of the variance.

The seventh analysis was the same as the fifth and sixth, except that Hispanic students were specifically examined. All variables were entered stepwise. Five variables contributed significantly to the model. Perception of status/image of veterinarians was significant ( $R = .304, p < .05$ ) and accounted for 9.2% of the variance. Additionally, the amount of income an optometrist earns was significant ( $R = .350, p < .05$ ) with 3.1% of the variance accounted for. Availability of employment in human medicine was also significant ( $R = .377, p < .05$ ) and accounted for 1.9% of the variance. The number of years of schooling after high school for veterinarians was significant ( $R = .399, p < .05$ ) with 1.7% of the variance accounted for. Finally, quality of life enjoyed by podiatrists was significant ( $R = .426, p < .05$ ) and accounted for 2.3% of the variance.

The final analyses were t-tests that examined students who expressed an interest in pursuing a career in veterinary medicine versus students who did not express an interest. The two groups were compared on variables relating to interest in science, ranking seven health-related professions for the number of years of schooling required, difficulty of attaining a degree, perception of status/image, availability of employment, income earned, quality of life, factors that increase interest in pursuing a veterinary career, and pet attachment items. Students who expressed an interest in a career in veterinary medicine differed from students who did not express an interest in veterinary medicine on several variables. An analysis characterizing African American and Hispanic students who were interested in veterinary medicine could not be performed because

there were too few members of the categories. Results of the t-tests are outlined in Table 1.

TABLE 1

Variable	Vet Interest	N	Mean	T	df	Sig. (2-tailed)
I would like a job that uses science.	No Yes	846 43	1.161 1.35	2.757	53.960	.008
Rank number of years of school (Veterinary Medicine)	No Yes	534 27	3.79 2.70	3.253	29.406	.003
Rank difficulty in attaining a degree (Veterinary Medicine)	No Yes	532 28	3.61 2.50	3.458	30.822	.002
Rank difficulty in attaining a degree (Pharmacy)	No Yes	532 28	4.41 5.36	-2.700	30.393	.011
Rank perception of status/image (Veterinary Medicine)	No Yes	517 28	4.42 2.71	6.453	32.751	.000
Rank perception of status/image (Optometry)	No Yes	517 28	3.86 4.64	-3.108	30.718	.004
Rank perception of status/image (Pharmacy)	No Yes	517 28	4.20 5.07	-2.626	30.430	.013
Rank amount of income earned (Human Medicine)	No Yes	501 26	1.86 1.27	3.721	38.948	.001
Rank amount of income earned (Veterinary Medicine)	No Yes	501 26	4.52 3.50	2.745	27.424	.011
Rank quality of life enjoyed (Veterinary Medicine)	No Yes	495 26	3.82 2.54	4.031	29.345	.000
Rank quality of life enjoyed (Optometry)	No Yes	494 26	3.79 4.62	-2.670	28.040	.012
Importance of availability of shadowing/internships	No Yes	480 29	1.91 1.24	5.156	40.819	.000
Importance of availability of a mentor	No Yes	451 22	2.10 1.45	5.261	33.511	.000
Importance of availability of employment after earning the degree	No Yes	513 29	1.65 1.14	6.255	68.038	.000
Importance of availability of scholarships	No Yes	499 27	1.72 1.26	4.604	47.243	.000
Importance of availability of information about veterinary field	No Yes	474 28	2.19 1.25	9.372	56.960	.000

Table 1

Variable	Vet Interest	N	Mean	T	df	Sig. (2-tailed)
Importance of availability of information about edu. programs in vet. medicine	No Yes	465 28	2.24 1.25	9.792	56.990	.000
Importance of acquaintance with a practicing veterinarian	No Yes	430 25	2.41 1.48	6.003	33.728	.000
Extent pet is part of the family	No Yes	293 24	1.68 1.17	5.221	56.982	.000
Extent agree with 'no family is complete until there is a pet in the home'	No Yes	523 27	2.88 1.81	5.752	30.857	.000
Extent agree with 'pets should have the same rights as family members'	No Yes	530 29	3.09 1.97	6.988	34.686	.000
Extent agree with 'I like my pet because it is more loyal to me than people'	No Yes	531 27	2.98 2.30	2.948	28.744	.006
Extent agree with 'pets/animals should have the same rights as humans'	No Yes	534 27	3.12 2.07	6.259	31.549	.000
Experience with pets/animals	No Yes	532 27	2.23 1.78	3.039	29.530	.005

## CHAPTER VIII

### DISCUSSION

Among all respondents, the results show that two experiential factors seem to contribute most significantly to pursuing a career in veterinary medicine, specifically an acquaintance with a practicing veterinarian and the availability of shadowing or internship opportunities. Interest in science was unrelated to interest in veterinary medicine in this sample. However, two pet ownership items emerged: agreeing that ‘no family is complete until there is a pet in the home’ and agreeing that ‘pets/animals should have the same rights as humans’. This corresponds with previous research (e.g., Elmore, 2003) which suggests that pet ownership is a vital factor in influencing a career in veterinary medicine. Additionally, these results stress the importance of having a mentor or role model to promote and provide education about the field to minorities.

However, when African Americans were specifically examined, somewhat different variables were related to an interest in pursuing a veterinary career: the availability of information about the field of veterinary medicine, agreeing that



‘pets/animals should have the same rights as humans’, and experience with pets or animals. Again, experience with animals plays a significant role in determining an African American student’s interest in veterinary medicine. Availability of information about the field of veterinary medicine goes to the root of the problem. Information about veterinary medicine is not readily accessible to African American students because of the relative lack of mentors or the scarcity of contact in general with veterinarians.

When Hispanic students were separately examined for pet ownership and interest in science related to an interest in pursuing a career in veterinary medicine, three variables were again found to be important: availability of information about educational programs for training in veterinary medicine, agreement with the statement ‘no family is complete until there is a pet in the home, and wanting to spend more time in school studying science. Once again, pet ownership is an important variable. What is more interesting is that the most important factor among Hispanic students is the availability of information about educational programs in the veterinary field. Thus, as with the African American students, information is seen as important, but for Hispanic students it is information concerning education rather than information about the profession as a whole.

The results show that somewhat different variables influence African American and Hispanic students’ interest in pursuing a career in veterinary medicine. Interestingly, experience with pets or animals are an important factor for African American but not for Hispanic students. However, Hispanic students feel no family is complete until there is a pet in the home, while African American students feel animals should have the same rights as humans. Additionally, Hispanic students desire to spend more time in school

studying science related to a career in veterinary medicine; however, this is not rated as an important factor for African American students.

Students who expressed an interest in pursuing a career in veterinary medicine compared to students who did not express an interest had significant differences on numerous factors. Experience with pets or animals, and a desire for a job that uses science were significantly different between those who expressed an interest in veterinary medicine and those who did not. In addition, students who have an interest in veterinary medicine express a greater desire for more information, and are higher in pet ownership, pet experience, and the importance they place on pets within a family than students who did not display an interest in pursuing a career in veterinary medicine.

## CHAPTER IX

### APPROACHES TO INCREASING THE PROPORTION OF UNDERREPRESENTED RACIAL AND ETHNIC MINORITIES AMONG VETERINARIANS

In this section, my primary emphasis is on a new project which I have originated and entitled *Pets & Vets*. This is not to imply that my proposed project by itself would be a magic wand that would eliminate the woeful shortage of underrepresented minority (URM) veterinarians that has existed in the profession for decades. I believe, however, that *Pets & Vets* can be the jewel in the crown of a comprehensive strategy to remedy the glaring disparities in the proportion of URM veterinarians in the United States.

Over the last five years, my personal involvement in a variety of initiatives, programs and events has afforded me numerous opportunities and vantage points from which to view and discuss the racial and ethnic imbalance that exists in the veterinary profession:

- Chairman 2005, 2006, 2007, 2008 American Veterinary Medical Association Diversity Symposiums
- Chairman 2006, 2007, 2008 “Town Hall Meeting on the State of Diversity in the Veterinary Profession” – Tuskegee University
- Member – American Veterinary Medical Association Task Force on Diversity 2005-2006
- Diversity Speaker – School of Veterinary Medicine – The Ohio State University, 2007
- Diversity Lecturer – 2007 Nine States Veterinary Conference
- Chairman – Ohio Veterinary Medical Association Diversity Task Force/Committee 2004-2006
- Co-Chairman 2005, 2006 Midwest Veterinary Conference Diversity Symposiums
- Co-Chairman 2004 Iverson Bell Symposium

Based on the comprehensive discussions and information presented at these and other professional programs and events, I am convinced that the solutions to the problem of attracting capable URM students to the veterinary profession must be multi-faceted, comprehensive and sustained. This is due to the fact that the reasons for the present inequities in educational opportunities in veterinary medicine are historic, economic, political and social. There is no simple solution for a problem of such a magnitude of complexity.

The ultimate purpose of this research is to develop recommendations for solving the dilemma of under-representation of minorities in the veterinary profession.

Following is a set of suggested strategies and recommendations based on the current survey, literature review and professional experience to help eliminate the pernicious racial and ethnic disparities that exist in the veterinary profession.

## 1. Financial Aid

- Going into debt to pay for veterinary school is a significant barrier for most URM students. For qualified candidates, the inability to bear the expense of veterinary school is almost always the primary obstacle to matriculation.
- Many survey respondents reported that they were unaware of available scholarships, grants or other funding opportunities to help defray veterinary school costs. Since debt is a major concern for most URM students, having more ways to fund the cost of veterinary school would attract more URM applicants.
- Scholarships can create a critical mass of URM students. This critical mass becomes a highly effective recruitment tool that attracts additional quality URM students who will bring strong leadership and a mission to increase diversity in the school. This in turn will create an environment that is academically and socially supportive, leading to increased numbers of URM applicants in the future.
- The survey showed the importance of the availability of scholarships in the students' decision to pursue a career in veterinary medicine.

## 2. Parental Encouragement

- In the early years of education, academic issues remain abstract for a child. Only when these pursuits are associated with a flesh and blood figure who notes what the child is doing in school does the child get motivated to learn. If this important figure, who may be a parent or an older relative or a teacher, etc. notices what the child is doing in the academic area and expresses a sense of approval, then the

child may have a lifelong stimulus to scholastic excellence. Unfortunately, URM students are more likely to reside in single-parent or other non-traditional households resulting in less parental support.

- The school may provide the primary opportunities for education, but if a pupil has no emotional reason to relate to the schooling, then the seeds of learning will never grow deep roots. In other words, academic success requires three different types of support: a school system, the child's own application to the task of learning, and adult support and encouragement in the home environment. Too often this third component is not stressed in educational programs. If parents or other family members or some other significant individuals show little or no interest in the accomplishments of the child, then there will be little that will sustain a young person's commitment to excellence in education.
- The survey indicated that experience with pets or animals was a significant contributory factor in encouraging an interest in veterinary medicine among students. Parents can be very instrumental in stimulating this interest by providing more pets for the family.
- Pet ownership in the family was also revealed to be a significant motivator of veterinary career choice by the importance of correlation with the factor that 'no family is complete until there is a pet in the home' in the survey.
- Parents generally encourage their children to enter careers that are considered to be of higher status. Veterinarians, along with other members of the healing professions, enjoy respectful admiration in society.

### 3. Exposure to Veterinarians and Veterinary Medicine

- Early and frequent exposure to veterinarians and veterinary medicine is important for URM students in order to be inspired to enter the profession. While minority students follow different paths to veterinary medicine, one common element the vast majority of them share is exposure to the field.
- In the survey results, acquaintance with a practicing veterinarian, and the availability of shadowing or internship opportunities were the two most important factors in the decision to pursue a career in veterinary medicine. Additionally, the survey results stress the importance of having a mentor or role model to promote the field to minorities. Students understand that certain types of professionals are universally admired. They recognize the privileged status of people in the healing professions. Veterinarians belong to one of those select groups. This perception of the image of health care professionals can serve as a powerful motivation for a URM student's choice of career. Veterinarians need to be much more visible as participants in career days, fairs, dog shows, community events, conferences, etc.

### 4. High School Guidance Counselors

- Not enough guidance counselors in high schools encourage minorities to consider the field of veterinary medicine. URM students may be told to think of vocational, technical or other less demanding careers. If they are made aware of the opportunities in the field of veterinary medicine, a light may go on in their minds and they may discover career paths they had never dreamed of before. If URM students are handed brochures or posters highlighting veterinary medicine, they may suddenly for the first time entertain the idea of actually

becoming a veterinarian. The survey indicated that the availability of information and encouragement by guidance counselors contributed significantly to an interest in pursuing a career in veterinary medicine.

5. Collaborations with Historically Minority Degree-granting Institutions

- In order to recruit more URM students to their veterinary programs, veterinary schools can form creative agreements with historically minority degree-granting institutions, thereby increasing their attractiveness to the URM students in those schools who are considering a veterinary career. For example, if the College of Veterinary Medicine at The Ohio State University were to collaborate with the Science Department at Central State University, both institutions would benefit immensely.

6. Summer Enrichment Programs

- Summer Enrichment Programs can increase the competitiveness of URM students attempting to gain admission into veterinary school. Students increase their core knowledge of the biological sciences, learn more about veterinary medicine, prepare for the GRE/MCAT examinations and the admissions process, and strengthen their basic learning skills. Many URM participants in these programs have been successful in gaining admission to veterinary school. Most URM students praise summer programs for undergraduate students that introduce them to the field and prepare them for veterinary school.
- Summer enrichment programs can be a significant source of information about veterinary medicine and educational opportunities in the field. The survey revealed that this information was important to potential veterinary students.



## 7. Hiring More Minority Faculty

- Minority students notice the lack of diversity among veterinary school faculty, and find it disappointing. Not only would minority faculty serve as role models, but they could help break down some of the barriers between minority veterinary students and other faculty members. In practice, it is not easy to find minority faculty members, but the mind-set has to exist for this long-range goal.

## 8. Conferences and Recruitment Events

- Participation at national, regional and local conferences and recruitment events for URM students can motivate many pupils. Additionally, individual veterinarians who work in relatively isolated places may have their horizons widened at such national conferences. They may be able to take ideas back to their locales in ways that let in fresh air from the larger world, stimulating them to recruit more URM students.
- These conferences are a ready source of information about educational opportunities in the veterinary field. The survey showed that this information is meaningful to students considering veterinary medicine as a career.

## 9. Family Veterinarian

- The influence exerted by family veterinarians can be a significant factor in motivating URM students to pursue a veterinary career.
- Displays and/or recruiting materials in veterinary hospital waiting rooms featuring racially and ethnically diverse individuals in the photographs and pictures may inspire some URM students to consider a veterinary career.

- Years after a child has grown up, the memory of a person who heals and takes away pain from animals may inspire a young student to devote his or her life to a veterinary career.
- The survey showed that acquaintance with a practicing veterinarian, availability of shadowing or internship opportunities, and experience with pets or animals were important factors in predicting an interest in veterinary medicine. All of these considerations can be provided by the family veterinarian.

#### 10. Minority Alumni

- Veterinary school minority alumni play a significant role in influencing URM students to pursue a career in veterinary medicine and in the selection of a veterinary school. It is very important that they become actively involved in recruitment efforts.
- Minority veterinarians who serve as mentors often have a more powerful impact upon URM students who are considering the veterinary profession.

#### 11. Accelerated Programs

- URM students with strong science backgrounds can often attend accelerated programs.

#### 12. Post-baccalaureate Programs

- These programs can be designed to assist promising URM students who applied but were not accepted to veterinary school, or students who have graduated from college but do not have strong enough grades or the right courses to get into veterinary schools. In many cases, some individual tutorial help may work

wonders for a student who is on the borderline and needs just a little fillip to make the cut.

### 13. Institutional Leadership and Commitment

- Endorsement and active support from the top are crucial. A dean who is committed to a diverse student body fuels the mission and creates an environment where minority students feel empowered. Students value genuine commitment on the part of management to create an environment that is inclusive of different cultures. Assured of a strong commitment from the administration, minority students become more active in the recruitment and retention efforts of other URM students to the school.
- Individual faculty members sense the values underlying the priorities proclaimed by their dean. Consequently, the principles embraced by the dean can affect the outlook of the entire faculty, and they in turn can influence the entire institution. In short, progressive leadership is of the essence.

### 14. Admissions Committees' Workshops

- These workshops would focus on admissions committee roles in recruitment of URM students. Special emphasis can/should be placed on the applicant's entire portfolio that takes into account the total range of a student's ability and accomplishments. That is, in addition to looking at quantitative data such as grade point averages and GRE/MCAT scores, the workshops will stress the need for admissions committees to consider qualitative factors such as the life experiences of applicants. These include character, background, obstacles encountered, family responsibilities and employment while in college, special

talents and other qualitative factors that provide insights into the applicants' abilities ("total file" review), and likely contributions to the veterinary profession and the larger society. Admission committee members must realize that the power of a student's commitment to academic work can be as important as his or her intellectual ability to carry out that work.

15. Admissions Committee Recruitment Manual

- Since veterinary admissions committees vary greatly in their experience with URM student recruitment programs, a recruitment manual can be developed to spell out in detail how to conduct a "total file" review of URM candidates for admission. The manual should reflect standards and practices of veterinary admissions committees on a national scale. Possibly a veterinary college with less experience in racial and ethnic diversity may need to be enlightened by awareness of trends in more culturally sagacious institutions.

16. Accreditation Policies and Procedures of the AVMA Council on Education

- The present language regarding racial and ethnic diversity in colleges of veterinary medicine is insubstantial and needs to be expanded and strengthened. There needs to be a statement that clearly asserts a plan of action, with accountability through ongoing review and periodic follow-up evaluations, for achieving a diverse student body and faculty in colleges of veterinary medicine.

17. Offices of Minority Affairs

- Few veterinary schools have an office designated for minority affairs. There is a case to be made for all of the veterinary schools to establish such offices.

Also, the veterinary school must be supportive of the main university's Office of Minority Affairs. The Office of Minority Affairs may need to be made more visible, relevant, available and supportive to URM veterinary students.

#### 18. Cross-Cultural Education

Diversity of the student body alone is not enough to sensitize students to important cultural differences and communication styles among fellow students, future clients and colleagues. There is a growing body of support for cross-cultural education in the training of future veterinarians.

Cross-cultural curricula should be integrated early into the veterinary school program of studies, and should persist through continuing education programs. A set of core competencies for cross cultural education can be developed. Recruitment of URM students into the veterinary profession is certain to be bolstered as a benefit of incorporating these discussions of racial and ethnic diversity into the educational curriculum. Potential URM veterinary students will readily realize and appreciate the sociocultural "climate" at veterinary schools with strong cross-cultural education programs, leading to increased numbers of URM applicants at those universities.

It is noteworthy that institutions such as the Massachusetts Institute of Technology (MIT) that are renowned for the advanced training that they offer in scientific knowledge are also institutions that have well-structured programs in disciplines such as philosophy, linguistics, music and other arts. If an institution such as MIT believes that it is essential to have such highly developed humanities programs, then veterinary schools too should develop appropriate programs that enhance veterinary education in indirect, though equally important, ways.

19. Minority Veterinary Medical Association

- The pros and cons of this concept are often discussed among URM veterinarians. The idea is championed by many URM veterinarians and disdained by others. In concept, an organization of this type would function along the lines of the National Medical Association and the National Dental Association, which give voice to URM physicians and dentists respectively.
- According to supporters, the critical mass of URM veterinarians in this new organization would provide a much needed social support structure to coalesce many initiatives that would benefit the overall population of racial and ethnic minorities in the profession. Such an organization would also give active support to minority veterinary medical students, and encourage more recruitment of minority students to the profession.
- It is true that currently the number of minority veterinarians in the country is very small, but if this fact is used as an excuse for not establishing such an organization, then the number may always remain low. One way to increase the number of minority veterinarians is to promote as many organizations as possible that will actively strive to remedy the shortage.
- Opponents believe that setting up a splinter group would detract from the existing established veterinary medical associations, and divert membership, funds, participation, power, etc. away from these present groups. The strong reservations about forming a new group are centered in feelings that such an organization would have little power in isolation, and might also alienate

members of the established groups. Fragmentation, they believe, inevitably dilutes effectiveness.

- Two possible names for the organization are Spectrum Veterinary Medical Association or People of Color Veterinary Medical Association.
- Alternatively, a Veterinary Diversity Society can be formed to give voice not only to racial and ethnic minorities in veterinary medicine, but to also encompass all of the other dimensions of diversity with the primary focus on minority veterinarians in the profession.

#### 20. Student Minority Veterinary Medical Association

- To give active support to minority veterinary medical students and to encourage recruitment of more minority students to the profession.
- A commitment to increasing the number of URM veterinary medical students through recruitment, retention, educational pipeline programs and advocacy.
- A student minority veterinary medical association can play a significant role in contributing to perceptions about racial and ethnic diversity to prospective URM students. In effect, although faculty and administration are important in the recruiting process, prospective URM candidates are more likely to have confidence in narratives from current URM students. Hearing directly from minority students could be a solid first step in understanding the veterinary school experience from a different vantage point.
- Other potential activities might include:
  1. Recruitment events at national and regional conferences, etc. for URM high school and/or undergraduate students

2. Career days

3. Distribution of information and recommendations to prospective URM students regarding local ethnic hair salons/barber shops, churches, beauty supply stores, entertainment sites, cultural organizations, restaurants, communities, sites of interest, etc.

- The same pros and cons that exist regarding the establishment of a Minority Veterinary Medical Association also hold true regarding the formation of a Student Minority Veterinary Medical Association.

21. Affirmative Action

- Affirmative action and other legally permissible efforts are needed to increase the proportion of racial and ethnic minorities in the veterinary profession.

Such efforts do not have to be permanent. They should be viewed as temporary measures that will enable minority groups to overcome injustices of the past and to participate with the rest of society on a level playing field – in the best spirit of the American sense of fair play.

American society has always recognized that certain individuals or groups may need some special conditions to see them through a temporary difficult period. For example, people on a bus will readily yield a seat to a person who has his leg in a cast. Everyone understands that such a person is deserving of society's consideration. By the same reasoning, all of society gains from extending a helping hand to someone who may need an opportunity to enter the proverbial level playing field. Affirmative action is simply shorthand for extending this kind of helping hand.



Affirmative Action was introduced in 1964, and through the years some people have grown fearful of it because they feel it unfairly privileges minorities over the majority. This approach needs to be reconciled with deeper historical and ethical issues.

After World War II, a remarkable new feature of American life was the G.I. Bill. Thousands and thousands of veterans who had no college education took advantage of the G.I. Bill and went on to become highly productive members of society. The taxpayers paid millions of dollars for the G.I. Bill and felt it was one of the best investments in American history because it enhanced the quality of life of individual veterans, and they in turn enhanced the quality of American life as a whole.

What is interesting to recall today in a new century is that practically all the beneficiaries of the G.I. Bill were *white* soldiers. The public never complained that these white soldiers were getting unfair advantages. Most Americans agreed that as long as an individual was obtaining a higher education, it was good for society. Couldn't we today try to rekindle the essence of the G.I. Bill in a fresh context and promote new opportunities for the education of qualified URM students who are unable to afford the expenses of today's colleges?

Perhaps we can revive the spirit of the G.I. Bill and call the new program the National Education Program (or some other name). The program will be available nationally to any qualified student who is unable to afford their education. If, however, there should happen to be more competent minority students than majority students who are poor and deserving of the program, then majority groups should not resent the support given to them. They should recall that the beneficiaries of the G.I. Bill were mostly white, and the money the nation invested in them was truly well spent. By the same

reasoning, if the administrators of the proposed National Education Program holdout a helping hand to significant numbers of URM students, members of majority groups should not see this as favoritism. Every student who acquires a higher degree is valuable for all members of society.

The veterinary profession, in particular, needs to ponder the issues outlined above because the current membership of the field is so overwhelmingly white. The profession needs to develop the type of imaginative foresight shown by previous national leaders like John Kennedy, Lyndon Johnson and Robert Kennedy, who recognized the value of inclusiveness and took risks to introduce new measures that would help correct the entrenched disparities. Perhaps forward-thinking leaders in the veterinary profession could establish a special veterinary medical program under the umbrella of the National Education Program.

## 22. Schools of Science and Medicine in Urban School Districts

- These public schools will prepare students for success in post-secondary education and especially careers in science, medicine, dentistry, veterinary medicine and related fields through an intellectually demanding culture of innovative teaching and learning.
- The survey revealed the importance of the availability of information about the veterinary field, veterinary medical education and scholarship opportunities. All of this information can be provided by these schools.

## Pets & Vets: A National Program

All veterinarians were kids once, and their childhood experiences with animals probably influenced their subsequent views on how humans ought to interact with animals. In many cases, this early association with animals sparked their interest in science, which eventually developed into a desire to pursue a career in veterinary medicine. As a means of addressing the dearth of qualified underrepresented minority candidates seeking admission into veterinary schools, it is important for the profession as a whole to motivate very young minority children to develop positive attitudes toward the care of animals in order to increase the pipeline of minority students interested in the veterinary profession. Stimulating this kind of interest in young children is our brightest hope for the future of minorities in the veterinary profession.

Proper care of animals requires many kinds of resources, and parents in minority families often do not have the financial ability to buy pets for their children or to pay for their veterinary care. The question arises then as to how the formative years of young children can be enriched by meaningful exposure to animals that may lead to warm lifelong memories of seeing, touching or holding a puppy, or kitten or bunny. Often such visual or tactile experiences turn out to be the foundation on which lifelong veterinary careers are built.

With early contact with charming animals, the light will go on in some of the children's minds to spark their thinking about owning and caring for pets. Making animals a vivid reality for them will create memories that will ultimately lead some of them to make a decision to pursue a career in veterinary medicine. In this setting, the

children may realize for the first time that non-human creatures also make demands on our capacity for love and goodwill.

What if a group of forward-thinking conscientious volunteer veterinarians, accompanied by well-trained assistants, with a variety of appealing animals made *regular* visits nationwide to kindergarten and elementary school classes in urban neighborhoods? These visits would give the gift of hands-on experience for little children with furry creatures that are non-judgmental and helpless, and able to reciprocate with unconditional acceptance and trust. Small puppies, kittens, bunnies, turtles, etc. have the ability to enthrall youngsters, and in the process of answering their questions, some of the children are certain to become lifelong friends and future benefactors of animals. An incidental benefit is that overall pet ownership in families is also certain to increase.

Additionally, capable middle and high school minority and non-minority students can be recruited to actively assist the veterinarians and veterinary assistants in the presentations. This will not only create excitement among both the elementary and middle/high school students, but is certain to also stimulate some of the higher level students to consider a career in veterinary medicine.

In addition to urban kindergarten and elementary school classes, the *Pets & Vets* program can be presented at selected national, regional, state and/or community-based events for young urban children.

In the presentations to the students, all the presenters have to do is hold up the animals in front of the children and the animals will do the rest naturally. In fact, the presenters simply should not get in the way of the animals. It is common knowledge that

one should never try to compete with animals on a stage. Animals are the best natural performers!

The reason for focusing on kindergarten and elementary school children is that they are the most impressionable age group, not jaded by all the sophistication they will acquire in the higher grades. For many urban children in kindergarten and elementary schools, an experience of the type described might be their only opportunity to actually touch and know animals in a positive setting that combines education and entertainment. Additionally, through the cultivation of interest in science and math, it is certain to expect that State Achievement Test scores for these students will also show improvement from indirect benefits of this project.

For their altruistic services, the veterinarians will reap many rewards from the program both emotional and spiritual – the kinds of rewards that only grow over time.

The uniqueness of this program for the veterinary profession lies in the special relationship between children and pets. In other fields such as human medicine or dentistry, children do not participate in the “otherness” of animals, which has always charmed and intrigued human beings on multiple levels.

Alternatively, a form of *Pets & Vets* can be set up and hosted as a website making it publicly available via the Internet to essentially every student in the country.

Needless to say, major planning and coordination will be required in order to launch *Pets & Vets* and ensure that it functions as a successful, impactful national project. The program should come under the umbrella of a national organization, ideally the American Veterinary Medical Association (AVMA), and sponsored by a major national corporation. If not the AVMA, another national organization can function in that

capacity. Alternatively, statewide projects could be launched and run with the goal of eventually coming under a national umbrella. A comprehensive manual for the *Pets & Vets* program will be important to the project, as will engaging marketing materials with racially and ethnically diverse representation. Widespread media support is certain to be readily forth-coming with benefits beyond measure. The ultimate goal is, through this innovative project, to make *Pets & Vets* a national household term that will bring delight to little children's eyes simply by hearing its rhyming phrase.

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## APPENDICES

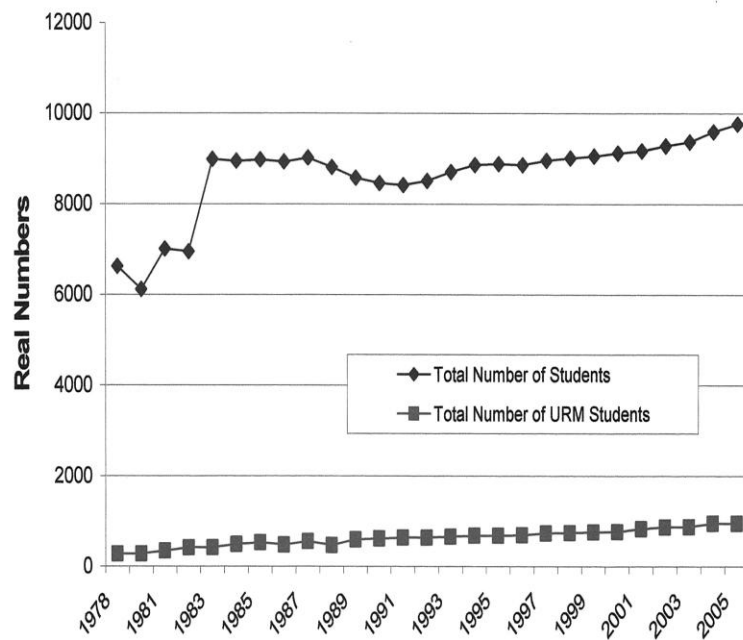
## APPENDIX A

Total Student Enrollment vs. Underrepresented Student Enrollment 1978-2005



## Total Student Enrollment vs. Underrepresented Student Enrollment

1978-2005

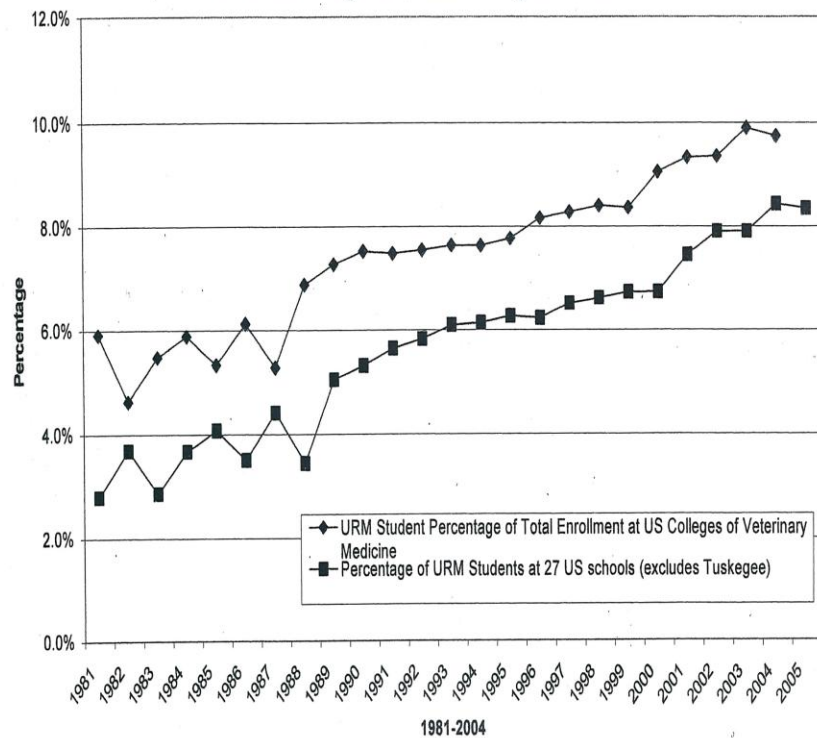


## APPENDIX B

### Historical Analysis of Underrepresented Student Enrollment at US Colleges of Veterinary Medicine



### Historical Analysis of Underrepresented Student Enrollment at US Colleges of Veterinary Medicine

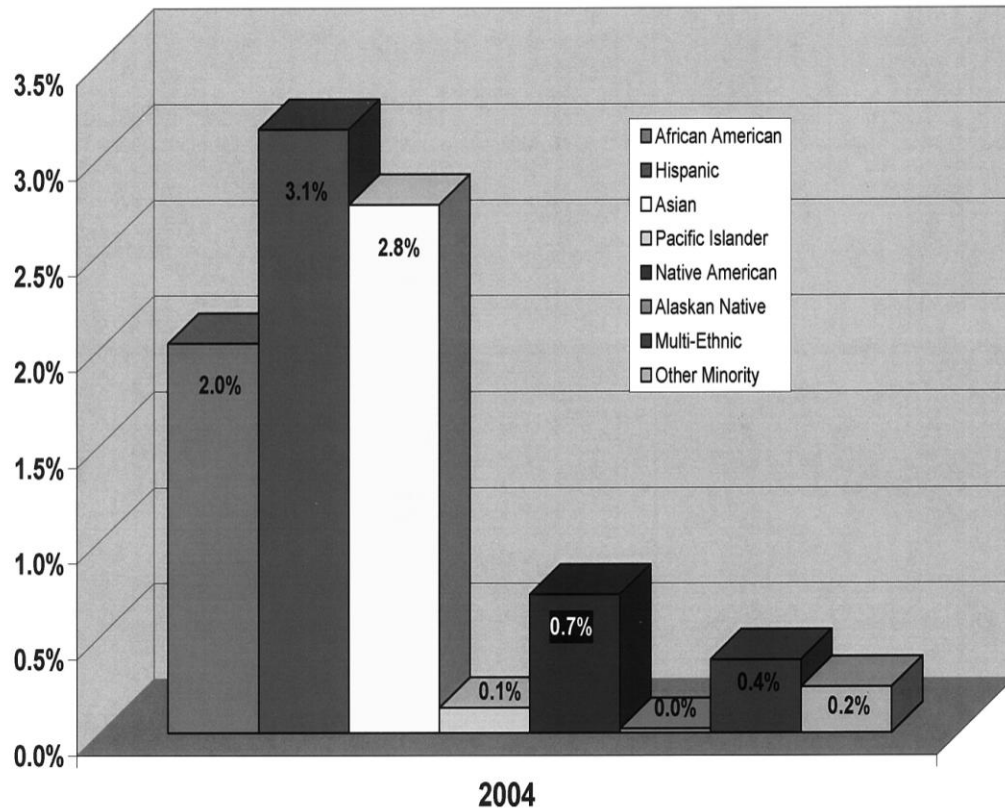




## APPENDIX C

Representation by Group of Underrepresented Minority Students  
within the US Colleges of Veterinary Medicine 2004

**Representation by Group of Underrepresented Minority Students  
within the US Colleges of Veterinary Medicine  
2004**

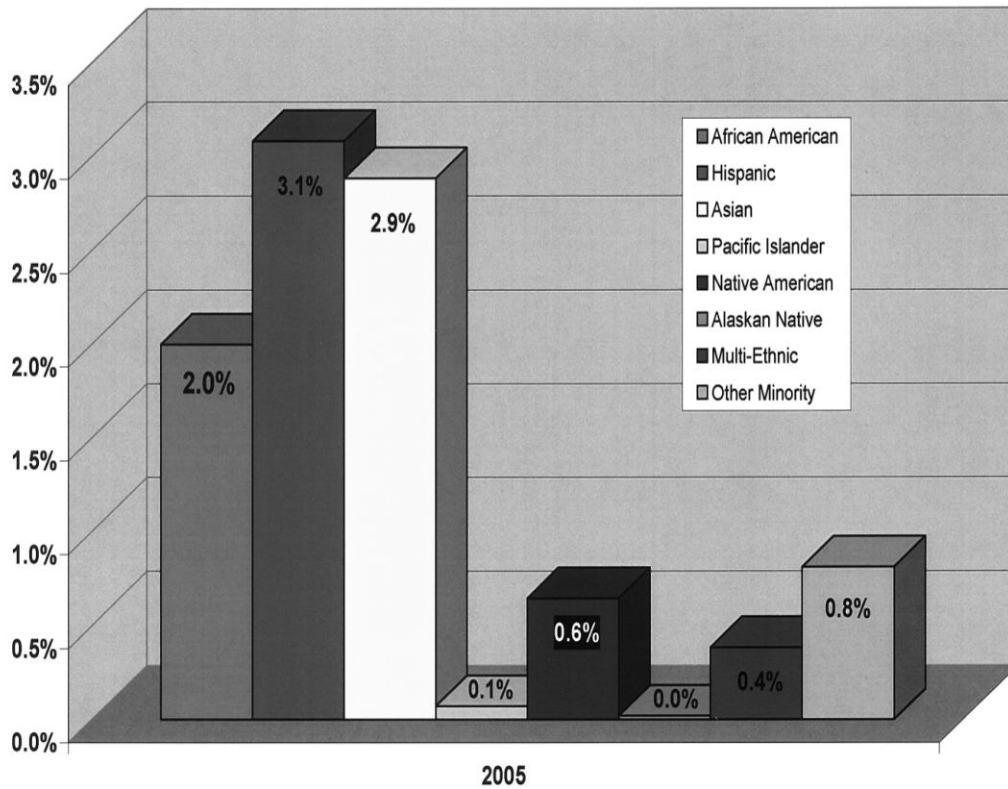


*Source: Association of American Veterinary Medical Colleges*

## APPENDIX D

Representation by Group of Underrepresented Minority Students  
within the US Colleges of Veterinary Medicine 2005

# **Representation by Group of Underrepresented Minority Students within the US Colleges of Veterinary Medicine 2005**



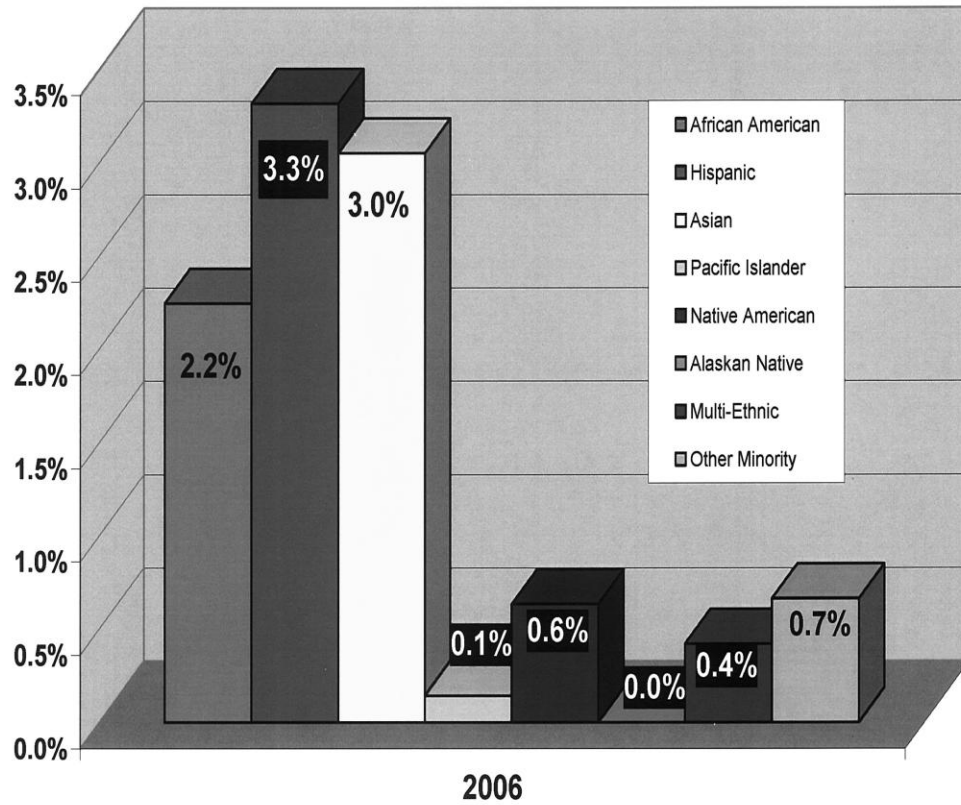
*Source: Association of American Veterinary Medical Colleges*

## APPENDIX E

Representation by Group of Underrepresented Minority Students

Within the US Colleges of Veterinary Medicine 2006

**Representation by Group of Underrepresented Minority Students  
within the US Colleges of Veterinary Medicine  
2006**



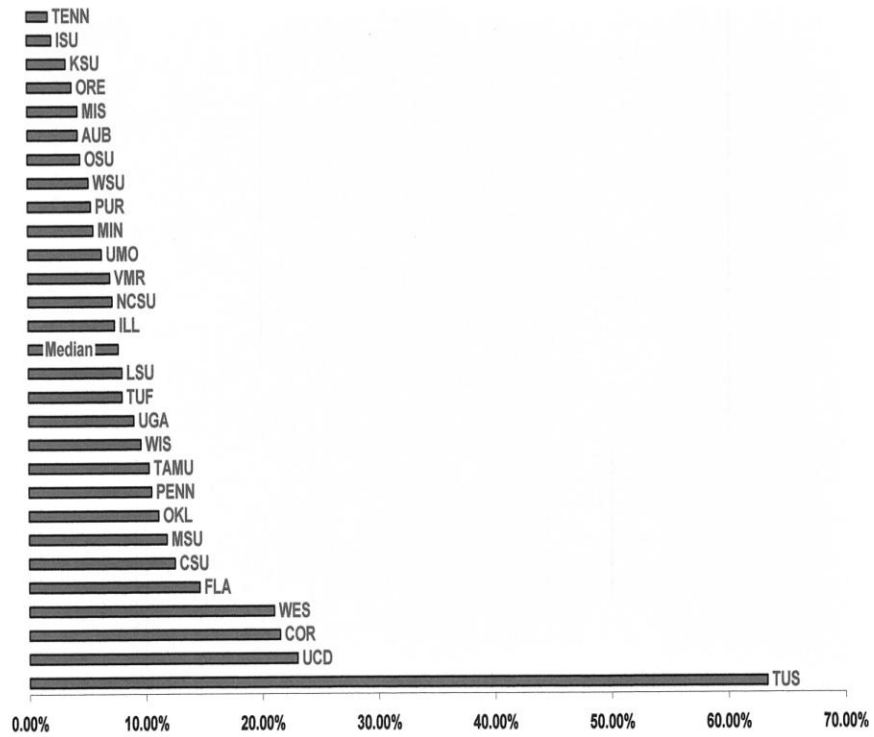
*Source: Association of American Veterinary Medical Colleges*

## APPENDIX F

Percentage of Underrepresented Minority Students at U.S.  
Colleges of Veterinary Medicine 2006



## Percentage of URM Students at US Colleges of Veterinary Medicine 2006





## APPENDIX G

Means and Medians for Underrepresented Student Presence at US

Colleges of Veterinary Medicine 2006



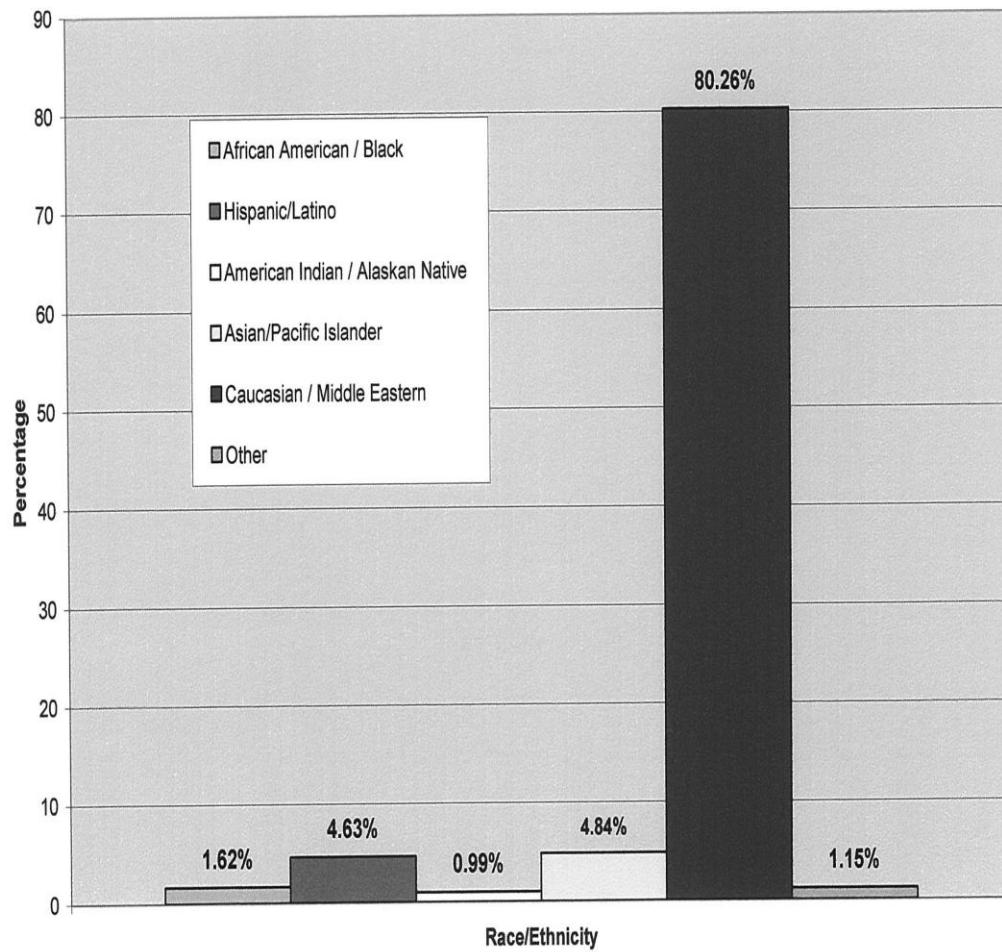
**Means and Medians for Underrepresented  
Student Presence at US CVMS  
2006**

	<b>Number of URM Students at US CVMS</b>	<b>Percentage of Students at each CVM</b>
<b>Mean</b>	<b>36.6</b>	<b>10.8%</b>
<b>Median</b>	<b>25.5</b>	<b>7.7%</b>
<i><b>Figures Excluding Tuskegee SVM</b></i>		
<b>Mean</b>	<b>25.5</b>	<b>8.9%</b>
<b>Median</b>	<b>25.0</b>	<b>7.4%</b>

## APPENDIX H

2006 VMCAS Applicant Data – Class Entering Fall 2007

**2006 VMCAS Applicant Data**  
**Class Entering Fall 2007**  
*Does not include non-VMCAS Institutional Data*



## APPENDIX I

Racial Segregation in Veterinary Medicine – Black Enrollments at  
United States Veterinary Schools, 2003

# Racial Segregation in Veterinary Medicine

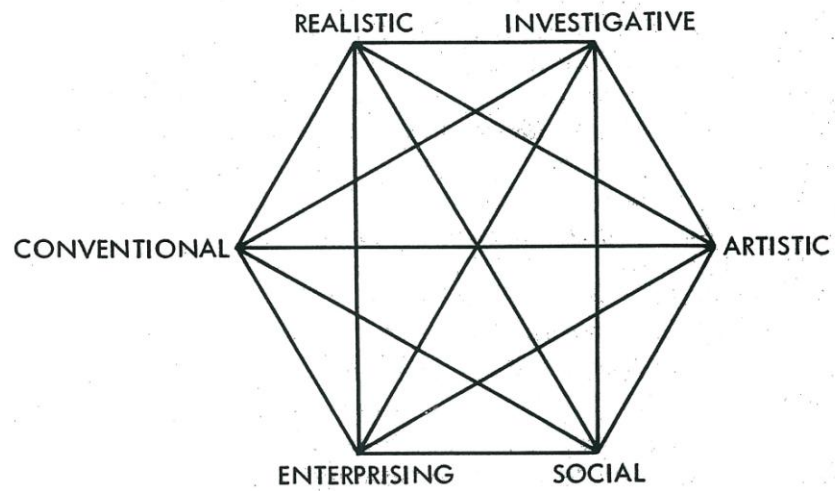
## *Black Enrollments at U.S. Veterinary Schools, 2003*

<b>Veterinary School of Medicine</b>	<b>Total Students</b>	<b>Black Students</b>	<b>Percent Black</b>
Tuskegee	228	66	42.1%
Virginia-Maryland Reg. College	360	14	3.9
Cornell University	329	12	3.6
University of Florida	323	9	2.8
University of Wisconsin	317	7	2.2
University of Missouri	253	4	1.6
North Carolina State University	303	4	1.3
University of Illinois	406	5	1.2
Michigan State University	417	5	1.2
University of Georgia	347	4	1.2
Auburn University	363	4	1.1
University of California-Davis	485	5	1.0
Mississippi State University	208	2	1.0
Louisiana State University	320	3	0.9
Purdue University	264	2	0.8
University of Tennessee	268	2	0.7
Tufts University	319	2	0.6
Colorado State University	537	2	0.4
Ohio State University	538	2	0.4
Oklahoma State University	292	1	0.3
Iowa State University	400	1	0.3
Kansas State University	406	1	0.2
University of Pennsylvania	448	1	0.2
Oregon State University	141	0	0.0
Texas A&M University	493	0	0.0
University of Minnesota	311	0	0.0
Washington State University	287	0	0.0

*Source: Association of American Veterinary Medical Colleges.*

## APPENDIX J

### Holland's Hexagonal Model for Defining the Psychological Resemblances Among Types and Environments and Their Interactions

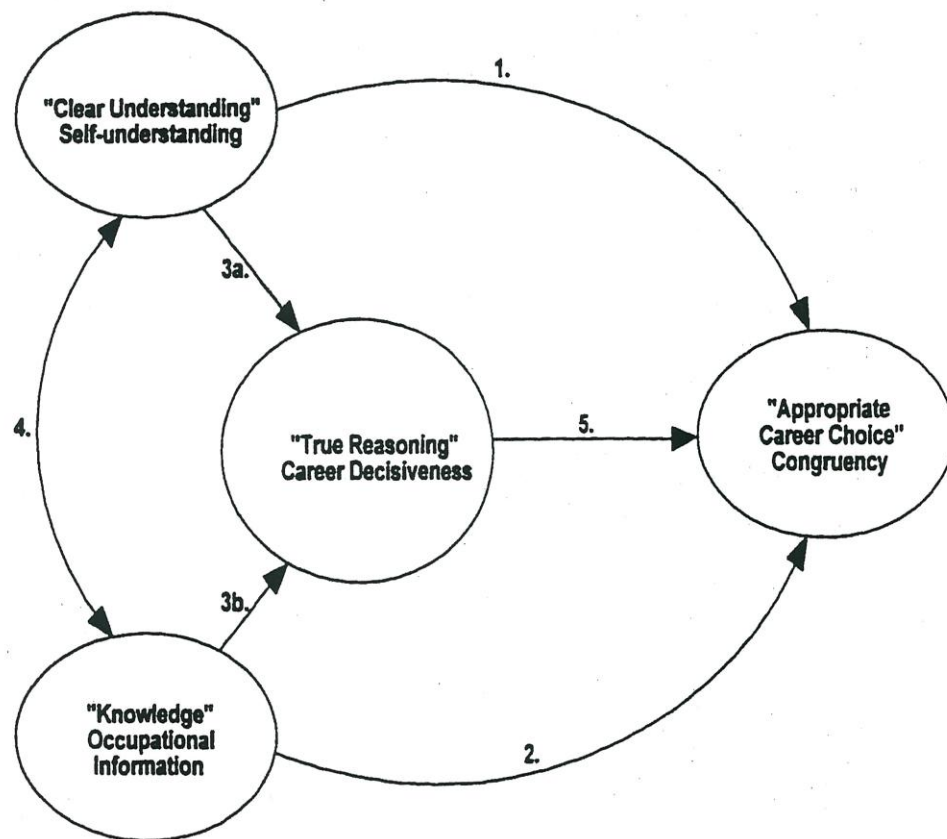


**Holland's Hexagonal Model**



## APPENDIX K

Parsons' (1909) Hypothesized Model of Appropriate Career Choice



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Parsons' (1909) Hypothesized Model of Appropriate Career Choice  
The numbers represent corresponding hypotheses of Study I and Study II

## APPENDIX L

### Survey Instrument

Instructions:

The goal of this survey is to examine the factors related to an interest in careers in science, especially health-related science fields. This information is critical to our ability to connect students with an interest in science careers with appropriate undergraduate, graduate, and professional programs. This study is being conducted by members of the College of Science at Cleveland State University. It has received Institutional Review Board approval. If you have questions or concerns about the research, the investigators may be contacted at [s.slane@csuohio.edu](mailto:s.slane@csuohio.edu).

The questions contained in the survey primarily concern your knowledge, perceptions, and attitudes about health-related careers. We hope that you will agree to complete the survey and that you do so as honestly as possible. In order to keep your responses completely confidential, please do not put your name or any other identifying information on the survey. Survey responses will be reported only in aggregate form, and no individual responses will be identified. It should take you no more than 15 minutes to complete the questions. Thank you in advance for your participation.

**SECTION I:** For the questions in this section check the one response to each section that most accurately reflects your judgment or opinion.

1. I enjoy science very much.

- ☐ Strongly Agree
- ☐ Agree
- ☐ Weakly Agree
- ☐ Weakly Disagree
- ☐ Disagree
- ☐ Strongly Disagree

2. I would like to spend more time in school studying science.

- ☐ Strongly Agree
- ☐ Agree
- ☐ Weakly Agree
- ☐ Weakly Disagree
- ☐ Disagree
- ☐ Strongly Disagree

3. I usually understand what is discussed or presented in science classes.

- ☐ Strongly Agree
- ☐ Agree
- ☐ Weakly Agree
- ☐ Weakly Disagree
- ☐ Disagree
- ☐ Strongly Disagree

4. I would like a job that uses science.

- \_\_\_\_\_ Strongly Agree
- \_\_\_\_\_ Agree
- \_\_\_\_\_ Weakly Agree
- \_\_\_\_\_ Weakly Disagree
- \_\_\_\_\_ Disagree
- \_\_\_\_\_ Strongly Disagree

5. Compared to your peers, how do you perform academically in science courses?

- \_\_\_\_\_ Excellent
- \_\_\_\_\_ Above Average
- \_\_\_\_\_ Average
- \_\_\_\_\_ Below Average
- \_\_\_\_\_ Poor

6. Do you have an interest in pursuing a career in a science-related field?    YES    NO

a. If yes, in what field are you particularly interested? \_Entomology\_\_\_\_\_

7. Do you have an interest in a health profession?    YES    NO

a. If yes, in what field are you particularly interested? \_\_\_\_\_

8. Please list professions that you think are included within the health professions:

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

SECTION II: For the items in this section you are asked to rank various science-related health professions. In each case you are asked to rank the profession from most or highest (give this a rank of 1) to least or lowest (give this a rank of 7).

9. Rank the professions in terms of the number of years of schooling after high school that are required (1 being highest number of years and 7 being the lowest number of years):

- \_\_\_\_\_ Chiropractic
- \_\_\_\_\_ Dentistry
- \_\_\_\_\_ Human Medicine
- \_\_\_\_\_ Veterinary Medicine
- \_\_\_\_\_ Optometry
- \_\_\_\_\_ Pharmacy
- \_\_\_\_\_ Podiatry

10. Rank the professions in terms of how difficult you perceive it to be to attain a degree(1 being the most difficult and 7 being the least difficult):

- \_\_\_\_\_ Chiropractic
- \_\_\_\_\_ Dentistry
- \_\_\_\_\_ Human Medicine
- \_\_\_\_\_ Veterinary Medicine
- \_\_\_\_\_ Optometry
- \_\_\_\_\_ Pharmacy
- \_\_\_\_\_ Podiatry

11. Rank the professions in terms of your perception of their status/image (1 being the highest status or image and 7 being the lowest status or image):

- \_\_\_\_\_ Chiropractic
- \_\_\_\_\_ Dentistry
- \_\_\_\_\_ Human Medicine
- \_\_\_\_\_ Veterinary Medicine
- \_\_\_\_\_ Optometry
- \_\_\_\_\_ Pharmacy
- \_\_\_\_\_ Podiatry

12. Rank the professions in terms of the availability of employment/job market (1 being the highest availability or best job market and 7 being the lowest availability or worst job market) for the following professions:

- \_\_\_\_\_ Chiropractic
- \_\_\_\_\_ Dentistry
- \_\_\_\_\_ Human Medicine
- \_\_\_\_\_ Veterinary Medicine
- \_\_\_\_\_ Optometry
- \_\_\_\_\_ Pharmacy
- \_\_\_\_\_ Podiatry

13. Rank the professions in terms of the amount of income a practitioner earns (1 being the highest income and 7 being the lowest income):

- \_\_\_\_\_ Chiropractic
- \_\_\_\_\_ Dentistry
- \_\_\_\_\_ Human Medicine
- \_\_\_\_\_ Veterinary Medicine
- \_\_\_\_\_ Optometry
- \_\_\_\_\_ Pharmacy
- \_\_\_\_\_ Podiatry

14. Rank the professions in terms of the quality of life enjoyed by the practitioner (1 being the highest quality of life and 7 being the lowest quality of life):

- \_\_\_\_\_ Chiropractic
- \_\_\_\_\_ Dentistry
- \_\_\_\_\_ Human Medicine
- \_\_\_\_\_ Veterinary Medicine
- \_\_\_\_\_ Optometry
- \_\_\_\_\_ Pharmacy
- \_\_\_\_\_ Podiatry

SECTION III: This section contains miscellaneous items. Please respond honestly.

15. Do you have close contact with any people within the health professions?

- \_\_\_\_\_ YES
- \_\_\_\_\_ NO

a. If yes, what is their specialty? \_\_\_\_\_

16. Do you know a veterinarian?

- \_\_\_\_\_ YES
- \_\_\_\_\_ NO

17. Rate your interest in pursuing a career in veterinary medicine.

- \_\_\_\_\_ Strong interest
- \_\_\_\_\_ Moderate Interest
- \_\_\_\_\_ Slight Interest
- \_\_\_\_\_ No Interest

18. Please rate each of the following items in terms of their importance in increasing your interest in pursuing a career in veterinary medicine?

a. Availability of shadowing or internship opportunities.

- \_\_\_\_\_ Very Important
- \_\_\_\_\_ Moderately Important
- \_\_\_\_\_ Somewhat Important
- \_\_\_\_\_ Unimportant

b. Availability of a mentor.

- \_\_\_\_\_ Very Important
- \_\_\_\_\_ Moderately Important
- \_\_\_\_\_ Somewhat Important
- \_\_\_\_\_ Unimportant

c. Availability of employment after earning the degree.

- \_\_\_\_\_ Very Important
- \_\_\_\_\_ Moderately Important
- \_\_\_\_\_ Somewhat Important
- \_\_\_\_\_ Unimportant

- d. Availability of scholarships.
  - ☐ Very Important
  - ☐ Moderately Important
  - ☐ Somewhat Important
  - ☐ Unimportant
- e. Availability of information about the field of veterinary medicine.
  - ☐ Very Important
  - ☐ Moderately Important
  - ☐ Somewhat Important
  - ☐ Unimportant
- f. Availability of information about educational programs for training in veterinary medicine.
  - ☐ Very Important
  - ☐ Moderately Important
  - ☐ Somewhat Important
  - ☐ Unimportant
- g. Acquaintance with a practicing veterinarian.
  - ☐ Very Important
  - ☐ Moderately Important
  - ☐ Somewhat Important
  - ☐ Unimportant

SECTION IV: Please respond to the following questions about pet ownership.

19. Do you own a pet?

- ☐ YES (complete a – d below)
- ☐ NO (skip to item #20)

a. If yes, what kind? I live on a farm (dogs, cats, cows, pigs, horses)

b. How long have you had this pet? Decent life span

c. Do you regularly call the pet by a nickname/s?

- ☐ YES
- ☐ NO

d. To what extent do you feel that your pet is part of your family?

- ☐ Very much
- ☐ A lot
- ☐ Somewhat
- ☐ Little
- ☐ Not at all



20. To what extent do you agree with the statement, “no family is complete until there is a pet in the home”?

- ☐ Strongly Agree
- ☐ Agree
- ☐ Don't Agree/Don't Disagree
- ☐ Disagree
- ☐ Strongly Disagree

21. To what extent do you agree with the statement, “pets should have the same rights and privileges as family members”?

- ☐ Strongly Agree
- ☐ Agree
- ☐ Don't Agree/Don't Disagree
- ☐ Disagree
- ☐ Strongly Disagree

22. To what extent do you agree with the statement, “I like my pet because he/she is more loyal to me than the people in my life”?

- ☐ Strongly Agree
- ☐ Agree
- ☐ Don't Agree/Don't Disagree
- ☐ Disagree
- ☐ Strongly Disagree

23. Pets/animals should have the same rights as humans?

- ☐ Strongly Agree
- ☐ Agree
- ☐ Don't Agree/Don't Disagree
- ☐ Disagree
- ☐ Strongly Disagree

24. How much experience have you had with pets or animals?

- ☐ Extensive
- ☐ A moderate amount
- ☐ A modest amount
- ☐ None

SECTION V: In order for us to use your data most effectively, please provide the following demographic information.

25. Gender:

☐ Male  
☐ Female

26. Race (check all that apply):

☐ Black  
☐ White  
☐ Asian  
☐ Native American/Pacific Islander  
☐ Hispanic