



**Navigating
Diversity and Inclusion
in Veterinary Medicine**



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Navigating Diversity and Inclusion in Veterinary Medicine

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Foreword

What It Means to Be Inclusive and Why It Is Imperative for the Veterinary Profession

Willie M. Reed, DVM, PhD, DACVP, DACPV

In the year 2011, the veterinary profession launched a global celebration of the 250-year anniversary of veterinary medical education. Throughout the yearlong celebration many accounts of important contributions by the veterinary profession since the founding of the first veterinary school in Lyon, France, in 1761, were chronicled in international publications and at scientific conferences around the world. The celebration largely highlighted scientific contributions of Caucasian/White and predominantly male members of the profession, with little or no mention of the contributions of women or individuals of color. While it is undeniable that the veterinary profession has made many important contributions to both human and animal health, one wonders what other contributions could have been made by a more diverse and inclusive profession. Would the many fractious and divisive debates over animal welfare, the disagreements over the status and value of animals to society, or the rise of animal rights organizations have occurred if more voices with different cultural perspectives had been heard? Would disease control and eradication programs have been more successful, and perhaps less

costly, if the veterinary profession had sought and better embraced a wider array of cultural perspectives? And how much animal and human suffering would have been alleviated if disease problems had been tackled by more diverse teams of problem solvers? Unfortunately, the world will never know.

Veterinary medicine in the US has the dubious distinction of being the least diverse of all health professions. However, veterinary medical education and a few other segments of the veterinary medical profession have made nominal gains in recent years in attracting individuals who have been historically underrepresented in the profession. While veterinary medicine has over a 150-year history in the US, only in the past thirty years has it experienced success in attracting women, predominately Caucasian/White women, who now dominate many segments of the profession. Women are now taking their rightful place in many significant leadership positions and will help shape the profession for generations. The long-term impact of this dramatic gender shift, along with the current gender imbalance in the nation's veterinary colleges, on the profession is still unknown. Veterinarians of color only account for approximately 10 percent of the 92,000 in the US veterinary workforce. The outlook in the near term for increasing racial and ethnic diversity in veterinary medicine is not good given the fact that the applicant pool to veterinary school has not experienced meaningful growth in the past ten years and is annually composed of only 15 percent racially or ethnically underrepresented students. An added concern is that the entire applicant pool is only expected to increase by a modest 2 percent in the coming years. Currently, only around 13 percent of enrolled students in US colleges of veterinary medicine are underrepresented.

Given the current status of the profession with respect to diversity and inclusion, along with future challenges such as the impact of soaring population growth, global warming, emergence of new infectious diseases that threaten animal and human health, and unprecedented economic challenges, just how important is diversity and inclusion for the veterinary profession? In the recently released North American Veterinary Medical Education Consortium (NAVMEC) report, "Roadmap for Veterinary Medical Education in the 21st Century: Responsive, Collaborative, Flexible," diversity and multicultural awareness are recommended core competencies that all veterinarians should possess. The report states that veterinarians should have "an understanding of the manner in which culture and belief systems impact delivery of veterinary medical care while recognizing and appropriately addressing biases in themselves, in others, and in the process of veterinary care delivery." NAVMEC brought together the largest and broadest spectrum of veterinary profession stakeholders ever assembled and provided the

strongest endorsement ever for diversity and inclusion in veterinary medicine. So if there is national consensus that diversity and inclusion are necessary competencies of graduating veterinarians, belief that a diverse and inclusive environment enhances excellence in the educational experience, and acceptance of the business case for diversity currently espoused by corporate America, will colleges of veterinary medicine fund diversity efforts and sustain them during downturns in the economy, or when there is a swing in the political pendulum? If we truly believe that the veterinary profession is strengthened by many perspectives and approaches to solving societal issues such as health care disparities, are we prepared to take hold of the well-meaning goals and objectives pertaining to diversity and inclusion that litter the strategic plans of our professional organizations and veterinary colleges, and make them a reality for the profession rather than just politically correct rhetoric? Are we finally ready to tackle, in a comprehensive and consistent manner, the complexities of navigating a new journey to diversity and inclusion in the profession? Given the rapid demographic shifts in the US and current economic challenges, do we really have a choice if the profession is to sustain its workforce and retain its relevancy to society?

In this first authoritative narrative on diversity and inclusion in veterinary medicine, the authors have framed the current status of veterinary medicine, with respect to diversity and inclusion, as being at a pivotal transition, where failure to act could have grave consequences on the future standing of the profession. Beginning with a historical account of veterinary medicine, in context to historical changes and actions within US society, a call for action is made for the profession to get its act together if it is to maintain societal relevance and continue to enjoy its status as one of the most admired professions. The authors do not provide a precise pathway to reach the desired level of inclusiveness and cultural competency in the veterinary profession, but rather, they describe a journey where many roads have been traveled and must be traveled to reach a new future for veterinary medicine. As with any map, there are many roads that can be chosen to reach a desired destination, and different individuals will choose different routes, some with unexpected detours and stops along the way. This journey will be made without the assistance of a global positioning system.

The authors have not attempted to tell us all the possible directions that could be taken to reach the destination we seek, nor should they. However, the information presented will help with reading the map, plotting the path, and effectively navigating the challenges and complexities that are encountered by those who work to achieve diversity and inclusion in veterinary medicine. We are taught skills that are applicable in multiple areas and how a systems approach to diversity

and inclusiveness is necessary for long-term progress and success. And we are reminded of the need for the profession to live up to the veterinarian's oath, where all who enter the veterinary profession pledge to use their scientific knowledge and skills for the benefit of society. If we accept that increased diversity and inclusion in veterinary medicine benefits society through improvements in public health, decreased disparities in care, and improved health and wellbeing for animals in all communities, when will the veterinary profession fully embrace its oath? While we may have miles to go before we arrive at a solution, let us not forget the words of the Chinese philosopher, Lao-Tzu, "a journey of a thousand miles begins with a single step."

Preface

As we began this project, our ultimate goal was to create a resource that could be used to positively impact one of the least diverse of all health care professions, veterinary medicine. We envisioned a book that would guide the thoughtfulness of veterinary professionals and others about being inclusive. We hoped the end result would be a call for action, accompanied by a defined strategy that anyone could use to make progress in diversifying not only the veterinary profession, but any profession. As we researched this book, what we already knew became amplified. The sluggishness of progress in this area became even more apparent. This led to some frustration on our collective part, and we apologize if this is discernible in certain areas of the book. We hope that the reader will understand this is because not enough is happening, and that the headway that has been made has been all too slow.

As we moved forward, we realized that there is not one defined strategy to accomplish our goal. Everyone will take his or her own path, but through this book, our intention is to assist people in navigating the way. We hope that you,

the reader, find this book useful and that it is helpful to you as we all work to overcome these challenges together and hasten the progress toward achieving our goal of diversity and inclusion.

We are truly appreciative of everyone who has contributed to the writing of this book. We cannot thank Dean Willie Reed enough for his continued inspiration, calls for action, and unwavering support for this effort. This book would not be possible without the immense assistance of the Purdue University Press team, led by Director Charles Watkinson, who helped conceive the idea for this book and guided the writing process. As such, we thank the very talented Press team of Heidi Branham, Becki Corbin, Katherine Purple, Bryan Shaffer, and Charles Watkinson for all of their assistance in producing this publication.

Chapter 1

The Base Map: What Is the Case for Inclusion?

Lorelle Espinosa, PhD, and Lisa M. Greenhill, MPA

Cartographers construct new maps by placing specific data on base maps for the purposes of comparison and correlation (Maps for America).

Racial and ethnic diversity in the United States, while long present in our country, has perhaps never been such a prominent issue in public policy, public opinion, and within the pages of scholarly papers and books. America's post-slavery era resulted in numerous civil rights movements including women's suffrage, educational integration, housing and employment desegregation, and antidiscrimination activities around issues of disability and sexuality. Today, America remains focused on issues of gender and racial inequality in education and in the workforce—issues that are also taken up by veterinary and animal science educators and professionals. In fact, there has been great momentum in recent years to diversify our nation's veterinary schools and colleges and to see more underrepresented racial and ethnic minorities enter related careers. Given the great demographic shifts our nation is experiencing and will continue to face in the coming decades, seeing a more diverse scientific workforce becomes not just an equity argument, but also a need for the sustainability and relevance of these fields.

As it is, there exists great need for more veterinary professionals in underserved areas around the nation (National Institute of Food and Agriculture n.d.), as well as a need for a professional body that can bring diverse perspectives into the classroom, laboratory, and lives of animal caregivers. From a research perspective, if we are to secure our nation and our world from dangerous pathogens and keep our global food supply free of contaminants and sustainable for a population of now seven billion, then we must ensure broad representation in all of our scientific fields—a process that begins long before students seek admission to veterinary schools and colleges, and graduate programs. Further, public health dilemmas such as limited access to human medical care and the quality of care in marginalized communities buttress this foundation by raising questions about how a lack of diversity in veterinary medicine may also impact the health of animals and people in affected communities. Anticipated population changes in the US compel us to consider how a lack of diversity affects the academic science, technology, engineering, and mathematics (STEM) pipeline now and in the future.

Population Changes

The US Census Bureau projects dramatic changes in the population over the next forty years. Asian and Hispanic/Latino populations are experiencing faster growth patterns than other racial or ethnic groups, and by 2050, the Asian population is expected to grow by 79 percent and the Hispanic/Latino population is expected to double (Ortman and Guarneri 2009). All other racial and ethnic populations are expected to continue on a moderate growth pattern with the lone exception of the non-Hispanic/Latino, Caucasian/White group, which is expected to decrease by 6 percent by 2050. Counter to these growth trends, however, is an educational landscape that has remained relatively flat when it comes to access and degree attainment in higher education. Non-Caucasian/White populations hold just 20 percent of doctoral and/or professional degrees (US Census Bureau 2010).

These dramatic demographic population changes will result in different needs and expectations of our nation and the subpopulations that comprise it. While many nontraditional students, for reasons of academic preparation, financial instability, life circumstances, and academic interest, will not pursue veterinary medicine, it would be not only unwise but incorrect to assume that veterinary schools and colleges can continue to rely on a traditional student population for current and future enrollment. In fact, the stagnating numbers of veterinary school and college applicants suggest the need for greater attention to increasing diversity in those STEM fields that feed the profession.

The Importance of Diverse STEM Disciplines for a Diverse Veterinary Profession

The push for broadened participation in veterinary medicine is timely given national, state, and regional goals for a strengthened STEM workforce. From a policy perspective, the STEM agenda is often an economic one with both rhetorical and tangible support from the White House, statehouses, and governors' offices alike. After all, more than half of our country's economic growth over the last fifty years is due to the growth of STEM fields (Babco 2003). It is therefore not surprising that seventeen of the twenty fastest growing occupations today are also in STEM (US Bureau of Labor Statistics 2011) and will continue to represent some of the highest paying jobs in the country (Carnevale et al. 2011).

This includes occupations in veterinary medicine; and while the veterinary profession may not be growing at the rate of computer science or engineering occupations, the national need for veterinarians is on its way to a 33 percent increase by 2018 when compared to 2008 occupational data (US Department of Labor 2011). Like other areas of STEM and the health professions, this is both due to a retiring baby boomer population as well as the need for new professionals to meet economic and scientific demand. In fact, there are already a number of underserved fields within veterinary medicine, including food safety, public health, bioterrorism and agroterrorism prevention, biomedical research, and rural practice (National Research Council 2012).

Yet despite America's need for more STEM professionals, it is by now well known that we are not preparing and supporting our youth to succeed in STEM disciplines (Members of the 2005 "Rising Above the Gathering Storm" Committee 2010). This reality is especially dire for women and men who are racially and ethnically underrepresented in veterinary medicine (URVM). The Association of American Veterinary Medical Colleges (AAVMC) has defined URVM as those populations "whose advancement in the veterinary medical profession has historically been disproportionately impacted by six specific aspects of diversity (gender, race, and ethnicity, and geographic, socioeconomic, and educational disadvantage) due to legal, cultural, or social climate impediments" (AAVMC [2011] 2012, 3–4). Underrepresented categories in veterinary medicine are deliberately based on an ability to quantify underrepresentation within the profession; it should be noted, however, that AAVMC acknowledges the need for a broader working definition of diversity that includes "age, disability, sexual orientation, gender identity, religious or political beliefs, socioeconomic background, or any other differences that have led to misunderstanding, hostility and injustice" (AAVMC [2011] 2012, 5).

Despite making up nearly 20 percent of the US population ages eighteen to twenty-four, only 10 percent of women from African American/Black, Hispanic/Latina, and Native American backgrounds of this same age range obtained a STEM bachelor's degree in 2008. National data further points to inequity within our nation's growing population of minority males—of all STEM bachelor's degrees granted to men less than twenty-four years of age in 2008, only 12 percent were granted to males from racial/ethnic minority backgrounds (National Science Foundation 2009). In short, the STEM fields remain predominantly Caucasian/White along gender lines, with additional, rapid gains by Asian American groups relative to their overall population. It should be noted, however, that while Asian American and Pacific Islander (API) groups are overrepresented in STEM (relative to their national population), there remain great educational disparities within several API communities, including those of Hmong, Vietnamese, and Filipino origin.

This is a serious problem given that the bachelor of science degree is one of the primary gateways to the doctor of veterinary medicine (DVM) credential and other professional and graduate degrees. Providing access to undergraduate STEM education for underrepresented students is thus critical, as is ensuring their success once enrolled in college, lest we continue to witness a veterinary student body that remains unrepresentative of our national population.

Yet it is not as if we've covered no ground. Progress in STEM education has been made in recent years, and this progress should be celebrated. The number of STEM bachelor's degrees granted to minority students has doubled, and for some populations tripled, over the past two decades. Yet when one looks at the data by the relative percentage of minority graduates in STEM over time, the emergent trend is all too stagnant. Despite said gains, the percentage of degrees granted in STEM to an increasingly educated minority population have remained constant at somewhere between 12 percent and 15 percent (American Institutes for Research 2012). This trend persists through the veterinary medical profession as well. While the overall representation of URVM students has increased, the growth seems minimal (917 new students from 1991 to 2011) when compared to the overall enrollment growth across the colleges of veterinary medicine (2,635 new students from 1991 to 2011) (AAVMC 1968–2011). Therefore, while we should celebrate progress and indeed record and learn from our successes, there are no laurels to rest upon as improvement has been less than satisfactory, a scenario that will only become exacerbated given our nation's changing demography.

America's political leaders might otherwise do well by reducing those systemic barriers that keep our current population of URVM students from suc-

ceeding in STEM, if our demography was not changing at such a rapid pace. Given the anticipated demographic shifts and a leveling off of STEM degree attainment by racial and ethnic minority groups, once-conventional solutions to decreasing educational inequity will surely fail as a commensurate response. With respect to the veterinary medical profession, the barriers to earning entry-way STEM degrees call for aggressive action. First, veterinarians and veterinary schools and colleges must actively recruit students from all backgrounds to enter scientific disciplines with a goal of veterinary medicine, and work to retain those students and sustain their interest in the profession until students graduate from the DVM program—an action that requires change in both educational policy and practice. Second, veterinarians must acknowledge that public needs and expectations of the profession will continue to evolve dramatically as the US population changes.

Presently, 15 percent of US applicants to veterinary school or college are racially or ethnically underrepresented in veterinary medicine (AAVMC 1968–2011). This pool has experienced minimal growth over the last five years and is projected to grow by just under 2 percent annually in the coming years. In order to create a sustainable pipeline of applicants to US schools and colleges, and to the profession, recruitment, especially diversity-focused initiatives, throughout the K-20 education system is essential. Developing a more diverse applicant pool—especially within the STEM and agriculture disciplines—is critical to the future of the profession. This further means enacting policy that ensures the adequate preparation of our nation’s youth in the fields of math and science.

As some would say, higher education in general, and veterinary medicine in particular, is at a crossroads. As Dr. Freeman Hrabowski, president of the University of Maryland, Baltimore County, and his colleagues so eloquently stated, “The United States stands again at the crossroads: a national effort to sustain and strengthen [science and engineering] must also include a strategy for ensuring that we draw on the minds and talents of all Americans” (National Academies 2010, 1). The report from which this quote was taken was commissioned by then Senators Edward Kennedy, Barbara Mikulski, Patty Murray, and Hillary Clinton in 2006 as an indictment of the need to strengthen and diversify the STEM workforce—a political argument that runs deep on both sides of the aisle. Hence the ongoing support of STEM education and outreach by federal agencies ranging from the Departments of Education, Energy, Labor, and Defense, to the National Science Foundation, National Institutes of Health, and NASA. Such investment has allowed institutions to explore innovative practices and increase their capacity for STEM education and research.

The Role of Special Institutions: Community Colleges and Minority-Serving Institutions

Fortunately, a small but powerful set of institutions are already embracing the twenty-first century student by recreating age-old educational structures to instead meet the academic, social, and personal needs of a student body that is more diverse, more mobile, older, and saddled with greater family and financial responsibilities than students of previous generations. At the undergraduate level, this includes efforts by community colleges, which serve as the entry point to higher education for the majority of the country's minority and low-income students (American Association of Community Colleges 2011) and enroll 40 percent of college students nationwide (Center for Law and Social Policy 2011). Among other roles, community colleges act as a bridge to four-year schools, and ultimately, have the potential to strengthen diversity in veterinary medicine. Public two-year schools are growing at rates faster than any other major segment of postsecondary education and often enroll minority students who are concurrently enrolled in four-year institutions (National Center for Education Statistics 2008).

So, too, Minority-Serving Institutions (MSIs) have made an indelible mark on the postsecondary education landscape by advancing racial and ethnic minorities in ways unparalleled by their predominantly Caucasian/White peer institutions. Historically Black Colleges and Universities (HBCUs), for example, continue to educate the majority of African American/Black students who later go on to receive PhDs in STEM fields (US Commission on Civil Rights 2010). Tribal Colleges and Universities (TCUs), the vast majority of which are two-year schools, have proven adept at receiving students who are academically and successfully transitioning from remedial education to credit-bearing courses. What is more, TCUs have enormous potential to prepare students for veterinary education. The focus that these institutions place on the relationship between higher education and the betterment of one's physical environment in a culturally relevant context speaks volumes to the needs of our health professions.

As the largest sector of MSIs, Hispanic-Serving Institutions (HSIs) do not have the historical mission that HBCUs and TCUs do, as many are qualified for HSI status due to their location in predominantly-Hispanic/Latino communities. Nonetheless, there are a number of HSIs in states like California, Texas, New Mexico, and New Jersey that take the education of a growing Hispanic/Latino demographic seriously—something that the educational outcomes of their students portend. The challenge for majority-serving institutions is to learn from and adapt those policies and practices that have made a number of MSIs so successful

in educating minority and low-income populations. Not that the predominantly Caucasian/White sector of higher education lacks champions. As subsequent chapters will show, there are indeed innovative practices on a number of campuses that are also worth great attention and ripe for scalability. Key to their success, among other things, is the creation and sustainability of an educational, social, and cultural climate that embraces and celebrates difference and diverse scientific perspectives.

The Veterinary Profession Moving Forward

Although the health professions have progressed over time, outpacing many other STEM fields in the enrollment and graduation of female and minority students, we are far from declaring victory. Minority women and men are still greatly underrepresented in veterinary medicine, despite their US and college-going demographic. Veterinary schools and colleges are challenged to not only better recruit and train minority populations, but also reach these groups early in their educational trajectory. Schools must be part of the solution when it comes to changing the paradigm of undergraduate STEM education—from pedagogy in the classroom to the availability of student support, research exposure, and career counseling.

Particularly for the very institutions where schools and colleges of veterinary medicine reside, it is imperative that every STEM college, school, and department be part of the collective effort to attract, retain, graduate, and transition diverse students to graduate and professional study. Without a shared effort, we will not meet our country's economic goals, nor will we advance our educational mission or transform our higher education system to meet the needs of America's fastest growing populations. Whether one makes an economic, civil rights, or social justice argument, at some point the argument matters less than the action that must transpire.

It should be made clear that efforts to diversify the profession must not be conflated with a necessity to lower academic standards. There is no desire to reduce the expected level of academic performance or capacity, but rather there is a heightened need to reevaluate what skills, knowledge, aptitudes, and attitudes are necessary for a veterinary school applicant to be successful in the academic program and in the profession. Beyond the ability to persist in a rigorous academic program, what are our expectations of new veterinary students? What skills do we expect them to have acquired before they enter the veterinary curriculum? Should we expect some coursework in sociology, intercultural communications, or business prior to attending veterinary school or college?

Deliberations by a wide range of veterinary stakeholders (academics, practitioners, employers, industry partners, and others) participating in the North American Veterinary Medical Education Consortium (NAVMEC) acknowledge the challenges with attracting and admitting a broader spectrum of students with a wider set of nontechnical skills due to overly complex and inconsistent application processes (NAVMEC 2011). NAVMEC's consensus document, "Roadmap for Veterinary Medical Education in the 21st Century," specifically highlights the need to nationally harmonize admissions requirements and refine admissions processes for all students in hopes of more effectively evaluating and critically exploring the value of diverse experiences, problem-solving skills, academic rigor, and future contributions to the institution and the profession (2011). The NAVMEC recommendations also reveal an acknowledgment that increasing the number of successful URVM students is only one component of meeting societal needs; the veterinary community also advocates the inclusion of prerequisites and DVM curricular enhancements that will imbue all veterinary graduates with the enriched knowledge, skill base, and sense of social responsibility necessary to appropriately meet society's evolving needs (2011).

Conclusion

In closing, diversity should not be considered simply as a politically correct consideration of the veterinary medical profession. Population shifts and human health care patterns reveal a necessity to seriously consider the impact of the relative lack of diversity on animal health and wellbeing. While racial and ethnic parity is a laudable goal, realistically it may be out of reach for veterinary medicine for some time. Yet this cannot be an excuse for a failure to strategically recruit greater diversity in the veterinary school and college applicant pool or to consider the future needs across the veterinary profession. We face a period of dramatic change in the United States, and the veterinary medical profession faces an important opportunity to chart its course and position itself for maximum impact. As with any crucible moment in history, the question remains whether the profession will respond at the national, state, and local levels to shape its future reality.

With all of this in mind, a "perfect storm" has been created, yet it is our collective response that will prove detrimental. Will we choose to harness swift demographic shifts and the potential to keep our nation's higher education institutions accessible and productive? Or will we yield to a way of doing things that, while comfortable for some, have been long antiquated in approach and inequitable in outcome? Are we content with asking an increasingly diverse population of

students—not just diverse in racial/ethnic origin, but in socioeconomic and first generation to college status—to work their way through the same educational system as did previous generations that were predominantly Caucasian/White, elite, and from educated families? Or are we prepared to change that system to suit an entirely new generation of college-goers? Do we have a choice?

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Chapter 2

The Aerial Mosaic: A Historical Picture of Diversity in Veterinary Medicine

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Aerial mosaics are individual snapshots that are brought together to form a continuous representation of a broad area (Maps for America).

Our changing views and actions with regard to diversity can hardly be understood except within the broad context of changes and actions within our society as a whole. We find the basic principle underlying the belief in diversity stated in the July 4, 1776 Declaration of Independence, which states that “We hold these truths to be self-evident, that all men are created equal” (US Declaration of Independence, 1). Today, we would more likely say “that all persons are created equal,” with the basic premise being that all human beings have equal value and are deserving of equal respect and treatment. If that basic truth had held and been fully accepted through the ensuing years, there would be no need to address a history of diversity as we do in this publication. However, fourteen years after declaring that self-evident truth, the US Constitution stated that for purposes of representation and taxation, persons within an entire race would be equal to only “three fifths of all other persons” (US Const. art. I, § 2, cl. 3.).

The restoration of that race to basic equality required the removal of slavery by the Thirteenth Amendment in 1865 (US Const. art. XIII, § 1.), the granting

of citizenship to the previous slaves by the Fourteenth Amendment in 1868 (US Const. art. XIV, § 1.), and granting them the right to vote by the Fifteenth Amendment in 1870 (US Const. art. XV, § 1.). The veterinary profession, which was only becoming established in the latter half of the nineteenth century, played no part in any of these actions. Yet the profession has been saddled with the remnants of that legacy throughout the remainder of the nineteenth century, throughout the twentieth century, and continues as we address the problems of racial diversity well into the twenty-first century.

While the Fifteenth Amendment extended voting rights to every US citizen based on “race, color, or previous condition of servitude” (U.S. Const. art. XV, § 1.), one-half of the US population was not included. Another fifty years passed before voting rights were extended to women by the Nineteenth Amendment on August 18, 1920 (U.S. Const. art. [XIX]). This legacy of discrimination was to continue for another fifty years. Women were not equally represented in veterinary schools and colleges until the 1980s, and not equally represented in the profession until the twenty-first century.

In 1954, the US Supreme Court removed the last vestige of segregation in the K-12 school system, and the group further prohibited the states from denying equal protection of the laws to any person. In 1964, the Civil Rights Act extended protection to two additional groups of people when it prohibited discrimination based on “race, color, religion, sex or national origin” (42 USC § 2000e-2). Persons with disabilities were the last group to be brought under the protection of the law when the Americans with Disabilities Act in 1990 established a clear and comprehensive prohibition of discrimination on the basis of “a physical or mental impairment that substantially limits one or more major life activities” (42 USC § 12102).

As the courts and society continued to extend basic human rights to all individuals, the veterinary profession followed by slowly changing the profile of the profession to include all protected classes. This effort was hampered by the profession’s self-perception that the practice of veterinary medicine required certain abilities possessed by only select individuals, mainly Caucasian/White males. This worked primarily against women in the first part of the twentieth century, and it continues to work against those with physical or mental disabilities. Its impact on racial and ethnic minorities has been significantly magnified by the lack of equal economic and educational opportunity of those individuals in the larger society.

Promotion and achievement of diversity in the veterinary profession did not begin until the start of the twentieth century and made extremely slow progress during the next fifty years. Significant progress did not begin until after World

War II, and large gains were not made until the last quarter of the twentieth century. The greatest progress in racial equality is occurring in the first decade of the twenty-first century. The major milestones and achievements will be described in the following brief history of veterinary medicine's effort to identify and promote the diversity implied in its "Principles of Veterinary Medical Ethics," which requires every veterinarian to follow the Golden Rule and treat every individual as they would wish to be treated.

Gender

The first woman to graduate from a college of veterinary medicine was Aleen Cust, who graduated from the New Veterinary College in Edinburgh, Scotland, in 1900. She was not allowed to take the examination of the Royal College of Veterinary Surgeons until 1922 because of her gender (Nolen 2011). The first woman to graduate from a US veterinary college was Mignon Nicholson, who graduated from McKillip Veterinary College in Chicago, Illinois, in 1903 (McPherson 2007). Two more women graduated in 1910, and by 1940, a total of thirty-six women became veterinarians in the US (Calhoun and Houpt 1976). In the 1940s, eight of the ten still-existing schools and colleges graduated another ninety-seven women, and one woman graduated from one of the seven new schools (Tuskegee) formed after World War II. Even with the seven new schools and colleges graduating students in the 1950s, only another 124 women graduated from the seventeen US veterinary medical schools and colleges.

A "Survey of Veterinary Medical Education" in 1958 addressed fifty-two basic questions regarding the profession, with sixteen of these related to applicants, source of applicants, admission policies, and graduates (American Veterinary Medical Association Council on Education and Association of Deans of Colleges of Veterinary Medicine 1958). Prepared as a petition to the 86th Congress for federal support of veterinary education, it did not include a single reference or comment to either gender or racial composition of student bodies or the profession. Twelve years later, another study, "Veterinary Medical Education and Manpower," devoted two pages to the characteristics of applicants and students. Pennell and Eyestone (1970) noted that in 1969–70 women constituted 8.85 percent of 4,861 students enrolled, and the authors called attention to the rapid changes by stating that "Women continue to enlarge the student ranks . . . including 146 in their first year, 114 second year, 92 third year, and 78 fourth year" (Pennell and Eyestone 1970, 23).

By 1970, all of eighteen US veterinary medical schools and colleges had graduated at least one woman, and the discrimination against women at the time of

admission was beginning to disappear. All residue of discrimination against admission of women fell in 1971 when the Comprehensive Health Manpower Training Act provided that the federal government may make no loans, grants, or interest subsidy payments to any school of veterinary medicine that discriminates on the basis of sex in the admissions process (461). The Higher Education Act of 1972 went further and prohibited “sex discrimination in all federally assisted education programs” and amended “certain portions of the Civil Rights Act of 1964 to include women” (Larsen 1997, 68). The net result was that female graduates increased from 464 in the 1960s to 2,173 in the 1970s, 7,766 in the 1980s, and 13,210 in the 1990s (Hooper 1997).

In August 1973, the Association for Women Veterinarians did a survey of the 1,254 female veterinarians who could be identified at that time. The women self-identified thirty-seven different primary veterinary medical activities for their professional practice, and almost all were working full time. Only 10 percent of the 833 women who responded were not working in veterinary medicine, and half of those were inactive because of family responsibilities. Most of the other inactive respondents had retired because of age or illness (Smith, J. M., pers. comm. to Jack J. Stockton). This was an important contribution in countering the image that women in the profession would soon drop out of the profession and would have taken the place of a man who would have been a full-time veterinarian.

Even with the rapidly expanding enrollments of women in the 1970s, there remained a strong element of discrimination against them. One of the special recommendations of the Department of Health, Education, and Welfare in 1976 was that “Schools should also clearly assume responsibility through policy statements and informal faculty pressures to control disparaging remarks about women made by faculty in official school contexts such as the classroom or laboratory. Negative faculty behavior toward women students encourages and sanctions such behavior on the part of their male peers. Finally, much can be accomplished simply by dispelling rumors that women get special treatment in admissions and that they are not really qualified but got in ‘just because they’re girls’” (Urban and Rural Systems Associates 1976, 71).

With the very rapid change of gender in admissions in the 1980s, the profession was beginning a shift from a male-dominated profession to a female-dominated profession. The gender distribution of applicants for admission crossed in 1983, when there were 2,846 female applicants and 2,834 male applicants. Females were not admitted in greater numbers than males until the following year, when 1,176 females and 1,153 males were admitted (Tasker 1990). The trend lines established in the 1970s and 1980s have continued. Yet the number

of female veterinarians did not exceed the number of male veterinarians until 2009.

This gender shift has generated great concern for recruitment of male applicants. Male students have rapidly become a minority population in veterinary schools and colleges, and men are becoming a more significant minority in the veterinary profession. As early as 1993, this concern was stated: “During the past 20 years, the number of women entering veterinary medicine has grown from just a few to 61.6% of the entering classes in U.S. veterinary schools in 1990. Although the movement of women into veterinary medicine has had a very positive influence on the profession, a reasonable balance of men and women is believed to be desirable both for the profession and for society in general” (O’Neil et al. 1993, 117).

Racial/Ethnic Diversity

The first African American/Black person to receive a degree in veterinary medicine was Henry L. Stockton, Sr., who graduated from Harvard’s veterinary medical program in 1889 (Smith 2011). A second man, Augustus N. Lushington, graduated from the University of Pennsylvania in 1897. A total of fifty-six male African Americans/Blacks received a veterinary degree prior to 1949. Three of these were from two different schools and colleges prior to 1910, twenty-nine from seven schools and colleges between 1910 and 1934, and twenty-four from seven schools and colleges between 1935 and 1948 (Waddell 1983). The first two African American/Black women graduated in 1949: Jane Hinton from the University of Pennsylvania and Alfreda Johnson Webb in the first class to graduate from Tuskegee (Larsen 1997). With the exceptions of the publications by Waddell and Larsen, there is very little information regarding racial minorities prior to the formation of Tuskegee’s School of Veterinary Medicine in 1945. The most complete history of the development of the American veterinary profession does not include a single reference to either women or minorities in veterinary medicine, and it even states that Tuskegee’s School of Veterinary Medicine was established “as a direct outgrowth of the shift of emphasis on southern agriculture and the increased need for veterinary services” (Smithcors 1963, 658).

For African Americans/Blacks, and subsequently all other racial minorities, a most significant event in achieving veterinary medical diversity was the establishment of the School of Veterinary Medicine at Tuskegee Institute in 1945. *The Legacy: A History of the Tuskegee University School of Veterinary Medicine* by Eugene Adams is the most authoritative source of information on Tuskegee University

School of Veterinary Medicine's founding and early years, and should be consulted by anyone interested in detailed information (1995). Formed on July 4, 1881 as the Tuskegee Normal School for Colored Teachers, it did not have a veterinary medicine focus until 1911 when Dr. James H. Bias, an African American/Black veterinary graduate of Ohio State, formed the equivalent of a Veterinary Science Department (W. C. Bowie pers. comm. with B. E. Hooper).

Dr. F. D. Patterson, a veterinary graduate of Iowa State University, became the president of Tuskegee Institute in 1935, and he served as president throughout the formation of the new School of Veterinary Medicine (Tuskegee University). In 1936, Dr. William Waddell, who headed Tuskegee's veterinary division, began development of a ten-year-plan for a Negro Veterinary School (Waddell 1983). The first veterinary class entered in the fall of 1945 and graduated five members in 1949. The third dean of the school, Dr. Theodore Williams, who was well known for his efforts to increase the number of minorities in veterinary medicine, also was known for his support of women. He is remembered as having said "he would make sure that women had a fair chance at Tuskegee as long as he could do anything about it" (Larsen 1997, 37). Dr. Williams also served as president of the fledgling Association of American Veterinary Medical Colleges (AAVMC) from 1968–69 (Crown Publications 1987). The fourth dean of the school, Dr. Walter Bowie, played a central role in the expansion of the program to recruit and educate minority veterinarians through his efforts as the only African American/Black dean of a veterinary college working within the AAVMC. The school was renamed the Tuskegee University College of Veterinary Medicine, Nursing and Allied Health in 1996 to promote the "One Medicine" concept of interrelating animal and human health issues (American Veterinary Medical Association 2009).

In July 1970, the Bureau of Health Professions Education and Manpower Training conducted a special survey of the gender and racial composition of veterinary students in the eighteen US schools and colleges in academic year 1969–1970. They reported "a total of 127 nonwhite students were enrolled" (Pennell and Eyestone 1970, 24). Furthermore, "Tuskegee had 86 nonwhite students, or 78 percent of its total enrollment. Fewer than 10 nonwhite students were enrolled in any other college; two colleges had none. The 127 nonwhite students in all classes included 20 women; of the 34 nonwhite students in the first-year class, 6 are women" (Pennell and Eyestone 1970, 24).

Other than the formation of the Tuskegee's School of Veterinary Medicine in 1945, the most significant events promoting racial diversity in veterinary medicine occurred in a four-year period from 1972 to 1975. Dr. Iverson Bell and Dr. Jack Stockton pooled their considerable talents to convene the first Minority Recruit-

ment Seminars/Workshops. Dr. Bowie joined the effort by hosting national conferences at Tuskegee. Dr. Stockton and Dr. Bowie then led the veterinary deans to appoint a Minority Affairs Committee in the AAVMC in the academic year 1974–75, for which Patricia Lowrie was chair.

The first Minority Recruitment Seminar/Workshop in the history of veterinary medicine was held at Purdue University in 1972, and it was attended by only Indiana veterinarians, faculty, students, and university administrators. The second, held in 1973, and those following were regional, with attendance from faculty and administrators at the veterinary schools and colleges in Illinois, Michigan, and Ohio. The first four were cochaired by Drs. Bell and Stockton. After the death of Dr. Bell in 1984, the fifth and sixth, in 1984 and 1985, were renamed the Iverson Bell Minority Seminar/Workshop on Minority Recruitment, both chaired by Dr. Stockton. The seventh Seminar/Workshop and all subsequent Iverson Bell symposia were national in scope and sponsored primarily by AAVMC.

In 1972, the Seminar/Workshop addressed an Indiana problem where African Americans/Blacks made up 12 percent of the state's population, 1.14 percent of Indiana veterinarians, and only 0.03 percent of the graduates in the first ten classes to graduate from Indiana's School of Veterinary Medicine at Purdue University. Two major issues were addressed: the cause of the problem and the question of separate standards for minority students. With the considerable national experience that Dr. Bell accumulated through his work with the AVMA, and the considerable academic experience Dr. Stockton amassed with academic veterinary medicine, it was believed that the basic problem was "a sin of omission than commission." The veterinary profession had simply not voiced a concern about multicultural representation, and the issue had been overlooked in all previous meetings of veterinary and academic associations. On the issue of separate standards it was believed that the position of the profession throughout the twentieth century had been a single standard for all graduates, and that this position was proper and should be continued through all proposed efforts at recruitment, retention, and graduation. The seminar participants proposed five basic actions: (1) increase efforts to attract and facilitate movement of minority applicants across state lines; (2) increase efforts by the university to work with high schools having large numbers of minorities and increase pre-veterinary enrollments; (3) provide summer employment for minority students with veterinarians and faculty; (4) solicit and provide financial assistance to minority students; and (5) provide special counseling to minority preveterinary students (Hooper 1974).

Dr. Bell's personality, professional attitude, and commitment did much to guide the discussions and debates in all issues related to minority recruitment in

the 1970s and early 1980s. At the first national Iverson Bell Seminar/Workshop, held in 1988, Dr. Stockton remembered Dr. Bell's attitude as "inspirational, analytical, positive and realistic" (Stockton 1988, 7). One of Dr. Bell's favorite citations, which is from the pen of an anonymous person, was: "Life is made up of little things. It is very rarely that an occasion is offered for doing a great deal at once. True greatness consists in being great in little things" (Stockton 1988, 7).

Dr. Bowie developed the first national Minority Recruitment Conference at the Tuskegee Institute in February 1974. Some major observations as to the state of African Americans/Blacks in veterinary medicine were made by Dr. Bowie in his opening remarks for the conference. He stated that "All of the institutions of higher education in this country together have only produced a meager 650 to 700 minority scientists in some 90 years" (Bowie 1974, 10). He contrasted the 8.3 percent minority students in the medical schools (total enrollment 47,234) with 1.84 percent minority students in veterinary medical schools (total enrollment 5,149). Of the ninety-five minority students then enrolled, eighty were at Tuskegee, and only fifteen African American/Black students were distributed through the other seventeen veterinary colleges. In its twenty-five years of existence, Tuskegee's School of Veterinary Medicine had graduated 94 percent of all African American/Black veterinarians (Bowie 1974). The conference developed a number of recommendations that might increase the number of minorities in veterinary medicine, with a major emphasis to be placed on increasing opportunities for minorities in the thirty-three states that did not have a school or college of veterinary medicine.

The 1975 Minority Recruitment Conference at Tuskegee again emphasized development of opportunities across state lines and made eleven other major recommendations directed at recruitment. It made two major recommendations that would cloud and threaten recruitment of minorities for the remainder of that century: (1) a given number of spaces be set aside for minority students in each school or college; and (2) an attempt be made to reach minority representation equivalent to their representation in the general population (15 percent) in five years, with specific goals to be set for each year before that time. With the encouragement of Drs. Bowie and Stockton, the AAVMC adopted those two recommendations in 1976. However, the recommendations were not received well by the faculties of the veterinary colleges, or the profession at large, because they created an incorrect perception that poorly prepared or significantly less-qualified applicants were to be admitted. The issue of racial quotas in admission was working its way through the courts and was scheduled to be heard by the US Supreme Court in *Regents of the University of California v. Bakke* (438 US 265 (1978)). Rather than establish quotas, the response of the veterinary schools and colleges was to work very hard

on increasing the interest of minority students, increasing the support of minority students in preveterinary programs, increasing the financial support of minority students, and admitting as many prepared and qualified applicants as possible (*Regents of the University of California v. Bakke*, 438 US 307 (1978)). The results of that effort between 1973–74 and 1992–93 was a 274 percent increase in minority enrollment, from 175 to 656 students, while overall enrollment increased 49.7 percent, from 5,763 to 8,628 students (Health Resources and Services Administration 1994).

The Supreme Court heard arguments on the *Regents of the University of California v. Bakke* case on October 8, 1977. On June 28, 1978, a five to four vote rendered an extensive opinion in which Justice Lewis F. Powell, Jr. wrote for the majority that “Preferring members of any one group for no reason other than race or ethnic origin is discrimination for its own sake” (*Regents of the University of California v. Bakke*, 438 US 307(1978)). The AAVMC Committee on Minority Affairs immediately solicited support from the Ford Foundation and sponsorship from the American Council on Education, and held a National Workshop Conference on Minority Representation in Veterinary Medicine in Washington, DC, on November 1–2, 1978. The report of that conference helped frame the racial recruitment and admission policies from that moment forward. The last page of the report presents a profile of “Trends in Minority Affairs at Schools of Veterinary Medicine for 1976, 1977 and 1978.” In those three years there were 1,183 minority applicants. Of those, 815 (68.9 percent) were qualified for admission. Of those, 239 (29.3 percent) were admitted. In those same years there was an average of 1,774 teaching faculty of which 117 (6.6 percent) were minorities (AAVMC 1978).

The opening of nine new schools and colleges of veterinary medicine in the late 1970s and early 1980s as well as federal funding that encouraged larger out-of-state enrollments helped increase opportunities for minority applicants, but in academic year 2010–11 all minority students still made up only 12.65 percent, and African Americans/Blacks only 2.14 percent of the veterinary student population in US schools and colleges of veterinary medicine.

Seminars/workshops/conferences addressed issues related only to the African American/Black race. No significant attention was paid to other races, to gender, or to other diversity issues. It was the Minority Affairs Committee of the AAVMC that progressively broadened the spectrum of concern through the remainder of the twentieth century. In its early years, the Minority Affairs Committee devoted great efforts to gathering data that would document the diversity issues. It then identified and documented institutional programs, sponsored many local and regional meet-

ings to generate interest and action, supported legislation and funding for diversity programs, and moved toward the establishment of regular national meetings of the academic veterinary community. This committee was either the direct stimulus for diversity programs or just slightly in the background of every advancement in diversity issues in veterinary education over the next twenty-five years.

One of the greatest problems regarding the collection of data in the 1970s was the deliberate and repeated decisions by the deans of the veterinary schools and colleges to withhold any information on personal identifiers of either applicants or students. It was not until 1980 that they allowed the pooling of such information. Dr. John Tasker, a member of the Minority Affairs Committee and later dean at Michigan State, began an annual publication of the numbers of applications, the number of applicants, the gender of each group, the racial composition of each group, and the admission numbers for both gender and race. From that point forward, the schools and colleges had the basic information needed for developing targeted programs. This was very valuable because it documented the change in the gender ratios of the student body, but more importantly, it documented the declining interest in veterinary medicine and the early increases for races other than African American/Black. From 1981 to 1990, the total number of applicants decreased 38 percent, Caucasian/White applicants decreased 37 percent, African American/Black applicants decreased 33 percent, Native American applicants decreased 12 percent. The only increases in those years were an increase of 38 percent in Hispanic/Latino and a 47 percent increase in Asian American applicants (Tasker 1990).

In 1986, the AAVMC established a national office in Washington, DC and expanded its efforts to take a broader role in the leadership of the profession. One of these roles was to expand the emphasis on diversity. A member of the Minority Affairs Committee, Dr. Milton Wyman, and The Ohio State College of Veterinary Medicine organized a national meeting and named it “The 7th Iverson Bell Seminar/Workshop on Minority Recruitment For Veterinary Medicine: Recruiting, Funding and Retention of Qualified Minorities and Disadvantaged Students in Colleges of Veterinary Medicine.” The Iverson Bell Seminar/Workshop identified a university sense of commitment, faculty involvement in the total effort, and student participation wherever possible as important components in expanding recruitment and retention of minority students. The proceedings of this meeting in 1988 were widely distributed in the veterinary schools and colleges, and used in many other settings where such efforts might be addressed.

The 8th Iverson Bell Seminar/Workshop was renamed the “Iverson Bell Symposium” and has retained that title because it implies a much broader focus on

diversity than the almost exclusive minority affairs focus in previous conferences. Patricia Lowrie and Michigan State University College of Veterinary Medicine served as the hosts in 1989. The Iverson Bell Symposium introduced the veterinary community to the concept of a rapidly expanding concern for diversity in all of veterinary medical education. Up to that time, the AAVMC had used terms such as African American/Black recruitment, minority recruitment, multicultural, disadvantaged (both economic and/or educational), underserved, and affirmative action. However, the US Department of Justice had just forced the US Senate to change the title of Senate Bill 1606 from “Minority Health Care Bill” to “Disadvantaged Health Care Bill” because the Senate could not define “minority” in such a way as to be nondiscriminatory. At this symposium the AAVMC also presented the first Iverson Bell Recognition Award and has used the award since in each biennial symposium to recognize outstanding contributions in promoting “opportunities for minorities in veterinary medical education.” The presentation of the award to Dean Willie M. Reed of Purdue University College of Veterinary Medicine at the 18th Symposium in 2011 captures the broader emphasis on diversity by stating that the award was being presented to someone who “understands that active engagement around issues of diversity and inclusion is a cornerstone for effective leadership in the 21st century. It is clear that diversity and inclusion is a priority in his college and is evidenced through college-wide colloquia and conferences, and the classroom experience for the students” (AAVMC 2011).

A tremendous step forward in the promotion of diversity was the Pew Charitable Trusts grant of \$5.5 million in 1987 to study and fund programs that would enhance veterinary medical education. This program provided leadership training and supported strategic planning in each of the veterinary schools and colleges. It then funded many proposals from the schools and colleges in support of specific efforts to improve education. It involved the entire profession in a study of “Future Directions for Veterinary Medicine” and published a book with that title in 1988 (Pritchard). The study identified forty major factors impacting veterinary medicine, identified thirteen major “future directions,” and identified sixteen issues for veterinary education programs in the twenty-first century. A major recommendation was that the profession “Make the achievement of educational, experiential, and cultural, racial and ethnic diversity among veterinarians a goal of veterinary education” (Pritchard 1988, 7). Since these recommendations had broad support from the profession, it began the long, slow process of bringing the American Veterinary Medical Association (AVMA) and other veterinary organizations into the efforts to address and promote diversity. The Pew grant also funded one study that would have a major impact on multicultural diversity and

one symposium that would have a major impact on broadening the awareness of diversity issues.

As the Pew project began, all of the deans in the AAVMC requested that Dr. Bowie be named principal on a major grant to address URM attitudes and perceptions about veterinary medicine and veterinary medical careers. Dr. Bowie agreed to do this only if Patricia Lowrie would direct and manage the project. Together they then selected the American Association for the Advancement of Science to be the primary contractor for instrument development and analysis of results. The study was conducted over a two-year period in 1989–91, and it involved eight colleges of veterinary medicine (Auburn, California, Florida, Louisiana, Michigan, Texas, Tuskegee, and Wisconsin). The study was based on the premise that a critical career choice point for pursuing health professions is the junior year of high school. Its specific objectives were to: (1) gain a better understanding of how URM and Caucasian/White students view veterinarians, veterinary medicine, science, and mathematics; (2) determine the effect of teachers' attitudes and teaching strategies; and (3) build working relationships between middle schools and colleges. The study collected data on 2,265 African American/Black, 2,201 Caucasian/White, 897 Hispanic/Latino, 171 Asian/Pacific Islander, and 94 Native American students. It also collected data on 2,939 parents and 439 teachers at ten schools in ten communities. The primary findings were: (1) students from all racial/ethnic groups hold positive images of veterinarians; (2) Caucasian/White students tend to better understand what veterinarians do, compared to African American/Black and Hispanic/Latino students; and (3) African American/Black students had the fewest experiences with animals, the least positive image of veterinary work, liked animals the least, and were the least likely to be interested in a career in veterinary medicine. The primary conclusion was that "by modifying students' frequency and duration of experiences with animals and their interactions with professionals in veterinary medicine, changes in their attitudes and interests may follow" (Matyas and Lowrie 1991). The recommendations were that the schools and colleges should: (1) expand middle school partnerships; (2) use enrichment programs throughout the educational continuum; (3) intertwine relationships between veterinary medicine, math, and science with other foundational skills, such as reading and writing; and (4) extend interaction with youth beyond the schools to community service agencies and organizations (Matyas and Lowrie 1991). These findings, conclusions, and recommendations were never formally published, but they were presented and extensively discussed in a day-long workshop at the 9th Iverson Bell Symposium, held at Louisiana State University School of Veterinary Medicine in November 1991. The results of this study significantly influenced minority

recruitment programs at the veterinary schools and colleges, and programs initiated on the basis of the study were extensively reviewed and discussed at the 10th Iverson Bell Symposium, held at the University of Florida College of Veterinary Medicine in October 1995.

The AAVMC and its Diversity Committee continues to develop and promote all components of diversity in veterinary medical education, periodically review their progress, and make future plans through the Iverson Bell Symposia. In a major effort, “Envisioning the Future of Veterinary Medical Education,” they stated the principle that “Academic veterinary medicine should reflect the existing and anticipated diversity in society” (Willis et al. 2007, 16). Then as one of their forty-five recommendations, they stated that “Selection for admission must consider achieving diversity in the profession, which would reflect the diversity in society. Achieving diversity within the profession will lead to a broader understanding of the profession and wider use of veterinary medical services” (Willis et al. 2007). One of the goals in the AAVMC’s strategic plan is to, by 2014, increase the number of underrepresented minority students by 35 percent and increase the number of underrepresented minority faculty members by 20 percent (AAVMC 2010).

As the twentieth century ended, the academic veterinary community still waited and hoped for the profession as a whole to join in these efforts. It was hoped that the AVMA and all other major veterinary medical associations would accept the need and begin the work necessary to achieve greater diversity throughout the profession. The *Journal of the American Veterinary Medical Association (JAVMA)* focused a *JAVMA* news section on diversity in 2010 and published that “In 2004, the AVMA formally committed itself to promoting diversity in all aspects of the profession. As first steps, the Association in 2005 hosted the first annual AVMA Veterinary Diversity Symposium and authorized the development of a diversity task force as recommended by the Member Services Committee” (Kahler 2010, 369). The AVMA has continued to host these Diversity Symposia during each of their annual meetings. They were not widely publicized until the *Journal of the American Veterinary Medical Association* published a review of diversity in the veterinary profession (Kahler 2010). In introducing the feature, Susan C. Kahler stated:

Embracing diversity is vital if the veterinary profession is going to continue to fulfill its mission of serving all of society and all animals to the best advantage. From improving communication with clients to providing a better understanding of cultural attitudes and practices that affect animal care to recognizing how differences in gender attitudes affect the work environment, diversity touches every aspect of the profession. (369)

It would be hard to overstate the importance of that publication because it was sent to every AVMA member and thus effectively called the attention of the profession to diversity issues. The AVMA Strategic Plan, first adopted on April 12, 2008 and revised April 10, 2010, includes a “Workforce Objective” to “Foster increased veterinary workforce diversity pertaining to professional areas of service and to cultural, ethnic, gender and racial representations” (AVMA 2010, 7). The AVMA 20/20 Foresight Commission also proposed increasing diversity by stating “By 2020, the AVMA should ensure representation of women in leadership roles . . .” (Burns 2011, 1373) and “By 2020 the AVMA should create a strong and diverse sense of community within the veterinary profession . . .” (Burns 2011, 1373).

Religion

Many older veterinarians remember the image of discrimination against Jews that existed in veterinary school and college admission departments during the middle of the twentieth century. The previous dean of the Cornell University College of Veterinary Medicine has published information regarding this practice. He states that “Although the use of numerical restrictions for Jews was not widely publicized, many schools and colleges had silent quotas for Jews, usually not exceeding 10% of the entering class” (Smith 2010, 323). He reports that a member of Cornell’s veterinary class of 1935 summed it up this way: “They had this quota arrangement—it was very silent. You didn’t talk about it but everybody knew they took two [students per class of approximately 50] one year, and three the next” (Smith 2010, 323). He states that “Cornell began (in 1934–1935) to evaluate subjective personal qualities such as ‘each applicant’s character, seriousness of purpose and fitness of the work that he proposes to undertake’” and that “Use of this type of language was common in both undergraduate and professional schools and colleges at the time. It was widely believed that it was used as a means to limit the number of Jews” (Smith 2010, 323). None of the data collected over the last forty years suggest that religious discrimination exists in any recruitment, admission, or retention programs, but in the 1993 survey of veterinary students there was still some evidence of interpersonal religious discrimination (Turnwald et. al. 1993).

Climate

At a meeting of the North American Strategic Veterinary Education Task Force (NASVET) near the close of the Pew project, Ed O’Neil, who had headed the Pew

projects for several of the health professions, said that he knew of no other health profession that had addressed the issue of the students' experiences in dealing with discrimination and diversity issues within the student body (Young 1993). The last major project funded by the Pew Veterinary Medicine Project supported a student survey of the environment for diversity in the US and Canadian veterinary schools and colleges.

The survey was administered to students in each of the first three classes at twenty-eight of the thirty-one colleges of veterinary medicine in the US and Canada near the end of the 1992–93 academic year. Of the 6,686 students in those classes 3,560, or 53 percent, responded. The percentage of female students was 63.9 percent, and their response rate was 66.5 percent. The percentage of male students was 36.1 percent, and their response rate was 33.5 percent. The percentage of minority students was 5.3 percent, and their response rate was 5.2 percent. The survey addressed marital status, dependent status, religion, disabled status, race, geographic background, sexual orientation, age, perceived discrimination, origin of discrimination, impetus for perception of discrimination, reverse discrimination, disparaging comments about racial/ethnic minorities, positive comments about diversity, role models, mentoring, climate for diversity, recruitment of underrepresented faculty and students, promotion of diversity, preparation of students from underrepresented groups, affirmative action, acceptance of LGBT students, good ol' boyism, and offensive jokes. It also provided for open-ended narrative responses, and roughly 1,000 students responded (Turnwald et al. 1993).

Of the 3,560 responding students, 188 self-identified as disabled, with forty-nine reporting hearing impairment or deafness, thirty-nine reporting a learning disability, twenty-five reporting visual impairment or blindness, sixteen reporting a speech disorder, and fifteen reporting mobility impairment. Over sixteen religions were identified, with the distribution among the faiths approximating that in the general North American population. Two percent of students self-identified as gay or lesbian, and 1.5 percent self-identified as bisexual. Forty-three percent of the students reported experiencing discrimination because of gender, 11 percent because of race, 13 percent based on religion, 10 percent based on age over thirty, and 5 percent or less for either sexual orientation, being a parent, or being a single parent. Sixty-six percent of the students perceived discrimination from fellow students, 25 percent from faculty, 17 percent from college staff, and 11 percent from administrators. Sixty-five percent of the perceived discrimination came from verbal comments, 12 percent from specific actions, 11 percent from nonverbal cues, and 12 percent from other activities (Turnwald 1993).

The conference chair, Dr. Karen Young, described the survey as having brought together students, faculty, administrators, and staff from twenty-seven of the thirty-one colleges and schools of veterinary medicine to consider thoughtfully and carefully the challenges and opportunities that a diverse student body brings to veterinary medicine, the positive and negative roots upon which the values expressed by colleges and schools of veterinary medicine are founded, and strategies for implementing changes to make the environment more inclusive, a place where all can reach their full potential (Young 1993). In summarizing the symposium, Dr. Shirley Johnston, who was to go on and become the first female dean of a veterinary school, quoted Catherine Daley from Auburn as saying “When one is confronted with another person’s struggle, when one individual is touched by another individual, the labels fall away. The hatred which stems from ignorance and fear is dissipated, and bonding and healing of souls begins” (Johnston 1993, 52–53).

Three regional meetings, two at the University of Georgia, addressing the campus climate as a major barrier to recruitment and retention (Larkin 2010), and one at Purdue University, addressing the diversity in the curriculum, have been held. The AVMA and AAVMC have joined forces to launch a national survey on campus climate for students and a concurrent parallel survey for faculty, staff, and administrators (Larkin 2011). The current effort on exploring campus climate will continue the themes developed in the 1993 conference and the Georgia regional conferences as it develops “comprehensive national data regarding veterinary student’s perceptions of comfort with respect to various forms of personal differences, perceptions concerning tolerance of discriminatory behavior at their school or college and perceptions of supportiveness” (Larkin 2011, 1231).

The Status in 2010–11

In 2011, the veterinary medical profession in the US was about 90 percent Caucasian/White, 2.2 percent Hispanic/Latino, 2.3 percent Asian, 1.5 percent African American (AVMA 2011; US Census Bureau 2012), and 53.3 percent female (AVMA 2011). Membership in the Lesbian and Gay Veterinary Medical Association, which includes members of the LGBT community and their allies, was about 0.5 percent of the US population of veterinarians (K. Gorczyca, pers. comm. to editors). In 2010–11, 13.48 percent of tenure-track faculty were minorities (AAVMC 1968–2011). The US veterinary medical student population was 77.4 percent female (AAVMC 1968–2011), 13.4 percent underrepresented minorities, and fewer than 3 percent racially or ethnically underrepresented males

(AAVMC 1968–2011). Retention in veterinary educational programs is remarkably high. In 2011, retention rates were 98.83 percent and equivalent between Caucasian/White students (98.92 percent) and URM students (98.74 percent) (AAVMC 1968–2011).

Veterinary medical educational institutions continue to work to overcome the economic, social, and political discrimination that has afflicted the US veterinary profession for more than 150 years. It is making progress, albeit slowly. There is a continuing struggle to achieve greater diversity in veterinary medical education and in the veterinary profession as a whole. This effort was best described by Lisa M. Greenhill in the introduction to the 2009 Iverson Bell Symposium, when she said, “We strive to produce an academic environment that mirrors the United States demographically, but we also have an ethical responsibility to produce an academic environment where inclusion and success flourish and that is a model for the profession at large” (Greenhill and Hill 2009, 345).

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Chapter 3

Orientation: Looking at Strategies Utilized by Other Health Professions for Increasing Diversity

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Orientation is the process of establishing a correct directional path by referencing the points of a compass (Maps for America).

In chapters 1 and 2, we explored the lack of diversity in the STEM disciplines at the undergraduate level, and corresponding serious implications for the DVM applicant pool. Many other professions have a long history of utilizing various strategies in an attempt to increase diversity within their academic programs. This chapter presents an overview of a select group of these strategies; this list is by no means exhaustive. Academic veterinary medicine can certainly benefit from the body of knowledge that exists around what strategies have and have not worked, particularly with regard to other health professions, whose curricula and potential applicant pools are similar to those in veterinary medicine.

A 2004 Institute of Medicine report states that it is in the nation's compelling interest to increase diversity in the health care professions, since this will support greater access to care for diverse racial/ethnic patients, increased patient choice and greater patient satisfaction, and better quality patient/provider communication (Smedley, Butler, and Bristow 2004). Racial and ethnic minority health care professionals are significantly more likely than nonminorities to serve minority

and other medically underserved communities, thus increasing access to health care (Cantor et al. 1996; Komaromy et al. 1996; Turner and Turner 1996). In addition, minority patients rate the quality of their health care higher when it occurs in a racially concordant environment as opposed to a racially discordant one (Cooper-Patrick et al. 1999).

Cohen et al. (2002) outlined four practical reasons for specifically promoting diversity in the health professions. They argued that diversity in the classrooms of health professional schools: 1) helps provide a better quality education for all students; 2) increases access to health care in the US where serious racial and ethnic health care disparities exist; 3) leads to accelerated advances in both medical and public health research, since research programs are greatly influenced by the backgrounds of researchers; and 4) makes good business sense. Diversity in the classroom encourages learning skills (active thinking, intellectual and civic engagement, etc.) that help these students become more culturally competent professionals, while diversity among health care managers will improve business performance, since a management team that reflects the racial and ethnic composition of their clientele is best able to anticipate their needs (Cohen et al. 2002).

Dental Schools

In 2000, the Robert Wood Johnson Foundation, the California Endowment, and the W. K. Kellogg Foundation launched an initiative entitled “Pipeline, Profession, and Practice: Community-Based Dental Education Program” (Formicola et al. 2010). This program was designed to work with the schools and colleges of dental education to both facilitate an increase in enrollment of underrepresented minority (URM) students, and to address lack of access to dental care. In phase 1 of the program, there was a 54.4 percent increase in first-year URM student enrollment at thirteen participating Pipeline schools/colleges, compared to a 16 percent increase in enrollment at nonparticipating schools. The analysis did not include data from College of Dentistry at Howard University, Meharry Medical College, and the University of Puerto Rico, due to their already diverse student bodies. In order to achieve this increase, the participating institutions have: 1) increased outreach and recruitment; 2) adjusted admissions practices; 3) examined school/college climate; and 4) used enrichment programs to strengthen the academic pipeline (Formicola et al. 2010).

During the early phase of the Pipeline program, in 2003, a focus group study of ninety-two URM college or dental students provided new information regarding the perceptions of this group to dentistry. From the focus group it was dis-

covered that early exposure to dentistry and dentists is essential in order to ensure more of these students choose dentistry as a profession. Many students shared that there was little to no dental school outreach to them, and that their advising at the pre dental level lacked enough information to properly prepare them for the application process. Currently enrolled URM dental students (particularly African American/Black students) reported their educational experience as being isolating and difficult, but some students did praise summer school enrichment programs and peer mentoring programs. Dental school faculty members who were interviewed as a part of this focus group reported that losing an URM student because of academic reasons is rare, despite the fact that many of these students graduated from small colleges with less academic rigor and did experience quite a shock during the transition to the intense dental school curriculum (Veal et al. 2004). The information in this focus study was shared with the Pipeline dental schools, and these schools in turn improved or began summer enrichment programs, and began or expanded outreach to URM college undergraduates. These Pipeline institutions also examined climate issues, such as presence/absence of a critical mass of URM students and faculty, and providing adequate mentoring to URM students.

A follow-up study was performed in 2006, during the last year of phase 1 of the Pipeline program. All the individuals interviewed for this study came from four Pipeline schools/colleges and included thirty-one individuals, including URM and non-URM students, pre dental students, recent graduates in practice, deans, and faculty members. In general, participants believed that increased recruitment and enrollment efforts at the schools and colleges were resulting in increased numbers of URM students entering dental schools. While the Pipeline program was given credit for achieving these goals, many wondered about the feasibility of the dental schools sustaining these efforts beyond the Pipeline funding. Students reported three significant barriers to overcome to get to dental school. These were: 1) the debt incurred; 2) lack of support from family, friends, peers, and teachers/mentors/advisors for their career choice; and 3) inadequate exposure to this profession on their undergraduate campuses (Formicola et al. 2010).

A survey sent to US dental schools indicated that there was little if any support services for LGBT students at the forty-seven US dental schools that responded to the survey. Because of this, LGBT students and faculty may not feel safe enough to reveal their sexual identity (and thus live “openly”) to their peers and teachers. Although all of these schools had nondiscrimination policies, only 75 percent of these contained language that specifically included “sexual orientation.” Given the fact that 62 percent of respondents said they were aware of

LGBT dental students at their school, and 45 percent of dental schools reported having treated LGBT clients in their clinics, dental schools should be compelled to provide safe and hospitable environments for members of the LGBT community (More et al. 2004).

The Commission on Dental Accreditation revised accreditation standards in 2010 to reflect the need for diversity in dental medical education. Standards now state that dental schools “must have policies and practices to: a. achieve appropriate levels of diversity among its students, faculty and staff; b. engage in ongoing systematic and focused efforts to attract and retain students, faculty and staff from diverse backgrounds; and, c. systematically evaluate comprehensive strategies to improve the institutional climate for diversity” (Commission on Dental Accreditation 2010, 18).

In 2002, the American Dental Association published its report, “Future of Dentistry: Today’s Vision, Tomorrow’s Reality” (Health Policy Resource Center 2002). In this document, it is stated that a primary goal of the profession is to improve the health of the public in a culturally competent manner.

Pharmacy Schools

Colleges and schools of pharmacy have also been focusing on increasing diversity within their organizations. In 2008, the American Association of Health-System Pharmacists (ASHP) released a statement on racial and ethnic disparities in health care, which outlines three general principles to guide the actions of health-system pharmacists (who work in hospitals and other health-systems). These are: “(1) all patients have the right to high-quality care; (2) medication-use practices should reflect knowledge of, sensitivity to, and respect for the race and culture of the patient, and (3) health-system pharmacists have a vital role to play in eliminating racial and ethnic disparities in health care” (American Association of Health-System Pharmacists 2008, 287).

Chisholm (2004) argues that diversity is the missing link to professionalism in the pharmacy school curriculum. She believes that when pharmacy schools fail to provide a diverse academic environment for their students, the pharmacy education these students receive is a “culturally repetitive” one, which is more likely to foster narrow values and beliefs. This can translate into a pharmacist who cannot effectively understand, communicate, or empathize with a diverse group of patients, and can thus be viewed as lacking in professionalism (Chisholm 2004).

Using best practices from a number of resources specific to health care, business, and/or higher education settings, Nkansah et al. (2009) offer a list of practi-

cal steps for the pharmacy schools to consider when designing a diversity program. These are as follows:

1. Ensure academic leadership. Diversity programs can only be successful if the deans, department heads, and key academic leaders support them. This support is actualized in allocation of monetary and human resources for program design, implementation, and ongoing maintenance. In addition, diversity should be addressed in the schools' mission and vision statements, and in the strategic plans.
2. Create a committee that will function as the governing body. This committee is most effective when its authority comes directly from the dean, both in the development and the implementation of the diversity plan. The committee should be a model for inclusiveness and should be open to objective feedback during the entire process.
3. Perform a baseline needs assessment. The committee will create the definition of diversity and be responsible for baseline assessment that will be important in the design and implementation of a program. Assessment can include information from a variety of sources, such as demographic information on students, faculty, and staff; academic climate surveys; exit interview results; focus groups; and retention and graduation data. Utilization of this information will allow for a diversity program designed specifically to meet the strategic goals and needs of individual institutions.
4. Create a strategic plan. This plan will guide the school/college/committee in terms of having solid goals, objectives, and initiatives that can be systematically pursued.
5. Systematically implement the strategic plan. Resources (financial and otherwise) should be allocated to ensure the strategic plan can be successfully applied.
6. Ensure accountability and communicate often with multiple stakeholders. Metrics for measuring the success of various initiatives and progress of the overall plan must be designed and routinely evaluated for both reliability and validity. Progress of the strategic plan should be regularly reported to both internal and external stakeholders, as well as shared with other institutions in a "best practices" format.

Diversity programs should have a solid focus on building and maintaining a diverse academic environment. Efforts should be made to resolve issues of dispar-

ity (such as in promotion and salary) unveiled by the baseline needs assessment. Committees should be open to networking with other academic institutions, to discuss successes and challenges of established programs.

Diversity initiatives and activities should be systematically implemented according to allocated budget/resources. Activities can include innovative outreach programs to build a diverse pipeline of students to the pharmacy profession, and a variety of sessions (workshops, roundtables, lectures) designed to increase awareness and understanding of diversity-related issues.

Ensure accountability by continuously defining metrics to measure program success and developing communication reports and vehicles. Metrics should be designed for each activity, and these metrics should be routinely reevaluated for reliability and validity. Communication reports should be developed that outline results of committee efforts and a mechanism of sharing those results with the college/school should be identified and utilized (Nkansah et al. 2009).

Medical Schools

A national campaign to enroll 3,000 underrepresented minority students (defined as Black/African American, Mexican American, mainland Puerto Ricans, and Native Americans) in medical schools by 2000 was launched by the Association of American Medical Colleges (AAMC) in 1991. The initiative was called Project 3000 by 2000 and focused on pipeline programs. Although the numeric goal was not met, there were many successful outcomes from this campaign and many important lessons to be learned by those interested in promoting diversity in health professional education (Terrell and Beaudreau 2003).

Prior to the late 1960s, the only two Historically Black Medical Schools in the United States (at Howard University and Meharry Medical College) trained 75 percent of the country's African American physicians. During that time, the other eighty-one US medical schools enrolled approximately one African American/Black student every other year, with Hispanic/Latino and Native American students being admitted at even lower numbers (Cohen et al. 2002). In the 1960s, when US medical schools were overwhelmingly Caucasian/White and male, affirmative action was used to increase minority enrollment. This resulted in an increase of approximately 6 percent in minority student medical school enrollment between 1964 (about 2 percent) and 1971 (about 8 percent) (Cohen 2003). Project 3000 by 2000 was designed by the AAMC when the 1990 data on students matriculating to medical schools indicated that minority enrollment in medical schools was far behind the rapid growth in the country's minority population (Terrell and Beaudreau 2003).

Project 3000 by 2000 was shaped by two key concepts. The first concept was that medical schools should create a system to identify talented minority students who had an interest in becoming physicians, and the second concept was designing academic interventions that would influence students daily in their classrooms. Medical schools who participated in Project 3000 by 2000 assigned a coordinator on their campus to coordinate the programmatic requirements, which were: perform an assessment of the medical school's past, current, and future potential for minority enrollment; provide students at magnet health professions high schools with high minority enrollment with academic enrichment opportunities; create partnerships with high schools and colleges to enhance student progression through the academic pipeline and to collectively identify and reduce barriers to continuous progression; reassess all aspects of medical school recruitment, admissions, financial aid, and academic support programs; and ensure an inclusive climate at the medical schools that would be hospitable to the increased racial and ethnic makeup of future medical school enrollees (Terrell and Beaudreau 2003).

To implement the above agenda, funding was provided by both foundations (such as the Robert Wood Johnson Foundation and W. K. Kellogg Foundation) and the AAMC to sponsor several programs and activities. Through Project 3000 by 2000, a public education campaign for medical school recruitment, retention, and academic achievement was created and launched. The initiative supported the creation of partnerships among K-12 school systems, colleges, the medical schools, other health professional schools, and even community-based organizations. These partnerships served as a catalyst for increasing the numbers of minority students in the pipeline to medical school. These efforts realized a 36.3 percent increase in minority matriculants to US medical schools from 1990 to 1994 (12.4 percent of all medical students) (Smedley et al. 2003).

Project 3000 by 2000 technically ended in the year 2000, but two major programs continue today. These are the Health Professions Partnership Initiative (HPPI) and the Minority Medical Education Program (MMEP), both are funded by the Robert Wood Johnson Foundation and the W. K. Kellogg Foundation. Through HPPI, medical schools work with local K-12 schools and undergraduate institutions to boost minority student academic preparedness for medical school by creating new curricula and providing multiple and diverse learning opportunities. Through MMEP, college students receive rigorous preparation for medical school as part of a six-week summer enrichment program on the campuses of participating medical schools (Terrell and Beaudreau 2003).

In 2010, a Diversity Research Forum was convened at the AAMC annual meeting. Entitled "Excellence and Capacity in Medical Education: The Diversity

Imperative,” the Diversity Research Forum provided medical school representatives with key principles designed to move diversity work into the core of the institutional mission. These principles were presented by keynote speaker Daryl G. Smith, PhD, from the School of Education Studies at Claremont Graduate University. She said that diversity should be defined as both inclusive and differentiated; diversity should be linked to the mission of the AAMC, medical schools, and nation; diversity should be part of the core indicators of success, and not parallel to them; diversity work needs to move beyond being a series of disconnected efforts (termed “projectitis”) toward synergy and coordination; and diversity work should be consistently monitored for progress (AAMC 2010).

Conclusion

This chapter provides a sample of the various approaches and strategies utilized by other health professions to address the lack of racial/ethnic diversity within their academic institutions and thus within their practicing professionals. There is general consensus that increasing the diversity among all the health professions is necessary to reduce health disparities, to meet the needs of a rapidly changing and increasingly diverse US population, and to graduate health professionals who are prepared to practice in their respective fields in a culturally competent manner.

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Chapter 4

Origin of Coordinates: The Dilemma of Social Constructs

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The origin of coordinates is the specific point within a system of coordinates that is used by cartographers to work out the parts of the system and prescribe use of the system (Maps for America).

Introduction

The influence of multiple personal and/or social identities on career awareness, exposure, decisions, and pathways is significant. While the diversity in representation discussion narratives are predominately about race, clearly no one characteristic or identity (e.g., gender, sexual orientation, class status, religious practice, ethnicity, etc.) as social constructs define the individual. In perspective, the multiple identities of individuals, coupled with the experiences, opportunities, encounters, understandings, and challenges, are shaped and interpreted by both the characteristic and their intersections within individuals. It is, therefore, interesting to note where and when critical career decision points fall concurrently with critical points in identity development as one approach to determining the challenges to pipeline development.

Gergen (1985) defines social constructionist theory as explaining how “people come to describe, explain, or otherwise account for the world (including themselves) in which they live” (266). Johnson (2000) further described social con-

struction, “In social interaction, we perceive other people and social situations and from this construct ideas of what is expected, of what VALUES, BELIEFS, NORMS, and ATTITUDES apply” (158).

For example, race as a social construct refers to “social groups, often sharing cultural heritage and ancestry, that are forged by oppressive systems of race relations, justified by ideology, in which one group benefits from dominating other groups, and defines itself and others through this domination and the possession of selective and arbitrary physical characteristics” (Krieger 2001, 696).

Gender as a social construct refers to “culture-bound conventions, roles, and behaviours for” and “relationships between and among, women and men and boys and girls” (Krieger 2001, 694). Gender roles, gender relationships, and biological expressions of gender “vary within and across societies, typically in relation to social divisions premised on power and authority (for example, class, race/ethnicity, nationality, religion)” (Krieger 2001, 694).

Social class as a social construct refers to “social groups arising from interdependent economic relationships among people” (Krieger 2001, 697). Social classes codefine each other (business owners, employees, unemployed individuals) and exist because of their relationships with one another (Krieger 2001).

Social Construct and Career Interest Development

Rabow (2012), in his narrative for the Center for the Celebration of Diversity through Education (CCODE), summarizes the models of identity development and asserts that race determines how gender and sexual orientation as well as other components of identity are “experienced, practiced and processed.” He further states that discussions cannot be separate on “gender or sexual orientation without keeping in mind that White and non-White women, for example, may differ greatly in their development and identification in the same stage of life cycle” (Rabow 2012).

As we address the challenges of a holistic approach to developing a pipeline of youth, who are underrepresented among those interested in science and ultimately veterinary medicine as a profession, both identity and career interest development must be part of the strategic framework for change. Tatum (1997) and Wilson and Rodkin (2011) suggest that self-segregation by race occurs among adolescents and even elementary schoolchildren for numerous reasons, including social preference, perceived social standing and popularity, and self-protection. These findings become more nuanced when considering that different ethnic groups have different developmental trajectories in different stages of adolescence, and that “differential

experiences of discrimination” may significantly impact ethnic identity development as well as “different styles of racial and ethnic socialization” (French et al. 2006, 9).

So, for illustrative purposes, if it is possible for African American/Black adolescents’ racial and ethnic identity to be impacted such that the group adopts low esteem and a negative view of their group membership, they may also engage in social mobility strategies that psychologically distance themselves (Tajfel and Turner 1979). Such social survival strategies could also negatively influence career achievement aspirations, which, when coupled with a general lack of awareness of veterinary medicine as a career path, effectively reduces the pipeline of African American/Black and other underrepresented applicants to a trickle. This is contrasted by evidence that increased group esteem leads to an abandonment of these social survival strategies and promotes the strategic questioning of the validity of standards and values externally imposed on underrepresented and marginalized groups (French et al. 2006). Research shows that this investment in reframing the veterinary profession and making it socially, racially, and ethnically relevant could result in high-impact change for African American/Black and Hispanic/Latino students (French et al. 2006). Students from these racial and ethnic backgrounds have the greater response than their Caucasian/White counterparts to efforts to increase group esteem. This scenario demonstrates the need for the portrayal of the veterinary profession in the context of the positive group esteem and social identity trajectories through role modeling and positive and inclusive professional imagery across a variety of disciplines.

Even with such positive portrayals and inclusions, social constructs that permeate the lived experience of students have a tremendous impact on career path consideration and selection. Low-income students identified as both “college prep” and “anybody but me” share a lack of helpfulness from high school career services (King et al. 2008, 26). Their experiences with counseling staff were “rushed, minimal and/or negative” or “uninterested, unhelpful or too busy” (King et al. 2008, 26). Generally, career counseling center engagement was outside the flow of the experiences of low-income high school students. This can be further exacerbated by negative peer influence extending to the collectively represented “culture” of the school. If the expectation of goal setting was not part of the culture of the school, then students found it difficult to sustain their own aspirations.

On the other hand, low-income students indicated that parents and family were very influential and encouraging. However, the encouragement offered by this group only extends to the awareness of career options. In some instances, the encouragement did not stress education beyond high school and by default

underrepresented the importance of education as preparation for future careers. Additionally, King et al. (2008) found that life experiences “provided exposure to careers in a way that gave participants personal meaning and importance” (30). Mentors also play a significant role. Participants in the King et al. (2008) study commented that individuals outside the family who assisted them with life’s issues made an important difference in helping them to identify their career goals. Simply stated, what low-income students, and likely many others defined by potentially limiting social constructs, have an opportunity to see or experience provides the parameters of expectation regarding educational attainment and career path selection.

Finally, this evidence leads to a greater understanding that social constructs like race, class, gender, or others exist and are heavily influenced by cultural experience that tends to evolve much like the construct itself. Byars-Winston (2010) asserted “that earlier racial identity statuses (e.g., Preencounter) are associated with less confidence in making career decisions and later statuses of racial identity (e.g., Immersion/Emersion and Internalization) correspond to more advanced career development including career exploration, positive career outcome expectations, and narrowing of career options” (7). Byars-Winston (2010) affirms that “career cognitions may parallel the maturation level of an individual’s racial identity” (7). In other words, exploration, awareness, and eventually pursuit of a wider array of career opportunities will occur simultaneously as an individual’s socially constructed identity develops in a culture that encourages the maturation of the identity.

If we aren’t continuously conscious of the alignment of the time frames involved with both identity development and career decision making in the context of managing constructed notions of behavioral expectations, the risk of a cross-road collision is possible. If that alignment is in the absence of consideration for the psychological, including the developmental progression of self-esteem and self-efficacy, or an awareness of the profession, the risk then becomes a limited capacity to imagine reaching any aspired destination. If that alignment is not bound by the influence of veterinarians and other significant role models supporting a “stay the course” mantra, then there will be an inability to read the map appropriately. All the above in the aggregate will further concretize the challenges to motivate a generation of underrepresented students aspiring to this specific profession, resulting in the status quo. Innovative strategies must be in concert with the scholarship expertise available for this population.

Byars-Winston (2010) further writes that despite these findings, there was a lack of consensus among studies (Alston and McCowan 1998; Carter and Constantine 2000; Evans and Herr 1994), exploring the “relationships between racial iden-

tity and career decidedness, career maturity, or traditional African American career aspirations... highlighting the need for further research into how these variables relate across different African American samples (e.g., educational level) and contexts (e.g., predominantly-White, predominantly-Black)” (7). That said, the research referenced here as a part of a larger body of work related to these issues suggests that if self-esteem and a sense of identity rise as youth progress through adolescence, then a parallel introduction of vocation-aspiring interactions might stimulate interest in the selection of careers, particularly in careers that might not appear to be obtainable during early stages of youth. One might also postulate that the converse may also be true. The parallel of identity development and career interest development is formulaic for a collision course and critical to understand as strategies are created to increase the pipeline diversity. Additional relevance will be addressed in chapter 5 as the discussion broadens on the challenges of interventions.

Gender as a Social Construct and Influence of Veterinary Medicine Career Engagement

In this chapter, we have focused on factors that influence the choice of veterinary medicine as a career early on, with specific attention to race. Given the complexity of the role of layered multiple identities in this discussion, we turn to exploring gender trends in the profession, including the shifts to feminization of veterinary medicine. In doing so, we also raise issues for future research by scholars.

Gender is manifested in different ways, depending on one's location in race and class systems. Scholars have persuasively argued for utilizing the concept of intersectionality to capture the complexities of considering the interactions of gender, race, and class as being synergistic (Andersen 2005; Andersen 2008; Collins 1990; Crenshaw 1991; Hill-Collins 1990; Spelman 1988). In the US, this usually means examining the ways that gender intersects with race, class, and sexuality to shape women's (and men's lives).

Gender is a primary way of signifying relations of power (Scott 1986) and constructing hierarchies. In different ways and for a variety of reasons, all cultures use gender as a primary category of social relations. In the individual level approach (referred to as the microlevel by sociologists and feminists), gender is viewed not as natural, but instead as accomplished through the everyday social behavior among people. Men and women “do gender,” and in so doing, they make certain choices for behaving. Because men and women face different expectations and constraints in society, they make different choices from their repertoire of options, and thus support masculine and feminine stereotypes (West and Zimmerman 1987).

An alternative view advances gender as a structural component of society. In this paradigm, gender becomes one of many decision-making criterion for the distribution of resources throughout society. In a society dominated by male privilege, the resulting marginalization of women occurs even without specific or malicious intention (Ferree and Hess 1987; Ferree, Lorber, and Hess 2000; Risman 1998; Risman 2004; Rosenberg and Howard 2008).

The individual and institutional approaches to understanding gender and its intersections with race and class are useful to consider in analyses of occupations, labor markets, and career trajectories. Both individual socialization processes and institutional influences are embedded in the social and historical context, considering women were excluded from the veterinary medicine profession until the early 1900s. Women's limited access to and place in the profession of veterinary medicine prior to the 1970s paralleled their relationship to many male-dominated professions during the twentieth century (Reskin and Roos 1990; Boulis and Jacobs 2008).

Like their counterparts in other male monopolies such as science, medicine, law, and religion, the first women in veterinary medicine were small in absolute and relative numbers. However, veterinary medicine is one of the few professions that has experienced a significant gender shift in about the last thirty years, that is from 10.1 percent female DVM students in 1971 to 77.9 percent female by 2011 (Association of American Veterinary Medical Colleges 1968–2011). In fact, between 1972 and 1976, more women graduated from colleges of veterinary medicine in the United States than had graduated in the previous seventy years (Jones 2000). The barriers to women's practice of veterinary medicine also began to fall as they increased their representation within the different specialties as well as on the faculties of colleges of veterinary medicine. In 1980, veterinary school classes were on average 64.0 percent male. Certainly, the passage of several pieces of legislations—such as the Equal Pay Act of 1963 and the Women's Education Equity Act of 1974, amongst others—legitimized, validated, and compelled women's entrance into a variety of male-dominated occupations, including the profession of veterinary medicine (Carlin 2007). Although legal changes account to some extent for the increasing prominence of women in veterinary medicine, they cannot solely explain the profession's dramatic transformation.

Though men have been a minority in veterinary college classes since 1986 (Association of American Veterinary Medical Colleges 1968–2011), most leadership positions in veterinary medicine are still held by men. This implies the gendering of positions of authority and possibly also explains the wage gap between men and women, specifically as level of experience increases. Starting salary expectations

and actual earnings are similar between male and female students and veterinarians, with only a 3.8 percent differential (Bristol 2011; Shepard and Majchrzak 2010). Reasons for changes in women's professional advancement and personal expectations are multifactorial and can be attributed to constraining institutional policies and personal needs as well as value shifts over time, especially as women ascend the career ladder. While there is a need for additional research specific to personal needs and value shifts experienced by women that result in the changes in the career trajectory, the research is clear that institutional policies have a dramatic and limiting effect on women's—and even more so minority women's—professional development and advancement.

Typically, a fall in salaries of occupations, such as service-related occupations, have been attributed to fall in status resulting from an influx of women (Reskin and Roos 1990); however, this finding does not hold for a profession such as human medicine (Boulis and Jacobs 2008), so there is a need for further investigation in the case of veterinary medicine. Additionally, with the vast array of specialty practice areas within the veterinary profession, examining the trends in salaries across areas of specialization within the profession, such as production animal medicine and industry practice, would be central to understanding the status of veterinary medicine through the gender shift and now as a feminized profession.

Professional advancement is gendered and racialized within a variety of occupations. McBrier (2003) writes: “Reskin and Roos (1990) describe a process of ghettoization to characterize the nature of sex segregation within traditionally male occupations experiencing inroads by women. A common theme in the ghettoization literature is that as women enter male-dominated occupations employers preserve sex segregation by tracking them into the least desirable jobs within that occupation, while the most desirable jobs continue to be reserved for men. . . . Such ghettoization directly results in other forms of workplace sex inequality, including persistent sex gaps in mobility (Padavic & Reskin 1994; Rosenfeld 1981)” (1202).

So how have women's engagement in the profession evolved compared to those of men? That is, while women's representation has increased to over 70 percent in veterinary medicine, where are they positioned within the profession in terms of moving up the ladder within veterinary medical colleges and in private practice (owned or employed)? In a qualitative study, Irvine and Vermilya (2010) utilized interview data from twenty-two female veterinarians and veterinary students to argue that the profession remains gendered masculine, even while numerically dominated by women. They emphasize the culture of the profession as valuing masculine characteristics. Although women are clustered primarily in the

lowest paid specialty of companion animal medicine, and are less likely than men to own their own practices, few of the respondents described the profession as oppressively gendered, even while they recognized the disadvantage faced by women overall. Nevertheless, sex discrimination and inequality persist within the field.

Female veterinarians in private practice earn 66 percent of what males in private veterinary practice earn (Macejko 2009). In 2012, women served as deans at five of the twenty-eight US schools and colleges of veterinary medicine. The shifts in the gender composition within veterinary medicine have not been accompanied by racial and ethnic diversity.

Tracing the career trajectories of veterinarians could provide insights into the position of women within the profession. McBrier (2003) summarizes (Felmlee 1984; Rosenfeld and Jones 1987; Bielby and Bielby 1992) when she writes, “Research confirms that women are more likely than men to face barriers to career achievement and mobility at least partly attributable to greater constraints placed on women’s careers related to family, marriage, and children” (1205), but whether it holds true for veterinary medicine is unclear.

Sexual Orientation and Gender Identity Constructs

Our previous discussion on the gender construct presents an opportunity to launch into a discussion on gender identity and sexual orientation. Even in our discussion, a binary gender construct is assumed, male and female, when such a “dichotomous gender paradigm” can be considered “oppressive” for individuals whose expressed gender is incongruent with their intrinsic gendered self (Burdge 2007). The pervasiveness of heteronormativity, the belief that heterosexuality is a social norm, constrains public understanding, discourse, and equitable treatment of individuals who self-identify as lesbian, gay, or bisexual, among a host of other sexual orientations often labeled as “other.” Exploration of inclusive gender and sexuality constructs demands the rejection of duality in existing gender constructs and heteronormative limitations, and demand a broader interpretation of gender and sexuality.

Sexual orientation constructs are most often associated with sexual attraction, though they can also be associated with gender identity, perceptions of gender role identity, and social and emotional preferences (Tannenbaum 2006). Lesbian, gay, bisexual, and transgender (LGBT) people are often placed on “sexual hierarchy” that renders same gender attraction and incongruent gender expression as abnormal (Rubin 1993). This hierarchy has resulted in legal discrimination (Sears and Mallory 2011), disparate health outcomes (Centers for Disease Control and Prevention 2011), and violence (Marzullo and Libman 2009). The result of such

constructions is that LGBT people have long been an invisible segment of the population within society and the veterinary profession. Until recently, openly gay role models and leaders in veterinary medicine have been relatively rare, and therefore, a significant talent pool has been largely nonexistent within the profession.

The LGBT community is complex, and its population is diverse. Even those who identify with the community can have misconceptions and lack of understanding about the different groups within it. Combining sexual orientation (who a person is attracted to) and gender identity (the gender with which a person identifies) can be politically prudent, but they are almost completely separate issues, united in that they both run contrary to what society sees as the “norm.”

Although estimates from scientific studies vary, a review of recent research reported self-identified gay and bisexual men and woman represent 3.5 percent of the current adult US population, and nearly 700,000 people identify as transgender (Gates 2011). Current estimates of the US DVM student LGBT population is 6.5 percent of nearly 11,000 students across twenty-eight schools and colleges of veterinary medicine (Greenhill and Carmichael 2012).

Internal Forces

The veterinary profession, for the most part, is an agricultural, land-grant college system, and generally has been slow to move toward greater understanding and inclusion of LGBT veterinary students, professionals, and clients. However, recent trends toward increasing numbers of urban companion animal practices and various societal changes have sparked positive change in the industry. Emerging research and elective course offerings in the US schools and colleges of veterinary medicine, the acknowledgment of the importance of the LGBT community in the traditional economic business case for diversity, and the recognition that LGBT clients and their pets may have specific veterinary needs related to immunocompromised individuals (Larkin 2010) have helped to highlight these issues.

Since the 1970s, several groups elevated the visibility of LGBT people—and built awareness of LGBT concerns—in the veterinary profession. The Association for Gay Veterinarians (AGVets) was founded in 1977 as a support network and community for LGBT veterinarians. Although the AIDS pandemic put a damper on the fledgling movement, lesbian and gay veterinarians connected as they advocated for their clients with AIDS. The Lesbian and Gay Veterinary Medical Association (LGVMA) was created in 1993 as a support network and community resource. Today, the group advocates for a welcoming and inclusive environment within the veterinary profession and education. In 2011, veterinary students cre-

ated their own network called the Broad Spectrum Veterinary Student Association as a mode of outreach to isolated students at all North American schools that are without LGVMA student chapters or other LGBT resources, and to facilitate communication between established groups.

Conclusion

This chapter attempts to provide a cursory examination of the persistent limited inclusion of a diverse representation of individuals from different groups, and ascribes either a possible rationale or an interpretation of significant trends in the veterinary workforce. What is interesting is that while the historical exclusion of certain groups, anyone other than Caucasian/White men, has changed for some groups, the profession has remained distinctively one racial group, even when other characteristics are considered. The challenges of low numbers of underrepresented groups in the profession are often misinterpreted as low interest of underrepresented groups in the profession. As our society becomes more diverse, inclusion will become even more important for the veterinary profession not only to embrace, but also to advocate. However, the discussion and acknowledgment of these issues is a requirement for altering persistent patterns by using a defined set of strategies for raising the consciousness about the veterinary profession for these youth.

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Chapter 5

Mapping Our Future: Developing the Pipeline for a Diverse Workforce

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Cartography encompasses all of the steps needed to make a map. The continuum includes planning, surveying, imaging, editing, and creating the final product (Maps for America).

A Science and Education Partnership Award from the National Institutes of Health supports a partnership among Purdue University's College of Veterinary Medicine and public schools. Teachers develop curricula to interest students in health science careers and are provided the necessary resources to implement the curricula. In one classroom, an African American/Black, third grade student spent all of his classroom and free time reading every book in his classroom about veterinary medicine. At the end of the module, the student indicated that he did not want to be a veterinarian on his posttest. Surprised, the teacher asked the student the reason for his answer. He replied simply, "Because no one in these books looks like me."

Young children are forming impressions about occupations and considering career options as they observe members of their family, interact with role models in their community, and experience daily life. Therefore, encouraging diverse groups of children to consider careers in the veterinary profession needs to begin at an early age. The veterinary profession must take an active role in developing

this pipeline of future professionals if we are to realize the goal of a profession balanced by gender and race/ethnicity. This chapter will explore opportunities for garnering interest in veterinary medicine from preschool through undergraduate education.

Preschool

Prior to formal educational experiences, children develop opinions regarding various professions. For young children, play is an important venue for learning (Falk and Dierking 2010). Our exploration of toys, specifically action figures and dolls available in 2011, found that veterinarians were predominantly portrayed as Caucasian/White, female, small animal veterinarians. This limited portrayal of veterinarians can be detrimental to our goals of diversifying the profession. Gender will be used as an example for examining the consequences of gender-typed veterinarian toy models on children's aspirations for veterinary careers. Socialization perspective holds that children learn to be "male" or "female" by observing and imitating their parents, role models (including toys), and other members of the society, and by internalizing the gender norms of the society (Hollander et al. 1997). Therefore, children's interaction with toys can influence their perceptions of gender roles and expectations (Cherney and Dempsey 2010). Children's interactions with gendered toys, in particular, have the potential to reinforce their adoption of gendered behaviors, thereby socializing them into gender-typed occupational aspirations and choices (Kacerguis and Adams 1979).

The career images and role models presented to children shape their perceptions, attitudes, aspirations, and choice of that career. Student attitudes toward science and science careers are greatly influenced by the images of science and of scientists with which they are presented (Hodson and Freeman 1983). Since children tend to imitate gender stereotypes portrayed in play toys, continuous depiction of veterinarian toy models as female may mislead children to believe that veterinary medicine is a "feminine" career, thereby hindering boys' interest, motivation, and aspirations for careers in veterinary medicine. A similar argument can be made for continuous depiction of veterinarian toy models as Caucasian/White or as small animal veterinarians. While marketing our profession to children through play is one way to promote and expand a pipeline of future veterinarians, there is the need to portray and project balanced images of veterinary professionals, not only in terms of gender, but also in terms of race, ethnicity, and career focus.

Elementary School

Magnuson and Starr (2000) incorporated child development and life career development theories to conclude that career planning begins at a very young age. Elementary schoolchildren begin by developing an awareness of career possibilities. Occupations are then explored in more depth and complexity as students grow older, and career paths are narrowed. Trice and McClellan (1993) analyzed a longitudinal study of 271 students and concluded that career aspirations of children last into adulthood. Additionally, Trice interviewed 620 adults aged forty to fifty-five years and reported that 41 percent of career aspirations made before the adults were twelve years old matched their current occupations (Trice 1991b).

Many factors impact the career aspirations of children. Trice (1991a) asked 203 eight-year-olds and 219 eleven-year-olds from urban and rural backgrounds what they wanted to be when they grew up and what they thought they would really be, on two occasions, eight months apart. Rural children were more likely to respond with their parent's occupation, while urban children answered with either careers of their parents or common occupations within their community. The authors concluded that urban children were exposed to a wider range of careers than rural children, and this exposure impacted their career aspirations.

Bobo et al. (1998) surveyed career choices among 1,611 African American/Black, Hispanic/Latino, and Anglo elementary school students. Boys in grades 1 through 5 across race/ethnicities most often listed police, athlete, and doctor in their top three choices. Other careers listed in the top three by boys included teacher (African American/Black and Hispanic/Latino boys only), fireman (Hispanic/Latino and Caucasian/White boys only), truck driver (African American/Black boys only), military, and pilot (Anglo boys only). Girls across race/ethnicities in grades 1 through 5 most often listed teacher, doctor, and nurse as their top three choices. Other careers listed in the top three by girls included singer (African American/Black and Hispanic/Latina girls only), ice skater (Hispanic/Latina girls only), fashion designer (Hispanic/Latina girls only), and lawyer (African American/Black and Anglo girls only). Interestingly, only Anglo girls in grades 2, 4, and 5 listed vet as a top three career choice.

Cook et al. (1996) interviewed 255 inner-city males in grades 2, 4, 6, and 8 from poor African American/Black neighborhoods and affluent Caucasian/White neighborhoods. A higher percentage of boys from affluent neighborhoods expected to be doctors and lawyers, whereas a higher percentage of economically disadvantaged boys expected to be policemen and firemen.

Morton et al. (1997) asked fifty-six students, aged six to fourteen, to rank their top three career choices. Then children were shown a list of careers and asked to state if each career appealed to them. Forty-eight careers were listed by students as being a top three choice. Veterinarian was one of thirteen occupations selected by five or more students. However, only female students listed veterinarian as a top three career choice. Interestingly, a gender bias was not observed when students were asked to rate the appeal of various occupations. Veterinarian was one of eight careers that received a greater than 50 percent approval rating by students of both genders, with 67.9 percent of girls and 50 percent of boys finding the veterinary profession appealing. In comparison, 64.3 percent of girls and 42.9 percent of boys stated that the occupation of physician was appealing.

Bobo et al. (1998) recommend that career information be introduced in preschool, with the level of detail being increased through elementary and middle school. Informational resources should depict individuals who are culturally diverse and show males and females in nontraditional roles. For example, currently available nonfiction children's literature tends to portray veterinarians as Caucasian/White individuals who work in veterinary clinics with dogs, cats, and exotic animals (Amass 2011). Books depicting individuals with whom the reader can identify should be selected when delivering information about the veterinary profession.

Classroom and jobsite visits are recommended for students in grade school to learn about various aspects of the job including educational requirements (Bobo et al. 1998; Magnuson and Starr 2000). Magnuson and Starr (2000) also recommend that opportunities are provided for children to role-play in various occupations. However, 22.9 percent of eighth graders who attended Michigan State University College of Veterinary Medicine's Veterinary Camp from 2000–02 reported that they were unable to gain job shadowing experiences before age sixteen (Sprecher 2004).

Middle School and High School

How do adolescents make choices about which careers they want to pursue? Can these aspirational choices be influenced to become realities? Do the variables of ethnicity, gender, socioeconomic status, or gender identity influence these choices? Most importantly, how can veterinary medical educators make an impact on the career decisions negating all these variables?

Tai et al. (2006) reported that eighth graders with an expectation of careers in life sciences were nearly two times more likely to graduate with a baccalaureate degree in that area compared to students without that early expectation. Without

exposure to career possibilities and skill-building at a young age, children are less likely to pursue certain fields.

Asare (2007) analyzed surveys from ninety-two African American/Black and sixty-five Hispanic/Latino junior high and high school students in New York City. Although both groups commented that there was not much information about the veterinary profession in their schools, 22 percent of Hispanic/Latino students and 15 percent of African American/Black students indicated an interest in veterinary medicine. Stamats (2007), in the “Association of American Veterinary Medical Colleges National Recruitment Promotion Plan,” recommended that resources for middle school and high school science teachers be developed. Stamats (2007) suggested that effective resources communicate the breadth of career paths in veterinary medicine, salaries, hours worked, and how to become a veterinarian.

Intervention for career choices has proven to be effective. Oliver and Spokane (1988) found that the effectiveness of career counseling intervention is helping clients make career choices. This research was based on the career development theory and sound assessment instruments and methods applied in the context of professional ethics provided by the American Counseling Association (2005) and other accredited agencies (Jackson et al. 2010; Joint Committee on Testing Practices 2004; National Career Development Association 1977).

Career development intervention can give adolescents the confidence to pursue career goals that may be perceived as unattainable to them, their peers, and parents (Betz 2004). The adolescents are given a confidence booster to initiate the behavior and efforts that will allow them to meet their goals (Bandura 1977). This can lead to the student being persistent in taking the college prep curriculum and modeling the behaviors that will allow the student to enter the university. Researchers have shown that for minority youth and low socioeconomic status youth, as well as students with gender identity issues, there is an interest without a high level of confidence (Bandura 1977).

Career interventions, such as summer residential programs, have shown to increase confidence and career aspirations for adolescents with ethnic, socioeconomic status, and gender identity variables (O’Brien et al. 1999). These successful programs provide the following opportunities for students: a series of successful experiences; observation of scientists, faculty, and staff who reflect the ethnic background of the adolescents who are participating; receipt of positive feedback from scientists, faculty, or staff; constructive expression of anxiety and concerns; and positive emotional experiences to build on (O’Brien et al. 1999). This approach is of importance for a profession that wishes to increase workforce development tools that inform and attract students to careers in veterinary medicine.

P-12 Programs at Schools and Colleges of Veterinary Medicine

Colleges and schools of veterinary medicine were invited by the Association of American Veterinary Medical Colleges (AAVMC) to submit descriptions of their P-12 outreach programs. Appendix A includes a representative summary of the information provided, but it is not an exhaustive list of the programs available. Faculty and staff from many schools and colleges of veterinary medicine visit high schools and welcome groups of high school students to visit their veterinary colleges. Open houses are hosted at most institutions. Research opportunities for high school students are also offered by some veterinary schools and colleges.

Undergraduate Programs at Schools and Colleges of Veterinary Medicine

Appendix B provides a representative sample of undergraduate programs in place to support disadvantaged students who are pursuing careers in veterinary medicine. Disadvantaged students have been defined as students who have “overcome specific challenges along their path to higher education: educational or cultural disadvantages, financial need, language barriers, physical disability or other challenges” (University of California Davis 2012). Please note again, this is not an exhaustive list of all programming available, but simply a sampling.

Conclusions

As examined in chapter 4, a successful workforce rests on meeting societal needs. An understanding of these overarching societal needs is essential for us to succeed in developing a workforce that meets the specific needs of communities and the veterinary profession. Many opportunities exist for developing such a veterinary medical workforce that will mirror the predicted future demographics of the United States. Veterinary students and professionals are well-positioned to recruit, mentor, and support the pipeline of students entering our profession. A large, diverse pool of applicants to veterinary school or college is the first step toward changing the face of the profession.

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Chapter 6

The Land-Line Adjustment: How Do We Measure Impact?

Kauline Cipriani Davis, PhD, and Lisa M. Greenhill, MPA

Land-line adjustment is the process of placing lines on a map by reconciling theoretical or estimated location with evidence of actual positioning (Maps for America).

Questions about the impact of diversity in any profession have been raised for many years. Detractors often argue that the mere differences in personal identity offer little in the way of contribution to advancing business, learning, or social interactions. Further, efforts to emphasize and enhance diversity have frequently been met with criticisms that such efforts undermine true equity by deemphasizing merit and excellence. Such arguments neglect consideration that historically marginalized populations continue to be marginalized by insinuations that merit or excellence cannot be found among them. As we measure the efficacy of diversity programming—the acquisition of skills and resulting productivity in more diverse environments—there must be a foundational understanding that diversity is a driver of merit and excellence. Merit cannot be understated, but it must be noted that merit includes diversity, and diversity, as an independent variable, has empirically been shown to have significant impact on outcomes across sectors.

Many arguments supporting the need for diversity in higher education are grounded in themes of morality, historical inequalities, and social justice, with an

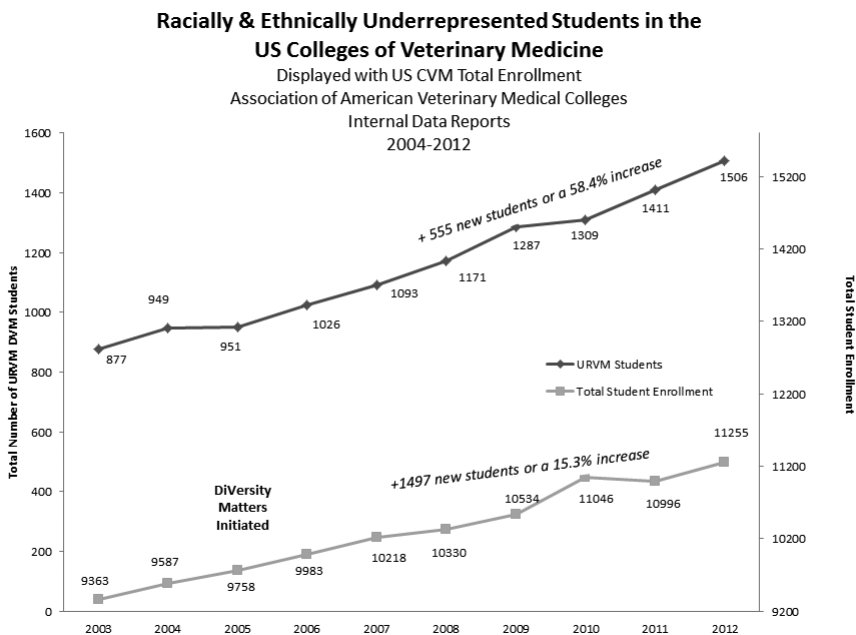
ultimate solution of “it’s the right thing to do.” In a powerfully analytical departure from this approach, Scott E. Page (2007) uses mathematical modeling and case studies to demonstrate how diverse teams often outperform even highly intelligent individuals. While Page defines diversity as the differences in how people think, he also concedes that this cognitive diversity is inextricably linked to identity diversity, since people with different identities and/or different life experiences will tend to acquire different cognitive tools. By analyzing how teams and individuals solve problems and predict outcomes, Page shows that like-minded individuals tend to get “stuck” in the same places when solving problems. Thus, teams of like-minded individuals (who often share many similarities such as upbringing, level of education, etc.) tend to get stuck in the same place all at once, whereas individual members of diverse teams get stuck at different points in the problem-solving process. Therefore, the diverse teams ultimately have the tools to solve problems more efficiently than homogenous teams, and even more efficiently than smart individuals.

Higher Education

In 2003, the United States Supreme Court ruled that the pursuit of diversity in academe was a national compelling interest, recognizing that diversity contributes to enhanced learning environments and greater overall competitiveness in the workplace (*Grutter v. Bollinger*, 539 US 306 (2003)). This court-driven declaration was a long time coming and was reflective of an enormous amount of data on the educational benefits of having more diversity among students and faculty. Diversity’s impact in the classroom extends beyond the exposure of Caucasian/White majority students to students of color or varied socioeconomic status, which are important benefits, but rather the integration of classrooms in the US benefits all students as they struggle to learn how to manage conflict, enhance critical-thinking skills, and consider the broader world around them.

As the Supreme Court’s ruling in *Grutter v. Bollinger* illustrates, the promise of diversity’s impact cannot bear fruit if the educational environment does not include a critical mass of historically underrepresented populations (Terrell and Beaudreau 2003). As a result, barrier-breaking efforts to diversify academe must be embraced. For example, Michigan State University’s Vetward Bound Program has provided enrichment programming for 644 students with interest in veterinary medicine over the last twenty-eight years. Success for the program can be measured in numerous ways: 259 Vetward Bound graduates are now veterinarians, and thirty completed other graduate or professional programs (Pat Lowrie, pers. comm. with authors). Other, newer programs like Access to Animal-Related

Careers (A²RC) and the A²RC Scholars early admissions program, at Purdue University are also facilitating keeping minority students in the pipeline to a DVM degree. These options not only provide opportunities for minority and disadvantaged students to overcome obstacles in pursuing veterinary degrees, but they also contribute to the creation of more diverse learning environments in DVM programs around the country. The national landscape in veterinary medical education is also being reshaped by diversity efforts like the Association of American Veterinary Medical Colleges' (AAVMC) DiVersity Matters initiative (AAVMC 2005), which focuses on best practices to increasing diversity among students and faculty, infusing the DVM curriculum with practice-relevant diversity modules and improving institutional climate.



Launched in 2005, the initiative has tracked a 58 percent increase in the number of racial and ethnic URVM students in US veterinary schools and colleges (see figure 1, AAVMC 1968–2011). In fact, national enrollment in the twenty-eight US schools and colleges increased just over 15 percent between 2005 and 2011, leading us to conclude that increased emphasis on diversity programming during a period of significant growth among the institutions created new opportunities for many URVM students interested in pursuing careers in veterinary medicine.

Efforts to increase faculty diversity has proved more challenging. The number of racial and ethnic URVM faculty has grown only 1.3 percent since 2005. More substantive growth can be seen among female faculty, as their ranks have grown by over 7 percent during the last six years.

URVM leadership Changes

	2005-2006	2011-2012	Growth
Racial & Ethnic URVM Faculty	12.1%	13.4%	1.3%
Female Faculty	33.1%	40.5%	7.4%
Racial & Ethnic Administrators	5.7%	12.7%	7.0%
Female Administrators	18.1%	28.0%	9.9%

Both of these populations have ascended to leadership roles during this time with racial and ethnic URVM administrators growing by 7 percent and their female administrator colleagues growing by nearly 10 percent (see figure 2, AAVMC 1968–2011).

Efforts to increase diversity can be successful, but they are not the success endpoint as we noted earlier. Academic environments featuring a critical mass mix of students and faculty from diverse backgrounds provides a wide array of educational benefits (Terenzini et al. 2001). All students gain enhanced problem-solving skills, group-interaction skills, and learning gains even in modestly diverse classrooms (Terenzini et al. 2001). At the University of Michigan, Pat Gurin and her team demonstrated the benefits of diversity in three separate but linked studies. In one study, Downing et al. (2002) analyzed the data from a national survey of 11,383 students (of whom 10,465, or 91.9 percent, were Caucasian/White). These students matriculated in 1985 and graduated in 1989 from 184 US colleges and universities. The results from this study showed that the more contact that these students had with other students from different ethnic backgrounds, the higher their intellectual engagement and self-assessed academic skills (Downing et al. 2002). In the second study, Gurin et al. (2002) tracked 1,582 University of Michigan students (of whom 1,129, or 71.3 percent, were Caucasian/White) between 1990 and 1994. Similarly to the national study, the Michigan student sample showed that active, engaged thinking increased in students who had increased contact with students from different backgrounds. Interestingly enough,

in both studies democratic values also increased with increased engagement with diverse populations (Gurin et al. 2002).

In the third study, Gurin et al. (2002) compared the experiences of two groups of eighty-seven students. One student group participated in an intergroup relations training, and the other group did not. When compared to their counterparts, the students who received the training experienced multiple benefits, including being more likely to consider the perspective of others and having a greater understanding that diversity and democracy can coexist. These students were also more likely to acknowledge that conflict can be constructive and to actively engage in causal thinking (Gurin et al. 2002). These and similar studies indicate that diversity in educational environments benefit all students. Indeed, since these student pools are overwhelmingly Caucasian/White, the argument can be made that the benefits of diversity in the classroom are being disproportionately reaped by Caucasian/White students. It is imperative to also note that the educational benefits from a diverse educational environment is not merely dependent on x number of Caucasian/White students being placed in a classroom or on a campus with y number of underrepresented minority students. Actual interaction with diverse peers both in and outside the classroom is the crucial way in which these benefits are realized for students (Antonio 2001; Antonio 2004).

Intergroup dialogue is one way of fostering crossracial interaction to support mutual learning among diverse students (Gurin and Nagda 2006). Intergroup dialogue is an innovative, integrative approach to encourage conversations across difference by utilizing various aspects of key social psychological models such as personalization and recategorization. Personalization comes from individual testimonies and stories told from the point of view of belonging to a group. This activity allows individuals to apply what they have learned about specific group members to more general situations they may encounter in the future. In recategorization, students from different identity groups perform joint learning using reflections, dialogues, and actions, and ultimately, they create a superordinate identity presented as an expression of the separate identities. From such a space, students can tackle difficult questions about their individual roles in challenging racial, ethnic, and other societal inequalities. Gurin and Nagda (2006) argue that moving forward, campus diversity programs need to be designed based on social psychological theory as well as rigorously evaluated. Too many programs are currently designed and run on the educated guesses of faculty and administrators rather than the lessons learned from relevant research.

Gurin et al. (2011) performed a multi-university intergroup dialogue research study involving fifty-two parallel field experiments run between 2006 and 2009.

Students applied to participate in the courses, and they were either assigned to a dialogue course (the experimental group) or a wait-list (the control group). Half of the experiments focused on race, while the other half focused on gender. A total of 1,463 students participated in the study, with equal numbers of Caucasian/White males, Caucasian/White females, men of color, and women of color. Students were asked to respond to a survey before participating in the class, at the end of the semester, and a year after the class ended. Specific sessions of ten race and ten gender dialogues were also videotaped as a part of this study, and all participants were interviewed at the end of the class. Finally, the authors performed a content analysis of the final papers of all the students enrolled in the fifty-two dialogue classes (Gurin et al. 2011).

This study employed three vital aspects of intergroup dialogue. First, there was a stated understanding of the difference between dialogue and debate, and students were expected to listen to and appreciate the perspectives of others, even if they did not agree with those perspectives. Second, a four-stage curriculum was utilized in all the dialogue classes. These stages were: (1) establishing a foundation by getting acquainted; (2) exploring personal and social identity experiences and the intersection of power, privilege, and identity experience; (3) discussing controversial issues; and (4) creating a plan of action and building alliances. Third, for each dialogue class, each social identity group was represented in equal numbers, with two facilitators, each a member of one of the identity groups. The results from this study show that when compared to a control group of their peers, students who participated in intergroup dialogue had a greater understanding of race, gender, and socioeconomic inequalities; they had higher levels of intergroup empathy and motivation to collaborate across difference; and they showed greater commitment to civic engagement postcollege (Gurin et al. 2011).

The benefits of diversity in the college classroom are not limited to the time the student spends on campus. In the book *The Shape of the River* (1998), William G. Bowen (the former president of Princeton University) and Derek Bok (the former president of Harvard University) perform an in-depth analysis of the personal, academic, and employment records of over 45,000 students of all races from twenty-eight elite US colleges and universities who were students between the 1970s and early 1990s. Bowen and Bok believed that in order to adequately assess the benefits of race-sensitive admissions in higher education, there was a need to understand more fully not just the college careers of students, but their postcollege lives as well. The authors found that years after graduation, African American/Black alumni had greater civic service involvement, were more likely to have leadership roles in civic organizations, and were more likely to have

leadership roles in multiple civic organizations than their Caucasian/White counterparts. These differences are even more striking when comparing graduates of graduate and professional programs. This data indicates that diversity in the college classroom had a distinct benefit for our entire society—African American/Black college graduates from elite, highly selective institutions are most likely to be engaged in their communities.

There has also been some discussion about whether the diversity on college campuses might be harmful to the performance of minority students. The argument states that allowing “special admits” to elite universities is demoralizing to these minority students, who will ultimately do poorly and drop out. This argument assumes that these “special admit minorities” are academically unprepared (Heilman et al. 1997; Heilman and Blader 2001). In the Bowen and Bok (1998) analysis, the authors found that African Americans/Blacks admitted to highly selective institutions graduated at higher rates than African Americans/Blacks with equivalent family backgrounds, grades, and test scores who were enrolled at less selective institutions. This study also showed that African Americans/Blacks who graduated from highly selective institutions were equally as likely as their Caucasian/White counterparts to attend competitive, prestigious professional schools and to become doctors, lawyers, and business executives. In fact, these African Americans/Blacks tended to be much more successful than African American/Black college graduates in general (Bowen and Bok 1998).

Stereotype threat is one particular instance where the academic performance of minority students could indeed be handicapped in the college classroom. Stereotype threat is a testing phenomenon that causes underrepresented minority students to achieve lower test scores than their Caucasian/White counterparts with similar ability. It occurs when individuals who are aware of a negative stereotype about the ability of their group to perform in a certain situation show impaired performance when placed in that situation. Examples of stereotypes that can lead to stereotype threat in the classroom testing environment include the notion that female students are not as good as male students at advanced mathematics, or that African American/Black students score lower than Caucasian/White students on achievement tests (Steele 1997). In addition, the stereotype threat response can be elicited regardless of whether the stereotype is explicitly mentioned, or regardless of whether the student believes the stereotype to be true (Aronson et al. 1999). Stereotype threat has also been demonstrated in individuals from lower socioeconomic class (Croizet and Claire 1998). Left unchecked, stereotype threat can wreak havoc on the psyche of the minority student in a hostile academic environment, rendering the student unable to achieve his/her

highest academic potential and eventually to disengage from the classroom, possibly even dropping out.

We would be remiss to discuss diversity in terms of assessing and monitoring numbers of underrepresented groups on our college campuses without discussing the assessment of the institutional climate for diversity that these students will encounter once they arrive. The climate for diversity is important not just for the students who matriculate to our academic programs, but also for the faculty we hope to hire and who can serve as mentors and role models for our minority students. Several racial incidents on multiple college campuses attracted the type of media attention that forced higher education institutions to begin assessing their climates for diversity. While initial assessments were knee-jerk reactions to many of these types of incidents, assessments today are largely more proactive, as faculty and administrators seek to understand and plan for the issues affecting many different groups (including LGBT and disabled students) matriculating to campus.

In a large review of over ninety instruments used to assess campus climate, Hurtado et al. (2008) found that the majority of the research in this area has focused on the racial climate. The authors note that although external factors such as government policy and sociohistorical context have a strong influence on campus diversity initiatives, focus on assessment is placed on factors internal to the institution. These factors are the institution's (1) historical legacy of inclusion/exclusion; (2) structural diversity (the physical presence of underrepresented minorities); (3) psychological climate (individual perceptions of racial harmony or discord, whether they are welcomed or isolated, and/or the commitment of their institution to diversity); and (4) behavioral climate (number and quality of interactions across groups, participation in campus diversity programming, and enrollment in courses regarding diversity).

In their review, the authors contend that still much is unknown about the nature and influence of the racial on-campus climate, and that much more research is needed to understand the experiences of understudied groups like Asian Americans and Native Americans on our campuses. The authors also state that because many of the surveys are designed for and administered to students, future assessments need to include the perspectives of faculty, administrators, and staff, since these groups all contribute to and experience the institutional climate. The authors also proposed future surveys should include a focus on student outcomes by measuring those competencies and values necessary for postgraduation success in increasingly diverse environments. These intercultural competencies are also crucial for one of higher education's most lofty of goals—to accelerate social progress with each generation (Hurtado et al. 2008).

In 2011, AAVMC launched institutional climate surveys to the DVM students at each of the twenty-eight US schools and colleges of veterinary medicine. The effort was strongly influenced by Hurtado's work in that it focused on climate as it relates to race, ethnicity, gender and gender expression, sexual orientation, and religion, among other areas. The survey effort was enormously successful, having surveyed nearly 11,000 veterinary students in the US and achieving a response rate of 48 percent. A national data set was developed through the initiative that is being used to assess national climate trends, and local data is being used to develop college-specific programming. A companion survey for veterinary school and college faculty was also conducted by Western University of Health Sciences' College of Veterinary Medicine during the summer of 2011. Findings for both studies are expected to be published in 2012.

While many campuses are striving to increase their diversity in terms of numbers of underrepresented students, and to continuously improve their campus climates for diversity with rigorous initiatives and programming, there remains the issue of open, honest interaction across difference, and how those interactions are influenced by individual racial identity development. In her book, *“Why Are All the Black Kids Sitting Together in the Cafeteria?” And Other Conversations about Race* (1997), Beverly Daniel Tatum defends the phenomenon of underrepresented minorities segregating in school cafeterias (or on college campuses) so that they can build a racial identity devoid of the negative stereotypes that seem to abound in US culture. The book takes a frank look at racism in the US, reminding us that race is social construct and that racism was borne out of the need of the majority (dominant) group to oppress the minority group. Tatum (1997) develops a convincing argument that self-segregation of minority groups may not be an issue to be resolved, but a means of establishing and affirming racial identity that should be supported. In her follow-up book, *Can We Talk about Race? And Other Conversations in an Era of School Resegregation* (2007), Tatum expresses concern for the resegregation currently occurring in American classrooms. She insists that educators must work harder to dispel racial prejudices in the classroom, where they can adversely affect the academic achievement of minority students. She calls on educators to do more to increase opportunities for crossracial contact and dialogue, which are necessary to produce effective leaders in a multicultural world (Tatum 2007). Tatum's insights on these difficult conversations underscore many of the issues that should be considered on every college campus seeking to increase diversity and inclusion while simultaneously providing a rich, inclusive student educational experience.

Students benefit from diversity in the academic environment and programs, like Michigan State University's Vetward Bound and Purdue University's A²RC,

that foster and nurture diversity, which are critical to the development of a more diverse, competitive workforce. Beyond the classic assumptions of cross-cultural learning and engagement, students with greater diversity in the learning environment are more likely to develop stronger intellectual and interpersonal skills, more democratic and civic-minded values, and basic conflict-management skills. Clearly these benefits are not without some problems along the way that can be devastating for minority students and their peers during critical periods of adult development. Faculty and administrators have a responsibility to support evidence-based efforts to advance diversity initiatives and provide the support students need to experience the true benefits of diversity in the educational environment.

Business

Scholarly literature suggests numerous ways of measuring diversity's impact on business. The tracking of group process, productivity, and innovation are all among the most common strategies discussed when considering diversity's impact. It is important to note that much of the literature does not advance the notion that just the *inclusion* of a broader spectrum of individuals alone improves business processes. Certainly efforts to increase racial, ethnic, and gender diversity are worthwhile, but failure to address issues of inclusion within the business environment results in continued systemic marginalization of underrepresented populations (Bendick et al. 2010). That is not the goal, nor does it truly echo the spirit of the business case for diversity. Representative diversity is frequently promoted as the central component of the business case for diversity; this is critically important, but we must have a clear understanding how diversity changes the way we do work. How we measure those changes requires a more nuanced set of metrics that explore the key leverage points that demonstrate diversity's impact on a business. Employers, like their academic counterparts, must cultivate inclusive environments where diverse populations of employees can more successfully advance the goals of the organization. Environments that nurture groups of diverse individuals make the business case for diversity possible.

Diversity in the workplace (and in academic environments) must be managed and facilitated, lest the more positive effects of diversity not be realized. The environment must feature leaders who are committed to diversity and clearly articulate their commitment and the expectation of others' commitment to diversity (Jayne and Dipboye 2004). The desired outcomes from the diverse team must be clearly articulated, achievable, measurable, and tied to the larger company goals (Jayne and Dipboye 2004). Finally, the diverse teams must be coached in how to work

together through group process training and team building (Jayne and Dipboye 2004). Metrics for diversity's impact must be considered within this larger context of environmental shaping. With the indicators listed above, one can assess diversity's impact through a variety of mechanisms.

Some metrics for diversity's impact may include customer surveys, performance appraisals, and evaluations from the necessary group/team trainings (Lockwood 2010). Customer surveys provide useful information on the demographics of the surrounding area and how a diverse staff is meeting the needs of the population in the area. Take, for example, a large animal, ambulatory practice in which an English-only speaking veterinarian and her support staff engage clients whose primary language is not English. A customer survey may reveal important information about the quality of the professional interaction, therapeutic compliance based on language comprehension, and willingness to continue accessing services with a known language barrier. Performance appraisals can provide very individualized evidence about how employees navigate the diverse work environment; the appraisals can reveal supporting evidence of worker productivity, something that is often associated with the business case for diversity. Finally, the group and team training evaluation can provide periodic data about how diversity is managed and integrated into the work of employees from a group perspective. These metrics are useful but limited on their own, as they do not provide systemic information about how diversity impacts organizational systems. Metrics that consider how the business' organizational system is altered by diversity and inclusion initiatives provide more insightful, nuanced data about what is really going on in the office or in a practice.

Metrics that include studies of programmatic measures, long-term productivity and profitability, and organizational climate (Lockwood 2010) provide enhanced data about the impact of diversity and inclusion. Employers must evaluate, both at the programmatic and organizational levels, the long-term productivity and profitability of the team. It is often said that diverse teams are more productive and more innovative. This is true, but it does not happen upon immediate development of the team. Added diversity does not simply equate to inclusion. Inclusion seeks to bring all voices and perspectives to the table, and to consider these perspectives when making decisions that will impact the whole. In an environment that is truly inclusive and not simply diverse, diverse employees should develop stabilizing group norms that leverage the diversity of knowledge and skills, resulting in higher productivity and profitability over long periods of time (Richard et al. 2007). In a small animal veterinary practice, for example, owners who create the proper environment for a diverse team will see more clients and

greater profitability over the long term. Similar experiences will also be found across the profession.

Organizational climate is essentially how workers understand their business, its goals, and what behaviors (internally and externally) are expected and rewarded in the business model (Schneider 1990). Periodic assessment of the organization's climate enables leaders to evaluate whether diversity-enhancement programming and the promotion of an inclusive environment have resulted in a desired state in which employees have shared goals and are team-oriented. Such assessments may focus on specific areas within the organization and on specific areas of interest where the organization engages the public. Tools such as the American Medical Association's "Communication Climate Assessment Toolkit" (2011) can be useful in evaluating how a team is meeting the communication needs of the community it serves.

Veterinary Medicine

The large body of research designed to measure the impact of diversity on campus, in business, and in teams overwhelmingly indicates that diversity has the potential to be beneficial in the majority of cases, and that diversity, when combined with inclusion, is powerful. But what does all this mean for veterinary medicine? The 2007 Foresight report from the Association of American Veterinary Medical Colleges, "Envisioning the Future of Veterinary Medical Education," acknowledges the changing social landscape and made strong calls for the veterinary profession to embrace diversity and to renegotiate and reinterpret long-held understandings and professional core values in the context of the changing world (Willis et al. 2007). In 2011, the North American Veterinary Medical Consortium (NAVMEC) built on the Foresight report recommendations further by including multicultural acuity and cultural competence among the recommended new competencies of day-one veterinary graduates (NAVMEC 2011). The evolution of recommendations from organized veterinary medicine connotes two key facts: first, diversity in the larger sense demands the learning and adoption of a new conceptual professional framework, and second, there are specific skills, knowledge, and aptitude that must be both selected for among applicants and taught to veterinary students in order to maximize the diverse team benefits discussed in this chapter.

In a practical sense, it means that diverse practice teams, in all clinical and nonclinical practice areas, have the capacity to be more broadly strategic and successful than their more homogenous counterparts. Consider the demographic changes described earlier in this text. Private practices might consider the need

to establish businesses in neighborhoods with growing populations of people of color. There may be an increased need to hire multilingual staff or focus recruiting strategies for new hires in the local neighborhood.

If we apply Page's (2007) observations about diversity, problem solving, and predictions, it could also mean that practices with diverse staff may be able to more quickly and efficiently diagnose and treat cases, better understand, and thus more quickly respond to changes in their community/clientele. For veterinary medical education, it means that all students will have a richer educational experience as members of diverse classes, and that graduating a more diverse group of veterinarians is the first crucial step in diversifying intern and residency programs, PhD programs, and ultimately, the veterinary school and college faculty itself. Diversity within the profession may increase the probability of these veterinarians in urban and underserved areas with high minority populations. This in turn could have major impact on both the face and impact of the profession. Families in such communities may be more likely to take their pets to a practice with staff who either look like them or speak to them in their preferred language. This would increase the engagement of minorities within the profession and expand veterinary services to entire communities who previously may not have taken household pets to a local veterinarian (Asare 2007). Children in these communities would be able to see and interact with veterinarians and veterinary technicians who look like them and who could serve as mentors, should some of these children decide they would like to pursue this profession, thus creating a self-perpetuating effect on diversity within the pipeline (Amass 2011).

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Chapter 7

“Here Be Dragons”: Barriers to and Opportunities for Change

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The phrase “*hic sunt dracones*” or “here be dragons” was used by early map makers to indicate unexplored areas (Shirin 2011).

Inclusiveness in veterinary medicine will ultimately entail two distinct but closely related achievements: 1) a broad-based cultural competence across the profession, and 2) an incoming stream of new entrants to the profession whose demographics with regard to race, ethnicity, gender, gender identity, sexual orientation, ability, and religion approximate those of the general public. The journey toward inclusiveness is strewn with challenges along the way. However, these challenges are rightly framed as opportunities for improvement and progress. Clearly identifying such opportunities provides direction for the way forward.

At the outset, it is critical to recognize the complexity of the journey toward inclusiveness. In that regard, success will require a systems approach to help “find a way” because changes, improvements, or shortcomings in one phase of the system will almost invariably be dependent, and/or have an impact, on the situation in the rest of the system. In addition, dealing effectively with the complexity will require clear enumeration, recognition, and understanding of the key issues, challenges, and opportunities we face, in effect to help “make a

way.” Ultimately, it will be vital that we then consider these factors together in the systems context.

Need for a Systems Approach

The pathway to the veterinary medical profession involves many steps in series along the way. Each step has a plethora of factors that can impact the likelihood of arriving at that step, the probability of successfully completing the step, and even the length of time it takes to complete some of the steps. For purposes of analysis, this entire picture is best depicted as a complex, dynamic system, involving both distinct states and rates.

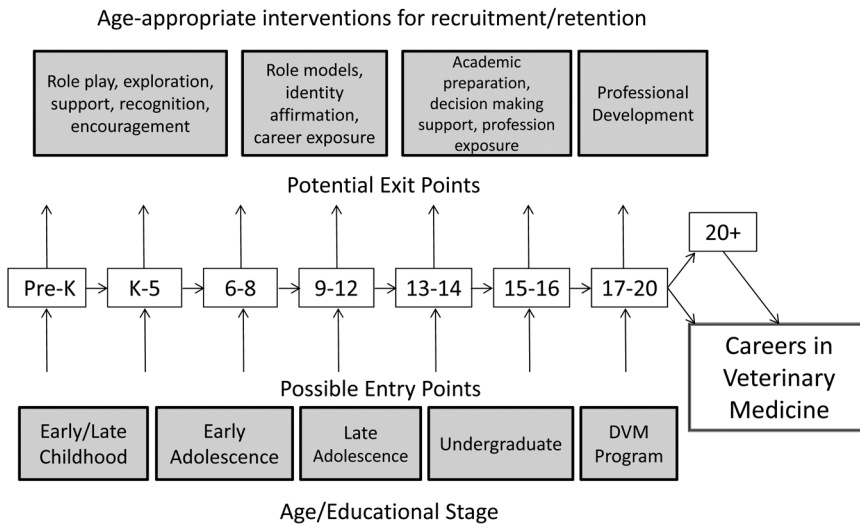


Figure 1. Systems model of the pathway to careers in veterinary medicine

Figure 1 is a depiction of the educational system that leads to veterinarians' careers. The system contains eight distinct states (pre-K, K-5, 6-8, 9-12, 13-14, 15-16, 17-20, 20+), mostly in series, that precede the final state, careers in veterinary medicine. Prospective veterinarians can enter or exit this system at any one of these eight states. As such, recruitment and retention are critical factors at each state.

However, requirements for successful recruitment can vary considerably from state-to-state. For example, the information, experiences, and people (influencers) that can lead to successful recruitment of prospective veterinarians into this system are obviously different for preschoolers than they are for those attending high school.

Similarly, the factors that can lead to successful recruitment clearly vary by the specific recruitment or retention target. For example, successful recruitment of prospective veterinarians from the dominant culture is almost certainly different from successful recruitment of candidates from disadvantaged backgrounds and/or minority communities, even within any of the eight specific preveterinary states presented in figure 1.

The imperative of the narrative in chapter 4 suggested that consideration of both the parallel sequencing of identity exploration and affirmation and career decision-making steps are necessary if we are going to attract youth to consider the veterinary medical professions. As the complexity of the challenges is further illuminated and superimposed on the veterinary medical career pathway model in this chapter, attention must also be given to the age-appropriate cultural acuity of the intervention.

Not surprisingly, the requirements for successful retention of prospective veterinarians in this system also vary from state-to-state and from culture-to-culture. Failure to recognize the complexity of this system and lack of attention to marked state-to-state and intercultural differences will almost certainly lead to less-than-desired success in terms of the outcome population of veterinarians. At the very least, it is clear from this perspective that changing the demographics of the veterinarian population is a complex, long-term process that begs a structured, carefully designed, disciplined approach. Success will require thorough consideration of critical determinants for recruitment and retention across cultures for each of the eight preveterinary states. And success will clearly require an organized, sustained effort over time in light of the key issues, challenges, and opportunities that exist.

Key Issues, Challenges, and Opportunities

In seeking to enhance inclusiveness in the veterinary medical profession, a number of key issues exist, presenting critical challenges and opportunities throughout the pathway to careers in veterinary medicine. Addressing these issues will be vital steps toward success in the future.

Admit There Is a Problem

In considering the key issues, challenges, and opportunities, it is important to note up front that not everyone in the veterinary medical profession agrees that the lack of diversity is a problem. If we are to engage fully in the structured, disciplined, organized, sustained effort described above, however, we must first agree that in-

creasing diversity and inclusiveness will lead to a stronger profession. Conversely, it is important to recognize collectively that failure to pursue advances in diversity and inclusiveness will have a detrimental impact on the future that could be attained by the veterinary medical profession.

On careful evaluation, at least four noteworthy perspectives on the potential strengthening of the veterinary medical profession through enhanced diversity and inclusion emerge. These include: US population demographics, social justice, inherent strengths of divergent thought, and the business case.

Marked demographic patterns of relevance to the veterinary medical profession have been emerging in the US for quite some time. Some of these are the result of ongoing demographic shifts, and others are likely long-standing patterns that are just now becoming known. Interesting facts to consider (US Census Bureau 2010) include: among Americans age sixty-five and older, there were an estimated 3.9 Caucasian/White people for every person of color based on the 2010 census; for Americans below age forty-five, the ratio was 1.3-to-1; among American children below age five, the ratio was 1-to-1. In addition, from the 2010 census, 75 percent of the children under age five in California were nonCaucasian/White; the US Latino population (in the 2010 census, "Hispanic or Latino" refers to a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race) grew 43 percent in the last decade, compared to 15.4 percent for the US African American population, and 9.7 percent for the US population as a whole; the US Latino population is now 20 percent larger than the US African American population. The lesbian, gay, bisexual, and transgender (LGBT) community in the US is estimated to comprise up to 5.9 percent of the over-eighteen population (Gates 2011).

As presented in chapter 2, it is evident that the veterinary profession does not truly reflect the US population based on the core demographic dimensions of race/ethnicity, gender (based on student populations), or sexual orientation. Because these critical demographic characteristics lie at the foundation of individual identity, effective cross-cultural communication becomes a critical issue. In addition, it is unreasonable to expect that we, as a profession, could fully comprehend the culturally based nuances inherent in the demand for veterinary services if the members of our profession do not adequately reflect the multiple cultures we seek to serve. If we are to remain relevant as a profession, veterinary medicine must work diligently to include a much more diverse representation of US society.

Beyond the issues of cross-cultural communication and culturally unique demands for veterinary services, the lack of representation in the veterinary medical profession raises issues related to social justice. Although full exploration of the

social justice dimension is certainly beyond the scope of this treatise, a brief look at some of the questions that might be raised by the relative lack of representation is warranted.

Fairness: Is it “fair” that certain demographic/cultural groups are, in effect, excluded from the veterinary medical profession? Those of us privileged to be engaged in the profession often espouse the associated career satisfaction and the inherent rewards that emanate from membership in a profession that is noted for its high level of respect, ever-present intellectual challenges, and ample opportunities to help others. Whether or not the exclusion has been intentional, the demographic data present clear evidence of its existence.

Equality: Are all demographic/cultural groups offered equal access to veterinary medical services? Recent research suggests that barriers associated with the race/ethnicity of the animal owner may well exist (Wolf et al. 2008). In the absence of data, is it reasonable to assume that similar barriers do not exist when associated with, for instance, the sexual orientation of the animal owner? What about access to membership in the veterinary medical profession? Is it equal for all, regardless of identity?

Opportunity: Questions of opportunity generally underlie those questions related to equality. Additional questions can be posed, however. Is it reasonable to expect that veterinarians of all cultural groups face the same career opportunities? For example, based on current distributions of age, gender, race/ethnicity, and sexual orientation in the veterinary medical profession, is it reasonable to expect that all demographic and cultural groups have ample opportunity to pursue advanced study, leadership roles, or practice ownership?

Human rights: Given that issues of fairness, equality, and opportunity may exist, are there demographic groups that are being deprived of basic human rights related to access to either veterinary medical services or membership in the veterinary medical profession, or both? Further, understanding that the veterinary medical profession contributes significantly to human health and well-being through avenues related to biomedical research, food safety and quality, zoonotic diseases, public health, and the human-animal bond, are there communities that are being afforded disproportionate access to basic human rights (United Nations) such as life, liberty, and the security of person; property (animal) ownership; equal access to public service; equal pay for equal work; education; and scientific advancement and its benefits?

Economics: Are the potential economic rewards associated with full access to veterinary medical services or membership in the veterinary medical profession available to all demographic/cultural groups?

Religion: To the extent that the demographic data and research indicate the existence of disproportionate access to veterinary medical services and membership in the veterinary medical profession, is the situation inconsistent with the core religious beliefs or values of current members (and leaders) of the veterinary medical profession? How might the veterinary medical profession be viewed through the lens of religion if, in fact, disproportionate access exists? How might this view limit the credibility and potential social impact of the work of veterinarians?

Politics: Because many issues of broad-based importance to the veterinary medical profession are addressed through a political process within organized veterinary medicine, does the lack of representation effectively mute the voice(s) of certain demographic/cultural groups?

Careful, thoughtful, and honest consideration of these and similar questions provide the basis for considering the issues of diversity and inclusion in veterinary medicine from the perspective of social justice. It should be clear that each of the dimensions mentioned above has the potential to substantially strengthen the contribution of the veterinary medical profession to society if we are successful in enhancing diversity and inclusion.

Issues of social justice and representation aside, ample evidence exists in the literature and in life that a diversity of thought brings with it an inherent strength for problem solving. Creativity is enhanced, the number of potential solutions generated for any given problem is invariably greater, and outcomes are improved when a broader range of perspectives is intentionally included in the idea generation stage of problem solving and decision making.

Finally, enhancing diversity and inclusion makes good business sense for veterinary medicine. As indicated, problem solving and decision making are fundamentally enhanced where greater diversity exists. In addition, veterinary medical practices can simply expect increased client visits if/when the demographic and cultural makeup of the veterinarians and staff reflect those of the animal-owning public they seek to serve. Recent research indicates that nonCaucasian/White pet owners were 8 percent to 12 percent less likely to seek the services of a veterinarian after correcting for income, education, rural vs. urban residence, rent vs. own, age, family size, marital status, region of the country, season, and year (Wolf et al. 2008). In the context of current US demographics discussed earlier, it is relatively easy to infer that the geographic and/or cultural barriers that clearly exist for pet owners of color are costing the veterinary medical profession millions, perhaps billions, every year. Considering the striking US demographic trends, the cost is likely increasing annually. Although similar data do not exist to evaluate expenditures on veterinary services by other underrepresented (in the veterinary medical

profession) demographic/cultural groups, there is no reason to believe that the cultural barriers that exist are limited to those based on race and ethnicity. In many communities, the future financial success of veterinary medical practices will almost certainly hinge on effectively eliminating cultural barriers through strategic focus on intercultural communication skills, development of inclusive environments, and ultimately achieving a diversity that more closely reflects that of the community itself.

Paucity of Role Models

Assuming that we fully embrace the problem, the second hurdle to effectively enhance inclusiveness in the veterinary medical profession relates to the limited number of role models. There are insufficient numbers of individuals who *are* representative of the underrepresented populations, specifically, and a paucity of veterinarians, in general—who step forward to simply support the career aspirations of youth and cultivate a positive understanding of the rewards of the profession. As discussed previously, demographic/cultural diversity in the veterinary medical profession falls short of reflecting the current US population. However, in the absence of a critical mass of veterinarians who are from underrepresented backgrounds, it is useful to have any role model who can help the potential recruit envision himself or herself as a successful veterinarian. In effect, this presents a chicken or egg dilemma: role models are not generally available because of the lack of diversity, and effective recruiting to attenuate the lack of diversity is difficult because of the lack of role models. As such, it is critical that all public images of veterinarians strive to highlight the existing diversity in the profession, and we must not miss the opportunity to facilitate cross-cultural mentoring.

Effective intercultural mentoring across difference requires that the mentor first understand his or her own multiple identities, area(s) of privilege, biases, and assumptions before the mentoring relationship is initiated. Similar to the training of counselors who must fulfill multicultural competencies before serving clients from diverse backgrounds (Arredondo et al. 1996), mentors should be self-aware, knowledgeable about their social impact on others, skilled in cultural and age-appropriate behaviors to stimulate youthful mentees, “willing to contrast their own beliefs and attitudes with those of their culturally different mentees in a non-judgmental fashion” (Arredondo et al. 1996, 62) and aware of the stereotypes and preconceived notions that they may hold toward others who are different from themselves.

Visibility of Career Opportunities

As discussed, the range of career pathways available to veterinarians is indeed broad. However, the plethora of opportunities is not generally well known, even in the dominant culture. This challenge has several dimensions to consider.

Prevailing stereotypes relate primarily to veterinarians in private practice, most commonly dealing with companion animals. Although companion animal practice is a very rewarding career pathway, a host of other career possibilities exists, including (but not limited to) biomedical research, public health, higher education, industry, military service, food systems veterinary medicine, equine practice, specialty practice, shelter medicine, government employment, and laboratory animal medicine.

The social relevance of veterinary medicine is not always fully understood. For example, it is not widely recognized that upwards of 75 percent of emerging infectious diseases in human populations are considered zoonotic, in that animals also serve as primary hosts, intermediary hosts, or reservoirs for the pathogens involved (Pappaioanou et al. 2004). Diseases in this group include avian influenza, toxoplasmosis, and monkeypox (Pappaioanou et al. 2004). Veterinarians play an invaluable role on the health care teams responsible for the control, monitoring, and research efforts related to these diseases, and in that regard, they provide the foundation for the concept of “one health” that encompasses both humans and animals. In particular, it will be important to consider issues related to zoonotic disease in the context of those communities and cultures that have been traditionally underrepresented in the veterinary medical profession. What special significance do these diseases have in such communities? Are there geographic, socioeconomic, and/or cultural factors that cause some of these diseases to have particular relevance in underrepresented populations? How can the work of these veterinarians be targeted to address these issues of unique importance?

Through a number of avenues, veterinarians engaged in biomedical research play a key role in the advancement of science. Such research can entail: investigation of zoonotic diseases, as previously discussed; inquiry into basic biomedical sciences, such as physiology, anatomy, or pharmacology; studies of disease-specific causative agents, risk factors, transmission, pathogenesis, or treatment; or the development of animal models for human diseases. In addition, virtually all of biomedical science relies at some point on laboratory animals. The health and well-being of these animals is always under the supervision of a veterinarian. Where, in this broad spectrum of scientific investigations, are there unanswered questions of special relevance to underrepresented populations? How can we tar-

get our science in veterinary medicine to maximize the positive impact in these communities?

From farm-to-table, veterinarians play a number of roles in helping to assure the safety of the foods we eat. In the production process, veterinarians play a critical role in both the health of the animals involved and the wholesomeness of the livestock, poultry, and dairy products that result. Veterinarians have important roles in food inspection and in monitoring and surveillance related to food quality. When foodborne illness does occur, veterinarians are very often involved in the related outbreak investigations, tracebacks, and epidemiology. And veterinarians are commonly engaged in research to advance our knowledge of food production methods, nutrition, health, and the understanding of specific food- and waterborne diseases. To be more inclusive, it will be important to ask questions such as: What food safety issues or concerns are uniquely relevant for those communities that have been traditionally underrepresented in the veterinary medical profession? How can we best target our food safety initiatives in the veterinary medical profession to maximize our impact in underrepresented communities?

Increasingly, the role of pets in our society is evolving from a traditionally utilitarian perspective, where the primary value of the animals is derived from specific functions that they perform, to a companion animal perspective, where animals are commonly valued primarily or solely for their companionship. As such, the bond between humans and animals is changing over time, and the value of veterinary services in this context is viewed through the lens of maintaining health and quality of life for our valued companions, and thereby sustaining and perhaps extending the bond that exists. To enhance our inclusiveness, we need to develop a better understanding of animals' roles in nondominant cultures and target our veterinary services accordingly.

In seeking to enhance the visibility of careers in veterinary medicine, it will be critical to fully understand the career decision process, and especially the career-choice influencers, in underrepresented communities. The literature holds that veterinarians and students' parents have been important influencers historically in veterinary medicine (Ilgen et al. 2003). However, historical practices have resulted in the lack of diversity we see in the veterinary medical profession today. Because veterinary medical services are less likely to be consumed by pet owners of color (Wolf et al. 2008), it is reasonable to conclude that veterinarians are less likely to influence career choice in communities of color. In this regard, it will be important for veterinarians to actively seek audiences of potential veterinary students, and their parents, within nondominant cultures, if we hope to successfully recruit in that context. And these initiatives should not solely, or even largely, be centered in

veterinary medical practices or other traditional veterinary medical venues. Other culturally appropriate community gathering points should be included, such as schools, churches, and perhaps some community-specific activity/cultural centers. Finally, we should not assume that relying solely or primarily on veterinarians and parents will yield successful recruiting in underrepresented communities. Other community thought leaders should also be included, such as ministers, teachers, and perhaps prominent civic leaders and business people.

Limited Knowledge on the Cultural Significance of Animals

Although the roles of pets, livestock, and horses in the dominant culture are widely understood in the veterinary medical profession, the same types of knowledge are not so widely held with respect to underrepresented cultures. Because successful recruitment will require this knowledge for context, it will be critical to develop a broad-based understanding of these complex—and perhaps evolving—relationships.

Without question, the institution of slavery has had widespread societal impact in the US. But the impact on relationships between African Americans/Blacks and animals probably has not been fully understood to date. Consider the following three perspectives (Harris-Perry 2010):

1. As African Americans/Blacks struggled for first-class citizenship in the US, dogs were commonly used for tracking, as guards, and as weapons of direct attack against individuals involved in those efforts. What lasting effect might this have on the evolving role of pets in current African American/Black culture?
2. In a sense, the chattel element of slavery creates a social construction of African American/Black people as beasts of burden. What does this say about proper treatment of animals and of the enslaved? And what lingering impacts might exist in today's culture?
3. For purposes of shaming, African Americans/Blacks have even been directly depicted as animals during the course of this tortuous history. Is it possible that the effect was harmful to both animals and the African American/Black populations? Could this have resulted in active attempts to limit any sense of connection with animals?

From a somewhat different vantage, “snapshots” from Hurricane Katrina seemingly provide several intriguing lessons related to relationships with animals

in a multicultural community. Not surprisingly, some of these lessons appear to be conflicting. Potential implications exist as we work toward enhancing diversity and inclusion across a number of dimensions, including race, ethnicity, and class. Consider the following three additional perspectives (Harris-Perry 2010):

1. At the time of Hurricane Katrina, some regulations in existence prohibited the rescue of animals. Think of the message this sends related to the perceived value of animals for those who created the regulations. What was their cultural identity?
2. Some residents of flood-ravaged areas would not leave without their pets, and thus declined evacuation. As it turns out, losing animal companionship was often a key component of the human suffering. Again, what message does this send related to the perceived value of animals for those communities impacted by the flooding? In addition to race, ethnicity, and class, were there other important dimensions of diversity that were characteristic of the affected cultures?
3. To some, and in some circumstances, it seemed like animals may have even received a higher priority and better treatment than the people during the evacuations and subsequent relocations. Images of luxury buses loaded with pets being evacuated provide a stark contrast to images of flatbed trucks overloaded with people during the process.

We have much to learn regarding animals in underrepresented cultures. Existing knowledge needs to be widely shared across the veterinary medical profession. Understanding the multidimensional cultural context of animals and their roles will be vital to achieving a truly inclusive profession.

STEM Discipline Challenges

In underrepresented communities, preparation in the STEM disciplines has not been historically strong. Although this issue has been more thoroughly discussed in chapter 1, it warrants repeated emphasis here, as it is an important barrier to success as we seek to enhance diversity and inclusion in the veterinary medical profession.

Focus Solely on Veterinarians

Naturally, discussions about the veterinary medical profession tend to focus on veterinarians. However, as we seek to enhance diversity and inclusion in the veteri-

nary medical profession, it will be extremely important to expand the scope of the challenge to include the entire complement of staff members and paraprofessionals that work in the profession as well. In fact, diversifying the veterinary medical team should have substantially lower barriers, and should be eminently more achievable in the short run, than accomplishing the same task in the population of veterinarians. This is not to diminish the critical importance of the latter, but it gives us an avenue for tangible, short-term gains while providing an excellent approach for initiating the needed culture change within our practices.

Business Case Is Not Well Understood

In spite of the critical importance of diversity and inclusion to the future success of businesses in the veterinary medical profession, as discussed previously in this chapter, the business case is not well understood. Because demographic changes are generally insidious by nature, and because the veterinary medical profession has generally been successful from a business perspective, it may be easy to overlook the fact that underrepresented communities are also likely underserved; it may be easy to not fully appreciate the remarkable magnitude of the growing missed opportunity to at once grow our businesses and provide improved health care.

Environmental Issues

Within the veterinary medical profession, substantial challenges exist related to our work environments as well. Because of our historic lack of diversity, there exists a general lack of cultural competence in the profession. Cross-cultural communication has not been necessary because the profession has been composed primarily of the dominant culture. Multicultural teamwork has not been an issue because we have been largely homogeneous from a cultural perspective. Consequently, an entire new skill-set will be required if we are to become more diverse and inclusive.

Related to the environmental issue of cultural competence is a situation frequently experienced by the minority of veterinarians who come from underrepresented communities or cultures. Anecdotal conversations with these veterinarians commonly refer to a lack of acceptance into the professional “club” even though they’ve clearly been successful in navigating the required educational gauntlet leading to the degree. Unfortunately, not being a part of the dominant culture often seems to trump the fact that an individual has met all of the official requirements to practice veterinary medicine. Again, work on our professional environment(s) will be important as we seek to evolve in the future.

Role of Class Privilege

As it turns out, many of the underrepresented communities from which we would like to increase our recruitment for purposes of enhancing diversity and inclusion are also disadvantaged from a socioeconomic perspective. Unfortunately, this fact substantially complicates the situation. Access to, and chances of success in, quality preveterinary education at the K-12 or undergraduate levels may well be limited due to the absence of class privilege. Access to effective educational and career guidance and counseling might be limited as well. Further, ready access to those types of experiences that are potentially career-shaping—such as livestock production, equine husbandry, regulatory medicine, biomedical research, or even companion animal practice—may not be feasible for these potential students. Assuming these potential students from disadvantaged communities are able to successfully navigate all of the above and prepare a competitive application to veterinary school, affording the high tuitions that accompany veterinary medical school attendance, and achieving academic success become the next hurdles. Clearly, issues of class privilege must be carefully identified and thoughtfully addressed to achieve success with diversity and inclusion.

Educational Disadvantages

Weaved through all of these issues are topics that can result in considerable educational disadvantages related to class, culture, or both for students from underrepresented communities. Whether manifested as ineffective STEM education, inadequate advising and counseling, less-than-desired performance on standardized tests, or academic challenges arising from noninclusive learning environments, educational disadvantages abound for these students. Compounding these challenges is the fact that admissions committees are generally nondiverse because of the profession's overall lack of diversity at this point. So the issue of dominant culture privilege becomes important when defining admissions criteria for colleges and schools of veterinary medicine. Without the advantage of cultural competence, it is quite feasible that unintentional barriers to admission exist that may not be visible to admissions directors and committees. As with each of the challenges and issues enumerated, these educational disadvantages need to be clearly identified and effectively addressed if we expect success in the realm of diversity and inclusion.

Summary

With regard to opportunities for enhancing inclusiveness in the veterinary medical profession, the question remains, “Will we find a way or make one?” As we have seen, success in this endeavor will require that we take a broad-based systems approach, considering factors along the entire span of the educational system that leads from preschool to the careers of veterinarians. This complex, dynamic system has key issues and challenges at each step of the way, issues and challenges that provide very real opportunities for enhancing our inclusiveness. However, these opportunities must be systematically identified, prudently prioritized, and thoughtfully addressed if we are to move forward. Absent such an approach, we will continue to languish in the historical situation: too few candidates from underrepresented cultures and communities being successfully recruited and retained in our educational pipeline. The systems approach will, in fact, help us find the way. But in the end, we will need to actively make our success through careful analysis of our myriad opportunities and effective action.

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Chapter 8

The View at 40,000 Feet: Networking a Diverse Profession

Aerotriangulation is the process of developing a network of positions from a group of known positions using aerial photography (Maps for America).

The Veterinary Profession

W. Ron DeHaven, DVM, MBA

A diverse veterinary profession is a strong veterinary profession, strategically positioned to meet societal needs and well equipped to serve animal, human, and public health. If we are to provide the services required by the mosaic that is American society, excellence in the profession will require a workforce representative of our communities. That's why the American Veterinary Medical Association (AVMA) is committed to helping build a more diverse veterinary workforce.

A special 2010 report published in the *Journal of the American Veterinary Medical Association* captures why a diverse veterinary workforce is critical if we are to meet our professional and ethical obligations to our clients and the animals we serve. "Embracing diversity is vital if the veterinary profession is going to continue

to fulfill its mission of serving all of society and all animals to the best advantage,” the report concludes. “From improving communication with clients to providing a better understanding of cultural attitudes and practices that affect animal care to recognizing how differences in gender attitudes affect the work environment, diversity touches every aspect of the profession” (Kahler 2010, 369).

Nurturing a diverse society and encouraging participation by underrepresented groups in everything this country has to offer should be important to each and every American. Embracing our diversity and promoting inclusion are part of our social fabric, from the inscription on the Statue of Liberty to our constitutionally protected rights. It is what sets the United States apart from so many other nations. It is what sustains our belief in the American dream.

But this is about more than lofty goals and idealism—a lot more. For the veterinary profession, embracing diversity and inclusion can also produce tangible business results. Improving the diversity of our profession and promoting inclusion will enhance our productivity and profitability. The numbers speak for themselves.

According to the US Census Bureau, minorities today make up about one-third of the US population. By 2023, the Census Bureau estimates that minorities will comprise more than half of all children in the United States. By 2042, minorities are expected to become the majority, with the nation projected to have reached 54 percent minority in 2050 (US Census Bureau 2008).

What is their purchasing power? Projections by the Selig Center for Economic Growth at the University of Georgia’s Terry College of Business estimate that minority spending will have topped \$2.9 trillion dollars by 2012 (Dodson 2007). That number is expected to grow dramatically and is becoming an increasingly important part of the United States economy. The veterinary profession must actively market to this growing segment of our population if we expect to maintain and grow our economic viability. Just as some women prefer to go to a female doctor, many minorities prefer a veterinarian of similar ethnic background.

A lack of diversity on our health care teams has the potential to make it more difficult for us to communicate with, and relate our animal-health messages to, an increasingly larger percentage of our potential clients. This inability to reach and serve a dynamic portion of our society will lower our influence and our income potential. It will also prevent us from fulfilling our oath to serve the health and protect the welfare of the animals we treat.

Considering the makeup of the veterinary profession presented in chapter 2, it is obvious that we are way behind the curve. The AVMA’s Diversity Task Force released a report in 2006 titled “Unity Through Diversity.” The AVMA continues

to actively incorporate many of the report's elements and recommendations into its evolving strategic plan. And the AVMA is constantly striving to be more inclusive in its activities and practices so as to attract more underrepresented groups to the veterinary profession, as practitioners, researchers, veterinary technicians, and educators.

We have urged our members to hire employees—especially bilingual employees—from the neighborhoods surrounding their clinics, which builds both credibility and respect among those animal owners who live nearby. We continue to produce educational materials in both English and Spanish to reach the broadest audience possible and to expand client knowledge about pet care, disease, and public health.

The AVMA continues to host a diversity symposium at its annual convention, bringing together the brightest minds to help us build on the incorporation of diversity into our profession. While our veterinary colleges and schools are the true gatekeepers when it comes to boosting minority enrollment, veterinarians also need to help raise the numbers of underrepresented groups in the profession. Recruitment is the key to this challenge, and it starts with each and every member of the veterinary profession. Veterinarians are the best ambassadors and mentors the profession has to offer. Who better to provide personal insight on the wonderful rewards and opportunities that accompany working with animals? That's why veterinarians have to get out of the office and attend career days at their local elementary and high schools. That's why veterinarians have to invite students—all interested students—to their practices for a behind-the-scenes tour of what they and their staff do on a daily basis to serve their community. As a profession, veterinarians need to do a better job of marketing themselves to all segments of society. They need to reach out to those who have an interest in one of the noblest of professions. They need to become true evangelists for the profession they love.

Adaptation is nothing new to us. Veterinarians have constantly adapted. The veterinary profession was all about horses and livestock one hundred years ago. However, over the past fifty years, veterinarians have seen tremendous growth in services provided to companion animals. The profession, in effect, embraced diversity in the animal population it served, doing so because it made good economic sense.

Veterinarians have done it before. We evolved and adapted as our communities and our clientele changed. Today's challenges are no different. For us to remain credible and productive, for us to maintain our influence and protect our economic viability, we need to continue that evolution and heighten our commit-

ment to diversity and inclusion. Doing so will underscore our pledge to use our knowledge and skills for the benefit of society.

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Government¹

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The Center for Veterinary Medicine (CVM) is one of seven centers within the US Food and Drug Administration (FDA), with its headquarters in Rockville, Maryland (<http://www.fda.gov/AnimalVeterinary/default.htm>). The CVM regulates the manufacture and distribution of animal feed, food additives, and drugs that will be given to animals. These include animals, from which human foods are derived, as well as feed, food additives, and drugs for pet (or companion) animals and minor animal species. Minor animal species include animals other than cattle, swine, chickens, turkeys, horses, dogs, and cats. With five hundred full-time employees, staff members of the CVM determine the safety and effectiveness of animal drugs. The CVM's mission is to "Protect human and animal health, while its vision is "Excellence, Leadership, Innovation." Embodied within the CVM's core values and behaviors is the call for every employee to embrace diversity, openness, fairness, and respect. As we have adopted these ideals, the experience of each employee is trusted and valued, and our organization has responded with ingenuity to the challenges we face every day. We also embrace and promote the philosophy of inclusion, and we strive for a work environment that fully engages and motivates a diverse workforce. The CVM's workforce reflects the nation's diversity, which strengthens our ability to know and understand the population that we serve. This enhances our adaptability and efficiency as an organization, and aids us in serving the public.

The CVM's Work Culture and the High-Performance Organization Model

One of the ways we foster the philosophy of inclusion is by operating under a workplace model focused on "continuous improvement with internal and external input," known as a high-performance organization model (HPO). The HPO model was first introduced at CVM in January 1998, and all employees become familiar with the model by attending a two-and-one-half-day workshop. The model is competency-based, focuses on continuous improvement, and trusts that those who do the work are in the best position to update the work processes. This level of empowerment requires that we are clear about ground rules and

1. The views expressed in this section are those of the authors and must not be taken to represent policy or guidance on behalf of the US Food and Drug Administration.

expectations. To that end, we developed a series of guiding principles, management philosophies, goals, and a vision and mission statement. We also identified acceptable behaviors as well as managerial and individual competencies. The centerpiece of an HPO is that leadership is an attitude more than a title, and it is the responsibility of everyone to become a steward of the success of the CVM and find ways to make the workplace better. This philosophy and practice drive our short-range and long-range goals, and help us orchestrate the changes needed to achieve our mission—protecting public and animal health—in a continuously evolving environment.

The key to our culture is that every employee's opinion is valued. Managers solicit employee input on matters within the CVM and strive to incorporate their ideas in the decision-making process whenever feasible. The "consultative" aspect of the work culture occurs continuously and depends on daily interactions between supervisors, direct reports, coworkers, and working groups, up and down the management chain. As stewards of the larger organization, each employee is called upon to participate in one-on-one conversations with their supervisors and colleagues, and to attend meetings and group discussions continually, to add their voices to a shared dialog. Time for planning and reflecting is vital, and each member of the CVM team is encouraged to take a step back from the urgencies of the regular workday to ask questions such as, "Are we doing the right things in the right way?" and "Are we meeting the current needs of our stakeholders/customers, and will we be in a position to meet their needs in the future?" We find that the more diverse the group, the better the ideas and solutions that ensue.

Promotion of Diversity and Inclusion

We believe that not only is our model essential in promoting diversity and inclusion in our work culture, but the reverse is also true. Diversity and inclusion are central to the achievement of high performance. Diversity takes many forms, including race, religion, ethnicity, thought, and background. The journey toward a higher performing organization is supported by a positive, safe, and caring work environment where members share a set of core values and behaviors.

The CVM convened a cross-CVM group, and with a facilitator, the group trained in the principles of HPO developed a set of CVM-wide values and behaviors. One of the behaviors includes striving for and embracing diversity and inclusion. Our employees are expected to be sensitive to differences (e.g., cultural, ethnic, gender, or disabilities); build respectful relationships; seek and encourage input from diverse sources (e.g., different education, culture, and experiences);

be receptive to new ideas and different points of view; and inform others of the rationale behind a decision (e.g., provide explanation/justification for a decision).

The CVM senior executives and managers are also responsible for upholding and modeling these values and behaviors. Critical elements within their performance plans address this issue: senior executives, managers, supervisors, and team leaders must demonstrate support for EEO/diversity and employee worklife quality and foster a cooperative work environment where diverse opinions are solicited and respected. This is coupled with participation in updating and implementing succession plans for current and future staffing needs. As hiring managers, they must be attuned to increasing the diversity of their staff, as well as continually assessing how they are augmenting awareness and sensitivity to others in their particular offices and/or divisions within the CVM.

Initiatives in the FDA/CVM

Our programs are driven in part by executive branch initiatives, but also by our own CVM and FDA efforts. To attain a highly skilled and diverse workforce, hiring managers within CVM collaborate with the CVM's human capital strategists to assure outreach and marketing for a vacancy is targeted and inclusive. The approach is strategic and extends to retention, engagement, and development practices. Our recruitment and human capital planning efforts for achieving diversity within the CVM have been steadily increasing over the past years. The CVM has worked extensively with underrepresented groups such as the veteran community, people with disabilities/targeted disabilities, and the Hispanic/Latino population. Our outreach includes but is not limited to the following: the Veterans Administration; Wounded Warrior Project; Hire Heroes USA; Operation Second Chance; RecruitMilitary; Corporate Gray; Department of Health and Human Services' Diversity Recruitment and Outreach Office within the Office of Human Resources; JobZone's Pentagon Career Fair; Military Officers Association of America Career Fair; Career Expo for People with Disabilities; 50+ Employment Expo; LatPro/The National Society for Hispanic Professionals Job Fair (largest fair for Hispanic and bilingual career placement); and Federal Hiring Event for People with Disabilities, hosted by the Office of Personnel Management and the Department of Labor's Office of Disability Employment Policy.

The CVM conducts outreach for many of its scientific positions where there is a significant Hispanic presence, as indicated by US Census data (e.g., Florida and New York). The CVM recognizes that there must be a variety of developmental opportunities for all employees, to ensure a diverse and capable workforce. Within

that vein, we emphasize the use of individual development plans (IDPs) aimed at assisting employees with their career advancement goals. In alignment with this effort and with the competency-based talent management program the CVM exemplifies, employees are presented with different learning options to augment the skills, knowledge, and experience necessary to maximize performance within their occupations. We also offer diverse leadership programs for managers and supervisors, to provide a skill-building foundation in diversity management as well as an emphasis on topics that focus on antidiscrimination laws, federal employee classification, time, and attendance policies, as well as hiring and separating federal employees. Participants are provided with strategies on how to conduct and address performance issues effectively and with confidence. Other topics include conflict management and resolution, giving and receiving constructive feedback, and supporting employee career development. Some of these seminars include: Leveraging Diversity: Engaging a Multigenerational Workforce; EEO Compliance Training for Managers and Supervisors; Giving and Receiving Constructive Feedback; CVM as a High-Performance Organization; and Preventing Violence in the Workplace.

Within the CVM, we now have a dedicated staff member who is responsible for organizational development and facilitates interpersonal interactions, and who helps bridge the inevitable communication gaps that occur in our organization (as happens in any organization). With this resource in place, we can proactively intervene early and help employees and managers to understand why differences of opinion or interpretation arise in daily interactions. Understanding how people from different cultures respond in a given situation is important. To broaden our organizational development work, the CVM has begun to expand our understanding of our interpersonal interactions by selecting two additional staff members who are enrolled in a yearlong facilitator training program. One is the head of the FDA's Diversity Council and has been instrumental in focusing the commissioner's office on increasing the effectiveness of the FDA's Diversity Management Program.

Another great example of our commitment to diversity is a Cultural Awareness Program that was started by one of our senior managers approximately four years ago. The program shares the unique richness that diversity adds to the workplace. We have enjoyed and learned from our employees as they share their heritage, often with photographs, artifacts, maps, and sometimes foods from their homelands. They explain the demographics of their native populations as well as how political, economic, and sociological factors have influenced their careers and their choices. We have had employees with disabilities share their stories; in one

case, a staff member described what it was like growing up on a farm with a physical disability and then going on to earn a PhD in animal science. We had another session on what it means to be gay, lesbian, transgender, or bisexual at the CVM. The session was well attended and the presentation was engaging and informative.

This Cultural Awareness Program has become very successful. Participation is energetic, probing, and inquisitive, with many questions that provoke both serious and humorous discussions. We have seen staff become more respectfully engaged with each other, and we attribute this to the way we celebrate diversity and inclusion.

Future of the Expansion of Diversity and Inclusion in the CVM

We will continue to improve our outreach and public education programs. We will continue to augment our in-house recruitment, development, and advancement programs for minority populations who are underrepresented in our workforce. Quite apart from our federal mandate to increase our hiring and retention of underrepresented populations, we sincerely and enthusiastically believe it is the right thing to do.

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Corporate Veterinary Medicine

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The Business Case for Diversity

There can be no doubt that a commitment to strengthen diversity and inclusion in the workplace contributes to business success. A diverse and inclusive workforce benefits the corporation because it: increases employee engagement and productivity, leading to increased performance; challenges the “status quo”; allows employees to look at issues from multiple perspectives; challenges employees to engage in experiences that differ from their own and to expand their cross-cultural understanding; encourages creativity and innovation; provides a variety of backgrounds and experiences, adding to diversity of thought; increases flexibility, allowing the organization to better adapt to a changing marketplace; and offers a connection to diverse communities and customers, helping the organization to better understand and meet the needs of those communities (Corporate Leadership Council 2008).

Diversity Drives Dividends

Empirical studies (Herring 2009) make clear that increased gender, ethnic, and other measures of diversity can lead to measurable increases in productivity and revenue, market share, profits, and corporate stock valuations.

Given that many organizations—across many industry segments spanning both the private and public sector—suffer from a lack of diversity in their employee base, it is critical when opportunities present to fill open positions, to select employees from a broad and diverse candidate pool to achieve an expansive cross-section of individuals. Greater diversity translates to higher quality opinions and ideas—a fundamental component of business innovation.

In fact, studies have shown that diverse perspectives improve collective understanding and problem solving (Hong and Page 2004). Indeed, advocates of diversity in problem-solving groups conclude that identity-diverse groups typically outperform homogeneous groups. In an environment where success depends on continuous innovation and the introduction of new products, companies will miss opportunities if they fail to realize that increased diversity is a profit engine for the organization.

The Role of Leadership in Advancing Diversity in Corporate America

As with many corporate initiatives, without a strong business case, there will likely be limited commitment to diversity at any level. Further, without strong leadership from the top—often defined by the senior most leaders in the organization, these initiatives are often doomed to failure or marginalization. Senior leadership is essential to gain institution-wide credibility and inspire employee engagement.

Fortunately, it is becoming readily apparent that diversity does have a positive and demonstrable impact on organizational profitability and performance, at all levels—thus making senior buy-in more likely.

Within corporate America, we are witnessing myriad ways that organizations and their senior leadership are approaching the need and the methodologies to improve diversity. Indeed, many of the largest publicly traded companies either have embarked on or are in some stage of implementing some of the following strategies: appointing a chief diversity officer; establishing active diversity councils/affinity groups; actively recruiting a diverse pipeline of candidates; developing accelerated advancement opportunities of high-potential, diverse candidates; partnering with external groups (e.g., INROADS, Inc.) that specialize in strengthening cross-cultural competencies and creating internships for diverse candidates; and establishing clear objectives, metrics, and measures to track progress.

Successful corporate diversity programs start at the top. However, for the senior-most leaders to ensure that the expected benefits of diversity are realized and sustained, they must be fully committed. There needs to be “skin in the game.” The success of an organization’s efforts to strengthen diversity and inclusiveness needs to be reflected not only through internal and external messaging, but actions need to be equally visible internally and externally. A focus on achieving impact with diversity initiatives also needs to be woven into objectives, performance assessments, and executive compensation.

Merely paying lip service—without a true commitment or accountability by the senior-most leaders of the organization—only serves as window dressing and threatens to negate all other advancements related to diversity and inclusion embraced within the company.

Overall, improving and leveraging diversity plays an increasingly important role in business today. Organizations must continuously seek to improve their performance by expanding their customer base, exploring various ways to engage and interact with this broader set of customers, and frequently incorporating cus-

tomer insights from across their customer base to ensure that the right products and services are developed and ultimately deemed relevant by these customers. In today's dynamic and hypercompetitive business environment, a "one size fits all" approach will not work.

With this as a backdrop, let us now take a closer look at diversity and inclusion within the veterinary industry specifically, and how one company is working to strengthen diversity within its ranks. The intent is to provide some ideas for other entities across the veterinary/animal health industry to consider adopting as they face similar challenges.

Diversity in the Veterinary Industry

Of all the health and life science professions, the lack of minority group representation in the United States is most apparent in veterinary medicine—extending well beyond veterinary practices to include academia and other allied organizations that support the veterinary/animal health industry.

While the causes of this disparity are multifactorial, two of the primary reasons for this challenge are cultural and economic. Human health-oriented programs are typically considered more prestigious, and they may be disproportionately attractive to members of groups that have historically been excluded from those professions. Further, the relatively low income of veterinarians compared to physicians may also play a disproportionate role in the choices of some minority group members.

Surveys have found that African American/Black and Hispanic/Latino undergraduates are significantly less attracted to veterinary medicine than their Caucasian/White counterparts. While veterinary graduates make up 7 percent of all students earning degrees in the health professions, that percentage drops to 2 percent of minority students. Approximately 95 percent of all veterinarians in the United States are Caucasian/White (Elmore 2004).

In 2009, only about 5 percent of successful applicants to veterinary schools and colleges represented by the Association of American Veterinary Medical Colleges (AAVMC) were Hispanic/Latino; about 5 percent were Asian, and only about 2 percent were African American/Black (AAVMC 2009).

Veterinary medicine, the country's most male-dominated profession at the turn of the last century, has been experiencing a dramatic change in gender composition in the past thirty years (Weeden 2004). Further, the overwhelming majority of incoming students to US colleges of veterinary medicine are female (and these students are overwhelmingly Caucasian/White).

The veterinary practice in general has experienced a significant increase in the number of women practicing in all fields of the profession, and the small animal practice has seen extraordinary feminization—specifically among Caucasian/White women.

However, this shift is not due to the flight of male incumbents. Indeed, the gender integration of veterinary medicine has resulted almost exclusively from the increase in the number of female practitioners (Verdon 1997), which, accordingly, stems from changes in the gender composition of professional veterinary education (Lincoln 2010).

While the inroads made by women in the veterinary profession have been impressive, especially when compared to other professions where female representation still lags their male counterparts, the dramatic feminization of the veterinary profession has created yet another challenge in achieving broader gender and cultural diversity. To achieve a more balanced diversity mix, the goals will be to encourage practice ownership among a diverse population and to increase the appeal of veterinary medicine as a viable career choice beyond traditional practice, especially in light of the global importance of animal agriculture, food security, and sustainability.

Similarly, animal health organizations that work closely to support the veterinary profession have also experienced a diversity gap, as many of the employees in their ranks as well as the customer segments they interact with share common origins. These organizations must also develop strategies to address the fundamental challenges related to diversity. Given the symbiotic relationship between these organizations and the veterinary profession they serve, successful strategies that help to strengthen diversity within these organizations can be shared with the veterinary profession to contribute to its evolution as well.

Now that we've outlined some of the inherent challenges related to diversity in the veterinary profession (some similar to challenges faced in corporate America and others unique to this particular industry), let's take a closer look at how one company serving the veterinary profession—Pfizer Animal Health—has addressed the challenges and the opportunities of diversity.

A Case Study in Commitment to Strengthen Diversity: Pfizer Animal Health

Within its US operations, Pfizer Animal Health has seen firsthand the need and the value of a commitment to strengthening diversity and inclusiveness, from its impact on recruitment to its collective ability to generate innovative ideas and solutions on how they engage various customer segments.

The company has endorsed several key initiatives and activities to promote the development of an increasingly more diverse and inclusive workplace environment, as part of its parent company's (Pfizer, Inc.) overall diversity and inclusion strategy. The Animal Health Division has translated this strategy in ways that reflect the unique nature of the business as well as the diverse needs of its employee, customer, and stakeholder base. The leadership team of Pfizer Animal Health endorses, supports, and monetarily funds an organization-wide Diversity and Inclusion (D&I) Council comprised of leaders from across the organization.

The primary benefit of a D&I Council is its inherent ability to proactively advise, challenge, and engage senior management on approaches to create and maintain a diverse workforce and culture of inclusion. The D&I Council also promotes an inclusive culture where colleagues feel empowered, enabled, and supported; they feel their presence and contributions are valued; they are engaged in the business and feel a strong sense of belonging.

From a hiring and recruiting perspective, the D&I Council supports Pfizer's overall human resources strategy by working to promote the need for and the benefit of assembling a diverse pool of candidates for every available open position.

Promoting a Culture of Diversity and Inclusion

From the onset, Pfizer Animal Health's leadership and its D&I Council recognized that an organization could foster a culture of increased diversity through its commitment to training and benchmarking success. To that end, surveys and training initiatives have played increasingly crucial roles in helping the organization quantitatively assess its success in awareness-building activities and improve employee attitudes toward diversity and inclusion initiatives.

Initial surveys measuring D&I-related attitudes and opinions immediately uncovered a hard truth: colleagues within the organization were challenged to understand the broadest definitions of diversity, and that lack of understanding could have some negative ramifications on the business.

The tangible commitment to diversity and inclusiveness starts at the top. The leadership team of Pfizer Animal Health has become increasingly more diverse over the years—defined in multiple ways: gender, racially/ethnically, geographically, and even distinctions among veterinary leaders and nonveterinary leaders. This senior-most leadership team not only articulates its expectation for strengthening diversity and inclusion, but these expectations are clearly outlined in group and individual objectives. These objectives are reviewed on a quarterly basis—both in one-on-one meetings with the supervisors and as a team—so that the entire group is jointly accountable.

Armed with this information, the company set out to create a number of initiatives that more frequently and intentionally emphasized the importance of the D&I goals and strategy. These included: establishing D&I content to be included in newsletters for each department in the organization; developing an online D&I training tool to instruct colleagues on how to work within diverse teams to successfully manage the business and meet customer needs; creating an online “Managers Toolkit” to help managers better advise their teams on the benefits of D&I, based on actual incidents that have occurred that illustrate clear examples of intolerance, lack of understanding, and/or not creating an inclusive environment; conducting quarterly live “Leadership Webinars” for managers to gain insight into D&I initiatives and pass their new knowledge on to their teams; and educating and creating awareness and enthusiasm for ongoing D&I initiatives at senior leader staff meetings, where the D&I Council shares updates on current initiatives, outlines new programs to be considered, and ensures that the relevancy to the business is clearly understood.

Since these D&I initiatives have been established, recent surveys indicate that employees’ level of understanding has increased, attitudes toward diversity-related initiatives have improved, and the organization is creating a more inclusive working environment.

Focusing on the Next Generation: Pfizer’s Commitment to Veterinarians

Pfizer’s efforts around diversity and inclusion have not only been internally focused. As part of its “Commitment to Veterinarians” initiative, Pfizer Animal Health has also made a commitment to help educate and mentor the next generation of veterinarians through training and education, investment in the future of the profession through internship and externship programs, research and development, and a strategic approach to philanthropy.

Pfizer has ensured that each of the various programs also helps to address the ongoing need for greater diversity across the profession. Training and education initiatives range from sponsorship of local and national organizations that address multicultural issues to educational programs that enroll large minority populations, summer jobs programs that expose inner-city students to active veterinary practices, and interactive educational programs that enable high school students to discover more about the profession.

The company’s internship and externship programs send diverse students around the country to veterinary practices, farms that raise livestock, colleges of veterinary medicine, and Pfizer departments—from research and development to commercial operations.

In addition to its focus on student education and development, Pfizer Animal Health sponsors a number of diversity-related programs and events, including the biannual Iverson Bell Symposium, which promotes diversity within the field of veterinary medicine, multicultural clubs at various colleges of veterinary medicine, such as Veterinary Students as One In Culture and Ethnicity (VOICE) chapters, and the Diversity Summit at the annual American Veterinary Medical Association Conference.

Demonstrating a commitment to the veterinary workforce of the future is important. However, more work needs to be done to break down the cultural, social, and structural economic barriers that exist, making the veterinary profession less appealing to people of diverse backgrounds. In addition, many of the initiatives currently underway tend to be focused on the finite few who have already chosen the veterinary profession. Clearly, more work needs to be done to engage the future of the veterinary profession *before* they are enrolled in veterinary school or college—while they are still in their formative years (elementary, high school, and college).

These questions are central to Pfizer Animal Health and other organizations if they are to be ultimately successful in addressing the diversity imbalance.

Third-Party Recognition

Independent recognition also sends a strong signal to a company's colleagues, management, industry peers, and even prospective employees that the organization is on the right track regarding diversity—that the organization believes in it, takes it seriously, and is incorporating diversity into the framework of how it conducts business.

As a result of its diversity and inclusion initiatives, Pfizer Animal Health has been recognized as having one of the top twenty-five D&I Councils in the nation, regardless of industry, for two consecutive years by the Association of Diversity Councils. The company was also recognized by DiversityInc as one of twenty-five noteworthy companies because its diversity management initiatives have demonstrated measurable impact.

Other Examples within the Animal Health Industry

Pfizer is by no means alone in its recognition of the diversity gap in the veterinary profession/industry. A number of other companies have made a tangible commitment to improve diversity, both within their own organization and across the industry.

After recognizing that its veterinary professional employee base did not fully reflect their diverse customer base, Banfield Pet Hospital began to recruit from

over one hundred veterinary schools and colleges around the world. Today, Banfield has one of the most culturally and ethnically diverse staffs among all veterinary practices in the world. By hiring the most diverse workforce possible, the practice is able to better attract and educate a larger base of pet owners to give more pets the care they deserve.

Clearly, a lack of an appreciation for a diverse workforce has the potential to make it more difficult to communicate with and translate animal health messages to an increasingly larger percentage of the population. AVMA President-Elect Larry M. Kornegay experienced this firsthand, when he reevaluated his own veterinary practice in Houston, Texas:

Little did I know that the demographics of my area had changed so much since my wife, Chris, and I opened our practice in 1977. When we started practicing and up to just a few years ago, most of our clients looked just like us. They spoke like us. They grew up where we grew up. That is not the case today. According to the 2000 US census data, Whites represented only 18.9% of the population in our practice's ZIP code, whereas 67.8% were Black or African American. In addition, 21.5% of the overall population identified as Hispanic. Because of these changes in population, Chris and I have changed. We have diversified our staff. We have hired bilingual employees, and we have taken other steps to better serve our wonderfully diverse clientele. . . . We have reached out to our neighbors, many of whom are Vietnamese, to learn about their veterinary needs and how we can best meet those needs. This has helped us build relationships and has resulted in favorable responses from our clients. (Kornegay 2011, 1104)

The same basic concept can also be applied to academia and school curricula, where there is a greater need for programs that reach out and expose students to educators and professionals from diverse backgrounds and cultures. Over time, this will directly affect the level of diversity within the candidate pools for business, colleges of veterinary medicine, and across the veterinary industry.

Beyond that, however, is the empirical evidence underscoring the importance of diversity: organizations with active diversity and inclusion initiatives tend to achieve greater business success. Further, they tend to benefit from higher employee morale and generally better overall business performance than organizations without strong diversity and inclusion programs (Herring 2009).

A Call to Action

First, if we accept the increasingly global demand for safe and secure food and the increasing demand for companionship from pets, then we should also accept that there will be a corresponding increase for higher standards of animal care, husbandry, and wellness. These factors in turn will continue to drive an increasing demand for veterinarians. However, many of these ongoing macro trends will also challenge the way in which traditional veterinary care is delivered, where it is delivered, and how it is delivered. A diverse set of opportunities will require an equally diverse mix of veterinarians from different backgrounds, cultures, genders, races, and ethnicities, all equipped with the skills to fully meet these opportunities.

It is clear that the diversity gap in the veterinary profession today will need to be addressed if the profession and those entities that depend on a “healthy” profession are to be ultimately successful. It is also clear that the current issues impacting diversity in the profession are not “homogenous.” They are, in fact, diverse and multifactorial—hence the need for a diverse and multifactorial solution.

Progress is being made, albeit slowly. Both in the private sector and in the public sector, in private veterinary practices, in corporations, and in academia, there are real pockets of success. It is therefore incumbent on those looking to change their current circumstances as it relates to diversity, to look for and learn from those entities having success, and to apply those best practices in a manner that fits one’s organizational model.

The corporate sector recognizes that there is much to be shared on both sides to address the challenges associated with diversity. We invite the veterinary profession, schools, and other organizations to reach out to companies that have a demonstrated record of accomplishment and commitment to diversity and inclusion, enlist their intellectual capital, share best practices, and consider collaborating with them to advance the diversity agenda.

The veterinary profession and the animal health industry, in all its forms, will be best served by working together to advance this suggested roadmap for greater diversity—one that reflects the best thinking and efforts of everyone—in order to capture the broadest thinking and perspectives possible.

As we have outlined in this chapter, the road to success in strengthening diversity so as to gain the benefits that come from having a diverse organization is ultimately no different, regardless the makeup of the organization. Success will come to those organizations that fully “*get*” the importance of diversity; where leaders—from senior-most down—are committed to lead the charge, and where

all available levers are utilized to enable the organization to change. The call to action therefore is to “act.” Those that do will get the results.

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Academia

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The benefits of incorporating diversity in its broadest sense into academic institutions throughout the United States have been well documented (Shouping and Kuh 2003; Umbach and Kuh 2006; Denson and Chang 2009; Luo and Jamieson-Drake 2009; Sorensen et al. 2009; Bowman 2010). There are convincing arguments from many sectors that placing importance on diversity-related activities ultimately benefits not only individual students, but also the institution and society as well. Creating a diverse student body, faculty, and staff creates a learning environment that increases the probability that, after graduation, students will not only be willing, but will actually actively seek out ways to meaningfully interact with peers, faculty, staff, and ultimately, individuals within their communities who are different than themselves. While this leads to a more harmonious community with many cultural benefits, it also increases the earning capacity or financial well-being of professionals within their communities.

While diversity has in the past usually denoted racial, ethnic, and cultural differences among individuals, in the context of academic institutions, it must now incorporate not only these individual characteristics, but also gender differences, generational differences, individuals with varying physical abilities, religious and political or ideology differences, variations in sexual orientation, dietary preferences, geographical origins including places of birth and childhood development, educational experiences, family unit configurations, and socioeconomic levels. Ultimately, knowledge and understanding about these differences become important from a small business perspective if local veterinarians wish to make their services available to all members of their respective communities. Embracing diversity can increase the economic well-being of small business owners such as veterinarians within any community.

Understanding the differences in pet attachment and animal ownership among diverse populations can help veterinarians serve their communities most effectively. Not only are there differences in animal ownership and pet attachment, as documented by various nationally conducted surveys (Elmore 2003; Elmore 2004), there are animal owners “below the grid,” as demonstrated during natural disasters such as when Hurricane Katrina slammed into New Orleans during August 2005 (Greenhill 2011). Hidden animal owners and people who do not own animals represent a large marketing opportunity for veterinarians and others in related businesses such as animal services and animal product providers.

Understanding the differences in pet attachment and animal ownership is also crucial to recruiting a diverse student body in veterinary colleges. Populations who have traditionally not owned animals, do not usually score high on pet attachment surveys, do not routinely use the services of veterinarians, or are “below the grid” represent large groups of individuals who are not likely on their own volition to naturally select veterinary medicine as a career of choice (Gelberg and Gelberg 2007; Greenhill et al. 2007). Strong overt enlistment efforts are required to recruit individuals from these populations into veterinary medicine.

Not only does understanding and embracing diversity in the broadest sense make good business sense for veterinarians and the institutions educating future veterinarians, but it is ethically correct and necessary if the profession is going to relate appropriately to a changing society. The many benefits of animal ownership and the opportunity to participate in veterinary medicine must be made available to all interested persons.

Several previous papers have described three forms of diversity that are important and present to various degrees on college and university campuses throughout the United States (Shaw 2005). Structural diversity is simply the number or ratio of students of color or other underrepresented students within a student body. It is likely that any given student will interact with another student who is unlike himself/herself in a student body with great structural diversity. It is a great understatement to say that the student bodies within the twenty-eight veterinary colleges within the United States lack structural diversity (Association of American Veterinary Medical Colleges 2011).

Great structural diversity within the faculty and staff of institutions also leads to increased interactions with individuals who are different. Again, structural diversity as measured by counting the number of faculty and staff members of color and other diverse groups is woefully lacking in most of the twenty-eight colleges of veterinary medicine located throughout the United States (Association of American Veterinary Medical Colleges 2011).

Curricular diversity refers to the number and nature of formal diversity-related opportunities made available by academic institutions (Shaw 2005). Curricular diversity opportunities include elective or required multicultural or diversity courses within the curriculum as well as required diversity orientation for new students. Inclusion of diversity classes within the curriculums of the twenty-eight colleges of veterinary medicine within the United States is currently not the norm.

The third form of diversity defined in various papers is referred to as diversity interactions (Shaw 2005). Although many of the interactions that occur through this form of diversity are between individuals, there are examples where these

interactions are facilitated through student organizations, both locally and nationally, such as Veterinary Students as One in Culture and Ethnicity (VOICE). Many veterinary colleges have student clubs devoted to the promotion of international travel and activities that help students engage in diversity activities outside of their comfort zones.

The three forms of diversity within a college of veterinary medicine can be most easily achieved if the host university has a strong infrastructure devoted to diversity. For example, the College of Veterinary Medicine at Kansas State University (KSU) benefits greatly because Kansas State University has developed and promotes the Tilford Multicultural Competencies (The Tilford Group 2001). Multicultural competency is defined by the KSU Tilford Group as the knowledge, skills, and personal attributes needed to live and work in a diverse world.

The Kansas State University Tilford Multicultural Competencies include:

I. KNOWLEDGE—Awareness and understanding needed to live and work in a diverse world.

Cultural Self—The ability to understand one's ethnic identity and how it influences identity development.

Diverse Ethnic Groups—Knowledge of diverse ethnic groups and their cultures.

Social/Political Frameworks—Awareness of how economic, social and political issues impact race and ethnic relations.

Changing Demographics—Understanding population dynamics related to ethnic minority and majority citizens.

II. PERSONAL ATTRIBUTES—Traits needed by those who live and work in a diverse world.

Flexibility—The ability to respond and adapt to new and changing situations.

Respect—An appreciation for those who are different from one's self.

Empathy—The ability to understand another person's culture by listening to and understanding their perspective.

III. SKILLS—Behaviors and performance tasks needed to live and work in a diverse world.

Cross cultural communication—Verbal and nonverbal communication skills in interaction with those who are culturally different from one's self.

Teamwork—The ability to work in culturally diverse groups toward a common goal.

Listening—The ability to attend to what others are saying.

Conflict Resolution—The ability to resolve cultural conflicts that occur between individuals and groups.

Critical Thinking—The ability to use inductive and deductive reasoning.

Language Development—The ability to speak and write more than one language.

Leadership Development—The ability to provide multicultural leadership. (The Tilford Group 2001)

All students enrolled at Kansas State University are encouraged to personally obtain as many of the Tilford Multicultural Competencies possible. This includes professional degree students enrolled in the veterinary college. Because of the commitment of the highest level of administrators at Kansas State University to the Tilford Multicultural Competencies, an environment of inclusion exists in which the KSU College of Veterinary Medicine has developed the three traditional forms of diversity as previously described.

It is a great understatement to say that recruitment of veterinary students (structural diversity) from underrepresented populations has been and continues to be difficult. Various reasons for the lack of interest in the pursuit of careers in veterinary medicine by underrepresented undergraduate students have been suggested. These include differences in the rate of animal ownership among the various racial populations in the United States, differences in levels of pet attachment, lack of appropriate role models, and expected annual income for veterinarians (Elmore 2003; Elmore 2004).

Recruitment of veterinary students from underrepresented populations within the veterinary profession requires building ongoing personal relationships between recruiters, potential students, their families, and school counselors and advisors. To be effective, veterinary college recruiters must go where the students are located. Relying on electronic media, mailers, and other indirect recruitment methods has not proven to be highly successful.

The College of Veterinary Medicine at Kansas State University has addressed curricular diversity by creating a course for veterinary students entitled “Practicing Veterinary Medicine in a Multicultural Society” and by infusing the Tilford Multicultural Competencies into other professional degree courses, such as the “Ethics and Jurisprudence” course. In the “Practicing Veterinary Medicine in a Multicultural Society” course, guests lead discussions regarding racial, ethnic, and cultural demographics and differences; sexual orientation; physical abilities; dietary preferences; religious practices; gender issues; generational differences; and so forth. Students are required to complete projects including writing papers about potential practice locations from a demographic perspective, reading a book regarding appropriate communication skills when addressing a diverse client base, and writing a paper following a diversity experience created to get each student out of his/her comfort zone. The goals of the course include creating an awareness of our similarities and differences, appreciating and celebrating our differences in a safe environment, and illustrating how being aware of diversity issues can create a positive economic practice benefit following graduation.

The third form of diversity, that experienced by interactions, is facilitated through student club activities, international travel, and having a very diverse student body, faculty, and staff. Speakers with diverse backgrounds have been invited to present seminars, workshops, cultural events, and so forth for students, staff, and faculty.

Diversity within an academic institution can only be achieved if there are deliberate, proactive, multifaceted actions executed under the leadership of dedicated administrators, faculty, and staff. A long-term, focused commitment of the college leadership and a core of committed faculty who are supportive and who provide distributed leadership is essential.

In addition, significant funding to facilitate multicultural programs is a must. The College of Veterinary Medicine at Kansas State University has been able to facilitate many of its diversity programs through direct funding from the college’s resources and through significant extramural support from commercial companies dedicated to promoting diversity programs. For diversity programs to be facilitated in academic institutions, diversity must be a priority.

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Veterinary Students

Cara E. Williams

What is the students' perspective of the importance of diversity in veterinary medicine? I've always had a strong, almost innate sense of the importance of diversity in all aspects of society, but when I was asked to answer this question in writing, the answer didn't immediately present itself. I know my own perspective. My idealistic activist voice eagerly shouts, "Equal opportunity." But the students' perspective? Well, to begin with, I'm not like most veterinary students.

I grew up in the great city of Chicago, the daughter of an interracial couple who had fled the disapproving looks of their small hometown in Ohio. I experienced the injustice of racism early in life. Before I was even born, I had been disowned by my White family, but embraced by my Black family. In an effort to shield my siblings and me from further discrimination, my parents moved to one of the most diverse cities in the United States, and they entered us into an elementary school that specifically enrolled equal numbers of students from the different races. I thrived under such an environment that valued diversity. I appreciated the differences in lifestyles and beliefs that my colorful group of friends held, and I acquired a passion for learning about different cultures, religions, and languages. I grew up thinking that diversity was a natural way of life, and to be different was actually normal.

It wasn't until I went off to college that I realized that very few people in the United States feel the same way about diversity. The students at my predominantly White undergraduate school held an ingrained belief in the idea of otherness of certain peoples, which I had never before considered. They had expectations of how these "others" would behave, and the types of lifestyles that "others" could have; expectations of who I would be. My complexion often confused my classmates, so I experienced the difference in treatment when they thought I was White or Black, Latina or mixed (or even Egyptian, Indian, or Australian Aborigine). I saw that the expectations that society has for different segments of society can feed into a person's expectations for herself, and this quickly creates a world of limited options.

Growing up with an appreciation for diversity and having witnessed the endless possibilities for ways to live life is probably what made it possible for me to choose a career in veterinary medicine. With so many options to choose from, I didn't decide to work with animals until I was in college, and in fact, I had never met a veterinarian until I sought them out late in my undergraduate career. I had

always been told by my family and teachers that I could be whatever I wanted to be, so when I decided to become a doctor, and to use my skills to work with animals, I had no doubt in my mind that was a viable option for me.

Eventually, the years of pressure under society's expectations, all through undergraduate school, and now into my graduate career, did begin to take a toll on my view of life's possibilities. *A city girl? A Black city girl at that? Your only options are public health or treating dogs and cats.* Two years in veterinary school, and I had already learned the expectations of the rare Black veterinarian. To be fair, those were the only types of Black veterinarians that I or anyone else at my school had ever seen. So I followed those paths to see where they might take me. I got a part-time job working in the small animal veterinary medical teaching hospital, followed my passion for cultures with a certificate in global health, and furthered my studies with a master's degree in public health. Despite all this, in the few years that I have been working with animals, I've found that I enjoy working with farm animals the most. Only just recently have I finally found the courage to say that. Despite the expectations that my teachers, my classmates, and even my future clients may have for me, I want to work with cattle, so I'm going to become a large animal veterinarian. Certainly, I will surprise many people along the way, but I will also undoubtedly change a few people's opinions of Black people, city dwellers, and women.

Diversity is important because when diverse people work together, they realize that their expectations of each other aren't always correct. Those who have learned from "others" learn to think outside the box, creating new solutions for the world's difficult problems. Expectations break away to reveal a world of limitless possibilities for the students, the medicine we will practice, the profession, and our society as a whole.

So back to the original question. What is the students' perspective? Since the start of the profession, most veterinary students have been White. Through the 1980s and 1990s, enrollment shifted from majority White males to majority White females, but the percentage of racial and ethnic minorities has not changed. While I may not be like most veterinary students, my unique upbringing has made it relatively easy for me to become friends with people from all types of backgrounds, so I've had the opportunity to have candid discussions about diversity with many of my classmates. My interest in the subject led me to become the Wisconsin chapter president of a student organization called Veterinary Students as One in Culture and Ethnicity (VOICE). Later, I became the national president of VOICE, which allowed me the opportunity to talk with students and faculty from around the country about diversity in veterinary medicine.

VOICE began as a student organization dedicated to promoting sociocultural awareness among veterinary students at Cornell University in 2001, and has since spread to twelve chapters nationwide. The VOICE organization attempts to promote diversity on three fronts: in the clinics, by training students and faculty how to appropriately communicate with diverse clientele; on campus, by improving campus climate to be more welcoming to students from all backgrounds; and in the pipeline, by reaching out to underrepresented youth to increase interest in preparing and applying for veterinary school or college. The organization advocates for diversity in veterinary medicine along all aspects of life, including gender identity, sexual orientation, religion, and ability.

To say the least, “diversity” is a touchy subject among most veterinary students. Understandably so, as many veterinary students have not had experiences in diverse atmospheres. “Diversity” has somehow become synonymous with the “others,” with minorities and affirmative action. Students seem to think that being White excludes them from being diverse, and even excludes them from having a valid cultural identity that can be celebrated by diversity. Most students seem to think that diversity is intended to benefit someone other than themselves, so it has been difficult to get them on board with promoting diversity. As VOICE president, I often reached out to my fellow classmates, explaining that we need White, heterosexual, Christian students to join in our efforts. Without your participation, we are missing a vital component of American society. We need *your* perspective in order to achieve our goal of bringing together *diverse* perspectives to advance the field of veterinary medicine.

Increased diversity in veterinary medicine will, of course, benefit minority populations as well as the majority. Most veterinary students would agree that all children ought to have equal opportunities to pursue whatever career their dreams might lead them to. What is less understood by veterinary students is why many children don't have that opportunity, despite having legal rights, and they don't understand that they can or should do something about it. Furthermore, the misunderstanding of the meaning of diversity has led many students to feel that they are under attack from those who advocate for diversity, as though they are to blame for the misfortune of other socioeconomic groups. Veterinary medicine is one of the most competitive professions to enter. No student feels that despite all of her hard work, her spot in a veterinary medical class should be denied to her on the basis of her White coloring in order to provide a seat for a minority applicant. Advocates of diversity agree that no student should be denied access to veterinary education based on skin color. Rather, that we need to increase the number of qualified applicants from all walks of life, and to better train vet students to serve a broader clientele.

VOICE reaches out to veterinary students and faculty to try to dispel many of these misconceptions of the meaning and importance of diversity. More and more students are beginning to grasp the benefits of diversity, and of an open and welcoming learning environment. As the message of our mission continues to spread throughout the veterinary community, more students and faculty are jumping on board. There are still many barriers that we need to overcome. For example, as VOICE national president I've been approached by students for advice on how to initiate a desperately needed VOICE chapter at their school or college when their classmates tell them that no one wants to join "the Black club," and even some faculty members discourage them from starting a club that "distracts students from focusing on their studies." The makeup of the American veterinary medical profession has been fairly monotone for a very long time. Change requires an institutional shift in the culture and values of veterinary medicine, and it will take some time for the profession to become more inclusive. The first place to start is in the exploration of the benefits of diversity to the field of veterinary medicine.

Defense against Epizootics

Currently, the Caucasian/White community makes up about 72.5 percent of the US population (Humes et al. 2011). United States demographics are rapidly changing, and within forty years, minority groups are expected to constitute 42 percent of the population (Ortman and Guarneri 2009). Veterinarians tend to serve areas similar to where they originated, and with nearly all veterinarians belonging to the Caucasian/White population, many regions of the United States may be underserved by the veterinary profession in ways not anticipated or even easily measured. Unless the veterinary medical profession takes the initiative to actively change the demographics of veterinary professionals to match the changing demographics of the United States population, an increasingly larger portion of the country will be left without veterinary care.

This is a disturbing scenario for all of the US population, as rapid transportation, overpopulation, climate change, water insecurity, and other new age factors have created an unprecedented opportunity for the rapid dissemination of zoonotic and animal-specific pathogens. As veterinarians, we are the first line of defense against the spread of important diseases such as rabies, foot and mouth disease, and parasitic infections, and we are leaving whole segments of the population completely unprotected and unmonitored.

Though zoonotic disease transmission has been understudied in minority populations, there is evidence that disease burdens are significantly higher in improv-

erished, mostly African American/Black, Hispanic/Latino, and Native American populations (Hotez 2007). For example, *Toxocara sp.* are roundworm parasites from dogs and cats that cause the disease visceral larval migrans in people, with the potential for blindness, asthma, and other disease states. In 2007, seroprevalence for exposure to this parasite among the poor in the United States was reported to be as high as 23 percent. Inner city children, mainly of African American/Black and Hispanic/Latino descent, are reported to be at high risk of infection, with urban playgrounds serving as particularly rich sources of exposure (Hotez 2007). By increasing the socioeconomic diversity of the veterinary profession, we will be able to increase our reach to better serve and monitor all communities in the United States.

Protect US Agriculture

Like the US population as a whole, rural America is also rapidly changing, as a larger percentage of the population is moving to urban areas, and suburbs continue to encroach upon farmlands. Public interest in supporting rural agricultural communities is low, and veterinary medicine is struggling to fill a shortage of large animal practitioners and large animal medical professors. There is an enormous lack of awareness of agriculture among urban populations, and regardless of race or identity, people need to be educated about where our food supply comes from and how to protect it. VOICE reaches out to inner city youth to increase awareness of the veterinary profession. One active member of the Wisconsin VOICE chapter, Kristi Ackman, grew up on a dairy farm in a small and shrinking White rural community. She says her main goal in participating in VOICE activities is to reach out to urban communities to increase interest in preserving and protecting American agriculture, and the more people she can recruit to be agricultural advocates, the better.

Diverse Solutions for Complex Challenges

Veterinary medicine faces complex, system-wide challenges, and our small profession has taken on the responsibility of providing ever more services, from highly specialized companion animal care to wildlife conservation, the protection of our food sources, and beyond. Diverse perspectives are essential to creating multifaceted solutions to these challenges, particularly when human cultural and behavioral factors add to the complexity of the problem.

A prime example of this is demonstrated in the epidemiologic conservation research of veterinarian Dr. Tony Goldberg. He researches bacterial and parasitic

transmission between primates, people, and livestock in rural areas of Uganda. His team provided evidence that pathogen transmission between these populations increases significantly, proportional to the amount of deforestation that occurs (Goldberg et al. 2008). Further exploration of the factors increasing transmission revealed that human cultural practices also play an important role. An anthropologic study revealed that the farmers in one of the studied areas adopted the practice of applying cattle dung to ears of maize on the edges of fields bordering forest fragments, in an attempt to deter primates from crop raiding (Goldberg et al. 2008). Veterinarians well-versed in complex systems thinking and cross-cultural communication are needed to be able to identify and resolve problems such as these.

In the school setting, working with a diverse student body broadens the students' understanding of the world, enabling them to make connections about how their professional and personal decisions can affect broader populations. The result is the production of more responsible veterinarians who are better prepared to serve their communities at a time when veterinary challenges have become more complex than ever.

Variety of Values

Diverse populations bring unique values that can enhance our profession. A great example of this can be seen in the human medical profession. Historically Black Medical Schools often go unranked in the standard *US News & World Report* medical school rankings, which influence a great many students' choice on where to complete their medical education. The rankings often emphasize NIH-funded research and cutting-edge technology, while ignoring institutional mission and social values. A 2010 study of medical schools' commitment to social missions found three Historically Black Medical Colleges ranked highest among the nation's medical schools (Mullan et al. 2010). Historically Black Medical Colleges outperform *US News & World Report* top-ranked medical schools in producing a diverse workforce dedicated to providing community service in underserved areas (Mullan et al. 2010).

While it is important that we continue to advance the veterinary profession through clinical research, improved technologies, and specialization, we also need to place emphasis on correcting our shortcomings in reaching communities that are in need of veterinary services. Recruiting a diverse student body with a wide variety of values and ambitions can ensure that the veterinary medical profession achieves all of these goals.

Fulfill the Veterinary Oath

All American veterinarians swear an oath to benefit society through the protection of animal health and the promotion of public health (American Veterinary Medical Association 2011). As veterinarians, we have a moral obligation to ensure that all peoples have adequate access to culturally appropriate and local veterinary care to protect their animals, and that all people can benefit from our skills at reducing zoonotic disease transmission and animal-related human injuries. As such, we have an obligation to train our professionals to be culturally competent to be able to provide such care, and a moral obligation to ensure that our profession is inclusive and accessible to all.

Student Contributions to Increasing Diversity

Many students recognize the need for diversity in veterinary medicine, and we are taking the initiative to promote issues of diversity on our campuses. For sixty years, the International Veterinary Students' Association (IVSA) has long recognized the benefits of bringing together diverse perspectives to advance veterinary medicine around the world. American chapters of the IVSA continue to send American students to international IVSA conferences, and to host IVSA international students at Student American Veterinary Medical Association (SAVMA) Symposia here in the US. The information and global opportunities that American IVSA students provide to their classmates are invaluable, enhancing the campuses of participating chapters.

In addition to VOICE, several veterinary student organizations promote inclusivity and provide a welcoming environment for various segments of the student body, including the student chapters of the Lesbian and Gay Veterinary Medical Association and the Christian Veterinary Fellowship. Organizations like these are crucial to creating a campus climate conducive to supporting a diverse student body.

Several VOICE chapters have developed creative and successful events to achieve the organization's mission. The University of Missouri chapter established the ¡VAMOS! Program to provide tips for veterinarians and students for communicating with Spanish-speaking clientele. Most chapters are able to put on events that celebrate various cultures in an effort to improve campus climate, such as themed potlucks, dances, and film festivals. Several events directly address campus climate, such as the diversity student panel that the University of Wisconsin chapter organizes annually for the new student orientation. Additionally, VOICE members spend countless hours networking and organizing within local commu-

nities to reach out to underrepresented youth. The University of Florida chapter organized a guided tour of the Santa Fe Teaching Zoo for forty low-income teenagers, and the Cornell University chapter and other chapters organize visits to inner city elementary and middle school classes to give demonstrations and talks about veterinary medicine. In addition to these activities, VOICE chapters regularly host guest lecturers at their veterinary colleges, who talk about diversity in veterinary medicine or offer insight into providing culturally appropriate veterinary care. Chapters also provide students and faculty with the opportunity to share their international and local multicultural veterinary experiences with the rest of the college. More information on the ongoing activities of this passionate student organization can be found at www.vetvoice.org.

Beyond the veterinary student organizations, many veterinary students put forth additional effort to increase diversity within veterinary medicine. Students take advantage of school breaks to teach veterinary internships for underrepresented youth through pipeline programs, such as the PEOPLE Program in Wisconsin, and to provide veterinary services to underserved areas through supervised opportunities, such as the Humane Society Veterinary Medical Association's Rural Area Veterinary Services (RAVS) trips, among other opportunities. The student contribution to increasing diversity is tremendous, but with the heavy demands of the veterinary medical curriculum, we need support and leadership from faculty, administration, practicing veterinarians, and the entire institution of the veterinary medical profession to bring about the amount of diversity required to sustainably serve the veterinary needs of the US.

Action Steps

Within the colleges of veterinary medicine, a good place to start to increase diversity is to actively correct the misconceptions of diversity by increasing awareness of the many benefits. Veterinary college administrators need to ensure that diversity is an overt objective of each college, and that valuing the college's diversity statement is a requirement of all faculty, staff, and students admitted to the colleges. The benefits of diversity and issues of culturally appropriate communication can be taught to students during orientation and professional lectures as part of the veterinary curriculum. Professors can also incorporate issues of diversity within case studies and offer historical stories that highlight contributions by minorities to the field of veterinary medicine.

Once the veterinary community recognizes the importance of diversity to the profession, making a concerted effort to improve campus climate and reach out

to underrepresented students will become a tangible reality. Faculty, staff, and all students will put forth a little extra effort toward mentally assessing and letting go of their prejudices, and will offer themselves as mentors for all incoming students.

Veterinary schools and colleges will recognize the need to allocate funds and faculty time to develop and sustain pipeline recruitment programs, and leaders in the veterinary community will offer more substantial and numerous scholarships to students that increase diversity in the field. Veterinary associations will increase efforts to promote better animal care and awareness of veterinary medicine in underserved areas, and will provide financial incentives for veterinarians to serve in these underserved parts of the country. Furthermore, the profession as a whole will lobby more enthusiastically for financial support from the government for basic veterinary services for people who cannot afford veterinary care. Additionally, veterinarians will more commonly offer affordable alternatives, such as services provided by certified or registered veterinary technicians to expand our reach in low-income areas.

There is much that needs to be done to change the demographics and improve the cultural competency of the veterinary profession to better suit the population of the nation that we serve, but with the compassion, dedication, and ingenuity that the veterinary medical profession is so famous for, we will undoubtedly be able to overcome the barriers to achieve this goal.

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Chapter 9

Dead Reckoning: A Call to Action

Patricia M. Lowrie, MS, and Lisa M. Greenhill, MPA

Dead reckoning is used to determine your position from the record of past courses taken, distances traveled, and estimated drift (Merriam-Webster.com 2012).

Deliberate diversity and inclusion initiatives have been a part of veterinary medical education for nearly forty years. These efforts can be characterized as having reasonably consistent championship, very limited national and local structural frameworks, and a lack of cohesive approaches to building a sustainably inclusive culture. Consequently, these initiatives have produced modest changes in representation over the years. Discussions in the preceding chapters identify numerous activities, initiatives, or programs that have minimal connections among institutions. A broad range of explanations are offered, providing rationales for either the specific effort or to justify the need based on a compelling understanding of changing societal demographics, the business case, or an interest to being more globally responsible.

The authors detailed definitions of diversity and raised the appropriate consciousness relative to the static condition of the system that continues to perpetuate resistance to change. Career unawareness, issues of access, noncompliant educational systems, and the lack of serious engagement in recognizing that insti-

tutional climate is always in the context of a culture, which privileges traditional perspectives, will continue to cause cycles of redundancy. We will muster interest, establish a task force, sponsor a conference or a workshop, host recruitment fairs, maybe produce a report, wait a period of time, and repeat the cycle. In the interim, populations continue to shift, economic models adjust, and representation of diversity essentially remains stagnant.

The expectations for systemic change across the veterinary profession will not be different if the structural frameworks that support such change are not in place. The structures must be flexible and dynamic, and created with the understanding that the roads to diverse and inclusive environments exist within a larger set of roads, pathways, occasional detours, and pit stops. To be clear: there is no one road map to get to a diverse and inclusive environment. Systems change within the veterinary professions specifically, and society in general. Efforts must focus on learning to read a complex map, then studying, developing, and traveling the various courses to the desired destination.

Our capacity for reading the complex map must include an understanding that pipeline, cultural, and climate development have many concurrent factors of influence. Pipeline influences include, but are not limited to: child and youth development, identity development, self-esteem, self-efficacy, key intervention points for introducing the veterinary profession, and sustaining long-term interest and passion. Participants and leaders of systems change must cultivate greater insights about the range of impact practices and apply them consistently throughout the system of veterinary medical education. Transformation in veterinary medicine will only occur when deliberate patterns of behavior, rooted in evidence-based analysis within the profession and beyond, are initiated by leaders with an expectation of systemic response and embrace.

Some of this evidence exists: data produced from years of internal analysis must be optimized and utilized. Chapter 2 describes intentional efforts to expand the number of women and minorities, specifically African Americans/Blacks, in the late 1960s and 1970, respectively, in veterinary schools and colleges. Chapter 2 also notes that women represent 77.4 percent of the total enrollment in US veterinary schools and colleges for 2011-12, and African American student enrollment has wavered between 2 percent and 3 percent for the last thirty years. However, other racial groups have grown, both proportionally and as a function of the change, in the total population.

We know some strategies work, but the disparities among groups highlighted across these chapters beg more of us. We know that the “story is not in the numbers” (Wubneh 2009, 21). The emerging needs of all populations beg the develop-

ment of the generation of new knowledge and understanding about institutional culture and climate. Institutional culture is shaped by social and economic values (Swanson 2009), patterns of rulemaking (Zhou 1993), and collective beliefs, myths, traditions, and norms (DiMaggio and Powell 1983). Climate rolls in other measurable dimensions such as communication, leadership, organizational structure, historical forces, standards of accountability, transparency, commitment, vision, and organizational connectedness (Kennedy Group, n.d., DiMaggio and Powell 1983). Culture and climate shape the profession from the inside out. Culture and climate make up the profession's behavioral map and frame the way we see ourselves and the way others see us. If our map of a more diverse and inclusive profession is pocked with a culture and climate that is tolerant of "subtle behavior" (22) such as "comments made in the context of a one-on-one conversation, gendered comments on teaching evaluation, comments in faculty meetings that border on racist, sexist, etc." (Wubneh 2009, 22), then it will always be difficult for professionals to navigate their learning and working environments. Imagine the triage complexity for a student who is attempting to be academically successful in such an environment.

So where do we go from here? Will we find a way or make one? The answer is that we will do both, and both actions require a heightened level of adaptability. As stated in chapter 8, adaptation is nothing new to the veterinary profession. Veterinarians have adapted to changes in societal and customer needs, urbanization of communities, advances in technology, and economic instability.

The diversity and inclusion challenge and the required paradigm shift are no different. "Diversity and [inclusion] work must be seen as more than just solving the problem of inadequate representation"; it must be recast as developing the tools to "build innovative, high performing organizations" (Nivet 2011, 1488). More than improved business models and high-functioning, productive organizations, diversity and inclusion work in veterinary medicine, systemically and locally, must underscore the Veterinarians' Oath to use our knowledge and skills for the benefit of society. It is a professional imperative.

So how do we get there? Systems change of this magnitude requires big commitment, big planning, big plan implementation, and constant monitoring that feeds a continuous system improvement. Commitment to change is the bedrock of change, and it is best demonstrated in this context by organizational time, prioritization of issues, being mission and vision driven, and the allocation of adequate resources to support all requisite activities to effect change. We value how and where we spend our time and resources. If the veterinary profession makes the commitment, diversity and inclusion will be a highlighted topic on every road sign

on our academic and professional journeys. While change is a naturally occurring phenomenon, this profession must be deliberate in plotting its journey. There must be a clearly stated plan that serves as a systems compass.

Historically, diversity and inclusion planning has occurred in a space of reaction, precipitated by an incident that sets off a chain of events resulting in little or no change (Williams and Clowney 2007). Strategic planning is needed, across the profession, which uses relevant and appropriate planning models for academia, professional organizations, and business, and that focuses on the goals, objectives, and activities necessary to create measurable change. The critically important component of this effort is the necessary synchronization of plans and effort to leverage and maximize the use of resources. Much like the North American Veterinary Medical Education Consortium (NAVMEC) corralled the vast array of veterinary medical stakeholders to chart the future of veterinary medical education, similar efforts must transpire to develop the veterinary profession's diversity and inclusion plan for the future. Such an initiative produces a professional map for use by stakeholder groups to base their individual journeys to a more diverse and inclusive profession.

Earlier chapters demonstrate that even modest implementation can move us closer to our destination. We must implement our plans and begin the journey. Planning without effective implementation strategies and execution can best be described as feel-good exercises that become part of a vicious cycle that amounts to spinning our wheels with an occasional jolt forward, which is more the result of chance than deliberate effort. Again, the demonstration of commitment is best seen here when leaders of organizational systems within the profession apply the organization's new knowledge and resources to the task at hand. To extend our thematic cliché one step further: this is where the rubber hits the road, and this is where change happens.

Is it working? Did we move? Evaluation and assessment of the efficacy of our planning and implementation is essential. We must commit to quantitative and qualitative inquiry about our journey. We must test our hypotheses, drive forward, and correct course when necessary. The assessment of our efforts will grow and enhance a fairly thin body of knowledge specific to veterinary medicine that currently exists. There actually is room for redundancy behaviors in the effort to become more diverse and inclusive. Our assessment data is the starting point for greater commitments, next level planning, and further assessment.

The confluence of issues creating the case for diversity and inclusion has been described. The appropriate review from a historical perspective, the current status and analysis to support the compelling rationale, a perspective option for inter-

rogation of the confluence and parallels of social development, and the colliding courses have been presented. There have been and are successful strategies, and there are no failures. The reflections and the efforts to propel us forward will contribute to new understandings as innovation is captured. Comparative efforts by other health professions have been reviewed as part of the diligence in assessing the potential effectiveness of new approaches. Just as new products need a contemporary workforce, developmental steps essential for the future veterinary workforce must draw on current understandings and be applied to the retooling of the methodology used to produce graduate veterinarians.

There is much that needs to be done to change the demographics and improve the progress toward professional inclusiveness and cultural competency of the veterinary profession. Our commitment, planning, execution, and continuous assessment will position the profession to better suit the population of the nation and the world that will be served. The compassion, dedication, and ingenuity, which the veterinary profession is noted for, provides a solid foundation on which to build the essential capacity to overcome the barriers to achieve this goal. We must focus our best efforts to systemically commit to press forward on this journey. There are miles to go before we sleep (Frost 1923).

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Appendix A

Representative Summary of P-12 Programs at Schools and Colleges of Veterinary Medicine

College of Veterinary Medicine & Biomedical Sciences at Colorado State University

Students entering grades 10 through 12 spend their afternoons at the veterinary college for one week and learn about veterinary medicine through presentations, demonstrations, hospital visits, and interactive activities during the Summer Vet Program. Students desiring a residential program can combine the veterinary program with a science camp in the mornings and stay on campus (www.cvmb.colostate.edu/cvmb/vetprep.htm).

College of Veterinary Medicine and Biosciences at Texas A&M University

The Partnership for Environmental Education and Rural Health (PEER) program provides a web-based curriculum for middle school and high school students, teacher training, and classroom visits to encourage interest and improve student

skills in science, technology, engineering, and mathematics. The program is funded with support from the National Institutes of Health and the National Science Foundation (peer.tamu.edu/).

Veterinary Enrichment Camp is a three-day camp for junior and senior high school students. The camp has a competitive admissions process. Eligible students must have at least a 3.0 GPA and twenty-four hours of animal experience under the supervision of a clinical or research veterinarian or forty-eight hours of formal animal experience (<http://vetmed.tamu.edu/bims/future/veterinary-enrichment-camp>).

College of Veterinary Medicine at Michigan State University

The Vetward Bound Program has served for the last thirty-five years as an umbrella under which a series of educational programs for primary and secondary grades, undergraduates, and professional veterinary students have been implemented. The primary and secondary levels of programming are driven by objectives that are designed, first, to stimulate and reinforce an interest in “doing” science, and second, to encourage an interest in the health professions as career options (cvm.msu.edu/about-the-college/vetward-bound-program/).

Four elementary schools within the contiguous school district of Lansing are foci for “Discovering Science” activities and from which about 120 students participate annually. Middle school involvement is aligned with existing partnerships with the campus Talent Search/Gear Up Leadership Program and two senior high schools that have long-standing collaborations with Michigan State University’s College of Veterinary Medicine. Schools are selected on the basis of their racially and ethnically diverse enrollments, performances on state-mandated standardized tests, and the high percentages of free or reduced lunch.

With cooperation from school administrators, teachers, and parents, the elementary activities include: parent booster clubs and “Discovering Science” after-school curriculum; community field trips to the planetarium, the local zoo, the science museum, the College of Veterinary Medicine’s open house, and other similar activities; classroom projects; human and animal health resource presentations; annual science fairs; and service learning outreach with Vetward Bound undergraduate students.

The Talent Search/Gear Up Leadership Program provides reinforcement for middle school students in math and science content, to stretch beyond required learning, and to apply that knowledge to practical or experimental investigative design. Program activities are divided into both academic year and summer com-

ponents. During the academic year, several “college day” programs allow students to visit various learning sites and participate in panel discussions on college life.

On Saturdays, Talent Search students participate in workshops that involve whole families. These workshops assist families in understanding college preparatory transitions. Topics of discussion include: high school and college course selection; stress and peer pressure management; leadership development; academic skill building; employability skills; career development; and financial aid assistance. Twelve Saturday sessions take place during the academic year. Annually, a weekend day and a half conference is conducted specifically for parents to focus on parenting skills, mentoring, specialized child advocacy, accessing community resources, and a more in-depth understanding of the college-wide financial aid process.

The summer residency component is a five-day program experience in a residence hall that includes exposure to college-type classes, survival skills, and residential life. Students engage in hands-on learning, motivational activities, leadership, and self-esteem and communication skill-building sessions. Specifically, content areas are science, social science, language arts, math and problem solving, and team building.

The high school Health/Science Career Fair model includes a keynote presenter, panel discussions, and a “stationed” fair with interactive exhibits staffed by persons in the sciences and health professions. The “hands-on” station activity is indicative of the profession so that students, by demonstration, learn about and meet the professional. A Health/Science Career Club membership serves as the organizing group, with major leadership for planning and implementation.

The summer resident high school Multicultural Apprenticeship Program, a partnership of the College of Agriculture and Natural Resources, gives twenty-five high school students the opportunity to engage in health research training with faculty in the biosciences, agricultural, food sciences, natural resources, and related sciences. Students gain hands-on experience in laboratory research, field research, computer technology, and use “high-tech” equipment, while interacting with college students, faculty, and other professionals. Students also prepare for the ACT via software that monitors their progress. During a thirty-five to forty hour per work week, seven-week program, they experience college life while applying life skills (money, time management, and decision making).

Cornell University College of Veterinary Medicine

Cornell’s Summer College Program offers two, three-credit summer courses for juniors and seniors in high school: Conservation Medicine and Small Animal Prac-

tice. Faculty teach the courses with assistance from veterinary students (www.sce.cornell.edu/sc/index.php).

Louisiana State University School of Veterinary Medicine

Pets & Vets is a free, educational summer program that meets for two hours twice a week each June. Kids age six to fourteen and their families are welcome to attend. Faculty, staff, and students provide twelve hours of presentations on veterinary medicine and animal care (www1.vetmed.lsu.edu/svm/).

North Carolina State University College of Veterinary Medicine

Gateway Inc., the Association of Minority Veterinarians, and local practitioners, supported a one-week day camp for thirty underrepresented minority middle school students to promote diversity in the veterinary profession. Veterinary students served as counselors. The camp is not currently offered. (www.cvm.ncsu.edu/).

Purdue University College of Veterinary Medicine

Boiler Vet Camps are week-long, residential camps for students entering grades 8 through 12. Faculty and staff provide presentations and activities, and veterinary students are camp counselors. Assessment demonstrated that camps successfully increased knowledge of the veterinary profession among middle school campers (www.vet.purdue.edu/boilervetcamp/). Pfizer Animal Health is the lead sponsor.

Purdue Veterinary Medicine Bound is a baccalaureate-DVM program that is a partnership among Purdue's Science Bound and Crispus Attucks Medical Magnet High School. Crispus Attucks students who complete the Science Bound program and are accepted to Purdue University receive a full-tuition scholarship to Purdue for eight semesters. PVM Bound students have the opportunity to compete for early admission to PVM, with extended full-tuition scholarships to complete the DVM program.

Fat Dogs and Coughing Horses: Animal Contributions towards a Healthier Citizenry program is funded by a Science Education Partnership Award from the Office of Research Infrastructure, a component of the National Institutes of Health. This program is a cooperative effort among other areas at Purdue, public schools in Indiana, and the Children's Museum of Indianapolis. It provides educational programs for P-12 students and the public about the science involved in keeping people healthy. Curricula and activity books for students in grades 3, 6, and 9 are available free online (www.vet.purdue.edu/engagement/sepa/index.php).

Boiler Vet Clubs are designed to excite youth about careers in veterinary medicine. Membership benefits include an electronic newsletter, membership card, membership certificate, log to document veterinary-related experiences, and a Purdue Veterinary Medicine pen, pencil, and notepad. The objective of the clubs is to continue to engage students met at recruiting events, community events, and Boiler Vet Camps (www.vet.purdue.edu/engagement/p12/boiler-vet-club.php).

The 4-H Veterinary Science Program provides an opportunity for 9th through 12th grade 4-Hers exhibiting at the Indiana State Fair in Veterinary Sciences to participate in PVM's Open House by exhibiting and discussing their projects with Open House visitors, members of the PVM Admission's Committee, faculty, staff, and students. The exhibition is followed by a student panel where 4-Hers have the opportunity to ask current veterinary medical and veterinary technology students about their experiences. Participants are given information on careers as veterinary technicians/technologists and doctors of veterinary medicine, and they are presented a certificate of participation (www.vet.purdue.edu/engagement/p12/4h.php).

VM 10201 Careers in Veterinary Medicine is an online, one-credit course for high school students interested in careers in the veterinary profession. Students can earn Purdue credit upon successful completion of the course. Students are expected to: demonstrate an understanding of the veterinary medicine admission requirements and processes (DVM and veterinary technology); demonstrate an understanding of the career opportunities in veterinary medicine; gain an appreciation of the local-to-global perspective of veterinary medicine; and gain an awareness of issues of animal and human well-being addressed by the veterinary profession (www.vet.purdue.edu/engagement/p12/vm10201.php).

University of Georgia College of Veterinary Medicine

The weeklong Veterinary Career Aptitude and Mentoring Program (VetCAMP) brings students entering grades 11 and 12 to campus to learn about exciting careers in veterinary medicine. Students learn about the admissions process, the veterinary curriculum, research programs, and study abroad opportunities. Students also experience the Veterinary Teaching Hospital, Diagnostic Laboratory, and visit the Georgia Aquarium (www.vet.uga.edu/academic/vetcamp).

The University of Georgia College of Veterinary Medicine, in cooperation with the David Forehand Foundation, holds an annual Vet School for a Day program for Georgia and South Carolina high school students. Students—accompanied by a parent, teacher, or counselor—tour the Veterinary Teaching Hospital and meet with faculty and veterinary students (www.vet.uga.edu/academic/vet_school_for_a_day).

University of Illinois College of Veterinary Medicine

The Veterinary Mentor Program is offered in partnership with the Anti-Cruelty Society to students in grades 10 through 12, who have at least a 3.0 GPA and an interest in veterinary medicine. Students attend a two-hour seminar one Saturday each month (engage.illinois.edu/entry/3597).

University of Minnesota College of Veterinary Medicine

VetCamp, created and delivered by students, is a one- to three-hour program for twelve- to eighteen-year-old students interested in veterinary medicine. The program is funded by the Minnesota Veterinary Medical Foundation. Presentations and hands-on activities foster interest in the veterinary profession (www.cvm.umn.edu/education/prospective/vetlead/home.html).

University of Tennessee College of Veterinary Medicine

The Veterinary Summer Experience Program is offered for students in grades 11 and 12, who are Tennessee residents with a 3.0 GPA. The program combines seven weeks of working in a veterinary practice near the student's home with one week of educational programming. The opportunity is funded by the Tennessee Higher Education Commission (www.vet.utk.edu/summerexperience/index.php).

Appendix B

Representative Summary of Undergraduate Programs at Schools and Colleges of Veterinary Medicine

College of Veterinary Medicine at Michigan State University

The Vetward Bound Program engages eligible students in both academic year activities and a three-tiered summer component, the Enrichment Summer Program (ESP). The academic year activity is centered around activities such as peer advising, leadership development, supplemental instruction, and mentoring. The first and second level summer programs include: basic science reviews, animal science lectures and laboratories, study strategy development, admissions counseling, clinical experiences, and cultural competency awareness. The third level, ESP III, is a pre-matriculation component for students accepted into a veterinary program or who have been wait-listed. This level includes: preparation for the professional program rigor that includes a simulated curriculum to acquaint trainees with faculty and courses; mentorship; and, once trainees actually matriculate, group and individual tutorial assistance, cultural competence development, and social support (<http://cvm.msu.edu/student-information/cvm-undergraduate-programs/enrichment-summer-program>).

Colorado State University College of Veterinary Medicine and Biomedical Sciences

The Vet Prep Program is a one-year program that serves as an academic bridge for no more than seven disadvantaged students from their undergraduate program to the DVM program at Colorado State. Students complete certain coursework while participating in weekly group mentoring sessions with the program director. If certain academic and resident requirements are met, the students are automatically admitted into the professional veterinary medical program at Colorado State University (<http://www.cvmb.colostate.edu/cvmb/vetprep.htm>).

Purdue University College of Veterinary Medicine

Access to Animal-Related Careers (A²RC) is a residential summer program targeted for second- and third-year undergraduates in pre-veterinary programs. Veterinary faculty members provide hands-on academic sessions, which include multiple clinical experiences in the teaching hospital, as well as off-campus trips designed to showcase food-animal production in Indiana. In addition, students participate in mock interviews and get an overview of the admissions process, which includes a personalized transcript review. The program is designed to nurture and enhance the students' interest in the profession as well as introduce them to the Purdue DVM experience. Students who meet certain criteria are invited to apply for early conditional admissions through the Purdue A²RC Scholars Program (www.vet.purdue.edu/diversity/initiatives.php).

Tuskegee University College of Veterinary Medicine, Nursing and Allied Health

The Summer Enrichment and Reinforcement Program (SERP) is an eight-week program to empower undergraduate and post-baccalaureate students working toward careers in veterinary medicine. The program builds communication, critical thinking, and learning strategy skills. Students are exposed to medical terminology, scientific methodology, a science lecture series, and clinical practicums. Students are assessed and receive feedback on skills essential for success in the veterinary curriculum (www.tuskegee.edu/academics/colleges/cvmnah/school_of_veterinary_medicine/health_careers_opportunity_program_hcop/summer_enrichment_and_reinforcement_program_serp.aspx).

University of California-Davis School of Veterinary Medicine

The Summer Enrichment Program is a five-week program for up to ten disadvantaged students, which provides a host of activities to bolster preparation for entry into a DVM program. These activities include rotations in the Teaching Hospital, with exposure to small and large animals, GRE practice tests, writing skills workshops, mock interviews, and weekly case presentations (www.vetmed.ucdavis.edu/students/dvm_program/admissions/pre_program_opportunities.cfm).

University of Minnesota College of Veterinary Medicine

The VetLEAD Program creates a pathway into veterinary school for high-ability students at Florida A&M University. VetLEAD applicants may receive an admissions decision at the end of the second year of undergraduate study, and the GRE requirement is waived. Successful applicants are also able to participate in summer independent study, research, and internship opportunities and receive scholarship money. VetLEAD students also benefit from having access to veterinary faculty members who serve as mentors throughout their undergraduate careers (www.cvm.umn.edu/education/prospective/vetlead/home.html).

Virginia-Maryland Regional College of Veterinary Medicine

The Multicultural Academic Opportunities Program (MAOP) is open to all Virginia Tech students who value academic success and the promotion of diversity. The program is centered on the principles of self-help, peer support, and mentoring. Participants have opportunities for summer research internships, academic guidance, and access to financial support. The Virginia-Maryland College of Veterinary Medicine provides financial support to fund research opportunities for four to six MAOP students (www.maop.vt.edu/).

Editor and Author Bios

Editors

Lisa M. Greenhill, MPA, is the associate executive director for Institutional Research and Diversity for the Association of American Veterinary Medical Colleges. Her work primarily focuses on the ongoing development and implementation of the DVM: DiVersity Matters initiative at the national and local levels as well as promoting the veterinary medical profession within communities of color. Her work includes: developing population-specific outreach, recruiting, and retention activities for K-16 students; developing retention and other programs for URMs enrolled in veterinary medical colleges; developing programs and services for faculty, staff, and administrators of veterinary medical schools and medical school graduates; developing and maintaining collaborative relationships and knowledge of diversity initiatives of other health professions; monitoring legislation that affects admissions efforts that promote diversity; and directing the Association's national research agenda. Greenhill is the recipient of the Emerging Leader Award from the National Association of Minority Medical Educators, Inc.

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Patricia M. Lowrie, MS, is the assistant to the dean in the College of Veterinary Medicine and also is the director of the Women's Resource Center at Michigan State University. In veterinary medicine, she has been successful in enhancing educational opportunities for underrepresented populations who are seeking careers in the health professions. In both roles, she develops synergistic strategies that facilitate organizational inclusiveness, particularly ones that engage women and other marginalized groups in initiatives that infuse social justice ideals more comprehensively into the institution. Nationally, she consults with various educational entities on approaches to promote inclusive leadership as a core value. She is the recipient of the MSU Diversity Award, the inaugural MSU Robert F. Banks Award for Institutional Leadership and was recognized by the Association of American Veterinary Colleges for her contributions to veterinary medical education. Recently, Lowrie completed an appointment as a senior fellow at the Association of American Colleges and Universities, which included the role of chairperson of the advisory board for Campus Women Lead.

Sandra F. Amass, DVM, PhD, DABVP, is the associate dean for Engagement and a professor of veterinary clinical sciences at Purdue University College of Veterinary Medicine. Her responsibilities include the coordination of P-12 outreach programs for the veterinary college. Amass is researching methods to diversify the veterinary profession by exciting students who are underrepresented in veterinary medicine about careers in veterinary medicine. She has formed research teams to study the perceptions that children and the public have about the profession and

the impact of P-12 publications, role models, and educational programs on these perceptions.

Author bios

Omolola Adedokun, PhD, is an assessment specialist for Purdue University's Discovery Learning Research Center (DLRC), where she coordinates and conducts research and evaluation studies to examine the impacts and effectiveness of several formal and informal education programs, including programs designed to expand the science, technology, engineering, and mathematics (STEM) pipeline. Adedokun's expertise is in quantitative and qualitative methods of educational research, program evaluation, and student assessment. Prior to joining the DLRC in 2009, Adedokun completed her postdoctoral training in life science education in the Department of Youth Development and Agricultural Education at Purdue University, where she conducted the evaluation of a youth-focused science education program. Adedokun received her doctorate in education from Purdue University. She also holds MS degrees in sociology and agricultural economics, a graduate diploma in survey research, and a BS degree in agricultural economics.

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James R. Coffman, DVM, MS, DACVIM, received his doctor of veterinary medicine degree from Kansas State University in 1962. He served in private practice, specializing in equine medicine and as a veterinary medical faculty member at Kansas State University (KSU) and the University of Missouri. He received a master's

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W. Ron DeHaven, DVM, MBA, works as chief executive officer of the American Veterinary Medical Association (AVMA), serving more than 82,500 members as they work to meet the challenges of improving both human and animal health. The AVMA, founded in 1863, is one of the oldest and largest veterinary medical organizations in the world, whose members are dedicated to advancing the science and art of veterinary medicine. Prior to joining the AVMA, DeHaven served more than two decades with the US Department of Agriculture's Animal and Plant Health Inspection Service (APHIS). As APHIS administrator, DeHaven was responsible for the protection of US agriculture and natural resources from exotic pests and diseases, administering the Animal Welfare Act, and carrying out wildlife damage management activities. DeHaven obtained his doctor of veterinary medicine degree from Purdue University in 1975 and a master's degree in business administration from Millsaps College in 1989.

Bernadette M. Dunham, DVM, PhD, was appointed director of the Food and Drug Administration's Center for Veterinary Medicine (CVM) in January 2008. In this role, she strives to foster public and animal health by regulating drugs and food additives for animals and approving safe and effective products for animals. Prior to becoming director, she was deputy director of the CVM. Dunham also served as the director of the CVM's Office of Minor Use and Minor Species. She came to the CVM as deputy director of the CVM's Office of New Animal Drug Evaluation. Prior to joining the FDA, Dunham was acting director for the American Veterinary Medical Association's Governmental Relations Division from 1995–2002 in Washington, DC. From 1989 to 1995, Dunham was the director of laboratory animal medicine and adjunct professor of pharmacology at the State University of New York Health Science Center in Syracuse, NY. She is currently an adjunct professor in the Department of Biomedical Sciences and Pathobiology at the Virginia-Maryland Regional College of Veterinary Medicine. Dunham re-

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Ronnie G. Elmore, DVM, MS, DACT, earned his veterinary degree at the University of Illinois. He was in private practice in Ohio, on the faculty of the University of Missouri - Columbia, on the faculty of Texas A&M University, and is currently on the faculty of Kansas State University. Elmore is a board-certified theriogenologist. He is active in local and national veterinary organizations and Rotary International. Elmore has always been interested in the relationship between animals and humans, and he has lectured widely on the subject of US presidents and their pets. Elmore is a prolific writer, having published more than 250 journal articles, magazine articles, abstracts, and book chapters. He wrote a weekly column for Copley News Service for more than thirty years and is a popular speaker for both veterinary and nonveterinary groups. Elmore has served as the associate dean for Academic Programs, Admissions, and Diversity at the College of Veterinary Medicine at Kansas State University for more than twenty years. He is a member of the Kansas State University Tilford Group and is a KSU Safe Zone ally.

Lorelle L. Espinosa, PhD, is a senior analyst with the Social and Economic Policy Division of Abt Associates in Bethesda, Maryland, where she examines the effectiveness of STEM higher education and training programs. She is a leading voice on the transition and advancement of underrepresented minority students in STEM education and has written widely on the national imperative of building and sustaining a diverse STEM workforce—an interest that began during her tenure in student affairs and undergraduate education at the University of California, Davis, Stanford University, and the Massachusetts Institute of Technology. Prior to Abt, Espinosa served as the director of policy and strategic initiatives for the Institute for Higher Education Policy in Washington, DC. She holds an MA and PhD in education from the University of California, Los Angeles; a BA from the University of California, Davis; and an AA from Santa Barbara City College.

Ken Gorczyca, DVM, graduated from the School of Veterinary Medicine at the University of California, Davis, in 1983. He completed an internship in small animal medicine and surgery at the University of Pennsylvania in 1984, and he then started practicing in San Francisco, CA. He is the founding veterinarian of Pets Are Wonderful Support (PAWS), a support and advocacy program to assist pet owners that have AIDS and other disabilities. Gorczyca is a founding member of the Les-

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Billy E. Hooper, DVM, MS, PhD, DACVP, is a retired veterinary educator who served in the US Marine Corps before attending Veterinary College at the University of Missouri to receive a DVM in 1961, a PhD in veterinary pathology in 1965 from Purdue University, and board certification in veterinary pathology in 1965. He served as a faculty member and administrator at five US colleges of veterinary medicine and established the Washington, DC office of the Association of American Veterinary Medical Colleges, where he served as the first executive director of the AAVMC. He served as a member of the National Board of Veterinary Medical Examiners, chaired the Steering Committee, and was a member of the Examination Procedures Committee. He also served on the AVMA Council on Education and the AVMA Committee on Veterinary Technician Education and Activities. He was a leader and contributor to significant innovations in veterinary medical education, including the development of flexible curriculums, the development of the “block system” for clinical instruction, the “problem-based” system of instruction, and the “off-campus-based” system for clinical instruction.

Clinton A. Lewis, Jr., MBA, has worked in the pharmaceutical industry and at Pfizer for over twenty years, and has held key positions of increasing responsibility in sales, training, sales management, marketing, and general management. Lewis is the president of US operations for Pfizer Animal Health. He oversees the management of the livestock and companion animal businesses in the United States and is based at Pfizer’s offices in Madison, New Jersey. As a member of the global Animal Health Leadership Team, Lewis plays a critical role in worldwide strategy, planning, and development. Additionally, Lewis serves as chairman of the board for the Animal Health Institute. He is a member of the Cornell Veterinary College Advisory Council. Lewis is a member of the Fairfield University Board of Trustees. He is a national board member and ardent supporter of INROADS, Inc., and he serves as a member of the Advisory Council for the School of Business and the MBA Program for the University of the Sciences in Philadelphia. Lewis holds a BS degree in biology from Fairfield University in Fairfield, Connecticut, and an MBA in marketing from Fairleigh Dickinson University in Hackensack, New Jersey.

James W. Lloyd, DVM, PhD, is the associate dean for Budget, Planning, and Institutional Research in the College of Veterinary Medicine as well as a full professor in the Departments of Large Animal Clinical Sciences and Agricultural, Food,

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Ralph C. Richardson, DVM, DACVIM, has been dean of the College of Veterinary Medicine at Kansas State University since August 1998. Prior to that, he served as a faculty member and head of the Department of Veterinary Clinical Sciences at Purdue University. Richardson received his DVM from Kansas State University in 1970, served as a captain in the US Army Veterinary Corps, completed clinical training programs at Purdue University and the University of Missouri, and was in private practice in Miami, Florida. He is a diplomate of the American College of Veterinary Internal Medicine (Internal Medicine, Oncology). He is a member of the American Veterinary Medical Association, the Association of American Veterinary Medical Colleges, and the Veterinary Cancer Society, among others. He has been involved in activities related to veterinary student education, workforce development for veterinary medicine and related industries, and food safety and security, public health, and comparative medicine programs.

Dorothy A. Reed, PhD, assistant dean for engagement in the Purdue University College of Education, provides leadership for the Office of Engagement and the Office of Field Experiences. She works with the associate dean for learning and engagement, the Office of Professional Preparation and Licensure, academic services, and the initiatives to enhance related engagement and diversity efforts. Reed has a courtesy faculty appointment in the College of Education. Reed received her BS degree from Tuskegee University, her MS degree from Purdue University, and her PhD in higher education administration from Michigan State University.

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Mangala Subramaniam, PhD, is an associate professor in the department of sociology at Purdue University. Her primary areas of interest are gender, social movements, and research methods. She has authored/coauthored articles in journals such as *International Sociology*, *Feminist Criminology*, *Critical Sociology*, *Mobilization*, and *Gender & Society*. Her most recent article in *International Sociology* is based in the gender and social movement scholarship to examine the effects of grassroots group characteristics and individual participation on the political/cultural empowerment of female members using hierarchical linear modeling. Her current research project focuses on the politics of dissemination of information about HIV/AIDS in India. The research examines issues of gender and sexuality as power and control, which are central to the multi-institutional contestation of discourses about disseminating information related to HIV/AIDS.

Cara E. Williams received her BS in animal sciences from the University of Illinois-Urbana/Champaign in 2007 and is on track to receive her DVM and MPH degrees from the University of Wisconsin-Madison in 2013. She conducted biomedical and nutritional research on cats while in undergraduate school. She also became interested in zoonotic disease research and international health during this time while studying abroad in Australia and Mexico. From 2007–08, she worked as a research technician at Children's Memorial Hospital in Chicago, studying human diseases in rodent models. During that time, she also worked at a small animal hospital and at the Lincoln Park Zoo. Williams entered veterinary medical school in 2008, and she studied in Ecuador during the summer of 2009 to complete a certificate in global health. In 2010, she entered the master in public health program and completed a field project outreach campaign for the use of green-

house gas digesters on dairy farms. Her career goals are to work with underserved communities to better care for their animals, to reduce zoonotic disease transmission, and to alleviate the devastating effects of human-induced climate change on animal and human health.

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