Chapter 1
The Base Map: What Is the Case for Inclusion?

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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 entryway 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?

References


