

Pet Healthcare in the US: Are There Enough Veterinarians?

James W. Lloyd, DVM, PhD
Animal Health Economics, LLC
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Background

Veterinarians are fortunate to have a wide variety of career possibilities, including 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. However, by far the majority of veterinarians choose to pursue employment in companion animal practice, which includes providing clinical care for dogs, cats, birds, and other specialty/exotic pets. At the end of 2019, it was estimated that 59.8% of all U.S. veterinarians were engaged in companion animal practice.¹ In general, this sector of the veterinary medical profession is considered to be the core of the broader U.S. pet healthcare market.

Recent studies have indicated that the number of veterinarians available for employment in the U.S. pet healthcare market has been barely adequate to meet the demand. In a 2018 national study, veterinarians collectively reported feeling so overworked that it would have taken an estimated 6,291 additional full-time equivalent (FTE) veterinarians to fully accommodate their net desire to work fewer hours, even if working less entailed decreased compensation.² In effect, this suggested the existence of an overall shortage of around 6% of U.S. veterinarians at that time. A follow-up study reported that by 2019, the same measure had decreased somewhat to an estimated 4,539 FTE (about 4.5% of U.S. veterinarians).¹ But during June of that same year, a separate study of the U.S. employment market for veterinarians reported that the number of available jobs for veterinarians exceeded the number of viable candidates by over 2,000.³ By itself, this finding represents an estimated veterinarian shortage of approximately 2%. Based on these three separate accounts, veterinarians were clearly in scarce supply during 2018 and 2019.

Admittedly, these reports are merely a collection of single point estimates related to the overall pet healthcare market conditions, and although somewhat concerning, they say little about the possible existence of any important trends. However, data presented at the 2019 AVMA Economic Summit projected an increase in spending on pet healthcare services of 33% over the next 10 years.⁴ Although this expectation for increasing demand is clearly good news overall for the veterinary medical profession, its potential impact on the availability of veterinarians warrants a closer look. It goes without saying that fundamental access to pet healthcare weighs in the balance, placing the wellbeing of pets and their owners at substantial risk. However, if the scarcity of veterinarians experienced in 2018-2019 should continue or get worse, the wellbeing of the veterinary healthcare team would also be at risk because, on average, U.S. veterinarians already reported being overworked.^{1,2}

How many additional veterinarians will it take?

In 2019, an estimated 116,091 veterinarians were actively engaged professionally in the U.S., of which 59.8% (or 69,422 veterinarians) were thought to be employed in companion animal practice.¹ If the aforementioned projection of a 33% increase in demand for pet healthcare services is accurate, **a total**

of 22,909 additional companion-animal veterinarians will be needed by 2030 to accommodate anticipated growth in the market.^a

Based on a published approximate age distribution,¹ roughly 13% (9,025) of U.S. companion animal veterinarians were over 65 years old in 2020, and another 26% (18,050) were between 56 and 65. By 2030, all of the >65 group will be >75, and it is reasonable to expect that most (if not all 9,025) will be retired. Because the 56-65 group will be 66-75 in 2030, it is also reasonable to expect that at least half (another 9,025) of these veterinarians might be retired by then. Considering both age cohorts, this means **an estimated total of 18,050 additional companion-animal veterinarians will be needed by 2030 to accommodate anticipated retirements.**

So, to meet the projected need for pet healthcare in 2030, an estimated total of 40,959 veterinarians will need to enter companion animal practice over the next 10 years (22,909 to accommodate growth in the market, plus 18,050 to cover the expected retirements).

Will there be enough new graduate veterinarians to meet the need?

The primary source of new veterinarians in the U.S. is veterinary college graduates. Considering current enrollments across AAVMC member institutions in the U.S., and adding the U.S. citizens enrolled at colleges/schools outside the U.S., an estimated 2,500 to 2,600 graduates enter companion animal practice in the country every year.⁵ At the upper end of this range, about 26,000 new graduates could reasonably be expected to have joined the national pet healthcare workforce by 2030. Unfortunately, when compared to the need for 40,959 companion animal veterinarians in 2030 as estimated above, this total suggests that **a shortage of nearly 15,000 companion-animal veterinarians could exist by 2030, representing an overall shortfall of veterinarians in pet healthcare of approximately 16%.**

This estimate does *not* consider that perhaps a shortage already exists, which would compound the problem. Consider the following:

- As mentioned, it was estimated in 2019 that over 2,000 more jobs existed for veterinarians than there were veterinarians available to fill.³
- Also recall that veterinarians in the U.S. felt sufficiently overworked in 2018 and 2019, and that it would have required an estimated 4,539 to 6,291 additional FTE veterinarians to meet the expressed desire to work fewer hours (for decreased compensation).^{1,2}
- Early indicators suggest that the demand for companion animal healthcare services expanded dramatically – well beyond expectations – during the COVID pandemic in 2020.
- In 2018, it was estimated that approximately 17% of all dogs and 46% of all cats in the U.S. didn't even see a veterinarian.⁶ Although the size of this underserved market is the subject of some debate, its ongoing existence has been recognized for years. It is not clear how much of this might be directly or indirectly related to the number of veterinarians available. However, if we aspire to provide pet healthcare to any portion of this market in the future, it will require an even a greater number of veterinarians in companion animal practice than already projected.

Without question, this situation is concerning.

What are the potential consequences?

It is estimated that the pet population in 2030 will include nearly 102 million dogs and over 82 million cats.⁷ If tradition holds, 17% of those dogs (~17 million) and 46% of the cats (~38 million) would not be

^aThis estimate is based, in part, on the assumption that service productivity per veterinarian remains the same in 2030 as it was in 2019.

expected to receive veterinary care based on historical patterns of veterinary service in the companion animal market.⁶ Conversely, 85 million dogs and 44 million cats in this scenario would be expected to seek veterinary care in 2030. In the presence of a 16% shortage of veterinarians in this sector, with all else being equal, these pets would only be able to receive 84% of the services they sought. Or – at the extreme – 16% of those dogs (nearly 14 million) and 16% of the cats (~7 million) would go without veterinary care. If this scenario comes to bear, it is possible that a total of over 75 million pets in the U.S. will not experience veterinary care in 2030 – over 20 million (~14 million dogs and ~7 million cats) due to a potential shortage of veterinarians and about 55 million (~17 million dogs and ~38 million cats) as a function of a historically underserved market.

The implications are substantial.

- **Animal welfare implications:** Pets that go without veterinary care can reasonably be expected to experience greater rates of morbidity and mortality. Further, lack of access to adequate veterinary care is known to be one of the greatest risk factors for animals to be surrendered to a shelter. **Assuring adequate access to pet healthcare will undoubtedly improve the welfare of millions of pets.**
- **Social justice implications:** Previous studies indicate that, on average, the cultural, socioeconomic, and geographic characteristics of those pet owners who are underserved with respect to veterinary care also collectively describe communities that all-too-often experience systemic marginalization in our society.⁸ **Enhancing access to veterinary care for underserved pet owners will have a disproportionate positive impact in historically disadvantaged communities, both in the near term and in the long run.**
- **Public health implications:** The critical importance of pets to the overall wellbeing of humans, both physical and mental health, is becoming more and more widely recognized. That said, zoonotic diseases – those that can be transmitted from animals to humans – are much more common in our pets than most people think. **Assuring adequate access to veterinary healthcare will markedly improve public health, and decrease healthcare costs, for millions of U.S. pet owners.**
- **Economic implications:** Total annual expenditure per pet for those who went to the veterinarian has most recently been estimated at \$308/dog and \$177/cat.⁶ Considering the direct, indirect, and induced outputs, **providing adequate access to veterinary care for pet owners could represent a multi-billion dollar positive impact on the U.S. economy annually.**
- **Wellbeing implications:** Since at least 2014, approximately 20% of U.S. veterinarians every year have expressed a desire to work fewer hours per week, even if it meant a lower level of compensation.¹ With team wellbeing and mental health already being a top concern in veterinary medicine,¹ and with one in five U.S. veterinarians already feeling overworked, the added stress of a possible shortage of the projected magnitude would have a substantial negative impact. **Assuring an adequate pet healthcare workforce will be a critical factor in improving the wellbeing of thousands of pet healthcare teams.**
- **Business implications:** Experience from the COVID pandemic provides insights on what to expect from the business perspective with a workforce shortage. From this case, anecdotal evidence suggests that longer wait times and an inability to schedule elective procedures leads to decreased client satisfaction. In addition, stress associated with a chronically overworked staff can be expected to yield higher rates of turnover and/or burnout. Consistent, high-level medical outcomes could well be threatened as a result. **Assuring there is an adequate pet healthcare workforce will help to sustain high levels of both client satisfaction and medical outcomes.**

So, what options do we have?

The first response to this situation is a logistical one: expand enrollments across AAVMC member institutions to increase the number of veterinary college graduates. Luckily, movement in this direction is already underway. Over the past five years, the total enrollment across AAVMC of all veterinary medical students at U.S. institutions plus all U.S. citizens enrolled at non-U.S. institutions has increased approximately 3% per year.^{5,9} Unfortunately, to send an additional 15,000 new graduates into companion animal practice over the next 10 years, AAVMC member institutions would need to increase their annual contribution to the pet healthcare workforce by over 50%. Realistically, an enrollment increase of this magnitude would almost certainly not be feasible, even if it was widely supported as a good idea.

Other than incremental increases for existing programs, any substantial increase in class size would take at least six years from the point of decision to the initial increase in graduates for most institutions. Planning and completion for any needed increase in facilities could take substantially longer, as would likely be the case for starting an entirely new program. Although these types of decisions clearly warrant serious consideration for the medium and long-term, meeting the projected 2030 shortfall will not likely be feasible through a singular focus on increasing the number of graduating veterinarians.

Fortunately, other good options for expanding access to care exist. First, enhancing the “practice-readiness” of veterinarians currently graduating stands to markedly improve their efficiency when they enter the workforce. In this regard, proficiency in culturally-competent, team-based healthcare delivery systems across the entire spectrum of care will be vital.

Further, approaches that consider the entire healthcare team warrant strong consideration. Research results from 2018 indicate that, on average, the positive contribution to practice productivity/revenue of one additional veterinary nurse/technician is approximately 18.3%.⁴ This suggests that, with all else being equal, having one more veterinary nurse/technician was associated with 18.3% higher revenue for an average-sized practice.^b A recent study of companion animal practices in Ontario also found that a greater number of veterinary nurses/technicians per veterinarian was associated with higher annual gross revenues per veterinarian.¹⁰ Clearly, effective expansion of capacity in the veterinary medical workforce is not limited to just growing the number of veterinarians. Increasing capacity via veterinary nurses/technicians presents another viable approach. Several factors actually make this an attractive option, such as:

- **Barriers to entry are much lower.** In most cases, admission to veterinary nurse/technician programs is possible straight out of high school, compared to DVM programs in the U.S. that generally have 2-4 years of college work as prerequisite.
- **Educational turnaround time is much quicker.** Completion of most veterinary nurse/technician programs is possible in only two years, whereas most DVM programs in the U.S. require four years to complete (after the 2-4 years of prerequisites).
- **Educational capacity is much greater.** Over 200 accredited veterinary nurse/technician programs exist in the U.S. compared to just 33 DVM programs.
- **Beyond increasing numbers, widespread opportunity exists for improved utilization of the existing veterinary nurse/technician workforce.** By some estimates, veterinary practices on average use only about 30% of the skills and competencies for which credentialed veterinary nurses/technicians have been educated.¹¹

Increasing capacity via veterinary nurses/technicians holds enormous potential.

^b The size of the average practice in this study was 2.4 FTE DVMs.^{1,4}

Beyond increasing /enhancing the workforce, alternative approaches to expanding access to care also exist. It has long been recognized that a greater emphasis on preventive healthcare can greatly enhance the efficiency of veterinary practice while also, on the average, improving patient outcomes and decreasing overall cost of care. Through increasing efficiencies in this manner, greater emphasis on health maintenance (or wellness) plans would be expected to effectively enable a greater number of pets to access veterinary care. Further, considering the ongoing emergence of new technologies, telehealth/telemedicine offers a mode of improved access not even imagined up until a few years ago. Finally, innovative practice models are starting to appear involving creative partnerships, unique service portfolios, novel locations, atypical modes of delivery, and/or non-traditional hours of operation that all stand to extend the reach of veterinarians.

Are there potential limitations of this analysis?

Of course, the foregoing analysis and associated recommendations are founded on a number of key assumptions. Several of these warrant special consideration.

- Only a single estimate of the projected growth in demand for veterinary services was used.⁴ Even though the particular source of data (AVMA) has been traditionally robust, other factors to consider might include:
 - Projections from the Bureau of Labor Statistics include an expectation for growth in employment of veterinarians to increase by a more conservative 16% between 2019 and 2029.¹² If actual growth falls in this neighborhood, the same calculations performed above still predict about a 4% overall shortage of companion animal veterinarians by 2030. To avert this shortfall solely through expanded DVM training capacity, AAVMC member institutions would need to increase their annual contribution to the pet healthcare workforce by over 12%. Though this number is obviously much smaller than the previous projection, it is still an outcome that would hardly be feasible for the reasons discussed above.
 - The single estimate of projected growth was determined prior to the COVID pandemic. As mentioned, anecdotal reports indicate that the demand for companion animal healthcare services expanded dramatically (well beyond expectations) during this period in 2020. If that remarkable increase in demand continues into the future, the single estimate used for projected growth in demand might actually be too low, which would make the shortage situation in 2030 even worse.
- As noted in footnote “a”, the above analysis assumes that service productivity per veterinarian remains the same in 2030 as it was in 2019. It would be reasonable to expect that service productivity per veterinarian might well increase over a 10-year period, which could be expected to partially alleviate any anticipated shortage in the veterinarian workforce. However, increases in service efficiency also frequently lead to increases in service demand (i.e., “...since you *can* do more, I’d like to *have* you do more...”). Therefore, the net potential effect on the projected shortage is somewhat unclear.
- The recommendation to increase capacity via veterinary nurses/technicians inherently assumes that:
 1. Existing veterinary nurses/technicians can be more fully employed, and
 2. More veterinary nurses/technicians are available for hire.The first of these assumptions is almost certainly true.¹¹ However, there currently is a substantial overall shortage of veterinary nurses/technicians as well (not yet quantified). So, to be truly effective, training capacity for these professionals will need to be expanded as well.
- Most of the above pet healthcare calculations are based on analysis of the companion animal-only practice sector, without consideration of those veterinarians in mixed animal practices who

also provide pet healthcare services. However, including these practices and veterinarians in the analysis would both proportionately increase the projected need and the numbers of new graduates entering the pet healthcare market, so the net effect on the analysis would be minimal.

- The analysis has a sole focus on companion animal practice without considering potential workforce trends across the wide variety of career possibilities available for veterinarians. Although it is beyond the scope of this study, demand for services is expected to grow across other career pathways as well.^{1,4}
- Finally, and perhaps most importantly, the analysis tends to imply that increased worker numbers and/or improved training can be sufficient to adequately strengthen the pet healthcare workforce. However, it is a well-known fact that veterinary medicine is one of the least diverse professions, including consideration of both veterinarians and veterinary technicians.¹³ To be truly effective going forward, the pet healthcare workforce must enhance diversity to become more representative of the society it serves.

So, what comes next?

Potential limitations of the analysis notwithstanding, the projected workforce shortage presents a substantial challenge.

At a minimum, it will be vital to continue the ongoing expansion of DVM student enrollments across AAVMC. Because increases in capacity more than incremental change can take years, institutions that are so inclined should plan accordingly. However, increased DVM student enrollments won't likely be enough.

To effectively meet the growing need for pet healthcare in the U.S. – to provide U.S. pet owners with adequate access to companion animal veterinary services – it will be critical to also adopt an intense focus on the healthcare team. First and foremost, more complete development of the roles and contributions of veterinary nurses/technicians will be essential. Rigorous exploration of issues such as core competencies, job responsibilities, educational models, compensation, credentialing, and career pathways/longevity demand immediate attention. In turn, successful team-based healthcare delivery systems need to be identified, created, modeled, and progressively implemented. Not only will access to care be expanded and improved as a result, but patient outcomes, client satisfaction, and the overall career satisfaction, wellbeing, and productivity of the veterinary medical team will be enhanced.

Beyond the healthcare team focus, expansion of preventive healthcare programs, telehealth/telemedicine, and innovative practice models will also be crucial. The broad scope of benefits accruing to improved access to care will not be limited to pet health and wellbeing, but will also include substantial public health and economic benefits, often in traditionally underserved communities.

The time to start is now.

References

1. Bain B, Hansen C, Ouedraogo F, Radich R, Salois M. 2020 Economic State of the Veterinary Profession. Veterinary Economics Division, American Veterinary Medical Association, Schaumburg, IL, August 2020, 59 pp.
2. Bain B, Hansen C, Ouedraogo F, Salois M. 2019 Economic State of the Veterinary Profession. Veterinary Economics Division, American Veterinary Medical Association, Schaumburg, IL, August 2019, 68 pp.
3. Lloyd JW. Characterizing the current US employment market for veterinarians – June 2019. Animal Policy Group, Scottsdale, AZ, July 2019, 9 pp.
4. Ouedraogo F. Veterinary Practice Economics and Contribution Analysis, AVMA Economic Summit 2019, Schaumburg, IL, October 22, 2019.
5. 2020-2021 Comparative Data Report (CDR). Association of American Veterinary Medical Colleges (AAVMC), Internal Document, Washington, DC, 2020.
6. AVMA Pet Ownership and Demographics Sourcebook, 2017-2018 Edition. Veterinary Economics Division, American Veterinary Medical Association, Schaumburg, IL, 2018, 253 pp.
7. Salois, M. U.S. Dog & Cat Population Projections. Veterinary Economics Division, American Veterinary Medical Association, Schaumburg, IL, 2020.
8. Wolf CA, Lloyd JW, Black JR. An examination of US consumer pet-related and veterinary service expenditures, 1980-2005, J Am Vet Med Assoc, 233(3):404-413, 2008.
9. 2015-2016 Comparative Data Report (CDR). Association of American Veterinary Medical Colleges (AAVMC), Internal Document, Washington, DC, 2016.
10. Exploring the value that Registered Veterinary Technicians bring to Ontario companion animal practices. Acer Consulting for Ontario Association of Veterinary Technicians, Guelph, ON, 2019, 37 pp.
11. Lloyd, J.W. High Value Veterinary Technician Initiative: 2-yr vs. 4-yr Education Project Report. Veterinary Innovation Council, February 2020, Orlando, 13 pp.
12. Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, Veterinarians, at <https://www.bls.gov/ooh/healthcare/veterinarians.htm> (visited April 14, 2021).
13. Bureau of Labor Statistics, Current Population Survey 2020, Annual Averages, Employed persons by detailed occupation, sex, race, and Hispanic or Latino ethnicity, at <https://www.bls.gov/cps/cpsaat11.htm>, accessed April 14, 2021.

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