Testimony of
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University of Pennsylvania's School of Veterinary Medicine
before a joint hearing of the
House Appropriations Committee Subcommittee on Education and the House Education Committee Subcommittee on Higher Education

Monday, October 4, 2021

Chairwoman Mihalek, Chairman Kinsey, Chairman Topper and Chairwoman Madden, thank you for the opportunity to appear before you today. Higher education funding, tuition inflation, and student loan debt are important and timely issues. Your decisions as policymakers on these matters will have significant implications for hundreds of thousands of students across the state.

Pennsylvania has maintained a partnership with the University of Pennsylvania School of Veterinary Medicine (Penn Vet) since 1889—only four years after the school was founded. Historically, this support has served as a means of subsidizing the cost of attendance for Pennsylvania students and the cost of providing care to animals. In the years since, the range of animal health challenges facing Pennsylvania has grown considerably, and Penn Vet has risen to meet those challenges. Today, our expanded role is built on four pillars: education, clinical services, diagnostic testing and animal disease surveillance, and groundbreaking research.

Without the state's support, Penn Vet would not exist in the form it does today. It would not be able to discount tuition for in-state students, nor would it be able to provide its breadth of services to residents and industry, most notably agriculture, which as you know is regarded as Pennsylvania's largest industry. The state's appropriation is among the largest sources of revenue in Penn Vet's budget, and the school has demonstrated a tremendous ability to leverage those dollars to attract funds from other sources.

We appreciate the opportunity to appear before you today in order to explain how, in accordance with our annual non-preferred legislation, Penn Vet utilizes the state's appropriation to make the dream of becoming a veterinarian more attainable financially for Pennsylvania's students and provide services to the Commonwealth in response to its animal health policy priorities.

Workforce Development: Training Much Needed Veterinarians

Penn Vet has made great strides in recent years to elevate its stature as one of the nation's leading veterinary schools, now ranking 4th in the U.S. As Pennsylvania's only veterinary school, Penn Vet is the primary provider of veterinarians in Pennsylvania. An estimated two-thirds of all veterinarians in the Commonwealth are Penn Vet graduates, and the school's 2,000-plus alumni who reside here can be found practicing in each of the state's 67 counties.

Vet School Envy: Other States Want What We Already Have

Having a veterinary school within its borders is a competitive advantage for Pennsylvania. Other states realize this. In the past five years, four new veterinary schools have been accredited in the

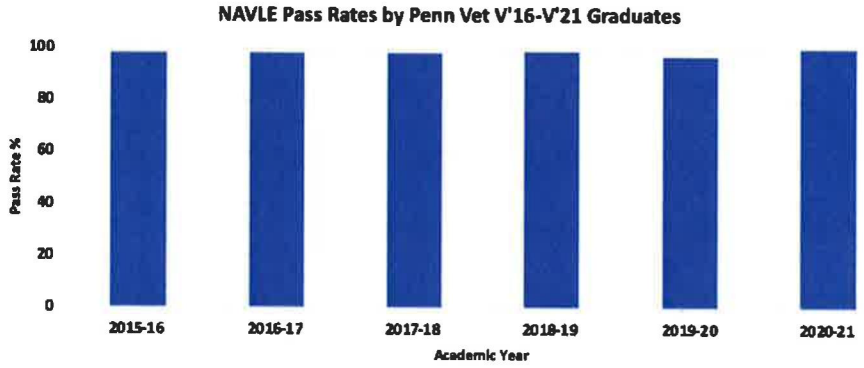
U.S. with a fifth school at Texas Tech having just opened its doors to students in the Fall 2021 term. Other states in which these schools are located are spending millions of dollars to create what Pennsylvania is fortunate to have already.

States are subsidizing new veterinary schools because they realize such institutions offer a means of retaining talent to address the nationwide veterinary shortage—particularly large-animal practitioners, but also increasingly those specializing in small animals. In Pennsylvania, the Department of Agriculture estimated 1,500 veterinary positions would need to be filled between 2016 and 2025.

Penn Vet plays a critical role in filling those vacancies. In any given class year, approximately 36 percent to 40 percent of students are from Pennsylvania. Even though Penn Vet gives Pennsylvania-resident applicants preferential admissions treatment, the majority of students come to the school from out of state. That said, after four years of training, approximately 72 percent of Penn Vet graduates elect to stay and practice in Pennsylvania. In this way, Penn Vet is a net importer of talent to the Commonwealth, and thus a major workforce development asset.

Finally, we note that veterinary graduates are highly in demand. Based on a 2021 survey by the American Veterinary Medical Association, 36.5 percent of the Class of 2021 received at least two job offers following graduation. Our graduates performed better, with 43.1 percent of Penn Vet grads receiving multiple job offers—a reflection of the rigor and quality of our training. Another indicator of that quality is the performance of our students on the North American Veterinary Licensing Examination (NAVLE). Members of our two most recent graduating classes—the Class of 2020 and Class of 2021—achieved 97 percent and 100 percent pass rates, respectively, on the NAVLE—exceeding national averages. The performance of our students on the NAVLE since 2016 is illustrated below in Chart 1.

Chart 1.



Making a Veterinary Degree Financially Attainable

Ensuring a veterinary degree is affordable has been a major challenge for veterinary schools across the country for years. The Commonwealth's support is crucial for maintaining affordability, which affects the school's ability to recruit students—especially our homegrown talent.

Penn Vet has employed a multi-pronged strategy to limit tuition inflation and bring down student debt. The state's appropriation enables Penn Vet to provide a $10,000 tuition subsidy annually to Pennsylvania-resident students, which amounts to a $40,000 discount over a four-year course of study. In FY 20-21, 184 students received this benefit. Second, Penn Vet increased its financial aid to students from outside sources by 37 percent since 2017 to $3.8 million in 2021. At the same time, the school has controlled tuition inflation more aggressively, reducing year-over-year growth from 3.9 percent in 2017 to 2.5 percent in 2021. These factors have enabled us to reduce student indebtedness 19 percent since the 2017-2018 academic year, according to data from the American Association of Veterinary Medical Colleges.

Prior to the pandemic, we had targeted a more sustainable growth rate of 1.5 percent to 2 percent this year and beyond, but the added costs of our response to COVID-19 coupled with two years of level state funding has stalled those efforts. Chart 2 illustrates the growth in student aid by source as compared to the year-over-year rate of tuition inflation, while Table 1 illustrates the total tuition charges for in-state and out-of-state students since FY 16-17.

Chart 2.

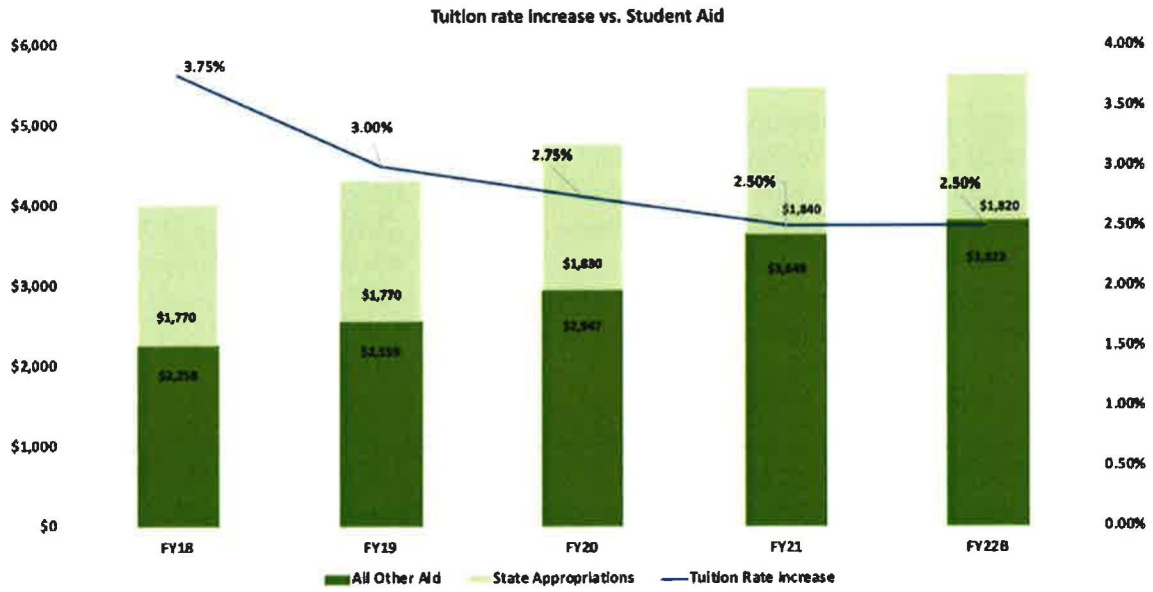


Table 1.

Billed Tuition for Core Students			
	Total Billed In-State	Total Billed Out-of-State	Tuition Rate Increase
FY17	$ 45,792	$ 55,792	3.90%
FY18	$ 47,976	$ 57,976	3.75%
FY19	$ 49,828	$ 59,828	3.00%
FY20	$ 51,550	$ 61,550	2.75%
FY21	$ 53,146	$ 63,146	2.50%
FY22 (budgeted)	$ 54,740	$ 64,740	2.50%

Student financial aid is critical to making a veterinary medical degree more affordable. According to the 2019-2020 data from the American Association of Veterinary Medical Colleges, the median educational indebtedness of the Class of 2019 was $156,326. The American Veterinary Medical Association reports the average compensation nationally for the class reached $70,045, which is approximately 6 percent higher than 2018. While many of our students who secure employment following graduation report starting salaries in the low-$90,000s, veterinarians' compensation still remains generally below that of their counterparts in human medicine.

Enabling Services to Pennsylvania and Pennsylvanians

The Commonwealth's appropriation enables Penn Vet to provide services to Pennsylvania residents and industry through diagnostic testing and animal disease surveillance services, as well as clinical care. Last year, our Widener Hospital at New Bolton Center treated 6,556 animals—a nearly 25 percent increase from FY 19-20—with Field Service veterinarians and clinical students seeing another 18,496 animals on farms throughout the region. Students engaged in their large-animal rotation earned approximately 7,100 hours of important hands-on training through this work, a requirement for credentialing upon graduation.

Apart from the non-preferred appropriation, state funding supports diagnostic testing capabilities, which are essential to warding off the ever-present threat of potentially devastating animal diseases disrupting the region's food supply and decimating our agricultural and wildlife sectors. The state's Pennsylvania Animal Diagnostic Laboratory System (PADLS) facility at New Bolton Center received 189,567 specimens in FY 20-21, of which 82,924 were tested for avian influenza—an ever-present concern as demonstrated by the April 2020 discovery of a highly pathogenic strain in a South Carolina commercial turkey flock.

The state's appropriation also enables us to operate regional poultry and swine disease control databases to safeguard against disease outbreaks. These geographic-information-system-based databases are among the largest initiatives of their kind in the country, monitoring 727 swine and 1,946 poultry farms, with more than 1.6 million pigs and more than 106 million birds, respectively. Officials and industry leaders rely on these systems to keep tabs on diseases and plan strategically for how to avoid disruptions to operational continuity and food supplies.

The prospect of a high-consequence disease like African Swine Fever (ASF) being discovered here underscores the necessity of Pennsylvania's investments. Already pervasive across southeast Asia and Europe, the first case of ASF in the western hemisphere was discovered in August in the Dominican Republic, prompting swift action by federal officials to contain the disease and heightened concerns among U.S. pork producers. Preventing the introduction of ASF in Pennsylvania is critically important as the state's pork industry accounts for $330 million in annual sales and supports more than 8,000 jobs.

Pioneering Translational Research to Benefit Animals and Humans

Pennsylvania's support of Penn Vet's robust diagnostic and disease surveillance network inures to the benefit of Penn Vet's entire research enterprise and the Commonwealth's position as a

global leader in biomedicine. In fact, Penn Vet offers one of the most extensive research programs of any veterinary school in the world.

Traditionally, much of our research has focused on enhancing animal health and productivity to advance agriculture in Pennsylvania. More recently, our faculty have pursued more holistic work to improve the long-term sustainability of agriculture. The school is engaged in a dynamic project that will create a model farm of the future, which will convert the research of scholars from across the University of Pennsylvania into practice, making farms more sustainable financially and environmentally. Through separate collaborative research with Penn State, Penn Vet faculty are reducing dairy cows' methane emissions by 30 percent while maintaining or improving milk and meat production. Additionally, the school's faculty are investigating the regenerative agro-food system benefits of livestock consuming wasted biomass.

Over the past few years, Penn Vet's growing relationship with the Commonwealth, most notably the Pennsylvania Game Commission via the Wildlife Futures Program, has prompted us to pursue innovative research projects that are addressing relatively new and emerging threats. In December 2019, the Penn Vet Working Dog Center undertook a first-of-its kind research project with the federal and state departments of Agriculture to see if dogs can detect the scent of Spotted Lanternfly egg masses. After establishing proof of concept, Penn Vet launched a broader training program, which included Lucky, a German Shepherd that has been working alongside the state Department of Agriculture's Bureau of Plant Industry staff since October 2020.

Additionally, working through the Wildlife Futures Program, the Center is researching whether dogs can detect the scent of Chronic Wasting Disease prion proteins in While-tailed deer feces. Often sick animals remain asymptomatic, or show very few clinical signs until a late stage in the disease. If dogs can detect a scent, it could yield a promising environmental surveillance tool.

Multiplying the Impact of PA's Investment

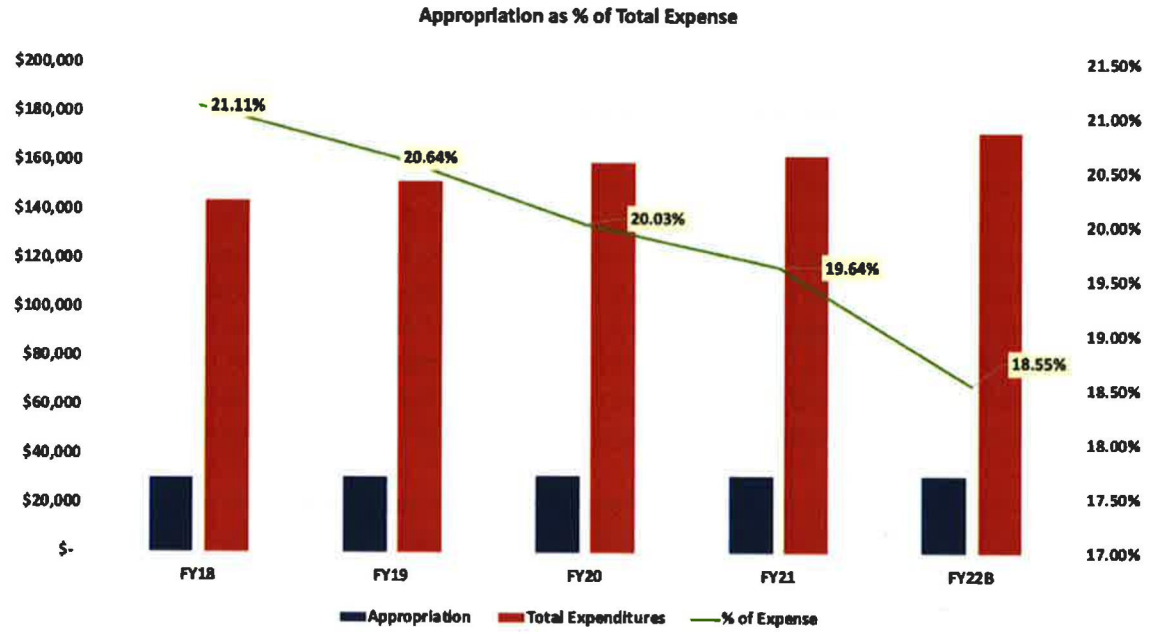
The state's funding directly and indirectly makes these innovative projects possible, supporting the core research infrastructure used in these studies. The caliber of our research is evidenced by the school's standing as the nation's largest recipient of National Institutes of Health funding per faculty member. Penn Vet secured a total of $45.4 million in FY 20-21 sponsored research awards.

This leadership position demonstrates our ability to leverage Pennsylvania's core investment to attract outside capital. Comparing the school's total revenues against the state's FY 20-21 appropriation, Penn Vet generated approximately $4.54 for every dollar invested by the state.

We have worked hard to secure outside funding in order to grow our programs that ultimately serve the Commonwealth. Over the past five years, our total expenses have increased $28.2 million, or 19.5 percent. Consequently, as shown Chart 3, state funding as a share of Penn Vet's total budget has declined from 21.1 percent in FY 17-18 to 18.5 percent this year. For historical context, prior to the Great Recession, Penn Vet's non-preferred appropriation of $42.6 million in FY 07-08 represented 33 percent of its then-$129.2 million budget.

To underscore this point further, historically, the Commonwealth's appropriation was the largest source of revenue to the veterinary school. That has changed in recent years as we have worked to be more entrepreneurial in our business operations and aggressive in seeking outside funding for sponsored research programs. As a result, today, clinical revenues and sponsored research account for 30 percent (nearly $52.6 million) and 26 percent ($45.4 million), respectively, making those two categories our greatest sources of revenue this fiscal year.

Chart 3.



Reimagining Veterinary Education; Redefining the Profession

When the SARS-CoV-2 virus reached Pennsylvania in March 2020, we had to adapt our modes of education quickly in order to protect students. Faculty and instructors transitioned their lessons to the online world, and clinical-year students transitioned from in-hospital rotations to Penn Vet's Cyber Clinic. The switch to virtual content delivery and training enabled us to pilot new teaching modalities envisioned as part of our ongoing curriculum redesign.

Reimagining Penn Vet's curriculum is just one way in which the School is transforming veterinary education. Last year, Penn Vet expanded its catalog of dual degree programs, adding a VMD-Master of Social Work with Penn's School of Social Policy and Practice, as well as a VMD-Master of Environmental Studies with the University's School of Arts and Sciences. For years, the school has offered dual degree programs in business with the Wharton School; public health with the Perelman School of Medicine; and a dual VMD-PhD program, which was the first of its kind in the U.S., for budding practitioner scholars.

The new dual degree programs are believed to be the first of their kind in the world. Cross-training students in human health services and environmental sciences offers veterinarians opportunities to engage in interdisciplinary problem solving at the intersection of human health,

environmental health, and animal health and welfare. Penn Vet deems this approach "One Health in Practice."

Penn Vet is further building on this approach by training veterinarians to become active contributors to human healthcare and mental wellbeing. An extensive body of data demonstrates that while dwindling access to health and social services in rural areas is a growing problem, veterinary practices in those areas thrive. This presents an exceptional opportunity to leverage accessible medical professionals in underserved rural areas.

At the same time, training veterinary professionals in these disciplines provides an avenue to support other veterinarians facing mental health challenges. A 2020 Merck Animal Health report found that 52 percent of surveyed veterinarians would not recommend a veterinary career to others because of stress, burnout, student loan debt, and suicide. Left unaddressed, these pressures could deter prospective veterinarians from entering the field, threatening the viability of industries that rely on their services and exacerbating the already growing veterinary shortage.

Chairwoman Mihalek, Chairman Kinsey, Chairman Topper and Chairwoman Madden, thank you for your time and attention to these important matters. We believe the 132-year partnership between Penn Vet and Pennsylvania has been mutually beneficial, and with the state's ongoing support, we are well positioned to create a healthier world for all Pennsylvanians, while enhancing the economic and environmental sustainability of critically important industries.