Veterinarians play vital roles in rural communities because they work at the interface of human, animal, and environmental health. For example, veterinarians promote the health and well-being of domestic animals; help prevent the spread of disease between wildlife and domestic animals; and often times they are the most knowledgeable public health officials in communities regarding infectious zoonotic diseases, which are transmissible between animals and people. Veterinarians receive a broad-based and comprehensive education that, when coupled with real world experiences, uniquely positions them to contribute meaningfully to and positively impact the lives of both animals and people.

Appalachian Ohio is an economically depressed 29-county region in the eastern part of the state extending from east-central to southern Ohio. Several rural counties and communities in this region of Ohio have limited access to routine or emergency veterinary care and are thus underserved by veterinarians. Animals and animal-related agriculture are vital to the economic stability of rural communities. Thus, veterinary services are immensely important and eminently needed to provide much needed services and support farmers’ livelihoods and improve productivity and economic profitability of these enterprises. This region of Ohio has numerous farms, many of which have livestock and/or poultry. However, these farms are characterized by fewer animals of mixed species. This type of agricultural production system is counter to the shift toward large-scale farms with greater numbers of animals of the same species. Animals are more dispersed and thus veterinary medical services are more difficult to provide.

The lack of a dedicated veterinary presence can be detrimental to a community. Veterinarians are a valuable resource not only for issues related to domestic animals but also for public health concerns, wildlife conservation, and maintenance of ecosystems. Shortages of veterinarians in rural Ohio and America are due to several factors, including shifting animal populations and demands for veterinary services, decreasing numbers of veterinary school applicants with rural backgrounds, increasing educational debt, limited career opportunities for spouses in rural communities, and the rigors of the activities associated with large animal practice. This is especially true if the veterinarian is the sole practitioner in the area.

Veterinary colleges and state and federal governments have taken action in response to the anticipated shortage in veterinarians to serve rural areas by recruiting and encouraging veterinarians to pursue careers in rural veterinary practice via scholarship and tuition reimbursement programs. These actions have begun to have an impact on the recruitment of veterinarians into rural communities but retention of veterinarians in these areas remains a challenge that must be addressed for long-term success. Long-term sustainability in a rural community is dependent upon a veterinarian’s ability to generate sufficient income to provide quality veterinary care, service student debt load, and support a family. Recruitment and retention of veterinarians in rural communities, such as in Appalachian Ohio, will require the development of a sustainable business and practice model that addresses the salary, debt reduction and quality of life issues. The traditional practice model no longer appears to be sustainable in these settings.

In the summer of 2010, the Ohio State College of Veterinary Medicine was approached by livestock producers in southeast Ohio seeking improved, expanded veterinary care in their region of the state. The ensuing meeting generated broader discussions among other producers, veterinarians, businesses and community and civic leaders in Appalachian Ohio.

What resulted was a simple, but monumental, request by the producers: Would the Ohio State College of Veterinary Medicine consider establishing a satellite rural veterinary practice and clinic in the Appalachian region of Ohio to serve these underserved communities and citizens?

In 2010, the Ohio State College of Veterinary Medicine began to explore the feasibility and logistics of establishing a rural veterinary practice in Appalachian Ohio. The potential benefit to the veterinary profession of a successful rural practice includes serving as a model for rural veterinary practice in other rural communities in Ohio and across the United States. The College proposes to perform an inclusive and in-depth assessment of veterinary business options to determine the feasibility of establishing such a practice model. We will engage a diverse group of constituents and partners, including producers and animal owners; area veterinarians; business, civic and community leaders; local, state and federal legislators; governmental agencies; foundations; associations; and other appropriate individuals and organizations.

Establishment of a sustainable rural veterinary practice in Appalachian Ohio will require external financial assistance in the form of start-up capital and fixed-asset costs, and will likely require some level of ongoing funding. Further study and exploration are necessary to determine the resource needs for such a model practice.
Background and Need

Important Role and Responsibilities of Veterinarians in Society and Communities

Veterinarians play a vital role in the social structure of communities, especially in rural America where they provide valuable services to both community members and food production systems. Veterinarians view health through the lens of public health, the branch of veterinary medicine that deals with people and animals as populations rather than individuals; thus they work at the interfaces of human, animal and environmental health. These interfaces are constantly changing due to a number of factors including alterations in land use: climate and environmental changes; interactions between domestic livestock and wildlife; creation and operation of large terrestrial and marine food production systems; microbial and chemical pollution of land and water sources; the development of antimicrobial resistant bacterial pathogens; and emerging infectious zoonotic diseases. Over the last three decades, 75% of human infectious diseases have originated from or through animals. Veterinarians are uniquely positioned with their broad-based and comprehensive education and experience to understand these and other issues facing rural communities, and to contribute ideas to solutions to address these complex challenges. Today, veterinarians are very much part of a community health team and work closely with other health professionals.

Veterinarians contribute to communities in many ways. Veterinarians promote the health and well-being of animals through preventive wellness care and treatment of ill and injured animals. Veterinarians work to improve food animal production systems ensuring a safe food supply, facilitating livestock biosecurity, safeguarding from foreign animal diseases, and serving vital roles in community-based emergency and disaster preparedness. The safety of our food supply begins on our farms and healthy animals produce healthy food. Frequently, veterinarians become leaders, mentors and role models in the community serving as members of school boards and as local public health officials. The loss or absence of veterinarians and veterinary practices, especially in rural areas, has significant and detrimental impact upon the community as a whole.

Shortage of Rural Practice Veterinarians

A landmark study was conducted in 2006 by The Food Supply Veterinary Medicine Coalition. The study forecast that the demand for veterinarians in food supply medicine would outpace the supply of graduates to fill those jobs through 2016. Food supply veterinary medicine is a major component of most rural practices but the two terms are not synonymous. Most rural communities across Ohio and the United States have diverse needs with respect to veterinarians. Veterinarians provide services to small family farms or large producers with a variety of livestock, but they also care for llamas and alpacas, horses and household companion animals such as dogs and cats. Veterinarians in rural practice settings serve as general practitioners, which like in human medicine (family medicine physicians) is counter to the trend for increased numbers pursuing careers in various specialties. This among other factors contributes to the deficiency of veterinarians and services in many rural communities across the state and country.

The percentage of new veterinary graduates pursuing careers in rural communities appears to be diminishing. The American Veterinary Medical Associations (AVMA) estimates that there are approximately 500 counties in the United States with significant populations of food animals without a resident veterinarian. Potential factors contributing to this trend include the rigors of large animal practice, shifting animal populations and demands for veterinary services, decreased number of current veterinary students who have rural backgrounds, lack of social and cultural opportunities in rural communities, lack of suitable career opportunities for spouses of veterinarians in rural communities, increasing veterinary student educational debt, starting salaries for veterinarians in rural communities, lack of mentorship and support of new graduates, and concern about work-life balance and quality of life.

The long-term sustainability of a veterinarian in a location is dependent upon his or her ability to generate an income sufficient to maintain the equipment and facilities required to provide quality veterinary care while paying back student loans, establishing a residence, and providing the quality of life they want for themselves and their families. The average debt load for a veterinary graduate in 2009 increased to approximately $130,000 with about one-third of graduates having a debt of more than $150,000. Starting salaries have failed to keep pace with the increased tuition and debt load; the starting salary of new graduates in 2009 was $64,826 regardless of the career area they chose. The imbalance between debt load and starting salaries leads new graduates to pursue career opportunities that enable them to repay their student educational debt while covering their cost of living, which often steers them away from rural practice even if they have such a career interest.

Clearly, the current economic model of rural practice is not sustainable in many locations in the United States. No matter the causes of this failure, the absence of a veterinarian deprives communities of much needed services and reduces the prospects for growth. A viable and sustainable business and practice model must therefore be developed to recruit and retain veterinarians in these currently underserved areas.
Actions to Address the Rural Veterinary Shortage

Veterinary colleges and state and federal governments have taken a number of actions in response to the perceived and anticipated shortage of veterinarians in rural areas. Some colleges have altered their admissions programs, reserving positions for food animal oriented students or starting “early-admissions” programs for students with demonstrated interest. Other colleges have expanded scholarships for students with a demonstrated career interest in this area.

Loan repayment programs have been enacted by states and the federal government, including the Veterinary Medicine Loan Repayment Program (VMLRP) through the United States Department of Agriculture (USDA). This program provides up to $25,000 annually for each veterinarian selected to practice in a designated shortage area. These areas are determined by factors such as geographic area and the need for specific types of practice. In November 2010, the USDA’s National Institute of Food and Agriculture (NIFA) announced it will offer 62 rural veterinarian awards to repay their veterinary school loans in return for their services in areas lacking veterinary services. Recipients are required to commit three years to this rural practice and loan repayments are limited to the principal and interest on government and commercial loans received for the attendance at an American Veterinary Medical Association (AVMA)-accredited college of veterinary medicine. Loan repayments made by the VMLRP are taxable income to participants but a federal tax payment equal to 39 percent of the loan payment is made directly to the awardees’ IRS tax account to offset the increase in income tax liability. While this is a helpful program, it lacks the scale and scope to attract and retain veterinarians in rural communities across the United States.

At least 19 states have enacted legislation or created programs to give financial incentives to veterinarians who work in food animal practice. There are also financial incentive programs provided by non-governmental agencies or associations, including the Food Animal Veterinarian Recruitment and Retention Pilot Program organized by the AVMA and the American Veterinary Medical Foundation and sponsored by several veterinary pharmaceutical companies. There were five recipients announced in October 2010 each receiving a $100,000 incentive distributed over four years of service in areas of need.

Although these financial incentives may help to recruit veterinarians into these underserved areas, unless a sustainable business and practice model is developed, it is uncertain whether these recipients will stay in these areas once their term of service is completed. The long-term success of these programs is dependent upon development and implementation of a sustainable practice and business model. It is our belief that these incentives will not lead to a long-term sustainable situation to ensure retention of veterinary services in these areas, and thus a different, and perhaps complimentary, approach will be necessary.

Agriculture and Rural Ohio

Rural communities are vital to Ohio’s economy and way of life but these communities face challenges regarding economic development, agriculture, education, health and more. Ohio’s rural communities can thrive and help solve pressing national problems such as providing a safe and healthy food supply; producing renewable energy to move us toward energy independence; and helping address global warming, environmental pollution and loss of biodiversity; among others. Furthermore, improved animal health services should lead to improved income for producers and could eventually lead to increased numbers of animals in these areas. If these occur, economic security of this region may improve gradually.

Ohio’s number one industry is the $107 billion agricultural industry. Ohio has 75,000 farms and 45,000 of these have some type and level of animal production system. More than one in seven Ohioans are employed in an agricultural related business. Ohio is a world leader in producing milk, cheese and eggs. Nationally, Ohio ranks 1st in swiss cheese production, 2nd in egg production, 5th in dairy manufacturing plants, 7th in number of chickens sold, 9th in hog production and cheese production, and 11th in milk production. Ohio is also a leader in terms of crop production and between 40-50% of grain production is used for animal feed. Thus, a healthy and growing animal agricultural system is a critical market for plant/crop agriculture.

So that all Ohioans can be confident of a safe and wholesome food supply, veterinarians play key roles in assuring food safety and protecting and caring for food animals on farms throughout the state. This includes promoting the health and well-being of food animals, testing and monitoring animals to make sure they are healthy and safe to enter the food chain, and continues through manufacturing and processing where state inspectors oversee cleanliness and sample products, and finally verification of safety through stringent, scientific testing in state labs to make sure animal-derived food products are safe to eat. Food safety begins on the farm (pre-harvest) and healthy animals with good disease prevention practices result in reduced risk of food-borne illnesses in people and a safer food supply chain.
Important Role and Impact of Veterinarians in Ohio

Nearly 8 million people in Ohio start the day by interacting with animals. Ohioans share their homes with 3.6 million cats, 3.2 million dogs and nearly one-half million birds. There are approximately 2.6 million “food animals”, primarily cattle and hogs, residing on 45,000 farms along with more than 30 million chickens and turkeys. Additionally there are more than 320,000 horses and thousands of goats, sheep, llamas, alpacas and other, more exotic creatures that dwell among us across Ohio. Animals are vitally important to the lives of Ohio’s citizens.

Animals enrich our lives and improve our health. They depend on us and we are dependent upon them. We depend on dogs and other animals for companionship as well as service in the form of police protection, visual assistance, and numerous other activities. Pets have become an integral and vitally important component of the family structure. Interaction with pets provides mental and physical health benefits. Owners and caretakers of animals expect the same sophisticated medical care for their pets that they receive for other family members, and they deserve access to veterinary medical care for their pets and animals. We depend on livestock and poultry for food and nourishment, and they depend upon veterinarians to ensure their health and well-being.

The responsibility for the health and safety of all of these animals rests with Ohio’s veterinarians. Nearly 3,500 veterinarians work in the state and 85% of these are graduates of The Ohio State University College of Veterinary Medicine. Of these veterinarians, at least 65% are engaged in private practice where they are responsible for the health and well-being of companion animals, food animals, horses, exotics and wildlife.

Veterinary practitioners, as small business owners, contributed $1.1 billion to Ohio’s economy in 2008 and are responsible for many jobs. When other related segments are included, veterinary medicine provided nearly $2 billion to the state’s economy. Ohio has approximately 1,100 private veterinary practices and clinics, which represent key businesses employing more than 12,000 personnel and service communities across the state. The impact of veterinary medicine on jobs in Ohio extends beyond those employed as veterinarians. More than 59,000 Ohioans work in 14 separate economic sectors related to veterinary medicine, from animal food manufacturing to zoos and racetracks; from pet supply stores to veterinarians’ offices; from medical equipment and supply manufacturers and wholesalers to biotechnical research and development laboratories. In total, there are approximately 3,600 establishments devoted to one of those activities and closely associated with both public and private practices and businesses. These businesses add another $3 billion to the state’s economy. Collectively, Ohio veterinarians directly contribute nearly $2 billion to the state economy, add $3 billion in associated businesses, and protect the $107 billion agricultural industry. Whether working with individual animals or large herds or flocks, Ohio veterinarians improve animal and human health, add to the economy, and protect key assets.
Rural Appalachian Ohio and Veterinary Medicine

Of Ohio’s 88 counties, 29 are located in the bioregion and political unit in the eastern part of the state extending from east-central to southern Ohio and characterized by the foothills of the Appalachian Mountains, known as Appalachian Ohio. These 29 counties are further divided into 11 in southern, 8 in southeastern, and 10 in east central Ohio. Ten of the 29 Appalachian counties are considered economically distressed – a criteria based on 150% of the US employment rate, 150% of the US poverty rate, and 67% or less of per capita income. Four additional counties are considered on the margin for this definitional standard. It is estimated that 17.4% of Ohio’s Appalachian citizens live in poverty with an average per capita income of just $18,009.

Much of the veterinary profession’s impact is felt in Ohio’s rural-based agricultural sector, and is responsible, for among other things, assuring an abundant, relatively inexpensive and safe food supply for Ohio citizens. Many farms in Appalachian Ohio are small family farms, including beef cattle, hogs, and sheep and goats. And yet, some rural areas of the state, especially Appalachia, are significantly underserved by the veterinary profession.

According to the Ohio Veterinary Medical Association’s database of veterinarians, there are a total of 215 veterinarians in the 29 counties representing Appalachian Ohio with 71 classified as either food animal (28) or mixed-animal (43). The number of total veterinarians range from 0 (Coshocton, Monroe, Noble, and Vinton) to 29 (Clermont) and the number of food animal or mixed-animal veterinarians in these counties range from 0 (9 counties, including Coshocton, Jefferson, Monroe, Morgan, Noble, Adams, Lawrence, Pike and Vinton) to 9 (Columbiana). Most veterinarians in these counties work principally on companion animals with a relatively small number and percentage willing or interested in providing at least limited services for food animals. According to a report by the American Veterinary Medical Association, there were only a total of 28 food animal veterinarians in these counties in 2008.

The total number of animals (food animals, companion animals, horses and birds) in these counties is nearly 11 million with numbers per county ranging from 25,821 (Vinton) to over 5.5 million (Holmes) and an average of 343,414 animals per county. The average number of animals per veterinarian in these counties is over 41,958 with a range from 8,100 (Clermont) to 618,740 (Holmes). The counties that appear to be “underserved” include Adams, Coshocton, Gallia, Harrison, Hocking, Jackson, Lawrence, Meigs, Monroe, Morgan, Noble, Perry, Pike, Ross and Vinton, and others are vulnerable. Some of these counties might receive sufficient veterinary services from veterinarians in adjacent or nearby counties which may have more veterinarians classified as food-animal or mixed-animal practitioners; however, it is unlikely this occurs with any regularity, consistency or dependability.

There are a total of 16,780 farms with an average number of farms per county of 579, average total farm acreage per county of 4,177 acres, and an average farm size of 144 acres in these Appalachian counties. The total land area of these counties is 14,276 square miles with an average of 492 square miles per county. It should be noted that regardless of the total number of animals in a given county, veterinarians in these areas often are required to travel long distances to provide on-farm veterinary services. This is neither an efficient nor cost-effective practice model, especially when providing services for individual animals vs. preventive healthcare for herds or flocks. This is particularly true for veterinarians who function as solo practitioners since traveling long distances from their practice base leads to inefficiencies and inabilities to provide regular and reliable services for their clients. The issue of geographical distance and related travel time (fuel costs, inefficient business model, etc.) must be taken into consideration when assessing a sustainable practice and business model.

When farmers and producers in this region need veterinary assistance for their animals, the limited options include trying to access a local veterinarian or trying to get by without one. If a veterinarian in the region is contacted, these practitioners could travel to the farm to provide services, refer the client to another practice, request the owner transport the animal to their practice/clinic, or refer the client to the Ohio State College of Veterinary Medicine’s Veterinary Medical Center (90+ mile drive). Regardless of the option selected, rural Appalachian Ohio can be accurately characterized as underserved by the veterinary profession. The potential consequences are serious. Farmers and producers depend on the veterinary profession to help sustain their livelihoods, and Ohioans depend on healthy farm animals for a safe food supply.

In the summer of 2010, the Ohio State College of Veterinary Medicine was approached by livestock producers in southeast Ohio seeking improved, expanded veterinary care in their region of the state. The ensuing meeting generated broader discussions among other producers, area veterinarians, businesses, and community and civic leaders in Appalachian Ohio. In addition, numerous meetings and conversations took place among College leaders, the University administration, and the Ohio Veterinary Medical Association, among others.

What resulted was a simple, but monumental, request by the producers: Would the Ohio State College of Veterinary Medicine consider establishing a satellite rural veterinary practice and clinic in the Appalachian region of Ohio to serve these underserved communities and citizens?

This proposal presents the College’s response to that request.
Proposal

As part of The Ohio State University, Ohio’s land grant university, the College of Veterinary Medicine is committed to respond to this request by constituents from Appalachian Ohio and to further explore the feasibility and logistics of establishing a successful and sustainable rural veterinary practice as a satellite of the Veterinary Medical Center in Appalachian Ohio to serve and support the communities in this region.

The College already has shown that it has the ability to operate such a rural veterinary practice. The OSU Marysville Large Animal Service was first established in 1971 by acquisition of an existing veterinary practice. A new 10,000 square foot facility was completed in 2005. Today, it serves farmers and producers in 17 north- and west-central Ohio counties, providing high quality veterinary care and modern production assistance. The practice has grown dramatically since it inception. Its five-person veterinary staff generates $1.4 million in economic activity every year. In addition, the Marysville clinic has engaged hundreds of fourth-year veterinary students in farm animal care, introducing them to a potential career path that many had not previously considered.

Although the College’s experiences with the Marysville facility will help inform development, planning and establishment of a similar practice in Appalachian Ohio, this model is not directly translatable because of the demographic and economic differences between these two regions of the state. A rural mixed-animal practice in Appalachian Ohio would provide ambulatory as well as limited in-house medical and surgical facilities for large- and small-animal patients.

With evidence of sufficient interest and available resources, the College will continue to explore options for such a practice, including engaging community, business and civic leaders; governmental agencies; foundations and associations; and other potential partners to develop a successful and sustainable business and practice model for a rural veterinary practice in Appalachian Ohio. A successful rural veterinary practice would serve the needs of the people and their animals in this region. Likewise, such a practice would serve as a sustainable model for other rural communities across Ohio and the United States. Immersing and embedding veterinary students, veterinary technician students, and other paraprofessionals in experiential learning and practical hands-on training in this practice will provide direct exposure to a successful rural veterinary practice and may encourage some of them to pursue work in such a practice upon graduation or at sometime during their professional career. Furthermore, as governmental budgets tighten, public/private partnerships may prove beneficial to the agricultural industry as a whole, to livestock producers and other animal owners of this region, and to the local communities through economic development and strengthening a vitally important Ohio industry, while also contributing to improved public health and environmental sustainability.

After an initial review of the opportunities and challenges involved in establishing such a practice, the College has identified two options as being most feasible. Each option will require financial assistance to address the start-up capital and fixed-asset needs, and will likely require some level of ongoing funding.

Option 1 – Acquire or Renovate an Existing Facility

One possible location for a satellite veterinary clinic in the region is the existing facilities in Jackson County operated by the Ohio Agricultural Research and Development Center. The facility would require several modifications, including but not limited to:

- A complete bull and cattle handling facility, requiring a portable alley and chute and a sorting tub;
- Electrical, sanitary water, and drain upgrades;
- Outside modifications to allow producers truck and trailer access and loading and unloading facilities for their animals; and
- Additional fencing to prevent animals from inadvertently exiting the premises and obtaining access to the adjacent roads.

Other necessary fixed expenses include vehicles for the practice, initially including specially equipped practice trucks to allow service to producers at more than one location. The practice will require an initial infusion of equipment and pharmacological supplies and, of course, funding for staffing needs.

A second possibility would be the acquisition of an existing veterinary practice in the region, as was the case when the Marysville practice began operations.

Option 2 – Build a New, Stand-alone Facility

Pursuit of this option would include construction of a built-to-specifications facility most likely near one of the university’s extension offices in the region. In addition to construction costs, the facility would incur fixed expenses similar to those in Option 1.
Next Steps

If sufficient and broad-based interest and extramural resources are identified, the College would initiate and perform a comprehensive assessment to explore the feasibility and logistics of establishing a successful and sustainable satellite rural veterinary practice in Appalachian Ohio to service the animals and people of the area, and to serve as a model for a rural veterinary practice for other rural communities in Ohio and across the United States. The intent would be to establish a database in support of this endeavor, to guide selection of a location and animal handling needs, and to determine the potential economic impacts to this region. If this information proves supportive and funding can be secured, the College would consider moving forward in establishing a rural veterinary practice in this region to provide veterinary services to its animals and support its people.

Such a comprehensive assessment would require resources to hire a consultant(s) to help coordinate and lead the study and to develop a viable and sustainable business plan and practice model for a rural veterinary practice in Appalachian Ohio. No matter the option, the College cannot operate a rural veterinary practice that loses money. A combination of fee-for-services and external subsidy support through a cooperative arrangement with other stakeholders will likely both be needed to make this a sustainable model.

**Development of a sustainable rural veterinary practice model in Appalachian Ohio would provide vitally important and needed services to these communities as well as serve as a pilot program and template for similar practices in the many other counties and communities currently underserved by veterinarians across Ohio and the United States.**

The process will involve engaging a diverse and broad group of constituents and “partners”, including livestock producers and animal owners; area veterinarians; business, civic and community leaders; local, state and federal legislators; governmental agencies (e.g., Ohio Department of Agriculture, United States Department of Agriculture, etc.); foundations (e.g., Appalachian Regional Commission, etc.); associations (e.g., Ohio Farm Bureau, Ohio Veterinary Medical Association, American Veterinary Medical Association, etc.), and other appropriate individuals and organizations.

For more information, please contact Dr. Rustin Moore, associate dean of Clinical and Outreach Programs, via telephone (614)-292-7105 or email (Rustin.Moore@cvm.osu.edu).

---

**Selected Information Resources**


