2013 AVMA Veterinary Workforce Summit

Workforce Research Plan Details

“If the American Veterinary Medical Association (AVMA) says the profession is experiencing a 12.5 percent excess capacity in veterinary services, is the problem oversupply of veterinarians or underdemand for veterinary services?”

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The 2013 Workforce Study estimates that there is 12.5% excess capacity in veterinary services -- not an oversupply, an under-demand (?) nor a combination of the two. The important message is not that there is excess capacity. Excess capacity is a normal state in a market economy – U.S. manufacturing to name one. The optimal capacity in US manufacturing was estimated to be 81.3%. Above that level profits fall and below that level prices fall. The important message is that we don’t know why excess capacity exists in veterinary medicine. Many people have various hypotheses as to why this excess capacity exists, but no analytic evidence to prove or disprove any of their hypotheses.

The purpose of this workforce research plan is to establish a process for the systematic acquisition of knowledge about the market for veterinary services. With this knowledge, we can better understand supply and demand in veterinary medicine and provide useful information to all organizations in, and affected by, the profession.

Introduction

The effort to identify the factors that affect and control the market (Figure 1), commonly referred to as “modeling,” for veterinarians and veterinary services has two primary goals: (1) to provide information to market participants and policy makers on the supply of and demand for veterinarians and veterinary services in different subspecialties and in different geographic locations; and (2) to identify characteristics of successful practices that are providing a level of animal health desired by consumers.

The fundamental purpose of a market model is to provide information that will enable all market participants to make informed decisions. In addition, a model generally has three main functions: it provides a framework for understanding relationships that exists within a market; it allows for the consistent analysis of the impact that policies and strategies have on a market; and it provides a measure of the current status of the profession. The consistency in analysis is the result of creating a baseline for the profession which can be used in understanding trends over time against which polices and strategies can be compared for their relative impact.

The development of a market model will require the annual collection of robust and unbiased data. Some of these data are available from federal and state agencies, while other data are only available from consumers and producers of veterinary goods and services. In most industries, both producers and consumers have shown a willingness to participate in the data collection process because of the useful information it yields.
The market contains several “data control points” where data collection entities have access to or manage market specific data. Veterinary colleges manage data on their students; producers of pet products manage data on their products. These primary sources of data provide the highest quality data.

While useful, secondary sources, such as surveys and analytics, are less robust and far more likely to contain errors because they include more estimation. National secondary sources of data, such as the Bureau of Economic Analysis, can provide a source for comparison at the national level, but quickly loses its accuracy when it is broken down to state and local levels.

Robust market information at the state and local levels is critical in the veterinary profession, as demand for these services is likely to vary widely with changing demographics. Therefore, the best model for veterinary services will be constructed from the aggregation of data from small geographic areas rather than with national data.

This research plan is broken into two sections, Supply and Demand. In each section, data needs are identified following the logical development of the workforce model. This sequence of events is illustrated in Figure 1 at the end of the plan. Black arrows in the plan indicate that we have the information required to complete the step, while red arrows indicate an absence of data to complete the step. Within the plan there are red and blue numbered items. The red items indicate what needs to be done, while the blue items indicate what AVMA is currently doing.

**Supply**

The supply of veterinary services is determined by the number of veterinarians, the amount of time they are willing to work, the services that can be performed during that time and the cost of those services.

**Number of Veterinarians:** Is estimated by taking the number of current veterinarians in the profession, plus the number entering and subtracting the number exiting.

An accurate accounting of the number of current veterinarians is needed.

**Current Veterinarians:** At present, the estimate for the number of actively engaged veterinarians is between 100,000 and 110,000. This 10,000 veterinarian count error is 10% of the population. That is exacerbated by lack of knowledge of retirement age.

AVMA’s data reports that approximately 18% (n=17,400) of the active veterinary workforce is age 65 or older, with 7% (n=6767) age 75 or older. Across all industries, the Bureau of Labor Statistics (BLS) reported that 5.4% of workers were age 65 or older in 2010. For a comparison we compiled veterinary data from the American Consumer Survey (ACS) for years 2006 through 2010 and found that out of 4,398 veterinarians over the four year period, 4% of active veterinarians in the ACS data were age 65 and older. Consequently, considering our inability to determine whether 18%, 5.4% or 4% of the active
workforce is age 65 or older, added to our 10% population size disparity means that our calculation of persons 65 and older can potentially have a 10% error. If this is correct, the AVMA’s estimate of the population of veterinarians active in the workforce 10 years out could be off by as much as 24% (10% plus 18% minus 4%), as those over 65 today are likely to be inactive in 10 years.

An accurate accounting of the number of veterinarians entering the profession is needed.

**Entrants:** While there are currently 46 Council on Education (COE) accredited veterinary colleges, historical data on graduation numbers is only available on 28 COE accredited US colleges. Recently, 5 COE accredited foreign colleges (that comprise the majority of US students in non-US schools) began reporting the number of graduates they produce. Data from the North American Veterinary Licensing Examination (NAVLE) also provides information that is broken into three parts: students that are from COE accredited colleges; students from COE accredited colleges taking the exam again (no indication of 2\(^{nd}\), 3\(^{rd}\), etc. time taking the exam); and students from non-COE accredited colleges. While the NAVLE provides a control point for data on new entrants into the profession, there are specific caveats that indicate a margin of error with respect to using only the NAVLE data to determine the number of veterinarians entering the workforce. First, there are large numbers of students taking the NAVLE from COE accredited institutions, mostly Canadians who will not be employed in the US. Second, it is possible that some veterinarians entering fields other than clinical practice do not take the NAVLE.

An accurate accounting of the number of veterinarians exiting the profession is needed.

**Exits:** The estimate of exits from the profession is based on a 2012 survey of veterinarians, AVMA membership data, Bureau of Labor Statistics and American Consumer Survey data. However, there is no estimate for the number of veterinarians that voluntarily decide to exit the profession temporarily or permanently, become injured or die prior to retirement. In spite of this lack of data, retirement was cited as the predominant reason for leaving the profession.

An accurate accounting of the number of hours veterinarians are willing to work is needed.

**Work time:** The amount of time spent working in the professional setting. Currently the amount of time at work is estimated in the AVMA Biennial Economic Survey (BES).

Among the 1,989 male veterinarians counted in the BES survey, the average number of hours worked per week reported was 48.2, while 1,905 female veterinarians counted in the survey reported the average hours worked as 45.1 hours. Veterinarians younger than age 30 worked the most hours per week, with men working 55.2 hours and women working 52.8 hours. Conversely, veterinarians age 65 and older worked the fewest hours, with men working 41.1 hours and women working 33.1 hours. In addition, 18% of female veterinarians reported working part time versus 11% for men. There were also differences by age and gender in average weeks worked per year (47.5 weeks for male veterinarians and
46.0 weeks for female veterinarians) and temporary departures from the workforce (3% for men and 4% for women). However, the survey did not ask about the willingness to work more or less hours or employment status. Thus, the total amount of time that veterinarians may be willing to work is not known.

AVMA and AAVMC will be conducting a survey of 1, 5, and 10 year post-graduates to determine under-employment (number not employed in the veterinary profession who are actively seeking such employment) and under-employment (number of hours desired to work is less the number actually working).

An accurate measure of time allocation in clinical practice is needed.

**Time required per service**: This is the amount of time clinical practitioners actually spend providing animal care.

Currently there is no aggregate information on the amount of time clinical practitioners spend on specific animal care related activities. For any measurement of capacity to be meaningful, the allocation of the practitioner’s time across specific clinical activities, including animal care service and non-animal care activities needs to be measured.

AVMA will be conducting a survey of clinical practitioners to obtain information on the allocation of time in the clinical practice. This Capacity Survey will be used to estimate hours spent on categories comprising of animal care services (e.g. surgery, vaccination), business operations (e.g. records, client communications) and other (e.g. travel, professional meetings).

Better financial data is needed for clinical practices.

**Cost of Services**: The variable and fixed costs of providing specific services.

Supply is a measure of how much quantity producers are willing to provide at various price levels. Thus, just knowing how much quantity they are providing is only half the information required if we are going to have a true understanding of the profession’s “willingness” to supply veterinary services. Currently, the only published time series on the cost of services is from the BES. This is inadequate, as the costs are simply provided by major category (e.g. office and equipment, staff, drugs and medical supplies) rather than by service. In a new survey, each specific service will describe a unique “willingness” that indicates the amount of these services that practitioners are willing to supply.

AVMA is working to develop a system to collect actual service costs (not estimates) and financial information from clinical practices on an annual basis.
Demand

The demand for veterinary services is based on the number of animal owners, number of animals, the services needed by those animals, the willingness of animal owners to pay for the needed services, and the availability of new products and services to protect animal or human health that involve the services of veterinarians.

Better estimates are needed for the number of animal owners.

**Animal Owners:** The number and characteristics of owners.

The characteristics of animal (pets and some equine) owners are now determined using the AVMA Pet Demographic Survey (PDS). The characteristics are used to build a profile of owners that is then applied to the American Community Survey (ACS) to predict the number and location of owners. The ACS is an annual survey conducted by the U.S. Census Bureau that contains information on approximately 3 million individuals in 1 million households representative of the population in each state. The file contains demographic information, employment, location, income, household and other information. The PDS estimates of the number of pets are substantially less than the estimates reported by the American Pet Product Association because the two organizations use different methodologies and ask for different information.

Data on the number of livestock owners is available from USDA/NASS.

Better data is needed for the estimates of the number of animals.

**Animal Numbers/Animal Services:** Total number of animals and veterinary services per zip code or political boundary and nationally.

The data on the number of owners computed above by the ACS were combined with the PDS data to calculate the estimated number of pets and veterinary services provided to pets in each state as a function of demographic, economic and other household characteristics. As stated above, estimates of the number of companion animals provided by AVMA and the American Pet Products Association vary widely due to differences in the survey methodology and questions. Data on equine numbers varies considerably -- from around 7.3 million (AVMA) to over 10 million (ACS) – depending on the source. The American Horse council reports 9.2 million.

**AVMA is developing a survey instrument for 12 State Metropolitan Statistical Areas to better estimate practice market area, owner demographics, animal numbers and veterinary services.**
Determination and measurement of the demand characteristics for industry, government and academic veterinarians needs to be developed.

**Need for Veterinarians and Veterinary Services:** Sum of the clinical practitioners, government, industry, academia and all other veterinarians needed to provide services.

The total numbers of services required by all animals currently exceeds the demand for these services. The level of care/services purchased by animal owners varies with demographic factors and is dependent on the demand characteristics.

**AVMA is conducting an analysis of the risk/benefits of managing zoonotic diseases.**

The effects of changes in price, income, tastes and preferences and the price of other goods and services on the demand for specific veterinary services are needed.

**Willingness to Pay (Price):** Price of services provided by geographical location.

Demand is the quantity of goods or services that consumers are willing to purchase at a specific price. However, at any given price, the quantity of these goods and services they are willing to purchase may increase or decrease depending on changes in tastes and preferences, incomes and the price of other goods and services that compete for their disposable income.

In the current workforce study, the price of services is static. That is, the quantity of goods and services that are being demanded from veterinarians is based on the prices currently being charged, the current prices of all other goods and services, current levels of income, and their current tastes and preferences. Changes in any of these factors will change the quantity demanded and affect the estimate of excess capacity. Thus, the effect of these factors on demand for specific services requires quantification.

**AVMA is developing a study to measure price and income elasticity of demand.**

**AVMA is developing metrics to measure the effect on consumer tastes and preferences as a part of the Partners for Healthy Pet initiative.**
Figure 1. Veterinary Workforce Model

**SUPPLY**
(Supply of FTEs = Demand of FTEs + Excess Capacity)

Practice Capacity Utilization
1. % of live animals/species
2. % of veterinarians

**DEMAND**
(Veterinarian FTEs)

Private Practice

**MARKET**

Veterinarians' Salary
Veterinarians' Sales
Veterinarians' # Students

NEED
(Total Hours of Veterinary Services)

- Services Required/Animal
- Total # Animals Treated
- Total # Animals Treated

Total # Animals

**SUPPLY**

Supply Function
Veterinary Services

Supply of US Veterinarians
(Production Function)

Unemployment
Underemployment

EXIT Survey
Post Graduate Survey

بيرميل Economics Survey
Veterinary Services
- Variable Costs - Fixed Costs

**NAVLE Reports**

US Accredited Schools
Foreign US-Accredited Schools
Foreign Non-Accredited Schools

US Applicants
Foreign Applicants

Senior Survey

ECFV/EAVCE

**DEMAND**

Veterinarians' Salary
Veterinarians' Sales
Veterinarians' # Students

**MARKET**

Price
Income

Partners for Healthy Pets

**NAVLE**

# of Livestock
Equestrian
# of Pets
Other

Pet Survey

Number and Locations of Animal Owners