

Trends in Vaccination Practices on U.S. Equine Operations, 1998–2015

Vaccination is used to prevent and control infections in equids and is thus a key component of any equine health plan. Vaccination can reduce the likelihood of disease occurrence in animals that are exposed to a pathogen and/or reduce the spread of disease from one animal to the next by reducing shedding of a pathogen in a herd of animals. If equids are exposed to an infectious agent, the degree of immunity, amount of exposure, and virulence of the disease agent all play a role in the outcome in the exposed animal(s).

Current guidance recommends that all equids receive certain core vaccines annually.¹ This is because the risk of exposure exists for all equids in the United States, and the severity of disease and efficacy of the vaccines warrant their use. The core vaccines include tetanus, Eastern and Western equine encephalitis (EEE/WEE), West Nile virus (WNV), and rabies.

One of the goals of the U.S. Department of Agriculture's National Animal Health Monitoring System (NAHMS) Equine 2015 study was to evaluate trends in equine health and management in 1998, 2005, and 2015. The goal of this information sheet is to describe any changes in equine vaccination practices in the United States.

For the Equine '98, 2005, and 2015 studies, NAHMS collected data on equine health and management practices from a representative sample of operations with 5 or more resident equids² in 28 States. The 28 States included in the Equine 2015 study were selected based primarily on the size or density of their equine population. The States included in the 1998 and 2005 studies were selected based on the size of the equine population, interest among the equine industry in the State, and geographic location. Twenty of the 28 States in the 2015 study also participated in the 1998 and 2005 studies. Because the Equine '98 study included operations with one or more resident equids, the data were reanalyzed to include only operations with five or more equids on January 1, 1998, for comparison purposes with data gathered in 2005 and 2015. Thus, for

all three studies, data analyzed were from operations with five or more resident equids at the time of the most recent Census of Agriculture.

The 28-State target population in 2015 represented 71.6 percent of equids on farms with 5 or more equids and 70.9 percent of operations with 5 or more equids in the United States. Interviews for phase I of the study were conducted from April through July 2015, and 1,920 equine operations provided data on equine health and management. Of 945 operations that agreed to be contacted for phase II of the study, 329 completed the second questionnaire. For more details on study methods, see the methodology section of the NAHMS Equine 2015 reports.

Trends in vaccination of U.S. equids

The percentage of operations that vaccinated any resident equids during the 12 months prior to the initial study survey was lower in 2015 (66.7 percent) than in 1998 and 2005 (75.1 and 75.9 percent, respectively). For the subset of operations that completed the second questionnaire of the Equine 2015 study, however, 75.8 percent vaccinated at least some resident equids, which was similar to results from the previous two NAHMS equine studies.

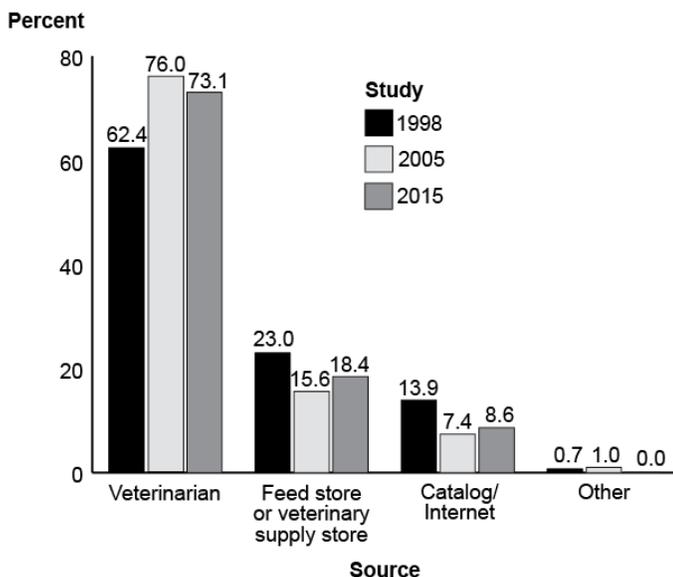
There could be multiple reasons why an equine operation might not have vaccinated its equids in the previous 12 months, such as the expense of vaccination compared with likelihood and consequence of disease, concern about potential adverse reactions to vaccination, or failure of owners to schedule a time with their veterinarians to provide vaccines for equids. Survey data collected during the second visit to the operation during the Equine 2015 study provided insight about which vaccines were used and the reason operations did not administer selected vaccines to their equids. For details, see the full report, "Equine Management and Selected Equine Health Conditions, 2015."

For all three studies, the majority of equine operations that vaccinated any resident equids used a veterinarian as the primary source of equine vaccines (figure 1). The percentage of operations that used a veterinarian as the primary source of vaccines was higher in 2005 (76.0 percent) and 2015 (73.1 percent) than in 1998 (62.4 percent). For all three studies, the second and third most common sources of vaccines were a feed or veterinary supply store and a catalog/Internet source, respectively.

¹American Association of Equine Practitioners. 2017. Core Vaccination Guidelines. <http://www.aaep.org/info/core-vaccination-guidelines>. Accessed August 2018.

²A resident equid was defined as an equid that spent or was expected to spend more time at the operation than at any other operation whether or not it was present at the time of the interview.

Figure 1. For operations that administered any vaccine to resident equids during the previous 12 months, percentage of operations by primary source of vaccine



In 2005 and 2015, veterinarians administered the majority of vaccines on more than one-half of the equine operations (50.3 and 51.7 percent, respectively) [table 1]. In 1998, however, operation personnel administered the majority of vaccines to equids in 1998 (58.3 percent).

Table 1. For operations that administered any vaccine to resident equids during the previous 12 months, percentage of operations by person who administered the majority of vaccines

Person	Percent Operations		
	Study Year		
	1998	2005	2015
Veterinarian	40.7	50.3	51.7
Operation personnel (including operator)/ equine owner	58.3	49.4	47.4
Other	1.0	0.3	0.8
Total	100.0	100.0	100.0

In each of the three NAHMS equine studies, tetanus was the vaccination administered by the highest percentage of operations, followed in general by EEE/WEE and flu vaccine, based on the percentage of operations that provided these vaccines to any of their resident equids in the previous 12 months (table 2). The percentage of operations that vaccinated against rabies increased across study years; however, even in the 2015 subset, less than one-half of equine operations vaccinated their equids against rabies. Rabies vaccine is

a core vaccine based on the fact that all equids that develop rabies will die, and they pose a public health risk once infected. In addition, the vaccine is considered very effective in preventing the disease in immunized equids. The percentages of operations that vaccinated their equids against WNV in the 2005 and 2015 studies did not differ substantially.

Table 2. For operations that vaccinated any resident equids, percentage of operations that vaccinated all or some resident equids against the following diseases/health concerns during the previous 12 months

Disease	Percent Operations		
	Study Year		
	1998	2005	2015*
Anthrax	NA	1.8	0.2
Botulism	NA	NA	2.2
<i>Clostridium perfringens</i> (C&D)	0.6	2.5	0.1
Eastern and Western equine encephalitis (sleeping sickness) [EEE and WEE]	65.5	56.4	67.6
Equine protozoal myeloencephalopathy (EPM)	NA	3.6	NA
Equine viral arteritis (EVA)	2.9	11.7	3.9
Flu (influenza)	66.4	54.1	60.4
Herpesvirus (also called EHV or rhino)	51.6	47.5	52.9
Leptospirosis	NA	NA	1.8
Lyme disease	NA	NA	0.8
Pigeon fever (infection caused by <i>Corynebacterium pseudotuberculosis</i>)	NA	NA	0.0
Potomac horse fever	16.8	10.6	8.8
Rabies	23.9	33.1	40.4
Rhinitis A	NA	NA	6.1
Rotavirus	2.4	4.2	1.3
Snake envenomation	NA	NA	1.0
Strangles (<i>Strep. equi</i>)	19.4	26.8	13.5
Tetanus	76.5	60.7	70.7
Venezuelan equine encephalitis (VEE)	NA	17.9	17.2
West Nile virus (WNV)	NA	63.8	56.3
Other	0.1	0.5	0.4

*For Equine 2015, data presented on use of specific vaccines are for the subset of operations that completed phase II of the study.

In the NAHMS Equine 2005 and 2015 studies, operations were asked about the use of eight specific vaccines: influenza, strangles, rhinopneumonitis (herpesvirus), rabies, WNV, EEE/WEE, tetanus, and equine viral arteritis. Operations that reported that a specific vaccine was not administered to their equids were subsequently asked to choose the best answer from a list of possible reasons why the vaccine wasn't used. In both studies, the majority of operations indicated that little risk of disease exposure was the reason for not providing the listed vaccines.

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