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National  
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Monitoring  
System

May 2007



# Equine 2005

## Baseline Reference of Equine Health Management Strategies at Equine Events in Six States, 2005



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The Equine 2005 Events Study was a cooperative effort among State and Federal animal health officials, university researchers, extension personnel, and event coordinators/organizers. This is the first time a NAHMS study has focused on events where equids congregate. We want to thank everyone who helped determine the direction and objectives of this study.

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All participants are to be commended for their efforts, particularly the event coordinators/organizers, whose voluntary participation and willingness to share their time and information made the Equine 2005 Events Study possible.

Larry Granger

A handwritten signature in black ink, appearing to read 'L. Granger', written in a cursive style.

Director

Centers for Epidemiology and Animal Health

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## Introduction

The National Animal Health Monitoring System (NAHMS) is a nonregulatory division of the U.S. Department of Agriculture (USDA) created to help meet the Nation's animal-health information needs. The NAHMS Equine 2005 Events Study was designed to provide participants, industry, and animal health officials with information on equine health-management strategies employed at equine events in six selected States.

The study's objective was developed by exploring existing literature, attending equine industry meetings to learn about information gaps, and soliciting input regarding priorities for equine health from animal health officials. The objective focused on describing health-management factors at events that could impact the occurrence and potential spread of equine infectious diseases. Equine infectious diseases can result in lost use of animals and in some cases death. There are many potential control points for preventing or minimizing the impact of equine infectious-disease outbreaks, including precautions that reduce exposure to infectious agents, optimization of resistance through vaccination if exposure occurs, and early identification of outbreaks—all of which can limit the spread of disease.

When animals from multiple locations or sources are brought together for various events there is a possibility for the spread of infectious and contagious disease agents. Examples of events where equids congregate include sales or auctions, shows, horse trials, western events, fairs, rodeos, race meets, polo matches, organized trail rides, and training clinics.

A disease occurrence at an equine event could necessitate locating participating owners/trainers and their equids in order to communicate important disease-control information. The NAHMS Equine 2005 Events Study looks at the type of information recorded by event coordinators/organizers regarding event participants and their equids and explores animal-health control strategies employed at the events. Data from the study can help veterinarians and event organizers control the introduction and spread of equine contagious diseases. Information about the practices used at various types and scopes of events in different regions—e.g., requirements for entry, including health certification, testing, and vaccination—allows veterinarians and event organizers to compare their practices to those of their peers. This information can identify areas where event requirements may need to be altered, depending on the evolution of various equine diseases and the methods for their control. Methods used by various events to contact participants are also of value to other event organizers, should they need to contact participants after an event about equine health-related information.

NAHMS staff developed a list of equine events for the six participating States (California, Colorado, Florida, Kentucky, New York, and Texas). This list served as the sampling frame for the study. A statistically valid sample was selected such that inferences could be made to major equine events in the State. Events likely to have a small number of local equids—such as jackpot roping, local lessons, or shows—were excluded from the study. The study sample yielded 252 participating events representing the 3,227 events on the list. (See Section II Sampling and Estimation and Appendices I and II.) Start dates for these events occurred between January 1, 2005, and December 31, 2005. Data collection took place from January 9, 2005, to April 25, 2006.

Baseline Reference of Equine Health Management Strategies at Equine Events in Six States, 2005 is part of an overall NAHMS study related to the equine industry conducted by NAHMS in 2005. Veterinary medical officers (VMOs) and animal health technicians (AHTs) from USDA's Veterinary Services collected data for this report via questionnaires administered either by phone or on-site—either during the event or as soon after the event as possible. Results of the Equine 2005 Events Study and other NAHMS studies are available at <http://nahms.aphis.usda.gov>.

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## Terms Used in This Report

**Equid:** Animal of the family *Equidae*. For this study, only domestic equids such as horses, miniature horse, ponies, mules, and donkeys/burros were included.

**Equine event types:** Event coordinators/organizers indicated the major purpose of their event by choosing from 12 different event types listed on the study questionnaire. If the event type was not one of the 12 listed, coordinators/organizers could choose “other” and specify the major purpose of the event.

Event types were:

- **Show** (including English and western pleasure, equitation, halter, conformation, showmanship)
- **Western events** (including barrel race, team penning, roping, cutting)
- **Polo**
- **Fair**
- **Rodeo**
- **Race**
- **Trail ride**
- **Sale or auction**
- **Inspection**
- **Training clinic**
- **Draft-horse pull/show**
- **Horse trial** (including dressage, cross country, show jumping)
- **Other** (specify)

**Event scope:**

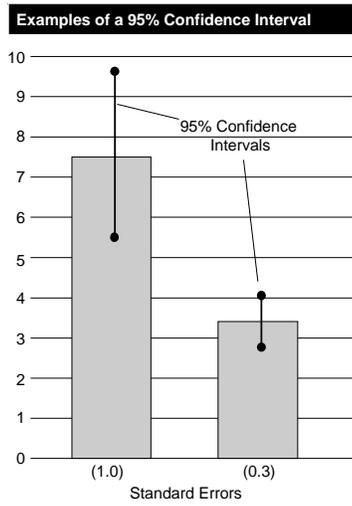
**State events**—all participating equids came from within State.

**Regional events**—participating equids came from within State and from outside State but not farther than adjoining States.

**National events**—participating equids came from within State, from outside State, and potentially from outside the United States.

For reporting purposes, event types were collapsed into four categories to improve the precision of the estimates. The collapsed events types were: show/trial (included the draft-horse pull/show and horse trial); western event/fair/rodeo; race/polo; and “other” (included training clinic, trail ride, sale or auction, inspection, and those specified as “other”).

**N/A:** Not applicable.



**Population estimates:** Estimates in this report are provided with a measure of precision called the standard error. A 95-percent confidence interval can be created with bounds equal to the estimate, plus or minus two standard errors. If the only error is sampling error, the confidence intervals created in this manner will contain the true population mean 95 out of 100 times. In the example to the left, an estimate of 7.5 with a standard error of 1.0 results in limits of 5.5 to 9.5 (two times the standard error above and below the estimate). The second estimate of 3.4 shows a standard error of 0.3 and results in limits of 2.8 and 4.0. Alternatively, the 90-percent confidence interval would be created by multiplying the standard error by 1.65 instead of 2. Confidence intervals constructed in this manner may result in limits that are below zero or over 100 percent. The statistical software used to create these estimates, SUDAAN, produces asymmetric confidence intervals for the proportions using a logit transformation, which ensures that confidence limits are between zero and 100. Although the asymmetric intervals are not included in this report due to space constraints, they were used to aid in the development of interpretations of the results. Most estimates in this report are rounded to the nearest tenth. If rounded to 0, the standard error was reported (0.0). If there were no reports of the event, no standard error was reported (—).

**Sample profile:** Information that describes event scope by State from which Equine 2005 data were collected (see Appendix I).

## Section I: Population Estimates

### A. Event Characteristics 1. Equine event type

The most common event type was show/trial (57.7 percent) followed by western event/fair/rodeo (21.9 percent). Event types in the “other” category include trail ride, endurance ride, training clinic, sale, auction, and shooting event. Colorado and Texas events had a higher percentage of western event/rodeo/fair events compared to events in most of the other States.

Percentage of events by primary event type and by State:

Event Type	Percent Events													
	State													
	California		Colorado		Florida		Kentucky		New York		Texas		All	
	Pct.	Std. Err.	Pct.	Std. Err.	Pct.	Std. Err.	Pct.	Std. Err.	Pct.	Std. Err.	Pct.	Std. Err.	Pct.	Std. Err.
Show/trial	53.8	(6.5)	43.7	(3.9)	64.2	(3.7)	67.2	(6.7)	74.9	(8.0)	50.9	(7.7)	57.7	(3.7)
Western event/fair/rodeo	9.0	(3.7)	37.4	(4.0)	14.2	(2.7)	17.0	(5.5)	8.3	(5.1)	42.4	(7.7)	21.9	(3.1)
Race/polo	10.5	(3.7)	5.4	(2.2)	7.7	(2.3)	6.7	(1.8)	7.8	(2.9)	0.6	(0.4)	6.1	(1.4)
Other	26.7	(5.8)	13.5	(2.6)	13.9	(2.4)	9.1	(4.6)	9.0	(5.7)	6.1	(4.1)	14.3	(2.6)
Total	100.0		100.0		100.0		100.0		100.0		100.0		100.0	



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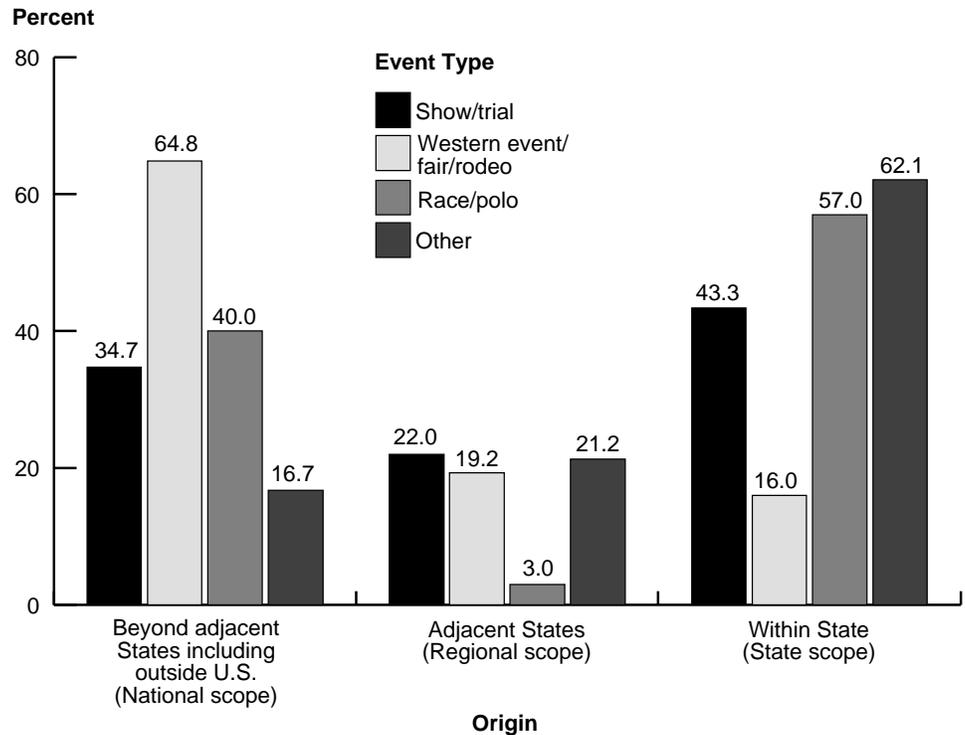
**2. Origin of participating equids**

Events that drew participating equids from within State and from beyond adjacent States each accounted for approximately 40 percent of events. Western event/fair/rodeo events had the lowest percentage of State events (16.0 percent) compared to all other event types.

a. Percentage of events by origin of participating equids and by event type:

Origin	Percent Events									
	Event Type									
	Show/Trial		Western Event/ Fair/Rodeo		Race/Polo		Other		All	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Beyond adjacent States including outside U.S. (National scope)	34.7	(4.7)	64.8	(8.4)	40.0	(11.8)	16.7	(7.5)	39.0	(3.7)
Adjacent States (Regional scope)	22.0	(4.1)	19.2	(6.5)	3.0	(2.1)	21.2	(8.9)	20.1	(3.0)
Within State (State scope)	43.3	(5.2)	16.0	(6.4)	57.0	(12.0)	62.1	(10.4)	40.9	(3.7)
Total	100.0		100.0		100.0		100.0		100.0	

**Percentage of Events by Origin of Participating Equids and by Event Type**



Overall, 1 of 10 events (9.6 percent) had any participating equids that came from outside the United States.

b. Percentage of events that had any participating equids that came from outside the United States, by event type:

Percent Events									
Event Type									
Show/Trial		Western Event/ Fair/Rodeo		Race/Polo		Other		All	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
8.2	(2.3)	14.7	(6.3)	27.3	(10.7)	0.0	(--)	9.6	(2.1)

### 3. Average duration of events

The average duration of events was similar across participating States, with an overall average of 3.3 days.

#### a. Average duration of events by State:

<b>Duration</b> (Average Number of Days)						
<b>State</b>						
<b>California</b>	<b>Colorado</b>	<b>Florida</b>	<b>Kentucky</b>	<b>New York</b>	<b>Texas</b>	<b>All</b>
<b>Std. Avg. Error</b>	<b>Std. Avg. Error</b>	<b>Std. Avg. Error</b>	<b>Std. Avg. Error</b>	<b>Std. Avg. Error</b>	<b>Std. Avg. Error</b>	<b>Std. Avg. Error</b>
2.7 (0.3)	3.9 (0.3)	2.6 (0.1)	4.3 (0.7)	4.0 (0.9)	3.3 (0.5)	3.3 (0.2)

On average, National events lasted longer than Regional or State events.

#### b. Average duration of events by event scope:

<b>Duration</b> (Average Number of Days)					
<b>Event Scope</b>					
<b>National</b>		<b>Regional</b>		<b>State</b>	
<b>Avg.</b>	<b>Std. Error</b>	<b>Avg.</b>	<b>Std. Error</b>	<b>Avg.</b>	<b>Std. Error</b>
4.9	(0.5)	1.8	(0.1)	2.6	(0.3)

Race/polo events had a longer average duration than show/trial, western event/fair/rodeo, and "other" events.

#### c. Average duration of events by event type:

<b>Duration</b> (Average Number of Days)							
<b>Event Type</b>							
<b>Show/Trial</b>		<b>Western Event/ Fair/Rodeo</b>		<b>Race/Polo</b>		<b>Other</b>	
<b>Avg.</b>	<b>Std. Error</b>	<b>Avg.</b>	<b>Std. Error</b>	<b>Avg.</b>	<b>Std. Error</b>	<b>Avg.</b>	<b>Std. Error</b>
2.5	(0.2)	3.9	(0.7)	13.7	(3.0)	2.3	(0.2)

A lower percentage of National events (8.6 percent) had a 1-day duration compared to events with a State or Regional scope (32.4 and 46.0 percent, respectively). Overall, the highest percentage of events (66.5 percent) had a duration of 2 to 6 days.

d. Percentage of events by duration and by event scope:

Duration (Number of Days)	Percent Events							
	Event Scope							
	National		Regional		State		All	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
1	8.6	(3.3)	46.0	(8.1)	32.4	(5.7)	25.9	(2.9)
2 to 6	79.0	(4.8)	53.7	(8.1)	60.8	(5.9)	66.5	(3.3)
7 to 20	8.1	(3.3)	0.3	(0.2)	6.8	(2.9)	6.0	(1.7)
More than 20	4.3	(1.9)	0.0	(--)	0.0	(--)	1.6	(0.8)
Total	100.0		100.0		100.0		100.0	

The majority of race/polo events had a duration of 7 to 20 days, while the majority of show/trial, western event/fair/rodeo, and "other" events had durations of 2 to 6 days.

e. Percentage of events by duration and by event type:

Duration (Number of Days)	Percent Events							
	Event Type							
	Show/Trial		Western Event/ Fair/Rodeo		Race/Polo		Other	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
1	28.1	(4.1)	21.2	(6.7)	12.8	(9.5)	28.5	(9.3)
2 to 6	70.6	(4.2)	65.0	(8.1)	12.4	(4.9)	71.1	(9.3)
7 to 20	0.7	(0.3)	10.4	(5.3)	63.6	(11.8)	0.4	(0.2)
More than 20	0.6	(0.5)	3.4	(3.1)	11.2	(4.6)	0.0	(--)
Total	100.0		100.0		100.0		100.0	

**4. Duration equids were on event premises**

The average duration equids were on premises associated with the events was similar across States, averaging just under 11 days overall. At some events, equids may have been at the event site prior to and after the event occurred, e.g., for a specific race.

a. Average duration equids were on event premises, by State:

<b>Duration</b> (Average Number of Days)						
<b>State</b>						
<b>California</b>	<b>Colorado</b>	<b>Florida</b>	<b>Kentucky</b>	<b>New York</b>	<b>Texas</b>	<b>All</b>
<b>Std. Avg. Error</b>	<b>Std. Avg. Error</b>	<b>Std. Avg. Error</b>	<b>Std. Avg. Error</b>	<b>Std. Avg. Error</b>	<b>Std. Avg. Error</b>	<b>Std. Avg. Error</b>
16.7 (7.0)	10.8 (3.1)	13.0 (5.4)	6.8 (1.1)	12.2 (4.1)	4.6 (0.7)	10.6 (2.5)

There was no difference in the average duration equids were on event premises by event scope, when considering the estimates' standard errors.

b. Average duration equids were on event premises, by event scope:

<b>Duration</b> (Average Number of Days)					
<b>Event Scope</b>					
<b>National</b>		<b>Regional</b>		<b>State</b>	
<b>Average</b>	<b>Std. Error</b>	<b>Average</b>	<b>Std. Error</b>	<b>Average</b>	<b>Std. Error</b>
12.5	(4.6)	2.9	(0.4)	12.5	(4.6)

The average duration equids were on event premises was longer for race/polo events than for show/trial, western event/rodeo/fair, and "other" events.

c. Average duration equids were on event premises, by event type:

<b>Duration</b> (Average Number of Days)							
<b>Event Type</b>							
<b>Show/Trial</b>		<b>Western Event/ Fair/Rodeo</b>		<b>Race/Polo</b>		<b>Other</b>	
<b>Pct.</b>	<b>Std. Error</b>	<b>Pct.</b>	<b>Std. Error</b>	<b>Pct.</b>	<b>Std. Error</b>	<b>Pct.</b>	<b>Std. Error</b>
3.3	(0.2)	5.6	(1.0)	90.8	(31.2)	14.1	(9.5)



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A higher percentage of Regional and State events (32.9 and 27.7 percent, respectively) had equids that stayed on the premises for 1 day compared to National events (3.6 percent). In contrast, a higher percentage of National events (15.9 percent) had equids that stayed for 7 to 20 days compared to Regional and State events (0.3 and 5.0 percent, respectively).

d. Percentage of events by average duration equids were on event premises and by event scope:

<b>Percent Events</b>								
<b>Event Scope</b>								
	<b>National</b>		<b>Regional</b>		<b>State</b>		<b>All</b>	
<b>Duration (Average Number of Days)</b>	<b>Pct.</b>	<b>Std. Error</b>	<b>Pct.</b>	<b>Std. Error</b>	<b>Pct.</b>	<b>Std. Error</b>	<b>Pct.</b>	<b>Std. Err.</b>
1	3.6	(2.1)	32.9	(8.1)	27.7	(5.3)	19.3	(2.8)
2 to 6	72.9	(5.0)	65.6	(8.1)	60.9	(5.8)	66.6	(3.3)
7 to 20	15.9	(4.1)	0.3	(0.2)	5.0	(2.4)	8.3	(1.9)
More than 20	7.6	(2.7)	1.2	(0.7)	6.4	(2.7)	5.8	(1.5)
<b>Total</b>	100.0		100.0		100.0		100.0	

A higher percentage of race/polo events had equids that stayed on the premises for 7 days or more (81.7 percent) compared to show/trial, western event/fair/rodeo and "other events.

e. Percentage of events by average duration equids were on event premises and by primary event type:

Percent Events								
Event Type								
Duration (Average Number of Days)	Show/Trial		Western Event/Fair/ Rodeo		Race/Polo		Other	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
1	22.6	(3.9)	16.9	(6.1)	10.8	(8.1)	13.2	(6.8)
2 to 6	71.0	(4.2)	65.1	(7.9)	7.5	(3.2)	75.5	(8.5)
7 to 20	6.4	(1.8)	11.0	(5.5)	29.9	(13.2)	3.2	(2.2)
More than 20	0.0	(--)	7.0	(4.1)	51.8	(12.9)	8.1	(5.7)
Total	100.0		100.0		100.0		100.0	

The percentages of events where all equids stayed on event premises for the entire duration of the event did not differ across National, Regional, and State events, when considering the estimates' standard errors.

f. Percentage of events where all equids stayed on event premises for the entire duration of the event, by event scope:

Percent Events							
Event Scope							
National		Regional		State		All	
Percent	Std. Error	Percent	Std. Error	Percent	Std. Error	Percent	Std. Error
30.4	(5.7)	37.4	(8.1)	44.4	(6.4)	37.5	(3.8)

The percentage of events where all equids stayed on event premises for the entire duration of the event did not differ across event types, when considering the estimates' standard errors.

g. Percentage of events where all equids stayed on event premises for the entire duration of the event, by event type:

<b>Percent Events</b>							
<b>Event Type</b>							
<b>Show/Trial</b>		<b>Western Event/ Fair/Rodeo</b>		<b>Race/Polo</b>		<b>Other</b>	
<b>Pct.</b>	<b>Std. Error</b>	<b>Pct.</b>	<b>Std. Error</b>	<b>Pct.</b>	<b>Std. Error</b>	<b>Pct.</b>	<b>Std. Error</b>
40.3	(5.0)	19.2	(6.5)	28.9	(13.6)	54.7	(10.5)

#### 5. Number of equids at event

For all events, an average of 151.0 equids were at the event on a typical day. Events in Colorado, Texas, Florida, and Kentucky had a higher average number of equids present on a typical day than events in California.

a. Average number of equids at event on a typical day, by State:

<b>Average Number of Equids</b>						
<b>State</b>						
<b>California</b>	<b>Colorado</b>	<b>Florida</b>	<b>Kentucky</b>	<b>New York</b>	<b>Texas</b>	<b>All</b>
<b>Std. Avg. Error</b>	<b>Std. Avg. Error</b>	<b>Std. Avg. Error</b>	<b>Std. Avg. Error</b>	<b>Std. Avg. Error</b>	<b>Std. Avg. Error</b>	<b>Std. Avg. Error</b>
90.3 (14.7)	182.7 (22.2)	177.7 (14.8)	213.1 (33.0)	137.8 (30.3)	193.8 (23.9)	151.0 (11.3)

The average number of equids at National events (240.9) on a typical day was higher than the average number of equids at Regional and State events (106.1 and 87.2, respectively).

b. Average number of equids at event on a typical day, by event scope:

<b>Average Number of Equids</b>					
<b>Event Scope</b>					
<b>National</b>		<b>Regional</b>		<b>State</b>	
<b>Average</b>	<b>Std. Error</b>	<b>Average</b>	<b>Std. Error</b>	<b>Average</b>	<b>Std. Error</b>
240.9	(24.1)	106.1	(15.8)	87.2	(13.2)

The average number of equids at events on a typical day did not differ for show/trial, western event/fair/rodeo, and race/polo events, when considering the estimates' standard errors. Race/polo events had a higher average number of equids on a typical day than "other" events.

c. Average number of equids at event on a typical day, by event type:

<b>Average Number of Equids</b>							
<b>Event Type</b>							
<b>Show/Trial</b>		<b>Western Event/ Fair/Rodeo</b>		<b>Race/Polo</b>		<b>Other</b>	
<b>Avg.</b>	<b>Std. Error</b>	<b>Avg.</b>	<b>Std. Error</b>	<b>Avg.</b>	<b>Std. Error</b>	<b>Avg.</b>	<b>Std. Error</b>
137.7	(12.5)	194.8	(32.3)	289.9	(68.2)	78.8	(28.9)

The highest percentage of events (80.3 percent) used the number of registered participants as the method of determining how many equids were at the event. For National, Regional and State events, the percentages of methods used to determine the number of equids at events did not differ. “Other” methods included familiar with participant, how many animals the premises could accommodate, and observation.

d. Percentage of events by method used to determine the number of equids at event and by event scope:

<b>Percent Events</b>								
<b>Event Scope</b>								
	<b>National</b>		<b>Regional</b>		<b>State</b>		<b>All</b>	
<b>Method</b>	<b>Pct.</b>	<b>Std. Error</b>	<b>Pct.</b>	<b>Std. Error</b>	<b>Pct.</b>	<b>Std. Error</b>	<b>Pct.</b>	<b>Std. Error</b>
Number of registered participants	75.5	(5.4)	91.0	(3.9)	79.6	(5.1)	80.3	(3.0)
Number of stalls in use	30.9	(5.9)	23.6	(6.8)	15.8	(4.3)	23.3	(3.2)
Number of arrivals at entrance	16.2	(4.9)	22.7	(7.4)	9.4	(4.0)	14.7	(2.9)
Other	10.9	(3.6)	9.9	(5.0)	11.8	(3.9)	11.1	(2.3)

A lower percentage of “other” events used number of stalls in use to determine the number of equids at the event compared to show/trial and western event/fair/rodeo events. However, “other” events included trail rides, which do not typically use stalls, which may explain the lower estimate.

e. Percentage of events by method used to determine the number of equids at event and by event type:

Percent Events								
Event Type								
Method	Show/Trial		Western Event/ Fair/Rodeo		Race/Polo		Other	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Number of registered participants	84.7	(3.6)	77.0	(7.2)	59.8	(12.6)	76.0	(9.4)
Number of stalls in use	24.4	(4.2)	32.6	(8.4)	26.9	(9.8)	2.8	(2.2)
Number of arrivals at entrance	14.1	(3.8)	18.5	(7.3)	8.9	(3.6)	13.7	(7.8)
Other	8.1	(2.9)	12.6	(5.0)	33.2	(12.2)	11.1	(6.6)

Over the course of the entire event, an average of 270.9 equids attended, compared to an average of 151.0 equids that attended the event during a typical day (table 5a, p. 14). Events in California had a lower average number of equids that attended over the course of the entire event, compared to events in the other States.

f. Average number of equids attending the event over the course of entire event, by State:

Average Number of Equids						
State						
California	Colorado	Florida	Kentucky	New York	Texas	All
Std. Avg. Error	Std. Avg. Error	Std. Avg. Error	Std. Avg. Error	Std. Avg. Error	Std. Avg. Error	Std. Avg. Error
92.2 (14.7)	328.4 (52.0)	197.9 (16.5)	320.5 (48.7)	256.4 (66.4)	444.0 (171.5)	270.9 (58.9)

National events had an average of 499.9 equids attending over the course of the entire event, while Regional and State events had an average of 124.5 and 123.9 equids attending over the course of the entire event, respectively.

g. Average number of equids attending event over the course of entire event, by event scope:

<b>Average Number of Equids</b>					
<b>Scope</b>					
<b>National</b>		<b>Regional</b>		<b>State</b>	
<b>Average</b>	<b>Std. Error</b>	<b>Average</b>	<b>Std. Error</b>	<b>Average</b>	<b>Std. Error</b>
499.9	(146.4)	124.5	(18.7)	123.9	(26.3)

Race/polo events had a higher average number of equids attending (542.2) over the course of the entire event compared to show/trial and “other” events (160.6 and 84.8, respectively). Although the average number of equids attending western event/fair/rodeo events was quite high, there was a great deal of variability in this category, as evidenced by the large standard error.

h. Average number of equids attending event over the course of entire event, by event type:

<b>Average Number of Equids</b>							
<b>Event Type</b>							
<b>Show/Trial</b>		<b>Western Event/ Fair/Rodeo</b>		<b>Race/Polo</b>		<b>Other</b>	
<b>Pct.</b>	<b>Std. Error</b>	<b>Pct.</b>	<b>Std. Error</b>	<b>Pct.</b>	<b>Std. Error</b>	<b>Pct.</b>	<b>Std. Error</b>
160.6	(14.8)	608.3	(262.2)	545.2	(165.5)	84.8	(30.1)



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State events had a higher percentage of events (25.0 percent) attended by 1 to 25 equids over the entire course of the event than National or Regional events (0.4 and 0.0 percent, respectively). National events had a higher percentage of events (42.0 percent) attended by 250 or more equids than State events (7.9 percent).

i. Percentage of events by number of equids attending over the course of entire event and by event scope:

Number Equids	Percent Events							
	Scope							
	National		Regional		State		All	
Percent	Std. Error	Percent	Std. Error	Percent	Std. Error	Percent	Std. Error	
1 to 25	0.4	(0.1)	0.0	(--)	25.0	(5.3)	10.4	(2.3)
26 to 50	5.9	(2.9)	36.2	(7.6)	23.6	(5.1)	19.2	(2.8)
51 to 99	16.4	(4.7)	25.7	(7.8)	19.6	(4.9)	19.6	(3.2)
100 to 249	35.3	(6.0)	19.9	(5.9)	23.9	(5.1)	27.5	(3.4)
250 or more	42.0	(6.2)	18.2	(6.8)	7.9	(3.4)	25.3	(3.1)
Total	100.0		100.0		100.0		100.0	

“Other” events had a higher percentage of events attended by 1 to 25 equids over the course of the entire event than race/polo, show/trial, and western event/fair/rodeo events.

j. Percentage of events by number of equids attending over the course of the entire event and by event type:

Number Equids	Percent Events							
	Event Type							
	Show/Trial		Western Event/ Fair/Rodeo		Race/Polo		Other	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
1 to 25	8.3	(2.8)	3.8	(3.3)	0.0	(--)	33.3	(9.8)
26 to 50	22.2	(4.2)	3.8	(3.1)	4.6	(2.1)	37.0	(10.0)
51 to 99	19.7	(4.2)	19.6	(7.2)	21.3	(11.8)	18.5	(8.7)
100 to 249	32.4	(4.6)	25.5	(7.3)	49.3	(12.7)	1.7	(0.5)
250 or more	17.4	(3.7)	47.3	(9.0)	24.8	(9.6)	9.5	(6.8)
Total	100.0		100.0		100.0		100.0	

## B. Characteristics of Equids

### 1. Age

Overall, the highest percentage of events had equids 18 months to 20 years of age. Only 7.2 percent of events had attending foals (equids less than 6 months of age). The percentages of events by age of attending equids at National, Regional, and State events did not differ, when considering the estimates' standard errors.

a. Percentage of events by age of attending equids and by event scope:

Age	Percent Events							
	Event Scope							
	National		Regional		State		All	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Less than 6 months	12.2	(4.2)	4.2	(2.2)	3.8	(2.4)	7.2	(4.3)
6 months to less than 18 months	32.4	(6.0)	11.8	(4.8)	20.5	(4.9)	23.4	(3.3)
18 months to less than 5 years	85.2	(4.5)	86.6	(5.4)	67.8	(5.8)	78.4	(3.3)
5 to 20 years	100.0	(--)	99.1	(0.7)	92.9	(3.2)	96.9	(1.4)
More than 20 years	37.8	(6.2)	34.4	(8.3)	34.7	(5.7)	35.8	(3.8)

A higher percentage of show/trial and western event/fair/rodeo events had foals attend compared to race/polo or “other” events. A higher percentage of show/trial events had equids 6 to 18 months of age attend compared to western event/fair/rodeo and race/polo events. A higher percentage of show/trial and western event/fair/rodeo events (37.8 and 43.5 percent, respectively) had attending equids more than 20 years of age compared to race/polo events (7.9 percent).

b. Percentage of events by age of attending equids and by event type:

Age	Percent Events							
	Event Type							
	Show/Trial		Western Event/ Fair/Rodeo		Race/Polo		Other	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Less than 6 months	9.9	(3.1)	6.5	(3.1)	0.0	(--)	0.4	(0.2)
6 months to less than 18 months	33.1	(4.8)	10.7	(4.5)	0.0	(--)	13.7	(7.8)
18 months to less than 5 years	80.8	(4.1)	77.3	(7.8)	86.2	(8.9)	66.6	(10.2)
5 to 20 years	97.9	(1.4)	99.2	(0.6)	94.7	(4.7)	90.5	(6.8)
More than 20 years	37.8	(5.1)	43.5	(9.1)	7.9	(3.1)	28.2	(9.8)

## 2. Types of equids

More than one type of equid may have attended events. Horse was defined as light or draft breed. “Other” included zebra. Overall, horses attended 98.0 percent of events and ponies 43.2 percent. About 10 percent of events had miniature horses and mules attend. A higher percentage of events in New York had ponies attend compared to events in California, Colorado, and Texas. A higher percentage of events in Colorado (17.1 percent) had miniature horses attend compared to events in New York (2.9 percent). A higher percentage of events in Colorado had donkeys attend compared to events in Florida, Kentucky, and New York. A higher percentage of events in Colorado had mules attend compared to events in Florida and New York.

a. Percentage of events by type of attending equids and by State:

Percent Events														
State														
	California		Colorado		Florida		Kentucky		New York		Texas		All	
Type	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Horse	97.8	(2.1)	97.7	(1.1)	95.5	(1.4)	100.0	(--)	100.0	(--)	96.9	(3.0)	98.0	(1.2)
Pony	36.6	(6.3)	42.4	(4.0)	59.7	(3.8)	56.6	(7.5)	76.2	(7.6)	28.1	(7.0)	43.2	(3.5)
Miniature horse	8.5	(3.9)	17.1	(3.2)	9.4	(2.2)	13.8	(5.3)	2.9	(1.8)	14.3	(5.9)	10.4	(2.5)
Donkey	2.2	(2.0)	9.9	(2.6)	2.3	(0.9)	0.0	(--)	0.0	(--)	2.7	(2.0)	2.0	(0.9)
Mule	16.9	(5.2)	16.8	(3.0)	6.8	(1.6)	15.0	(5.4)	2.0	(1.8)	5.2	(3.6)	10.1	(2.2)
Other	2.0	(2.0)	0.0	(--)	0.0	(--)	0.0	(--)	0.0	(--)	0.0	(--)	0.7	(0.7)

The percentages of events by type of attending equids and by event scope did not differ, when considering the estimates' standard errors.

b. Percentage of events by type of attending equids and by event scope:

Percent Events						
Event Scope						
	National		Regional		State	
Type	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Horse	97.1	(2.5)	100.0	(--)	98.0	(1.8)
Pony	34.3	(5.6)	57.5	(8.1)	44.7	(5.9)
Miniature horse	14.1	(4.7)	3.9	(2.2)	10.0	(3.8)
Donkey	2.8	(1.7)	1.2	(0.6)	1.7	(1.6)
Mule	10.6	(3.5)	13.1	(5.9)	8.0	(3.3)
Other	0.0	(--)	0.0	(--)	1.7	(1.6)

A higher percentage of show/trial events (54.9 percent) had ponies attend compared to race/polo events (11.5 percent).

c. Percentage of events by type of attending equids and by event type:

Type	Percent Events							
	Event Type							
	Show/Trial		Western Event/ Fair/Rodeo		Race/Polo		Other	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	
Horse	96.6	(2.1)	100.0	(--)	100.0	(--)	100.0	(--)
Pony	54.9	(5.1)	29.9	(7.5)	11.5	(3.9)	29.7	(9.8)
Miniature horse	11.7	(3.5)	12.4	(5.7)	2.3	(1.4)	5.3	(4.6)
Donkey	0.2	(0.1)	4.1	(3.1)	3.5	(2.3)	5.3	(4.6)
Mule	7.2	(2.5)	8.0	(3.7)	2.1	(1.7)	28.2	(9.8)
Other	1.2	(1.2)	0.0	(--)	0.0	(--)	0.0	(--)



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## C. Livestock Present at Event

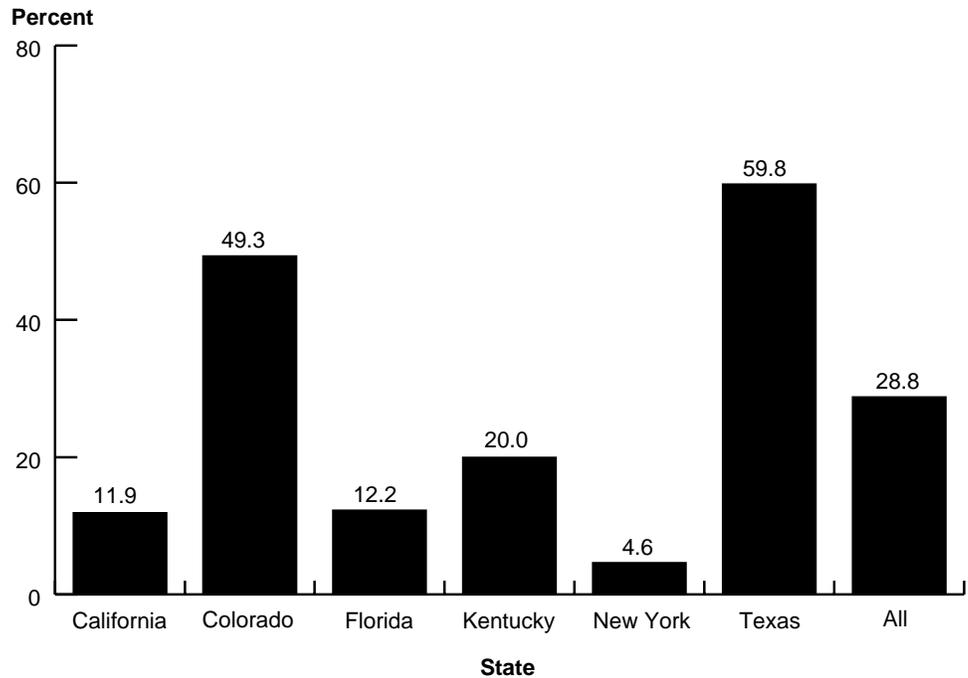
### 1. Types of other livestock

Overall, cattle were the most common animals other than equids to attend events. Similar percentages of events had sheep and goats attend. Events in Colorado and Texas had a higher percentage of events with cattle compared to events in California, Florida, Kentucky, and New York. California had the lowest percentage of events with sheep. “Other” livestock present included rabbits, yak, bison, poultry, and dogs. Some animals included in the “other” category—e.g., dogs, poultry, and rabbits—would not typically be considered livestock but were reported as such on completed study questionnaires.

a. Percentage of events by type of other livestock present and by State:

Percent Events														
State														
	California		Colorado		Florida		Kentucky		New York		Texas		All	
Type	Pct.	Std. Err.	Pct.	Std. Err.	Pct.	Std. Err.	Pct.	Std. Err.	Pct.	Std. Err.	Pct.	Std. Err.	Pct.	Std. Err.
Cattle	11.9	(4.4)	49.3	(4.0)	12.2	(2.7)	20.0	(5.9)	4.6	(3.9)	59.8	(7.2)	28.8	(3.1)
Sheep	0.1	(0.1)	17.1	(3.2)	7.4	(2.2)	13.7	(5.4)	6.6	(4.3)	4.2	(2.6)	4.7	(1.3)
Goats	3.7	(2.5)	15.0	(3.0)	10.0	(2.5)	15.4	(5.4)	7.6	(4.4)	2.4	(2.0)	5.7	(1.4)
Camelids (llamas, alpacas)	0.1	(0.1)	7.8	(2.4)	2.6	(1.4)	0.0	(--)	4.6	(3.9)	2.1	(2.0)	1.8	(0.9)
Pigs	0.1	(0.1)	7.8	(2.4)	2.6	(1.4)	6.0	(3.8)	4.6	(3.9)	2.1	(2.0)	2.4	(1.0)
Other	0.0	(--)	7.9	(2.5)	0.0	(--)	3.0	(2.8)	9.5	(4.7)	0.0	(--)	2.0	(0.8)

**Percentage of Events with Cattle Present, by State**



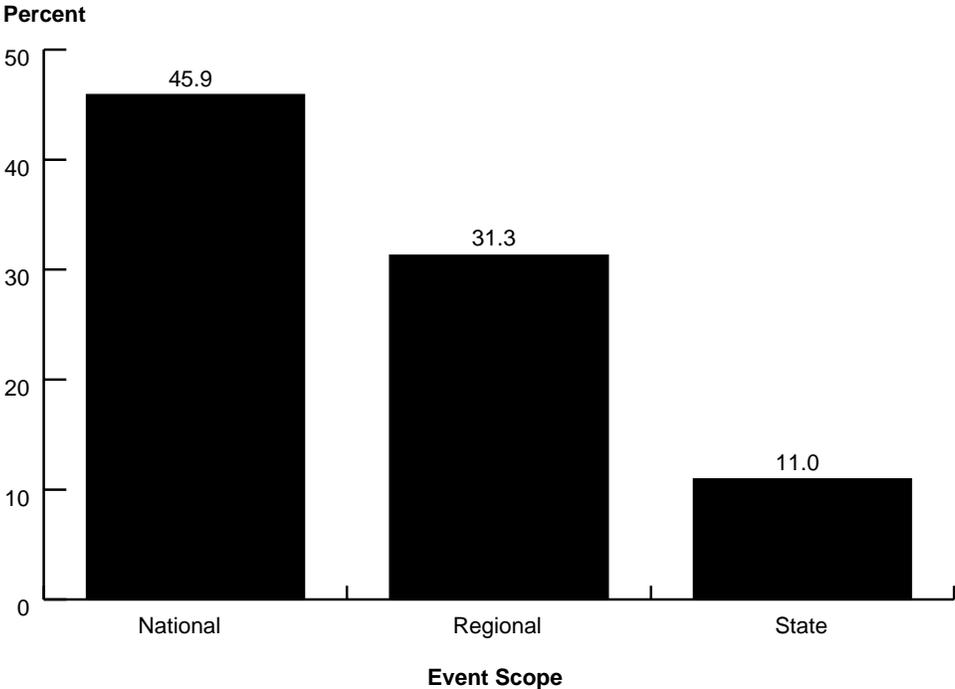
A higher percentage of National events (45.9 percent) had cattle attend compared to State events (11.0 percent). The percentages of events with sheep or goats attending did not differ for National, Regional, and State events, when considering the estimates' standard errors.

b. Percentage of events by type of other livestock present and by event scope:

Type	Percent Events					
	Event Scope					
	National		Regional		State	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Cattle	45.9	(5.9)	31.3	(7.7)	11.0	(4.0)
Sheep	6.5	(2.5)	8.6	(4.0)	1.0	(0.8)
Goats	7.4	(2.7)	4.7	(1.9)	4.5	(2.1)
Camelids (llamas, alpacas)	4.3	(2.3)	0.0	(--)	0.2	(0.1)
Pigs	4.3	(2.3)	1.6	(1.5)	1.0	(0.8)
Other	2.7	(1.1)	1.7	(1.5)	1.6	(1.5)

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**Percentage of Events with Cattle Present, by Event Scope**



Western event/fair/rodeo events had the highest percentage of events (86.9 percent) attended by cattle. A higher percentage of western event/fair/rodeo and race/polo events had goats compared to show/trial events. Goats are often used as companions for horses kept at race tracks. A higher percentage of western event/fair/rodeo events had camelids and pigs compared to show/trial or “other” events.

c. Percentage of events by type of other livestock present and by event type:

Animal	Percent Events							
	Event Type							
	Show/Trial		Western Event/Fair/ Rodeo		Race/Polo		Other	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Cattle	13.3	(3.7)	86.9	(4.6)	1.1	(0.7)	13.8	(7.8)
Sheep	1.9	(0.9)	16.2	(5.3)	1.1	(0.7)	0.0	(--)
Goats	2.3	(0.9)	11.2	(4.4)	19.1	(9.2)	4.8	(4.6)
Camelids (llamas, alpacas)	0.1	(0.1)	7.3	(4.1)	1.1	(0.7)	0.0	(--)
Pigs	0.7	(0.5)	8.9	(4.3)	1.1	(0.7)	0.0	(--)
Other	3.1	(1.4)	1.0	(0.4)	1.2	(1.1)	0.0	(--)

## D. Requirements for Attending Equids

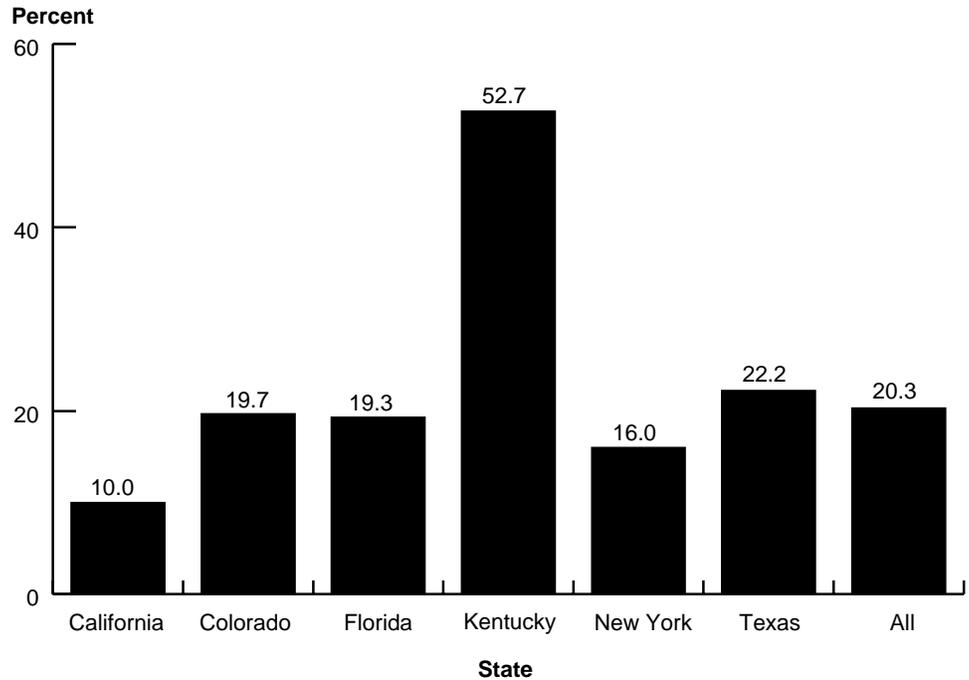
### 1. Health certificates

Overall, 57.1 percent of events did not require a health certificate for equids attending the event. A higher percentage of events in Kentucky had some health requirement compared to the other States. "Health certificates only for certain equids" refers to horses that were a specified distance from the event or for horses traveling from areas with known disease occurrence.

a. Percentage of events by health-certificate requirement and by State:

Requirement	Percent Events												
	State												
	California		Colorado		Florida		Kentucky		New York		Texas		All
	Std. Pct. Err.												
Health certificate for all equids	10.0 (4.1)	19.7 (3.3)	19.3 (3.1)	52.7 (7.5)	16.0 (6.6)	22.2 (6.6)	20.3 (2.9)						
Health certificate only for equids from out of State	11.1 (4.2)	17.7 (2.7)	25.9 (3.3)	30.7 (7.1)	19.9 (6.7)	32.4 (7.8)	22.4 (3.3)						
Health certificate not required	78.9 (5.3)	55.2 (4.0)	54.8 (3.9)	16.6 (5.5)	64.1 (8.4)	45.4 (8.1)	57.1 (3.6)						
Health certificate only for certain equids	0.0 (--)	7.4 (2.2)	0.0 (--)	0.0 (--)	0.0 (--)	0.0 (--)	0.2 (0.1)						
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0						

**Percentage of Events that Required a Health Certificate for All Equids, by State**

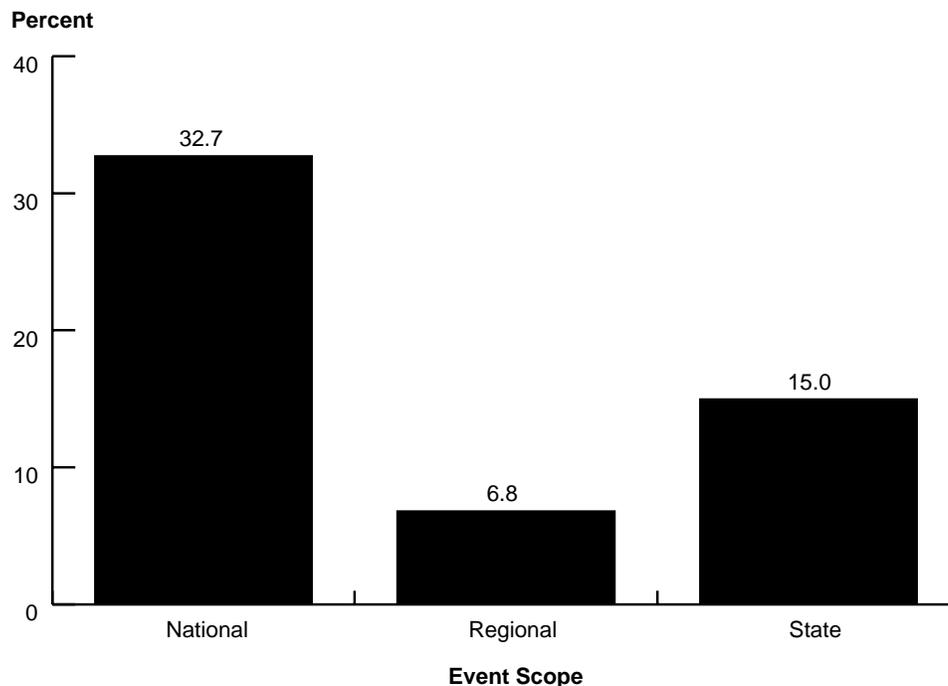


A higher percentage of National events had some health-certificate requirement compared to Regional and State events.

b. Percentage of events by health-certificate requirement and by event scope:

Requirement	Percent Events					
	Event Scope					
	National		Regional		State	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Health certificate for all equids	32.7	(5.8)	6.8	(2.7)	15.0	(4.2)
Health certificate only for equids from out of State	32.2	(6.0)	28.3	(7.5)	9.9	(3.9)
Health certificate not required	34.9	(5.9)	64.9	(7.6)	74.7	(5.3)
Health certificate only for certain equids	0.2	(0.1)	0.0	(--)	0.4	(0.1)
Total	100.0		100.0		100.0	

### Percentage of Events that Required a Health Certificate for All Equids, by Event Scope

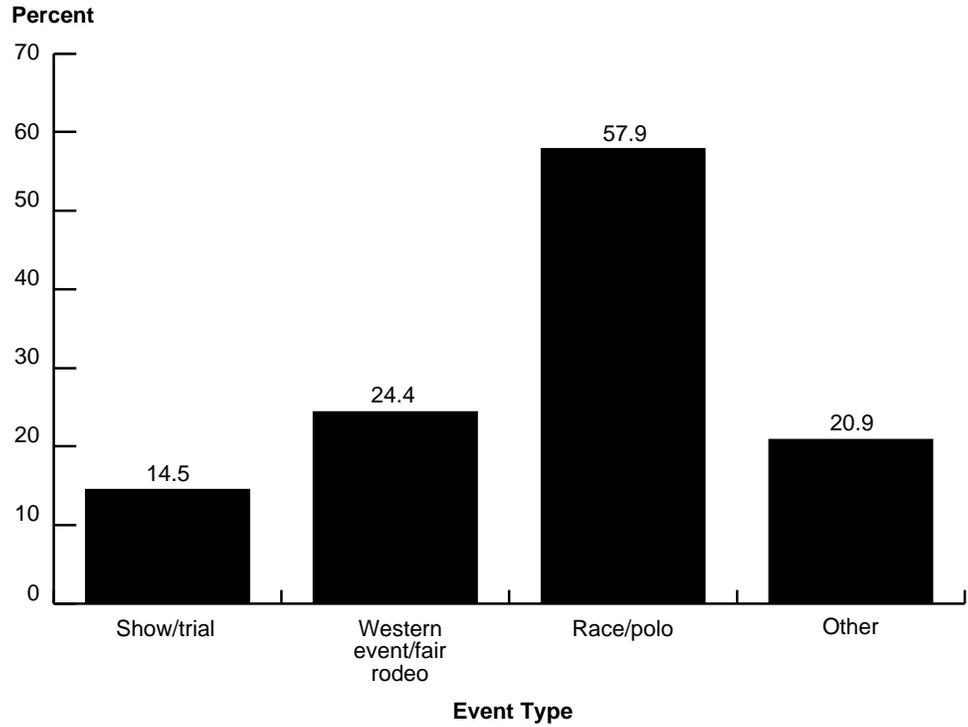


A higher percentage of race/polo events required a health certificate for all equids (57.9 percent) compared to show/trial events (14.5 percent).

c. Percentage of events by health-certificate requirement and by event type:

Requirement	Percent Events							
	Event Type							
	Show/Trial		Western Event/Fair/Rodeo		Race/Polo		Other	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	
Health certificate for all equids	14.5	(3.2)	24.4	(7.7)	57.9	(12.5)	20.9	(9.0)
Health certificate only for equids from out of State	24.8	(4.5)	27.6	(8.3)	16.2	(9.0)	7.7	(4.0)
Health certificate not required	60.5	(4.8)	48.0	(9.0)	25.9	(11.7)	70.9	(9.1)
Health certificate only for certain equids	0.2	(0.1)	0.0	(--)	0.0	(--)	0.5	(0.3)
Total	100.0		100.0		100.0		100.0	

**Percentage of Events that Required a Health Certificate for All Equids, by Event Type**



For events that required a health certificate, 70.7 percent required that health certificates be inspected visually by an official at the event.

d. For events that required health certificates, percentage of events that required health certificates be inspected visually by an official at the event:

Percent Events	Standard Error
70.7	(5.4)

For events that required a health certificate, 10.8 percent received health certificates in an electronic form.

e. For events that required health certificates, percentage of events that received health certificates in an electronic form:

<b>Percent Events</b>	<b>Standard Error</b>
10.8	(4.1)

Health certificates may have been required more than once during an event. For events that required a health certificate, almost half (45.3 percent) required a health certificate to enter the event facility, followed by after entering the facility but prior to competition or sale (38.0 percent of events) and prior to arrival at the event (23.8 percent of events). "Other" requirements included upon request and if there was a complaint.

f. For events that required health certificates, percentage of events by when certificate was required:

<b>Certificate Required . . .</b>	<b>Percent Events</b>	<b>Standard Error</b>
Prior to arrival at event	23.8	(5.1)
To enter facility	45.3	(5.7)
After entering facility but before competition/sale	38.0	(5.4)
Other	0.3	(0.1)

Health certificates may have been required for more than one reason. For events that required a health certificate, approximately 8 of 10 (84.6 percent) required health certificates for interstate movement, followed by event requirement (41.9 percent of events) and State requirement for intrastate movement (32.3 percent of events). “Other” reasons included venue requirement (as opposed to event requirement).

g. For events that required health certificates, percentage of events by reason certificate required:

<b>Reason</b>	<b>Percent Events</b>	<b>Standard Error</b>
State requirement for intrastate movement	32.3	(5.1)
State requirement for interstate movement	84.6	(4.1)
Event requirement	41.9	(5.7)
Other	4.7	(1.6)

Information on health certificates may include animal age, sex, breed, owner’s name, etc. Overall, 17.1 percent of events that required a health certificate recorded information from health certificates as part of event records.

h. For events that required health certificates, percentage of events where any information from certificates were recorded as part of event records:

<b>Percent Events</b>	<b>Standard Error</b>
17.1	(4.3)

For events that required health certificates, the consequences of an attendee showing up without a health certificate varied. The highest percentage of events (43.9 percent) sent equids without health certificates home, followed by allowed to stay without quarantine but required to make the animal legal during the event ( 26.7 percent of events). Only 12 percent of events allowed equids without health certificates to stay without any restrictions. “Other” consequences of not having health certificates included could stay but not participate in event; required to send in proof; local veterinarian provides health certificate; do not check the health certificate, just require it.

i. For events that required health certificates, percentage of events by consequence of not having required health certificate:

Consequence	Percent Events	Std. Error
Sent home	43.9	(6.0)
Allowed to stay under quarantine until made “legal”	10.0	(3.4)
Allowed to stay without quarantine but required to “make animal(s) legal” during event	26.7	(5.3)
Allowed to stay unrestricted	12.0	(4.1)
Other	7.4	(3.0)
Total	100.0	

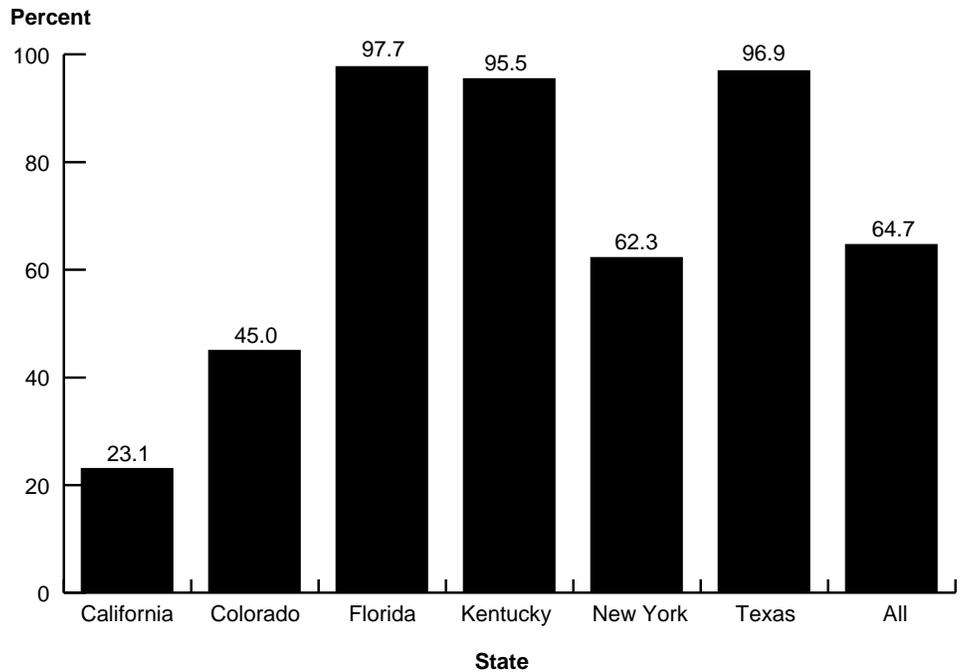
## 2. Equine infectious anemia (EIA) tests

Overall, nearly two of three events (64.7 percent) required an EIA (Coggins) test for attending equids. A higher percentage of events in Kentucky, Florida, and Texas (over 95 percent) required an EIA test compared to events in Colorado, California, and New York.

a. Percentage of events that required an EIA (Coggins) test for attending equids, by State:

Percent Events							
State							
California	Colorado	Florida	Kentucky	New York	Texas	All	
Std. Pct.	Std. Pct.	Std. Pct.	Std. Pct.	Std. Pct.	Std. Pct.	Std. Pct.	Std. Pct.
Error	Error	Error	Error	Error	Error	Error	Error
23.1 (5.7)	45.0 (4.0)	97.7 (1.0)	95.5 (1.8)	62.3 (9.3)	96.9 (3.0)	64.7	(2.8)

**Percentage of Events that Required an EIA (Coggins) Test for Attending Equids, by State**



EIA tests are often required for horses traveling interstate, and particularly for horses traveling between regions. Four of five National events (79.9 percent) required an EIA test for attending equids compared to State events (47.3 percent).

b. Percentage of events that required an EIA (Coggins) test for attending equids, by event scope:

Percent Events					
Event Scope					
National		Regional		State	
Percent	Std. Error	Percent	Std. Error	Percent	Std. Error
79.9	(4.7)	70.2	(7.6)	47.3	(5.3)

The percentages of events by event type that required an EIA test for attending equids did not differ, when considering the estimates' standard errors.

c. Percentage of events that required an EIA (Coggins) test for attending equids, by event type:

<b>Percent Events</b>							
<b>Event Type</b>							
<b>Show/Trial</b>		<b>Western Event/ Fair/Rodeo</b>		<b>Race/Polo</b>		<b>Other</b>	
<b>Pct.</b>	<b>Std. Error</b>	<b>Pct.</b>	<b>Std. Error</b>	<b>Pct.</b>	<b>Std. Error</b>	<b>Pct.</b>	<b>Std. Error</b>
64.0	(4.2)	77.3	(6.7)	70.0	(12.1)	45.9	(9.4)

For events that required an EIA test for attending equids, the events were equally likely to require proof of testing prior to arrival, to enter facility, and after entering but before competition/sale.

d. For events that required an EIA (Coggins) test for attending equids, percentage of events by when proof of test was required:

<b>Proof Required . . .</b>	<b>Percent Events</b>	<b>Std. Error</b>
Prior to arrival at event	37.2	(4.7)
To enter facility	42.9	(4.9)
After entering but before competition/sale	38.4	(4.9)
Other	0.8	(0.5)

For events that required an EIA test for attending equids, the most common reasons for requiring the test were State requirement for interstate movement, event requirement, and State requirement for intrastate movement. “Other” reasons included venue requirement or association requirement. A test may have been required for more than one reason.

e. For events that required an EIA (Coggins) test for attending equids, percentage of events by reason test was required:

<b>Reason</b>	<b>Percent Events</b>	<b>Standard Error</b>
State requirement for intrastate movement	81.3	(3.5)
State requirement for interstate movement	94.7	(1.9)
Event requirement	84.1	(3.7)
Organization requirement	53.6	(5.1)
Participants request that all equids be tested	14.2	(3.2)
Health protection of equids at event	49.6	(4.9)
Other	5.1	(2.0)

Two of three events that required an EIA test (66.7 percent) sent equids without proof of an EIA test home. “Other” consequences of not having proof of an EIA test included do not check EIA papers, not allowed to participate in event, and required to send in proof.

f. For events that required an EIA (Coggins) test for attending equids, percentage of events by consequences of not having required proof of EIA test:

<b>Consequence</b>	<b>Percent Events</b>	<b>Standard Error</b>
Sent home	66.7	(4.5)
Allowed to stay under quarantine until made “legal”	9.8	(2.9)
Allowed to stay without quarantine but required to “make animal(s) legal” during event	12.8	(3.3)
Allowed to stay unrestricted	8.3	(2.7)
Other	2.4	(1.0)
Total	100.0	

### 3. Individual animal identification

Overall, about half of events (48.8 percent) verified individual animal identification (ID). A higher percentage of Texas events verified individual animal ID compared to California, Colorado, and Kentucky events.

a. Percentage of events that verified individual animal ID, by State:

Percent Events													
State													
California		Colorado		Florida		Kentucky		New York		Texas		All	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
31.6	(6.3)	43.5	(3.9)	49.7	(3.8)	40.0	(7.6)	42.3	(9.4)	72.4	(7.1)	48.8	(3.7)

The percentages of events that verified individual animal ID did not differ by event scope, when considering the estimates' standard errors.

b. Percentage of events that verified individual animal ID, by event scope:

Percent Events					
Event Scope					
National		Regional		State	
Percent	Std. Error	Percent	Std. Error	Percent	Std. Error
55.2	(6.0)	52.3	(8.6)	40.8	(6.2)

A higher percentage of show/trial events (57.6 percent) verified individual animal ID compared to “other” events (24.6 percent). Over half of show/trial and race/polo events verified individual animal ID.

c. Percentage of events that verified individual animal ID, by event type:

<b>Percent Events</b>							
<b>Event Type</b>							
<b>Show/Trial</b>		<b>Western Event/ Fair/Rodeo</b>		<b>Race/Polo</b>		<b>Other</b>	
<b>Pct.</b>	<b>Std. Error</b>	<b>Pct.</b>	<b>Std. Error</b>	<b>Pct.</b>	<b>Std. Error</b>	<b>Pct.</b>	<b>Std. Error</b>
57.6	(4.8)	38.0	(8.9)	59.8	(12.5)	24.6	(9.5)

The highest percentages of events used match to registration papers and match to health certificate and/or EIA test paperwork to verify ID. “Other” methods included entry form, know by sight, and event registration. Events may have used more than one method to verify ID.

d. For events that verified individual animal ID, percentage of events by method used to verify ID:

<b>Method</b>	<b>Percent Events</b>	<b>Standard Error</b>
Match to registration papers	48.7	(5.6)
Match to health certificate and/or EIA test paper	55.5	(5.6)
Microchip scanned	0.1	(0.1)
Tattoo	12.5	(3.7)
Freeze brand	11.2	(3.8)
Brand inspection	6.4	(2.3)
Bill of sale	2.2	(1.1)
Event-specific ID (backtag, stall number)	20.6	(4.7)
Smart cards	0.1	(0.1)
Passport	17.1	(4.0)
Other	8.5	(3.5)

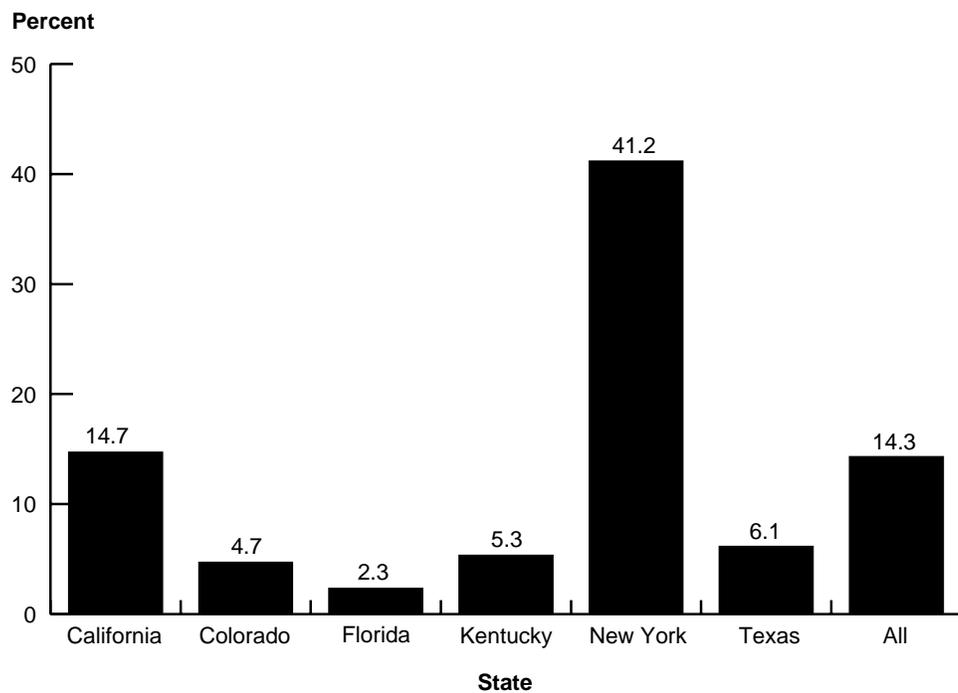
#### 4. Vaccinations

Overall, 14.3 percent of events had some vaccination requirement for attending equids. A higher percentage of events in New York required some type vaccination compared to events in Colorado, Florida, Kentucky, and Texas.

a. Percentage of events that required any vaccinations for attending equids, by State:

Percent Events													
State													
California		Colorado		Florida		Kentucky		New York		Texas		All	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
14.7	(4.6)	4.7	(1.5)	2.3	(0.9)	5.3	(3.0)	41.2	(9.2)	6.1	(4.1)	14.3	(2.6)

**Percentage of Events that Required Any Vaccinations for Attending Equids, by State**



The percentages of events that required any vaccinations for attending equids did not differ by event scope, when considering the estimates' standard errors.

b. Percentage of events that required any vaccinations for attending equids, by event scope:

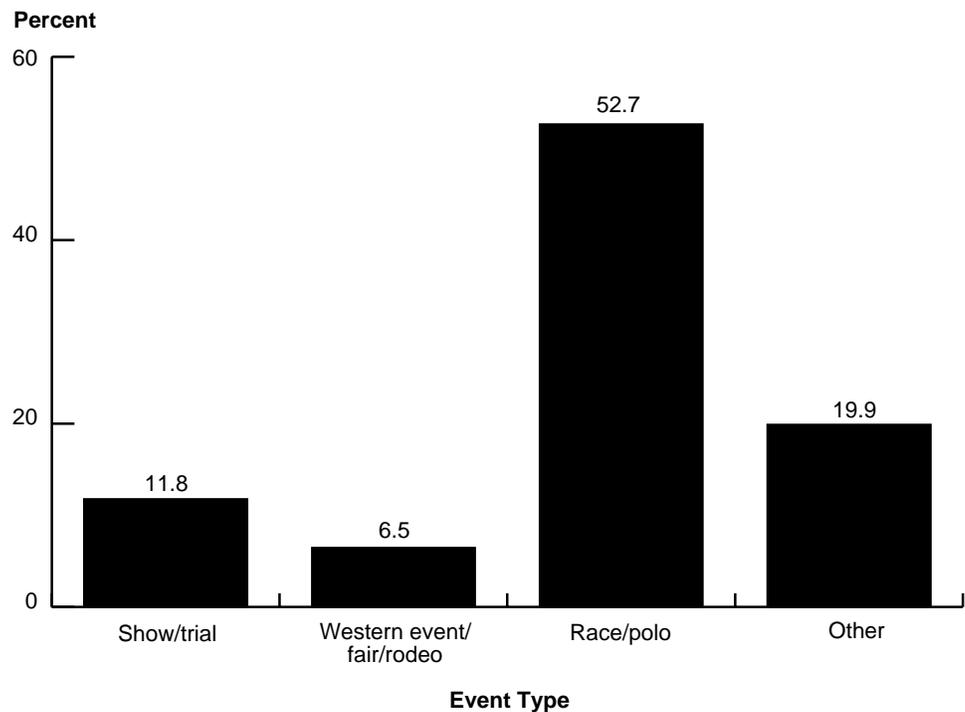
<b>Percent Events</b>					
<b>Event Scope</b>					
<b>National</b>		<b>Regional</b>		<b>State</b>	
<b>Percent</b>	<b>Std. Error</b>	<b>Percent</b>	<b>Std. Error</b>	<b>Percent</b>	<b>Std. Error</b>
16.8	(4.4)	10.8	(5.5)	13.7	(4.3)

A higher percentage of race/polo events (52.7 percent) required any vaccinations for attending equids compared to show/trial and western event/fair/rodeo events (11.8 and 6.5 percent, respectively).

c. Percentage of events that required any vaccinations for attending equids, by event type:

<b>Percent Events</b>							
<b>Event Type</b>							
<b>Show/Trial</b>		<b>Western Event/ Fair/Rodeo</b>		<b>Race/Polo</b>		<b>Other</b>	
<b>Pct.</b>	<b>Std. Error</b>	<b>Pct.</b>	<b>Std. Error</b>	<b>Pct.</b>	<b>Std. Error</b>	<b>Pct.</b>	<b>Std. Error</b>
11.8	(3.2)	6.5	(3.7)	52.7	(12.4)	19.9	(8.9)

### Percentage of Events that Required Any Vaccinations for Attending Equids, by Event Type



Events may have required more than one type of vaccination. Study participants were made aware that the vaccine for Venezuelan equine encephalitis was not the same as the vaccines for West Nile virus (WNV) or Eastern equine encephalitis (EEE). For events that had some type of vaccination requirement, about half required vaccinations for herpesvirus, influenza, and rabies. “Other” vaccines required included tetanus, WNV, and EEE vaccines.

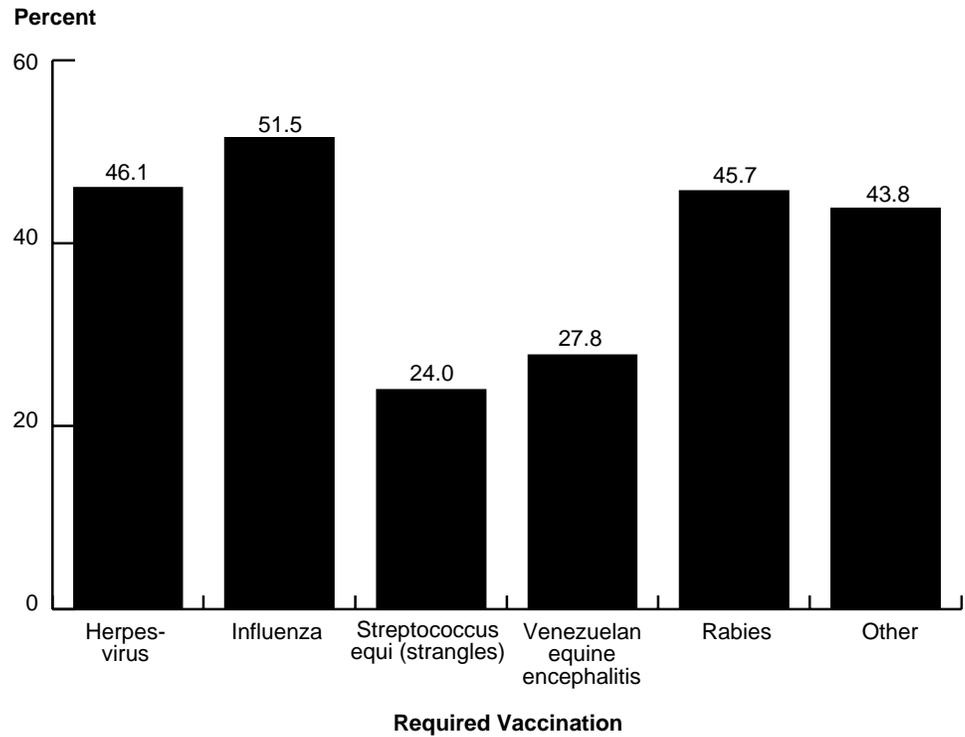
d. For events that required any vaccination of attending equids, percentage of events by required vaccination:

#### Percent Events

##### Required Vaccination

Herpesvirus		Influenza		Streptococcus Equi (Strangles)		Venezuelan Equine Encephalitis		Rabies		Other	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
46.1	(9.8)	51.5	(9.7)	24.0	(8.6)	27.8	(9.7)	45.7	(9.2)	43.8	(9.7)

**For Events that Required Any Vaccination of Attending Equids, Percentage of Events by Required Vaccination**



**E. Equine Management During Event**

**1. Veterinarian hired or provided to monitor for equine illness or provide care**

Overall, 22.8 percent of events had a veterinarian on site (either hired or provided by a government agency) specifically to monitor attending equids for illness. The percentages of events that had a veterinarian on site (either hired or provided by a government agency) specifically to monitor attending equids for illness did not differ by event scope, when considering the estimates' standard errors.

a. Percentage of events that had a veterinarian on site (either hired or provided by a government agency) specifically to monitor attending equids for illness, by event scope:

Percent Events							
Event Scope							
National		Regional		State		All	
Percent	Std. Error	Percent	Std. Error	Percent	Std. Error	Percent	Std. Error
29.1	(5.2)	16.9	(6.9)	20.1	(5.1)	22.8	(3.3)

A higher percentage of race/polo and “other” events had a veterinarian on site than did western event/fair/rodeo events.

b. Percentage of events that had a veterinarian on site (either hired or provided by a government agency) specifically to monitor attending equids for illness, by event type:

Percent Events							
Event Type							
Show/Trial		Western Event/ Fair/Rodeo		Race/Polo		Other	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
22.0	(4.1)	6.5	(3.3)	43.3	(12.7)	41.7	(10.6)

For events where equids were examined by a veterinarian, the two most common reasons for the examination were organization requirement (79.3 percent of events) and event requirement (69.3 percent of events).

c. For events where equids were examined by a veterinarian, percentage of events by reason for veterinary examination:

Percent Events							
Reason for Examination							
State Requirement		Event Requirement		Organization Requirement		Other	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
11.9	(4.5)	69.3	(7.3)	79.3	(6.0)	0.0	(--)

Overall, 67.5 percent of events contracted with a veterinarian or veterinary practice to provide health care for equids if illness or injury occurred. **These are not necessarily the same veterinarians represented in tables a and b, in which veterinarians were either hired or provided by a government agency specifically to monitor equids for signs of illness.** The percentages of events that contracted with a veterinarian or veterinary practice to provide health care for equids did not differ by event scope, when considering the estimates' standard errors.

d. Percentage of events that contracted with a veterinarian or veterinary practice to provide health care for equids, by event scope:

Percent Events							
Event Scope							
National		Regional		State		All	
Percent	Std. Error	Percent	Std. Error	Percent	Std. Error	Percent	Std. Error
73.4	(6.0)	64.9	(8.1)	63.4	(6.1)	67.5	(3.7)

The percentages of events that contracted with a veterinarian or veterinary practice to provide health care for equids did not differ by event type, when considering the estimates' standard errors.

e. Percentage of events that contracted with a veterinarian or veterinary practice to provide health care for equids, by event type:

Percent Events							
Event Type							
Show/Trial		Western Event/ Fair/Rodeo		Race/Polo		Other	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
76.4	(4.5)	49.7	(9.0)	74.2	(9.4)	57.0	(10.3)

## 2. Equine housing at event

Overall, 81.6 percent of events provided equine housing. The percentages of events that provided housing (e.g., stall, pens) did not differ by event scope, when considering the estimates' standard errors.

a. Percentage of events that provided equine housing (e.g., stall, pens), by event scope:

Percent Events							
Event Scope							
National		Regional		State		All	
Percent	Std. Error	Percent	Std. Error	Percent	Std. Error	Percent	Std. Error
86.4	(4.2)	69.6	(8.2)	83.1	(4.6)	81.6	(2.9)

A higher percentage of show/trial events provided equine housing than "other" events. However, "other" events included organized trail rides, which are not as likely to provide equine housing.

b. Percentage of events that provided equine housing (e.g., stall, pens), by event type:

Percent Events							
Event Type							
Show/Trial		Western Event/ Fair/Rodeo		Race/Polo		Other	
Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
89.9	(2.9)	78.1	(7.1)	78.9	(9.4)	55.0	(10.7)

For events that provided equine housing, the majority (81.8 percent) routinely did some form of cleaning and/or disinfecting of housing areas prior to the event. The percentages of events that provided equine housing and routinely cleaned and/or disinfected the housing areas prior to the event did not differ by event scope, when considering the estimates' standard errors.

c. For events that provided equine housing, percentage of events that routinely cleaned and/or disinfected housing areas prior to event, by event scope:

<b>Percent Events</b>							
<b>Event Scope</b>							
<b>National</b>		<b>Regional</b>		<b>State</b>		<b>All</b>	
<b>Percent</b>	<b>Std. Error</b>	<b>Percent</b>	<b>Std. Error</b>	<b>Percent</b>	<b>Std. Error</b>	<b>Percent</b>	<b>Std. Error</b>
87.3	(4.8)	64.8	(10.0)	83.4	(5.4)	81.8	(3.5)

For events that provided equine housing, all race/polo events routinely cleaned and/or disinfected housing areas prior to the event.

d. For events that provided equine housing, percentage of events that routinely cleaned and/or disinfected housing areas prior to event, by event type:

<b>Percent Events</b>							
<b>Event Type</b>							
<b>Show/Trial</b>		<b>Western Event/ Fair/Rodeo</b>		<b>Race/Polo</b>		<b>Other</b>	
<b>Pct.</b>	<b>Std. Error</b>	<b>Pct.</b>	<b>Std. Error</b>	<b>Pct.</b>	<b>Std. Error</b>	<b>Pct.</b>	<b>Std. Error</b>
77.3	(4.9)	87.0	(5.8)	100.0	(--)	88.2	(8.5)

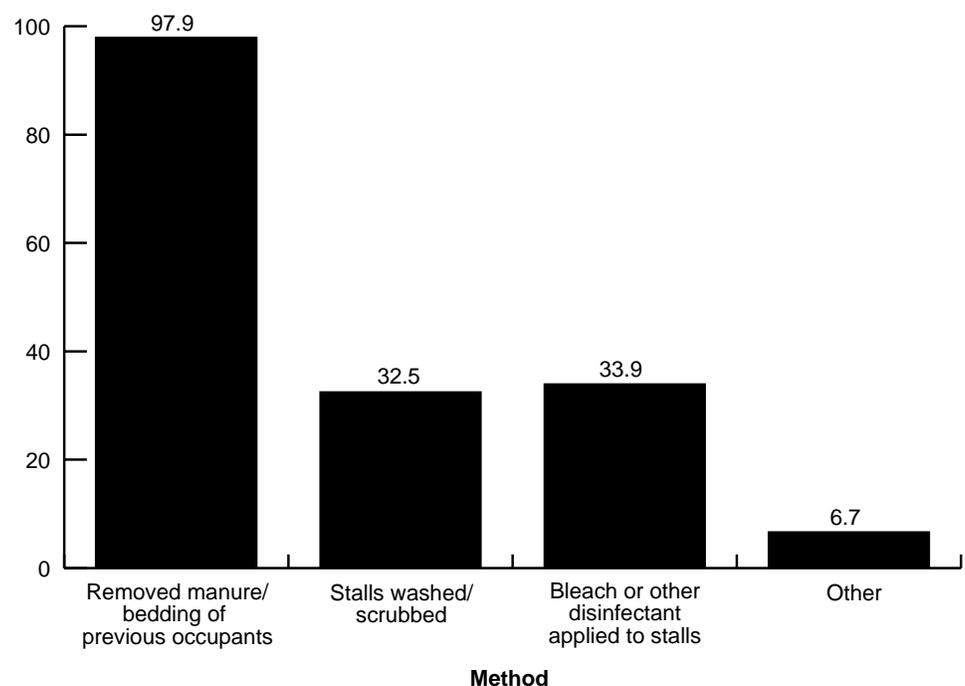
For events that provided equine housing and routinely cleaned and/or disinfected housing areas prior to the event, the majority (97.9 percent) removed the manure/bedding of previous occupants. Approximately one-third of events (32.5 percent) washed or scrubbed stalls, and about one-third (33.9 percent) applied bleach or other disinfectant to stalls. “Other” methods of cleaning or disinfection included added fresh bedding, water containers cleaned or drinking water changed, applied lime to stall floors, painted, and kept stalls empty for a time.

e. For events that provided equine housing and routinely cleaned and disinfected housing prior to the event, percentage of events by cleaning method:

Method	Pct. Events	Std. Error
Removed manure/bedding of previous occupants	97.9	(1.3)
Stalls washed/scrubbed	32.5	(4.6)
Bleach or other disinfectant applied to stalls	33.9	(4.6)
Other	6.7	(2.5)

**For Events That Provided Equine Housing and Routinely Cleaned and Disinfected Housing Prior to the Event, Percentage of Events by Cleaning Method**

Percent



**3. Insect control at event**

Examples of insect-control measures included spray at facility prior to or during the event and equine owner applies own insect control. Overall, about half the events (49.5 percent) did not use insect control on the premises. A higher percentage of events in Colorado used insect control (63.9 percent) compared to events in California and Florida (36.8 and 33.8 percent, respectively).

a. Percentage of events by use of insect control on the premises and by State:

		<b>Percent Events</b>						
		<b>State</b>						
		<b>California</b>	<b>Colorado</b>	<b>Florida</b>	<b>Kentucky</b>	<b>New York</b>	<b>Texas</b>	<b>All</b>
<b>Use</b>		<b>Std.</b>	<b>Std.</b>	<b>Std.</b>	<b>Std.</b>	<b>Std.</b>	<b>Std.</b>	<b>Std.</b>
		<b>Pct.</b>	<b>Pct.</b>	<b>Pct.</b>	<b>Pct.</b>	<b>Pct.</b>	<b>Pct.</b>	<b>Pct.</b>
		<b>Error</b>	<b>Error</b>	<b>Error</b>	<b>Error</b>	<b>Error</b>	<b>Error</b>	<b>Error</b>
Insect control used		36.8 (6.7)	63.9 (3.5)	33.8 (3.6)	43.5 (7.6)	45.7 (9.6)	43.0 (8.0)	41.8 (3.9)
Insect control not used		58.6 (6.9)	36.1 (3.5)	54.3 (3.8)	37.7 (7.4)	39.8 (9.6)	49.6 (8.2)	49.5 (4.0)
Event not held during insect season		4.6 (3.1)	0.0 (--)	11.9 (2.4)	18.8 (6.0)	14.5 (6.4)	7.4 (4.2)	8.7 (2.1)
Total		100.0	100.0	100.0	100.0	100.0	100.0	100.0

The percentages of events that used insect control on the premises did not differ by event scope, when considering the estimates' standard errors.

b. Percentage of events by use of insect control on the premises and by event scope:

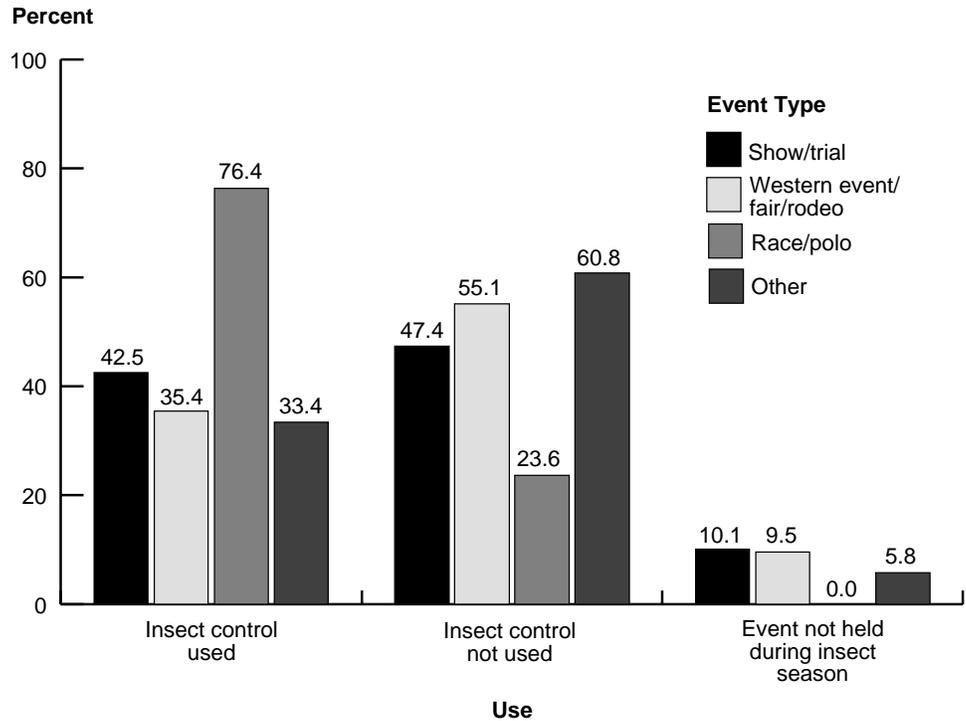
Use	Percent Events					
	Event Scope					
	National		Regional		State	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Insect control used	47.5	(6.4)	40.4	(8.2)	36.7	(6.2)
Insect control not used	42.6	(6.3)	51.9	(8.4)	55.1	(6.4)
Event not held during insect season	9.9	(3.7)	7.7	(3.8)	8.2	(3.4)
Total	100.0		100.0		100.0	

A higher percentage of race/polo events used insect control on the premises than show/trial, western event/fair/rodeo, and "other" events.

c. Percentage of events by use of insect control on the premises and by event type:

Use	Percent Events							
	Event Type							
	Show/Trial		Western Event/Fair/Rodeo		Race/Polo		Other	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Insect control used	42.5	(5.2)	35.4	(8.8)	76.4	(9.5)	33.4	(10.2)
Insect control not used	47.4	(5.2)	55.1	(9.2)	23.6	(9.5)	60.8	(10.5)
Event not held during insect season	10.1	(2.9)	9.5	(4.8)	0.0	(--)	5.8	(5.3)
Total	100.0		100.0		100.0		100.0	

**Percentage of Events by Use of Insect Control on the Premises and by Event Type**



For events that used insect control on the premises, the highest percentage reported that the equine owners applied their own insect control. Approximately four of 10 events (42.7 percent) sprayed at the facility prior to the event, and 18.8 percent sprayed at the facility during the event. “Other” methods of insect control included insect baits, insect traps, fly predators, city or county insect abatement program in area of event, bug zapper by doors, and treating of standing water in area of event. Events may have used more than one type of insect control.

d. For events that used insect control on the premises, percentage of events by method of insect control:

Method	Percent Events	Standard Error
Spray at facility prior to event	42.7	(5.8)
Spray at facility during event	18.8	(5.1)
Equine owner applies own insect control	77.4	(5.2)
Other control used	13.4	(3.6)

#### 4. Security methods at event

Overall, 41.8 percent of events had a security guard to ensure the safety of animals at the event. A higher percentage of Florida events used a security guard compared to California, New York, and Texas events. Approximately 3 of 10 events (30.6 percent) used a lock on the event entrance/exit gate.

a. Percentage of events by security measures used to ensure safety of animals and by State:

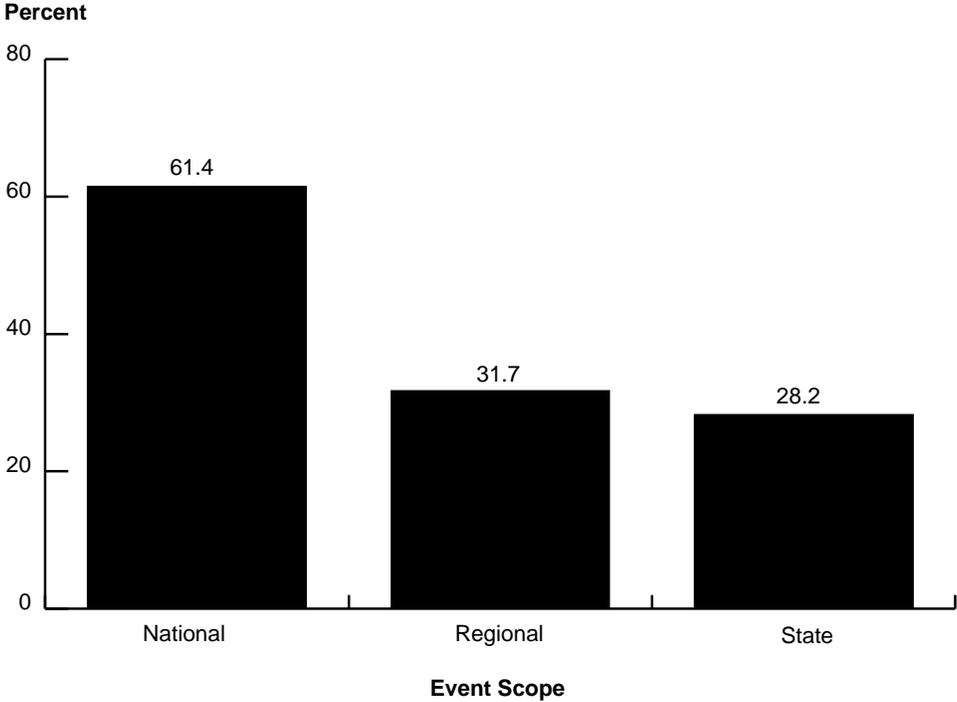
Percent Events														
State														
	California		Colorado		Florida		Kentucky		New York		Texas		All	
Measure	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Security guard	37.3	(6.6)	57.2	(3.7)	67.1	(3.5)	51.8	(7.8)	42.3	(8.5)	39.8	(7.9)	41.8	(3.8)
Security camera	2.0	(2.0)	0.0	(--)	19.6	(3.2)	1.3	(1.0)	5.6	(2.6)	0.0	(--)	2.3	(0.8)
Lock on gate to event entrance/exit	41.6	(6.8)	37.9	(4.0)	47.4	(3.9)	24.3	(6.7)	19.0	(6.7)	24.8	(7.1)	30.6	(3.6)
Ownership verified at gate when exiting	12.6	(4.5)	16.4	(3.1)	30.7	(3.5)	9.6	(4.3)	5.1	(2.6)	5.8	(3.6)	9.4	(2.1)
Other security measure	18.5	(5.5)	15.1	(3.1)	2.3	(0.9)	0.0	(--)	11.0	(5.6)	0.0	(--)	8.6	(2.1)
Any	75.6	5.7	70.6	3.5	81.3	2.9	62.9	7.7	57.3	8.8	57.9	8.1	65.4	3.8

A higher percentage of National events (61.4 percent) used a security guard to ensure the safety of animals compared to State events (28.2 percent). A higher percentage of State events (17.1 percent) used “other” security measures compared to National events (2.1 percent). Other security measures included locking stalls, knowing all participants, police patrol, self police, dog and alarm, event organizer on site, or check on horses.

b. Percentage of events by security measures used to ensure the safety of animals and by event scope:

Measure	Percent Events					
	Event Scope					
	National		Regional		State	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Security guard	61.4	(6.3)	31.7	(8.1)	28.2	(5.5)
Security camera	1.6	(0.4)	0.0	(--)	4.0	(1.9)
Lock on gate to event entrance/exit	29.4	(5.8)	26.2	(7.3)	34.0	(5.9)
Ownership verified at gate when exiting	10.6	(3.0)	3.4	(1.7)	11.2	(4.1)
Other security measure	2.1	(0.9)	4.1	(3.6)	17.1	(4.7)
Any	75.1	5.8	54.0	8.8	61.8	6.1

**Percentage of Events that Used a Security Guard to Ensure the Safety of Animals, by Event Scope**



A higher percentage of race/polo events used a security guard to ensure the safety of animals compared to show/trial and western event/fair/rodeo events.

c. Percentage of events by security measures used to ensure the safety of animals and by event type:

Percent Events								
Event Type								
Measure	Show/Trial		Western Event/Fair/Rodeo		Race/Polo		Other	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Security guard	39.6	(5.0)	36.9	(8.7)	81.4	(9.2)	41.0	(10.4)
Security camera	0.7	(0.1)	0.0	(--)	18.6	(7.0)	4.8	(4.6)
Lock on gate to event entrance/exit	20.1	(4.0)	29.4	(8.3)	47.3	(12.5)	66.8	(10.1)
Ownership verified at gate when exiting	8.8	(2.5)	3.8	(3.1)	18.5	(8.5)	16.4	(8.0)
Other security measure	8.4	(2.8)	3.8	(2.3)	12.9	(10.4)	15.0	(7.5)
Any	59.9	5.0	60.1	9.0	97.3	2.2	81.5	8.0



APHIS photo by Charles Kerlee

### 5. Event record keeping

Overall, approximately 9 of 10 events recorded participant/owner name, address, and phone number. Approximately 7 of 10 events recorded equine registration or ID number, participant/owner e-mail, and trainer name and address. A higher percentage of show/trial events recorded equine registration number or ID number compared to western event/fair/rodeo events.

a. Percentage of events by type of records kept and by event type:

Record	Percent Events									
	Event Type									
	Show/ Trial		Western Event/ Fair/ Rodeo		Race/Polo		Other		All	
	Pct.	Std. Error	Pct.	Std. Err.	Pct.	Std. Err.	Pct.	Std. Err.	Pct.	Std. Err.
Horse registration/ ID number	82.3	(4.0)	46.5	(9.0)	56.0	(12.7)	68.7	(9.8)	70.8	(3.6)
Participant/ owner name	100.0	(--)	90.2	(5.3)	94.7	(4.7)	94.5	(5.2)	96.8	(1.4)
Participant/ owner address	97.6	(1.8)	81.7	(7.2)	100.0	(--)	88.0	(7.7)	93.0	(2.2)
Participant/ owner phone number	94.3	(2.7)	78.3	(7.4)	100.0	(--)	94.1	(5.2)	91.1	(2.4)
Participant/ owner e-mail	73.6	(4.5)	45.4	(9.1)	88.7	(5.5)	79.4	(9.19)	69.0	(3.7)
Trainer name	72.6	(4.9)	N/A		72.5	(12.2)	N/A		72.6	(4.5)
Trainer address	71.0	(4.9)	N/A		72.5	(12.2)	N/A		71.1	(4.6)
Trainer phone number	65.7	(5.0)	N/A		67.2	(12.4)	N/A		65.8	(4.7)
Trainer e-mail	51.3	(5.1)	N/A		58.5	(12.5)	N/A		52.0	(4.8)

Approximately 9 of 10 events used a paper copy to record information, and about 2 of 3 recorded information electronically.

b. For events that kept one or more of the following types of records, percentage of events by method of recording:

Record	Percent Events			
	Method of Recording			
	Electronic		Paper	
	Percent	Standard Error	Percent	Standard Error
Horse registration/ ID number	67.8	(4.3)	89.1	(3.0)
Participant/ owner name	67.1	(3.8)	90.5	(2.4)
Participant/ owner address	68.6	(3.5)	89.1	(2.7)
Participant/ owner phone number	67.9	(3.6)	87.4	(2.9)
Participant/ owner e-mail	78.9	(3.8)	84.3	(3.6)
Trainer name	69.4	(5.0)	90.4	(2.9)
Trainer address	69.9	(5.1)	90.2	(3.0)
Trainer phone number	68.2	(5.4)	90.3	(3.2)
Trainer e-mail	77.8	(5.5)	85.0	(4.4)

### 6. Destination of equids following event

About half of events (55.3 percent) had equids leave the State following the event, and 1 in 10 events (9.7 percent) had equids leave the United States after the event. A lower percentage of events in California had equids leave the State after the event compared to events in the other States.

a. Percentage of events that had equids leave the State or United States after the event, by State:

Percent Events														
State														
	California		Colorado		Florida		Kentucky		New York		Texas		All	
Destination	Pct.	Std. Err.	Pct.	Std. Err.	Pct.	Std. Err.	Pct.	Std. Err.	Pct.	Std. Err.	Pct.	Std. Err.	Pct.	Std. Err.
Left State	28.8	(6.2)	79.3	(3.0)	53.9	(3.8)	78.4	(6.3)	64.6	(9.4)	68.0	(7.2)	55.3	(3.7)
Left United States	6.8	(3.2)	15.9	(3.1)	9.7	(2.3)	9.6	(4.1)	13.2	(5.6)	10.3	(4.9)	9.7	(2.2)

A higher percentage of Regional and National events had equids leave the State after the event compared to State events. Approximately 2 of 10 National events (22.1 percent) had equids leave the United States after the event.

b. Percentage of events that had equids leave the State or United States after the event, by event scope:

Percent Events						
Event Scope						
	National		Regional		State	
Destination	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Left State	93.8	(3.3)	83.3	(7.0)	4.8	(2.6)
Left United States	22.1	(4.8)	0.0	(--)	2.5	(2.4)

The percentages of events that had equids leave the State or United States after the event did not differ by event type, when considering the estimates' standard errors.

c. Percentage of events that had equids leave the State or United States after the event, by event type:

Destination	Percent Events							
	Event Type							
	Show/Trial		Western Event/ Fair/Rodeo		Race/Polo		Other	
	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error	Pct.	Std. Error
Left State	52.4	(5.0)	71.7	(8.1)	48.3	(12.5)	45.0	(10.7)
Left United States	7.6	(2.3)	14.5	(6.4)	17.6	(8.4)	7.1	(6.6)

**7. Method of contacting participants after event\***

Event coordinators were asked how they would contact event participants after the event to notify them about a disease problem. Approximately three-fourths of respondents (162/222, 73.0 percent) reported that they would contact participants by telephone. Mail (92/222, 41.4 percent) and e-mail (86/222, 38.7 percent) were also common methods of contact.

About one-fourth of respondents (67/247, 27.1 percent) reported that they had contacted event participants after an event was over. Most respondents (48/65, 73.8 percent) reported that they had contacted participants by telephone. Mail and e-mail each were used by about one-fourth of participants who had contacted participants.

\*Because these were open-ended questions, responses were summarized as simple tallies rather than weighted estimates.

## Section II: Sampling and Estimation

The domestic equine population is a mobile segment of U.S. animal agriculture. These equids move for multiple reasons, including competition, sale, and breeding. Understanding the number and scope of equine events—as well as the methods used to reduce the risk of transmission of infectious diseases at these events—can help veterinarians and others to best plan for ways to optimize the health of equids participating in these events. The goal of the NAHMS Equine 2005 Events Study was to determine the scope (number and type) of equine events in six selected States, the equine health management strategies used at these events, and the traceability of participating equids once they leave the events. The ultimate goal was to provide information that could be used to help prepare for equine infectious diseases, should they occur in equids that have attended various types of events.

### A. State Selection

The participating States were selected because they either had a USDA-operated quarantine facility for import of equids (New York, Florida, and California) or they provided regional representation of States with relatively large equine populations (Colorado, Kentucky, and Texas).

#### 1. List-building techniques

A comprehensive list of equine events in the six study States did not exist prior to the start of the NAHMS Equine 2005 Events Study. The events eligible for the list developed by NAHMS staff were those that advertised the event on the Internet for the calendar year 2004. During the initial list-building process, it became apparent that developing a list of local events (events that draw equids only from the local areas within the State they were held) was very intensive. Given the focus of the study, list building was limited to events likely to draw equids from at least a large portion of a State or from out of State. Extensive efforts were made to identify these larger events.

For sampling purposes, the categorization of the scope of an event was assigned based on information available from the event Web site. The scope category was assigned to each event by information contained in the event title, Web-site format, consistency of listing among several Web-site sources, and geographic considerations. Events with State scopes were considered likely to have participating equids primarily from within the State; Regional scope events were events likely to draw participants from within the State as well as from contiguous States. National scope events were likely to draw at least some participants from States that were not contiguous with the event State. National scope also includes events that may have had equids come from outside the United States.

Information from Web sites regarding the nature of equine events was used to categorize the events. Examples of “key” words used to search for events for list building included polo, training or clinic event, fair, race, rodeo, sale or auction, show, horse trial, organized trail ride, barrel racing, cutting, and team penning.

The date of each event and its location and name were included on the list. If an event occurred more than once in a 12-month period (e.g., a sale that occurred twice in a year with the same event title and at the same premises) it was entered onto the list both times it occurred but was assigned a common event identification number.

Once the list of events for each of the six States was developed, the individual State-level lists were distributed to the NAHMS Equine 2005 Event Study coordinator in each State to assess the completeness of the list. No events were added to the list as a result of the individual State reviews.

## **2. Event selection**

The equine event list for the six participating States formed the basis for selection of equine events. Only events categorized during the list building as National, Regional, and State scope were eligible. Some events appeared on the list more than once. For example, a sale may have occurred monthly at the same facility. An event was selected only once, even if it occurred more than once on the list. The list was collapsed by letting events appear on the list only once to evaluate the number of unique events in each State/scope stratum.

A maximum of 60 events were sampled in each State, based on available resources for data collection. The allocation of samples to each event scope was based on the total number of events in that stratum and the number of unique events. Also, National scope events were considered to be of higher importance because the event might draw a larger number of equine participants who potentially could move to a large number of locations. This movement after the event might contribute to tracing difficulties. Considering these three criteria, sampling intervals (number of events/sample size) were determined for each stratum in each State.

Strata population sizes and number of unique events for each of the six participating States, by event scope:

Population Size												
State												
California Colorado Florida Kentucky New York Texas												
Scope	Unique											
	N	N	N	N	N	N	N	N	N	N	N	N
National	171	104	55	16	275	94	37	28	185	64	123	57
Regional	328	264	312	192	129	100	221	175	156	81	476	310
State	249	172	115	84	230	107	13	8	140	62	164	100
Total	748	540	482	292	634	301	271	211	481	207	763	467

The proposed sampling interval in each stratum was used to identify equine events that occurred more times than the sampling interval. For example, in Colorado the proposed sampling interval for the Regional stratum was 10.4. Three events occurred in the data set 11 or more times (2 occurred 11 times and 1 occurred 22 times). Events were then split into two separate data sets based on whether the events occurred more frequently on the list than the sampling interval. If the events occurred more frequently than the sampling interval, the sampling was considered to be two-stage sampling with the first stage (the event) being sampled with certainty; the date of that event would then be selected randomly from all the repeated events. For the Colorado example, there were 3 events (44 occurrences) at the Regional level sampled with certainty at the first stage of sampling.

Events that occurred less frequently than the proposed sampling interval were evaluated. The original sample size in each stratum was reduced by the number of events selected with certainty. A new sampling interval was calculated based on the number of remaining events and samples still needed for the State and scope stratum. Any event that occurred more frequently than the revised sampling interval was sampled with certainty and removed from the list. A final sampling interval was calculated for the remaining events on the list and the remaining sample needed to fill the required sample size. Continuing with the Colorado example, the revised population size for the Regional stratum in Colorado was 268. The new sampling interval was 9.93 (268/27). One event occurred 10 times in the data set and was moved to the two-stage sampling data

set and sampled with certainty. This adjustment slightly altered the sampling interval to 9.92 (258/26). The data were sorted by event type and a systematic random sampling was implemented with the survey select procedure in SAS. This sampling approach allowed for a broader representation of event types without strictly stratifying the sample by event type. The procedure used the sampling rate, which is the inverse of the sampling interval (x100).

The second stage of two-stage sampling was completed by randomly selecting an event from the two-stage sampling list. For each group of first-stage events (group of repeated events), a single event and its associated date were selected for inclusion in the study. The event was then assigned a sampling weight equal to the number of repeated events. For example, the event in Colorado that occurred 22 times resulted in the selection of an event on a specific date. The observation was given a weight of 22. The State Fair from each State was selected with certainty.

### 3. Population inference

Inferences cover the population of equine events in the six target States listed on the Web and fit the criteria of being at least State-level in scope. Respondent data were weighted to represent the population. A portion of the questionnaire investigated the origin of equids that attended the events. These questions were used to reclassify the scope of the events. Based on the responses of the events, a high percentage of events had their scope category change. Notably, of the 116 responding events considered Regional in scope, only 31 remained defined as Regional when the questionnaire response was determined. Thus, the number of events classified as Regional for reporting purposes was substantially reduced. The inference for scope was based on questionnaire response rather than list-frame designation.

Comparison of event scope based on Web-site information with the event scope determined from the questionnaire response:

<b>Scope Based on Questionnaire Response</b>				
<b>Web Site Scope</b>	<b>National</b>	<b>Regional</b>	<b>State</b>	<b>Total</b>
National	44	5	25	74
Regional	47	31	38	116
State	21	15	26	62
Total	112	51	89	252

## B. Data Collection

Each State was assigned a VMO to act as the NAHMS coordinator for the Equine 2005 Events Study. A conference call was held with these VMOs prior to the initiation of the study to clarify the objectives and to review the questionnaire and list-building methods. Each study coordinator was asked to find the contact information for event coordinators/organizers for selected events in his/her State by accessing the Web site provided. NAHMS' coordinators were then to assign VMOs or AHTs in the State to contact event coordinators/organizers and set up an appointment to administer the questionnaire. The questionnaire was administered either by phone or in person. Questionnaire responses were initially validated in each State by NAHMS study coordinators. Data entry and further data validation occurred at USDA's Centers for Epidemiology and Animal Health (CEAH). Data collection for events that occurred in 2005 took place from January 9, 2005, to April 25, 2006.

## C. Data Analysis

### 1. Validation and estimation

Data entry and validation for the Equine 2005 Events Study questionnaire information were performed by CEAH personnel. Data were entered into a SAS data set. Individual records were reviewed by a team of equine health specialists and epidemiologists.

### 2. Response rates

Of the 367 events selected from the list of events in the 6 States, 34 were not held or were cancelled for the time frame of this study and were therefore ineligible for the study. Of the remaining 333 equine events, 252 (75.7 percent of eligible events) completed the Equine Event questionnaire; 57 events (17.1 percent of eligible events) were inaccessible (contact was not made).

<b>Response Category</b>	<b>Number of Events</b>	<b>Percent Events</b>	<b>Percent Eligible Events</b>
Event not held/ cancelled this year	34	9.3	NA
Refusal	24	6.5	7.2
Complete	252	68.7	75.7
Inaccessible	57	15.5	17.1
Total	367	100.00	100.0

## Appendix I: Population and Sample Profile

State	Scope (Web-based)	List (Population)	Sampled	Respondents	
				Original Scope	Reported Scope
California	National	171	19	13	16
	Regional	328	25	22	4
	State	249	17	16	31
Colorado	National	55	17	10	22
	Regional	312	32	25	13
	State	115	13	8	8
Florida	National	275	23	16	20
	Regional	129	15	11	2
	State	230	23	15	20
Kentucky	National	37	15	11	20
	Regional	221	37	27	14
	State	13	9	6	10
New York	National	185	26	15	14
	Regional	156	20	10	9
	State	140	15	8	10
Texas	National	123	16	9	20
	Regional	476	30	21	9
	State	164	15	9	10
Total		3,379	367	252	252

## Appendix II: List of Registries and Events Checked in Each State

### A. Horse Registry

American Azteca Horse InterNational Association  
American Bashkir Curly Registry  
American Buckskin Registry Association, Inc.  
American Connemara Pony Society  
American Council of Spotted Asses  
American Cream Draft Horse Association  
American Dartmoor Pony Association  
American Hackney Horse Society  
American Haflinger Registry  
American Hanoverian Society, Inc.  
American Holsteiner Horse Association  
American Indian Horse Registry, Inc.  
American Miniature Horse Association, Inc.  
American Miniature Horse Registry  
American Morgan Horse Association, Inc.  
American Mustang and Burro Association  
American Paint Horse Association  
American Quarter Horse Association  
American Saddlebred Horse Association  
American Shetland Pony Club  
American Shire Horse Association  
American Show Pony Registry  
American Sportpony Registry  
American Suffolk Horse Association  
American Trakehner Association, Inc.  
American Walking Pony Registry  
American Warmblood Registry, Inc.  
American Warmblood Society  
American Welara Pony Society  
Appaloosa Horse Club, Inc.  
Arabian Horse Registry of America, Inc.  
Belgian Warmblood Breeding Association—North American District  
Caspian Horse Society of the Americas  
Cleveland Bay Horse Society of North America  
Clydesdale Breeders of the USA  
Colorado Ranger Horse Association, Inc.  
Dales Pony Association  
Dartmoor Pony Registry of America  
Federation of North American Sport Horse Registries  
Florida Cracker Horse Association Inc.  
Galiceno Horse Breeders Association

## **B. Equine Events**

USEF—United States Equestrian Federation events  
NATRC—North American Trail Ride Conference rides  
AERC—American Endurance Ride Conference rides  
Noncompetitive Trail Riding (State or breed organized trail rides)  
(State) Hunter Jumper Association shows  
Fox hunting  
3-day eventing/horse trials/pair pace events  
Stadium jumping (Grand Prix circuit)  
Dressage  
Steeplechase (National steeplechase)  
Rodeos  
Professional Rodeo Cowboys Association  
Women’s Professional Rodeo Cowboys Association  
National High School Rodeo Association  
United States College Rodeo Association  
Youth Rodeo  
National Little Britches Rodeo Association  
Indian Rodeo  
Barrel racing (National Barrel Horse Association)  
Team penning (National Team Penning Association)  
Reining (National Reining Horse Association)  
Reined cow horse (National Reined Cow Horse Association)  
Working ranch horse/versatility ranch horse  
Cutting (National Cutting Horse Association)  
Team roping (United States Team Roping Championships)  
Calf roping (United States Calf Roping Association)  
Steer wrestling  
Equine auctions and sales  
Vaulting  
Driving (American Driving Society)  
BLM wild horse and burro adoption sales ([usgovinfo.about.com](http://usgovinfo.about.com))  
Racing (Quarter Horse, Thoroughbred, Standardbred pacing and trotting,  
Arabian, Appaloosa)  
Clinics (Pat Parelli, John Lyons, Richard Shrake, Natural Horsemanship, etc.)  
Mounted shooting  
Polo matches  
Fairs  
Draft horse pulls and shows

## Appendix III: Study Objectives and Related Outputs

1. Focus on health practices that could impact the occurrence of equine infectious diseases.

- Part I: Baseline Reference of Equine Health and Management, 2005, November 2006
- Highlights of Equine 2005 Part I information sheet, November 2006
- Equine Identification and Familiarity with the National Identification System information sheet, November 2006
- Nonambulatory Equids in the United States information sheet, November 2006
- Demographics of the U.S. Equine Population information sheet, March 2007

2. Determine health-management factors related to the control of equine infectious diseases, as implemented on-farm in the 28 participating States.

- Equine Biosecurity and Biocontainment Practices on U.S. Equine Operations information sheet, November 2006

3. Compare relevant data collected in 2005 to data collected during the NAHMS Equine '98 study.

- Part II: Changes in the U.S. Equine Industry, 1998-2005, March 2007
- Trends in Equine Mortality, 1998–2005 information sheet, March 2007
- Movement of U.S. Equids, 2005 information sheet, March 2007

4. Help identify trends in equine health management related to the control of equine infectious diseases.

- Part II: Changes in the U.S. Equine Industry, 1998-2005, March 2007
- Trends in Equine Infectious Anemia Testing (EIA) 1998–2005 information sheet, March 2007
- Trends in Biosecurity Practices on U.S. Equine Operations information sheet, March 2007

5. Gather data specific to equine vaccination.

- Part I: Baseline Reference of Equine Health and Management, 2005, November 2006
- Vaccination Practices on U.S. Equine Operations information sheet, December 2006

6. Determine the scope (number and type) of equine events in six selected States, the equine health management strategies used at these events, and the traceability of participating equids once they leave the events.

- **Baseline Reference of Equine Health Management Strategies at Equine Events in Six States, May 2007**

