



Infectious Disease Epidemiology Report

Eastern Equine Encephalitis Serosurvey, Maine 2009-2012



Background

Eastern equine encephalitis (EEE) is a viral disease that occurs in the eastern United States. EEE can cause disease in humans, horses, and some birds. Symptoms of EEE range from mild flu-like illness to encephalitis, coma, and death. EEE is one of the most serious mosquito-borne illnesses in the United States, one in three people infected will die.

There is a risk of catching a mosquito-borne disease anywhere where mosquitoes are found. In Maine, EEE is considered endemic. In 2009, Maine experienced high EEE activity with 15 horses, 3 pheasant flocks, 1 llama, and 2 mosquito pools testing positive for the virus. Many of these infections occurred in areas of the state that were not previously considered high risk. Because of this, Maine CDC, in collaboration with Maine Medical Center Research Institute and federal CDC, began a serosurvey project to determine the geographic spread of EEE in Maine.

This report summarizes the results of the Maine EEE serosurvey project during 2009-2012.

Methods

Volunteers at Maine tagging stations approach hunters and request their participation in the serosurvey. Animals that may be included are: deer, moose, turkey, and bears. If the hunter agrees, a pipette is used to collect 3 -5 mL of pooled blood from the gutted animal's body cavity. The hunter is asked to mark on a map where they shot the animal. The map and the vial of blood are labeled with the tagging number. Information about the animal is documented on a roster form including: date of collection, gender of animal, and approximate age of the animal. The blood is spun, split, and frozen. The maps and blood are sent to federal CDC in Fort Collins for testing. The blood is tested for the presence of EEE antibodies by PRNT. All results are documented and mapped.

Results

During 2009-2012, Maine documented animal exposure to EEE in 15 of our 16 counties (all except Lincoln). Detailed results by year are available on the reverse side of this report.

Discussion

Results show EEE is present state-wide. This serosurvey is looking for past exposure to the virus, not current illness. A positive test means the animal was exposed to EEE at some point in time, but cannot tell us if the animal is currently infected. Although most deer, moose, and turkeys do not become ill due to EEE, they are clearly being exposed to the virus.

Even if an animal was exposed to EEE, it is still safe to eat the meat as long as it is prepared properly.

With documented EEE exposure statewide, this should increase the awareness that humans can also be infected with this disease.

Prevention

To lower the chances of contracting a mosquito-borne disease including EEE, measures should be taken to prevent mosquito bites.

- Use an EPA-approved repellent. Always follow the instructions on the product's label when using repellents or other pesticides.
- Wear long sleeved shirts and long pants when possible or when mosquitoes are abundant.
- Protect babies with mosquito netting.
- Stay indoors when mosquitoes are especially abundant.
- Mosquito-proof your home by fixing or installing window screens or screen doors.
- Control mosquito populations around your home by cleaning gutters and removing or emptying objects that contain standing water where mosquitoes can lay eggs such as old tires, old cans, and plastic tarps.
- Empty water from flower pots, pet dishes, birdbaths, rain barrels, and buckets at least once a week.
- Wear gloves when gutting and cleaning hunted animals.

Eastern Equine Encephalitis Serosurvey – Maine, 2009-2012

Percentage* of deer and moose with antibodies to EEE by county and year – Maine, 2009-2012

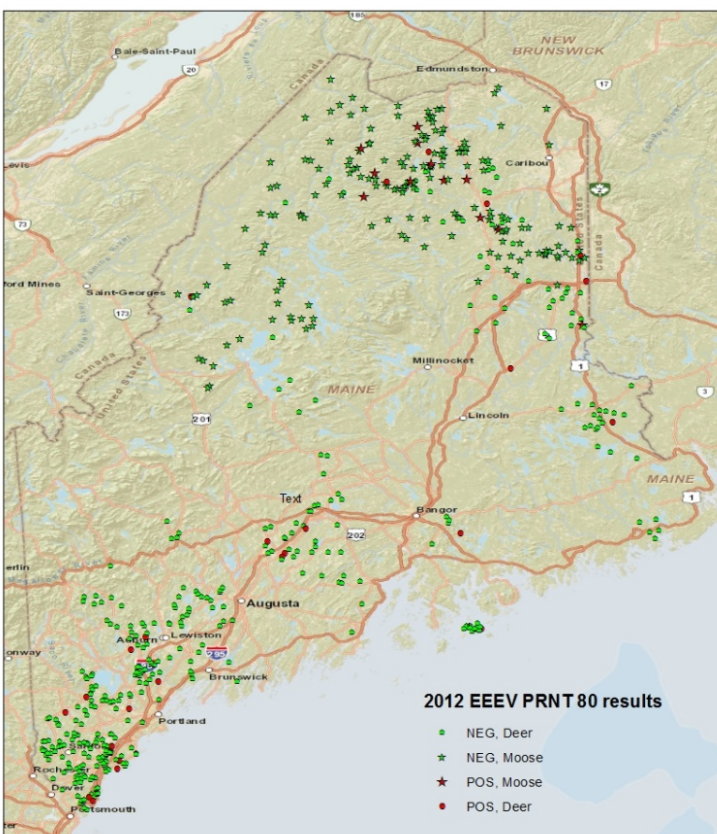
County	2009	2010		2011		2012	
	deer	deer	moose	deer	moose	deer	moose
Androscoggin	0	5.3		0		3.9	
Aroostook		6.7	9.6	17.8	9.5	9.6	8.6
Cumberland	9.4	7.3		17.5		8.9	
Franklin		0		6.3	0	0	
Hancock				100		11.1	
Kennebec	5.8	12.3		22.8		11.1	
Knox	0	0				0	
Lincoln	0	0		0			
Oxford	0	0		28.6		0	
Penobscot	12.5	21.7		21.2	0	0	0
Piscataquis		100	50	0	2.9	0	0
Sagadahoc		10		0		0	
Somerset	23.8	28.6	11.1	13	5.5	15.4	0
Waldo	13.2	22.2		18.2		0	0
Washington		0		20.7	0	4.2	
York	5	2.9		26.7		6	

*Percentage = # positive/ # collected *100

Empty cells mean that no animals were collected from that county

Turkeys with positive antibodies detected in Cumberland, Franklin, Kennebec, Knox, Oxford, Somerset and Waldo counties

EEE serosurvey collection data – Maine, 2012



Additional information about mosquito-borne diseases can be found at:

- [Maine CDC](http://www.maine.gov/dhhs/mecdc/infectious-disease/epi/vector-borne/index.shtml)
- [Federal CDC](http://www.cdc.gov/ncezid/dvbd/index.html)