MARYLAND One Health BULLETIN

September 4, 2019 Volume 9, Issue 4

ZOONOTIC AND OTHER ANIMAL DISEASES OF CONCERN IN MARYLAND

Table 1. New or Ongoing Morbidity or Mortality Animal or Zoonotic Disease Events

Estimated first onset	Estimated end date	Jurisdiction affected	Species affected	Diagnosis	Estimated # of cases to date	Lead agency	Comment
7/23/19	Ongoing	Worcester	Mosquito	EEE	3 pools	MDA	See page 3

For questions regarding specific disease events, please contact the lead agency noted. This contact information is for use by Maryland veterinarians and health professionals:
MDA - Maryland Department of Agriculture: ahops.mda@maryland.gov, 410-841-5810
MDH - Maryland Department of Health, Center for Zoonotic and Vector-borne Diseases: mdh.czvbd@maryland.gov, 410-767-5649
MD DNR - Maryland Department of Natural Resources, Fish & Wildlife Health Program, 410-226-5193

The Maryland Department of Natural Resources (MD DNR) receives reports of wildlife disease cases via the 24/7 toll-free MD Natural Resources Police Call Center:
1-800-628-9944, the USDA/MD DNR Call Center: 1-877-463-6497, or the MD DNR Wildlife & Heritage Service office in Annapolis 1-410-260-8540.

Chagas Disease Training Modules for Providers

Chagas disease, also referred to as American trypanosomiasis, is caused by the parasite *Trypanosoma cruzi*. It is estimated that as many as 8 million people living in Mexico, Central America, and South America have Chagas disease, most of whom do not know they are infected. If untreated, infection is lifelong and can be life threatening.

Large-scale population movements have increased the geographic distribution and changed the epidemiology of Chagas disease. In the United States, control strategies are focused on preventing transmission from blood transfusion, organ transplantation, and mother-to-baby (congenital transmission).

The Centers for Disease Control and Prevention (CDC) has created online courses to help clinicians recognize and diagnose Chagas disease. These modules are designed to inform health care providers about Chagas disease, including clinical manifestations and transmission modes. The courses are titled:

- Chagas Disease in the U.S. (What United States Health Care Providers Need To Know About Chagas Disease)
- Chagas Disease: Optimizing Care for Pregnant Women and Children

Free continuing education credits are available and the modules can be found online at:
https://www.cdc.gov/parasites/chagas/health_professionals/index.html.

To report cases of disease in:	Contact:
Domestic animals	MDA Animal Health Program Office 410-841-5810 http://mda.maryland.gov/animalHealth/Pages/Diseases.aspx
Humans	MDH Center for Zoonotic and Vector-borne Diseases 410-767-5649 https://phpa.health.maryland.gov/OIDEOR/CZVBD/pages/Home.aspx
Wildlife	MD DNR/USDA Call Center 877-463-6497

Harmful Algal Blooms (HABs)- Free educational materials

Although algae are an essential part of the ecosystem, providing a source of food and oxygen for other organisms, HABs can occur when an overgrowth of algae negatively affects the environment, animals, or humans. HABs can release toxins that cause a range of signs and symptoms, from mild gastroenteritis and skin irritation, to more severe illness such as liver failure, neurological abnormalities, and even death. Exposure can occur through inhalation or ingestion of the water, or by contact with the water. Dogs are especially susceptible to the severe effects of HAB toxins.

HABs may occur in fresh, brackish, and salt water. In Maryland, HABs have most often been detected in ponds and lakes. *Microcystis aeruginosa*, a type of blue-green algae or cyanobacteria that releases microcystin toxin, has been responsible for the majority of these blooms. Other toxin-producing algae, such as *Karlodinium veneficum*, *Planktothrix rubescens*, and *Pseudo-nitzschia* have also been found in Maryland.

HABs may appear as scum or foam on the surface of the water. They may have an unusual color or bad smell. However, water can also appear normal when HABs are present. People, pets, and livestock should not swim in or drink water suspected or known to have an algal bloom. Immediately bathe dogs and other animals who have had contact with potentially contaminated water to prevent them from licking toxins off their fur. Animals showing signs of illness, such as vomiting, diarrhea, drooling, loss of appetite, rash, or neurological symptoms should visit a veterinarian immediately for evaluation and supportive care.

The following items are available free from the Maryland Department of Health: Animal Safety Alert 11" x 17" posters, 4" x 9" Animal Safety Alert cards, and 8.5" x 11" Veterinarian Reference Sheets are available. Fill out the form to request materials at https://goo.gl/forms/hMpZRVSwVKnTzpoy2.

Please report human and animal illnesses to:
Maryland Department of Health's (MDH) Environmental Health Line at 866-703-3266 or to your local health department.

Suspected blooms without associated illness should be reported to the Maryland Department of the Environment (MDE) emergency hotline at 866-633-4686, or to the Department of Natural Resources (DNR) at 877- 224-7229.

For more information about HABs visit:
Maryland Department of Health https://phpa.health.maryland.gov/OEHFP/EH/Pages/harmful-algae-blooms.aspx
Maryland Department of Natural Resources http://dnr.maryland.gov/waters/bay/Pages/Algae.aspx
Centers for Disease Control and Prevention https://www.cdc.gov/habs/index.html
American Veterinary Medical Association (AVMA) https://www.avma.org/News/JAVMANews/Pages/180415c.aspx

Wildlife Morbidity & Mortality Event: Avian Botulism Type C "Limber neck"

Each year reports of wildlife morbidity and mortality events are received by the MD Department of Natural Resources and the U.S. Fish & Wildlife Service. In some years the events are extreme such as 1994 when over 100,000 waterfowl died due to Avian Cholera along the Chesapeake Bay in a severely cold winter.

Temperature extremes in summer also bring avian mortality such as in 2012 when over 700 birds died from Avian Botulism in Talbot County during August through October. In 2019 approximately 200 birds, mostly waterfowl, have been affected in Talbot County during July and August and the event appears to be winding down. Several mallard carcasses were shipped to the USGS/ National Wildlife Health Center in Madison, WI for cause of death determination and Avian Botulism was confirmed.

Avian Botulism Type C Quick Review: Type C events may include farm animals, but humans are not affected. Botulinum toxins affect a wide variety of animals and are highly specific to toxin type/ species, such as wild birds, poultry, horses and cattle. *Clostridium botulinum* Type C is an oxygen-intolerant bacterium that produces a potent toxin when optimal environmental conditions occur. The Botulinum toxin is released when temperatures, salinity and pH values favor spore germination/ bacterial growth. When a rich substrate is available (such as decaying organic matter common in fish kills) the bird carcass-maggot cycle begins. Clinical signs: birds initially suffer from peripheral limb paralysis which leads to flaccid neck muscles (thus the "limber neck" common name) which quickly progresses to central/respiratory paralysis.

Wildlife Morbidity & Mortality Event: Avian Botulism Type C "Limber neck" (continued)

There are no gross lesions and birds often die from drowning. In Maryland, the event usually ceases with cooler weather and diligent carcass removal to break the carcass-maggot cycle.

The following graphics were taken from the USGS Field Manual for Wildlife Diseases.
(https://pubs.usgs.gov/itr/1999/field_manual_of_wildlife_diseases.pdf#page=283)

For more information the entire Field Manual can be downloaded for free to the public from the USGS website:
https://www.usgs.gov/centers/nwhc/science/field-manual-wildlife-diseases?qt-science_center_objects=0#qt-science_center_objects

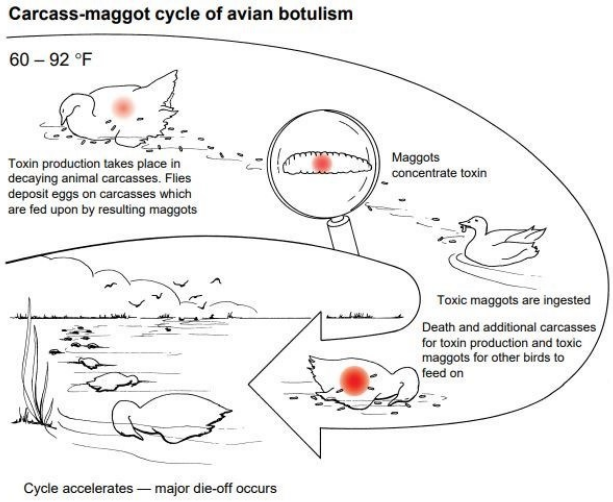

Figure 38.4 *Carcass-maggot cycle of avian botulism.*

Eastern Equine Encephalitis Detected in Maryland in 2019

The Maryland Department of Health reported three pools of mosquitoes that have been confirmed with Eastern equine encephalitis (EEE) in 2019. The pools were collected from trap locations in Worcester County that bordered neighboring counties Somerset and Wicomico. The first mosquito pool, collected on July 23, contained *Culex species* mosquitoes which routinely feed on humans, while the second and third pools, collected on July 30 and August 13 respectively, consisted of *Culiseta melanura* mosquitoes, which routinely feed on birds.

The Maryland Department of Agriculture conducted aerial spraying of the areas where the mosquito pools were found. Local health officials in Worcester, Wicomico, and Somerset Counties issued joint press releases alerting residents to the disease activity in their respective areas. There has been intermittent EEE activity in mosquitoes in Maryland in years past, most recently in 2016. At this time there have been no reports of other arboviral activity in mosquitoes in Maryland and no confirmed human EEE cases have been reported.

In addition to the above activity in Maryland, EEE has been detected in other states, including Massachusetts, Michigan, New Jersey, and North Carolina, all of which have reported human cases. New Hampshire and Rhode Island have reported EEE activity in mosquito populations.

The Center for Zoonotic and Vector-borne Diseases (CZVBD) provides online arboviral disease statistics and general information available on the Maryland Mosquito-borne Diseases page or by calling 410-767-5649.

Maryland Department of Health
Mosquito-borne Diseases
https://phpa.health.maryland.gov/OIDEOR/CZVBD/Pages/west-nile-virus.aspx .

MARYLAND ANIMAL RABIES CASES, 2019

Table 2. New (confirmed since the previous Bulletin) and Cumulative Rabies Cases, Week Ending August 31, 2019

Jurisdiction	Bat Total (New)	Cat Total (New)	Cow Total (New)	Dog Total (New)	Fox Total (New)	Groundhog Total (New)	Raccoon Total (New)	Skunk Total (New)	Other Total (New)	Total (New)
Allegany					1					1
Anne Arundel	1						9(1)			10(1)
Baltimore	2				2		14(2)	1		19(2)
Baltimore City	2(1)						12(1)			14(2)
Calvert										
Caroline	1						3			4
Carroll		2(1)			1		7(1)			10(2)
Cecil	1(1)						6(1)	1	1(1)	9(3)
Charles	1				1(1)		2			4(1)
Dorchester					1		2			3
Frederick	1	1			1	1	11	2	1	18
Garrett							2			2
Harford	1(1)				2		15(1)			18(2)
Howard		1	1				2(1)		1	5(1)
Kent							2			2
Montgomery	3(2)				3(1)		11(4)			17(7)
Prince George's	2(2)	1			2		4	1		10(2)
Queen Anne's							3(1)			3(1)
Saint Mary's					2					2
Somerset					2		3(1)			5(1)
Talbot					1		7			8
Washington		4(2)			1(1)		2(2)			7(5)
Wicomico					1		3			4
Worcester					6(3)	1	8(3)			15(6)
Total (New)	15(7)	9(3)	1		27(6)	2	125(19)	5	3(1)	190(36)

Other: Sheep 1, Ferret 1, Goat 1(1)

For complete animal rabies data:
https://phpa.health.maryland.gov/OIDEOR/CZVBD/pages/Data-and-Statistics.aspx
To view previous issues of the Maryland One Health Bulletin (MOHB):
http://mda.maryland.gov/animalHealth/Pages/md-one-health.aspx
Maryland Department of Health Weekly Public Health and Emergency Preparedness Bulletin:
https://preparedness.health.maryland.gov/Pages/PHPSA.aspx
National Wildlife Health Center New and Ongoing Wildlife Mortality Events Nationwide:
https://www.usgs.gov/centers/nwhc
U.S. Livestock and Poultry Disease Events and Trends:
https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-disease-information
Maryland Department of Health Weekly Influenza Report:
https://phpa.health.maryland.gov/influenza/Pages/home.aspx