Georgia Board of Public Health

August 8, 2023

Agenda

- Call to order
- Roll Call
- Approval/Adoption of Minutes
- New Business
  - Opening Remarks – Kathleen E. Toomey, M.D., M.P.H.
  - cCMV Update – Melanie Morris, Au.D., CCC-A
  - Epidemiology Updates – Cherie L. Drenzek, DVM, MS
  - Mosquito Management – Galen Baxter, R.E.H.S.
- Board Comments
- Adjournment

Commissioner's Remarks

Board of Public Health Meeting / Kathleen E. Toomey, M.D., M.P.H. / August 8, 2023

Congenital Cytomegalovirus (cCMV) Updates

DPH Child Health: Early Hearing Detection and Intervention (EHDI)

Board of Public Health Meeting / Melanie Morris, Au.D., CCC-A / August 8, 2023

cCMV and Hearing Loss

- In the United States, an estimated 15–20% of all cases of bilateral moderate to profound sensorineural hearing loss (SNHL) among young children are attributable to congenital cytomegalovirus (CMV) infection.

- In many cases, hearing thresholds in the mild, moderate, severe, and profound range are the ***only symptom*** of cCMV infection ***at birth***.

- cCMV is the leading environmental cause of hearing loss among children, affecting 4:1000 newborns.

Lanzieri, et al (2018); Philips, et al (2023)

cCMV and Hearing Loss-Related Position Statements

American Academy of Audiology Position Statement (March 2023)
"The American Academy of Audiology recommends early identification of cCMV through screening to allow for appropriate early diagnosis, intervention, and monitoring for congenital, progressive, and delayed-onset hearing loss in infants with cCMV."

Joint Commission on Infant Hearing (JCIH) Position Statement (2019)
"Additional laboratory testing to be considered in the process of evaluating a newborn or infant diagnosed with sensorineural hearing loss and to rule out the most common etiologies that impact intervention plans include (a) connexin gene, (b) electrocardiogram, and (c) urine and saliva swabs for congenital cytomegalovirus (cCMV)."

Kettler, M., Shoup, A., Moats, S., Steuerwald, W., Jones, S., Stiell, S. C., & Chappetto, J. (2023). American Academy of Audiology Position Statement on early identification of cytomegalovirus in newborns. *Journal of the American Academy of Audiology.* https://doi.org/10.1055/s-0043-1768036

CMV Screening Methods

Specimen	Advantages	Disadvantages
Dried Blood Spot	NBS Program already in place	CMV viral load lower in blood (50-85% Sensitivity), less available specimen
Saliva*	CMV viral load higher (88% Sensitivity)	Not part of existing NBS Program; Possible contamination with breastmilk
Urine	CMV viral load higher (79% Sensitivity)	Not part of existing NBS Program; Challenges with collection

*Current standard diagnostic tool

Targeted Screening=Test for cCMV after 1-2 failed hearing screenings

Universal Screening=Test all infants for cCMV

Dollard (2010); Schleiss, et al (2023)

Updates on National cCMV Trends

States with **Universal** cCMV Screening (Bloodspot Panel)

- Minnesota (February 2023)
- Connecticut (To begin 2025)
- New York (NICHD Grant, 2023-2024)

States with **Hearing Targeted** cCMV Screening (Point of Care)

- Florida
- Virginia
- Illinois (to be offered*)
- Iowa
- Kentucky
- Maine
- New York
- Pennsylvania
- Utah

Barriers to Implementation

"Key barriers in the implementation of universal screening **include a lack of consensus on the optimal type of CMV testing** (DBS vs. saliva and/or urine), competing priorities, and **roles and responsibilities** of local hospitals and clinics and state laboratories." (Schleiss, et al. 2023)

Goal: Improve cCMV ID for Better Health Outcomes

1. Educate Medical Providers and Caregivers

2. Improve Access to On-Time Infant Hearing Testing

3. Continued efforts by Newborn Screening Advisory Committee (NBSAC) cCMV Working Group

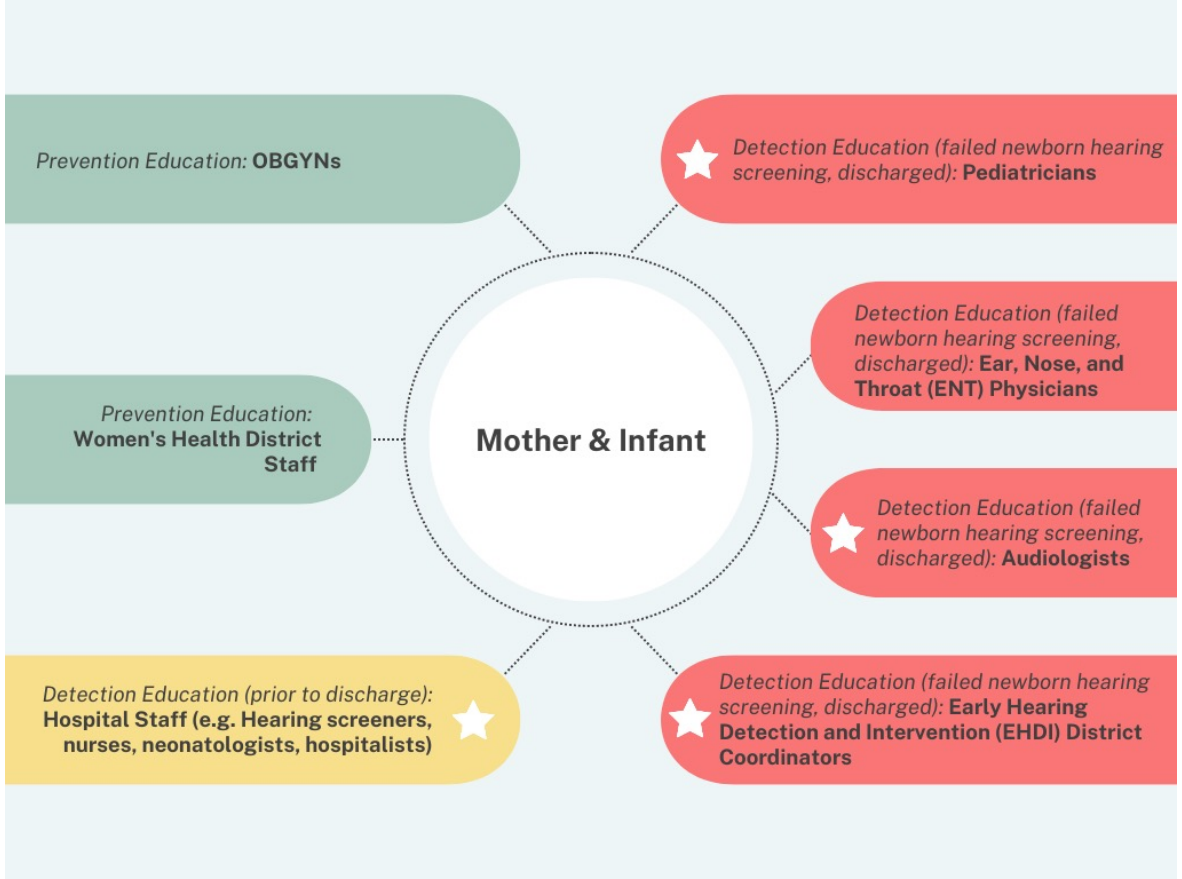
1. Education Initiative Strategy

Phase I:

Educate key **medical providers** about cCMV screening and patient prevention

Phase II:

Educate **caregivers** of infants who fail their newborn hearing screening about cCMV as a potential cause of hearing loss



1. Education Initiative, Phase 1: Educate **Providers**

Initiative	Audience	Anticipated Date of Completion
Pediatric Audiology Symposium – Topic: cCMV	Pediatric Audiologists	August 26, 2023
Development of Newborn Hearing Screening Online Training cCMV Module	Hospital staff; Any individual who completes newborn hearing screenings	Est. December 2023
cCMV Webinar Hosted by Georgia Academy of Pediatrics (GA AAP)	Nurses	Est. Fall 2023
Conference for 18 Health District Early Hearing Detection and Intervention (EHDI) Coordinators - Topic: cCMV	18 Health District EHDI Coordinators	Spring 2024
Prevention Education Development: -OBGYNs and OBGYN Organizations -Women's Health (Local Health Districts)	Women's Health Providers	To be developed

1. Education Initiative, Phase 2: Educate **Caregivers**

Initiative	Audience	Anticipated Date of Completion
Create educational landing page on EHDI webpage	Caregivers and Providers	Completed July 2023
Update EHDI brochures to include cCMV	Caregivers	Fall 2023
Update SendSS letter to parents and primary care provider to indicate cCMV possible cause for not passing hearing screening, suggest follow up	Caregivers and Medical Home	Fall 2023

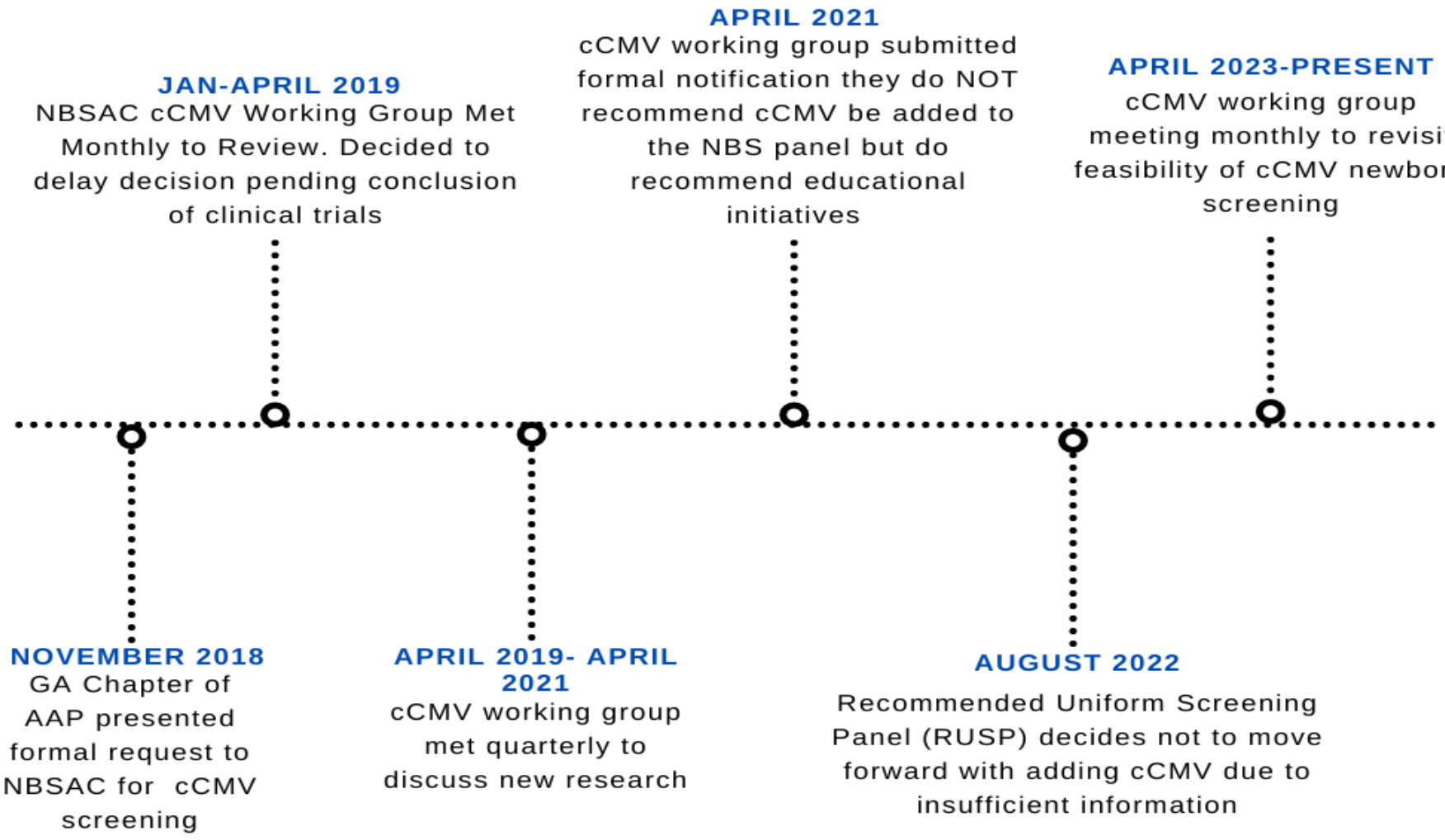
2. Improve Access to On-Time Infant Hearing Testing

Initiative	Date
Child Health is funding an additional SendSS IT Developer • Assist with database development to improve data collection • Add cCMV as an independent risk factor	Added July 2023
Change newborn hearing screening terminology from “refer” to “fail” per Joint Commission on Infant Hearing (JCIH) Recommendation	Completed July 2023
Child Health is adding a full-time audiologist • Establish newborn hearing screening training protocols for hospitals to include cCMV education • Monitor and support hospital performance in newborn hearing screening and timely data submission • Create and maintain follow-up testing instructions and information for families with infants who failed the newborn hearing screening	Est. Start Date: Fall 2023

2. Improve Access to On-Time Infant Hearing Testing

Initiative	Date
Increase availability of diagnostic infant hearing in rural areas testing via telehealth • Partnership with Children's Healthcare of Atlanta and Georgia Mobile Audiology • Clinics are in 7 different health districts; 6 outside of metro Atlanta	Present; Expansion to be determined
Child Health to launch an OAE screening program for health districts • Improve access to hearing monitoring across the state	6/30/2024

3. NBSAC cCMV Working Group Efforts Timeline



Does cCMV Meet RUSP Inclusion Criteria?

RUSP Key Criteria	Does cCMV meet these criteria?
Condition Seriousness. Is the nominated condition medically serious?	Yes
Case Definition. Is the condition's case definition and spectrum well described? Can they predict the range of symptoms in newborns and children who will be identified through population-based screening?	Partially. Screening cannot fully predict which 20% of infants with cCMV will develop disabilities. Approx 80% of infants with cCMV develop normally.
Analytic Validity. Is the condition's screening process reasonable for the newborn screening system and sensitive enough to not miss any newborns who have the condition?	No. Saliva testing has no infrastructure in the newborn screening system and current blood spot testing is only about 50-60% sensitive in screening settings.
Clinical Utility. Is the screening process specific enough to find babies most likely to benefit from treatment (especially if treatment is risky)?	Partially. Only about 20% of infants with cCMV will develop disabilities and which ones is largely unpredictable at birth. Treatment is risky.
Treatments. Are there medical treatments with demonstrated efficacy, well-established protocols, and FDA-approved drugs available?	No. Valganciclovir is the standard treatment which so far shows no clear evidence of efficacy. See Lanzieri et al., 2023.
Prospective Pilot Data. Are there data from population-based screening for the condition?	No. But in 1-2 years MN and NY will have pilot data.

Source for Key Criteria: Advisory Committee on Heritable Disorders in Newborns and Children | HRSA

3. NBSAC cCMV Working Group Continued Efforts

Newborn Screening Advisory Committee (NBSAC), cCMV Working Group:

- Comprised of 13 members
- Multidisciplinary team with ENT, Neurology, EHDI, Lab Directors, Infectious Disease, Geneticists

Goal of cCMV Working Group: To determine whether to recommend screening via bloodspot panel or consider change through legislation or rules and regulations

Questions

For more information, please contact:

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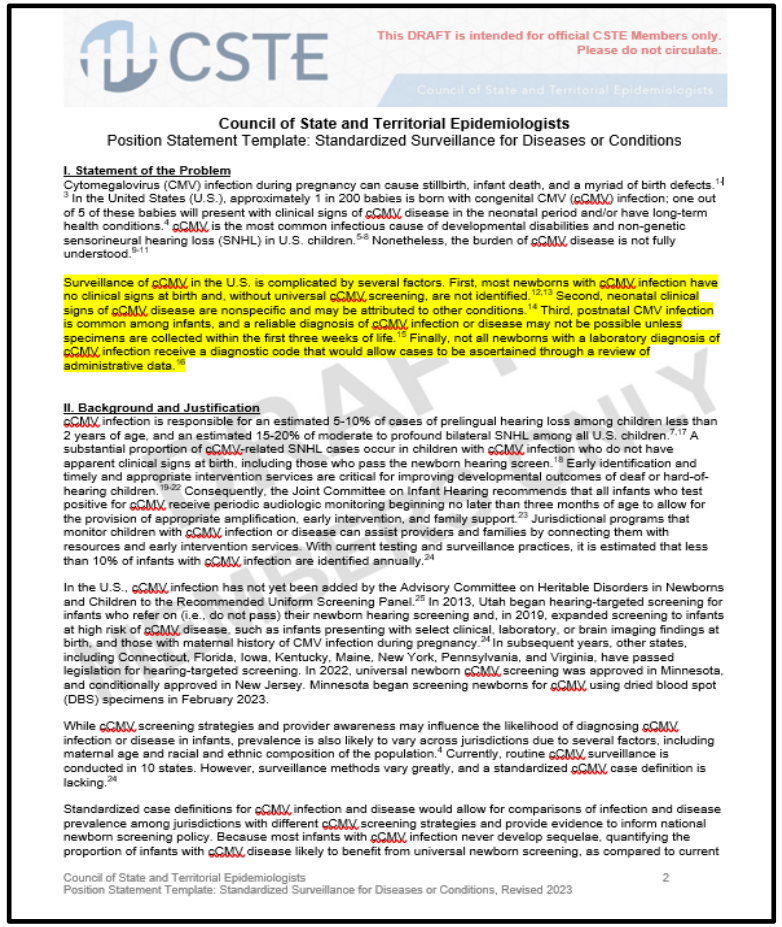
Epidemiology Update

Board of Public Health Meeting / Cherie L. Drenzek, DVM, MS / August 8, 2023

cCMV Surveillance: Standard National Case Definition



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Council of State and Territorial Epidemiologists

Council of State and Territorial Epidemiologists
Position Statement Template: Standardized Surveillance for Diseases or Conditions

I. Statement of the Problem

Cytomegalovirus (CMV) infection during pregnancy can cause stillbirth, infant death, and a myriad of birth defects.[1-3] In the United States (U.S.), approximately 1 in 200 babies is born with congenital CMV (cCMV) infection; one out of 5 of these babies will present with clinical signs of cCMV disease in the neonatal period and/or have long-term health conditions.[4] cCMV is the most common infectious cause of developmental disabilities and non-genetic sensorineural hearing loss (SNHL) in U.S. children.[5-8] Nonetheless, the burden of cCMV disease is not fully understood.[9-11]

Surveillance of cCMV in the U.S. is complicated by several factors. First, most newborns with cCMV infection have no clinical signs at birth and, without universal cCMV screening, are not identified.[12,13] Second, neonatal clinical signs of cCMV disease are nonspecific and may be attributed to other conditions.[14] Third, postnatal CMV infection is common among infants, and a reliable diagnosis of cCMV infection or disease may not be possible unless specimens are collected within the first three weeks of life.[15] Finally, not all newborns with a laboratory diagnosis of cCMV infection receive a diagnostic code that would allow cases to be ascertained through a review of administrative data.[16]

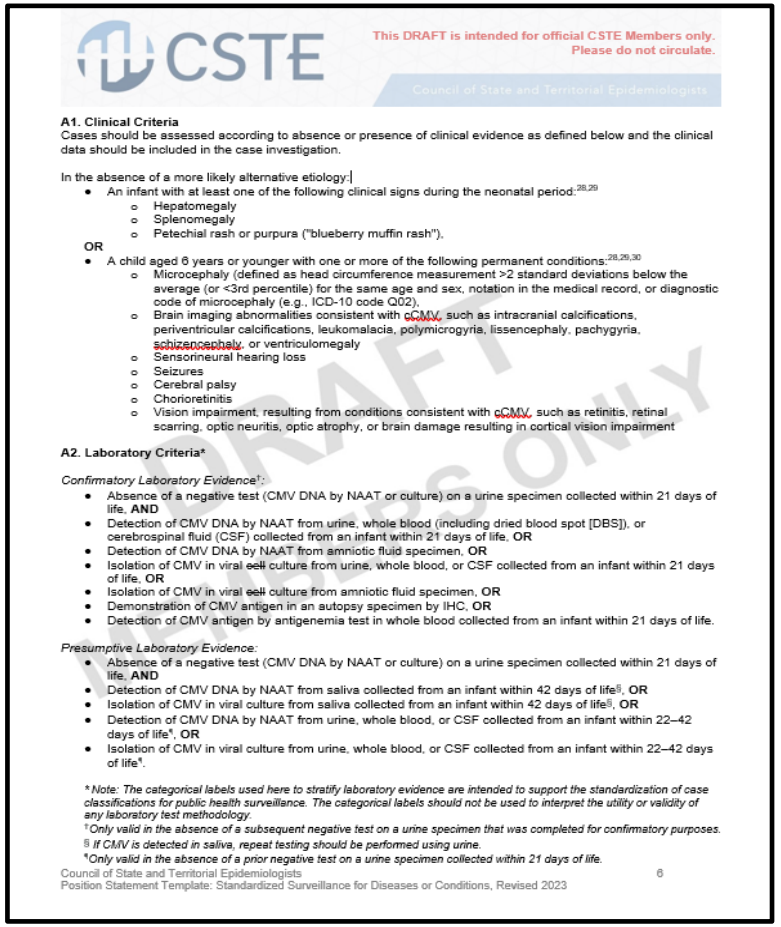
II. Background and Justification

cCMV infection is responsible for an estimated 5-10% of cases of prelingual hearing loss among children less than 2 years of age, and an estimated 15-20% of moderate to profound bilateral SNHL among all U.S. children.[7,17] A substantial proportion of cCMV-related SNHL cases occur in children with cCMV infection who do not have apparent clinical signs at birth, including those who pass the newborn hearing screen.[18] Early identification and timely and appropriate intervention services are critical for improving developmental outcomes of deaf or hard-of-hearing children.[19-22] Consequently, the Joint Committee on Infant Hearing recommends that all infants who test positive for cCMV receive periodic audiologic monitoring beginning no later than three months of age to allow for the provision of appropriate amplification, early intervention, and family support.[23] Jurisdictional programs that monitor children with cCMV infection or disease can assist providers and families by connecting them with resources and early intervention services. With current testing and surveillance practices, it is estimated that less than 10% of infants with cCMV infection are identified annually.[24]

In the U.S., cCMV infection has not yet been added by the Advisory Committee on Heritable Disorders in Newborns and Children to the Recommended Uniform Screening Panel.[25] In 2013, Utah began hearing-targeted screening for infants who refer on (i.e., do not pass) their newborn hearing screening and, in 2019, expanded screening to infants at high risk of cCMV disease, such as infants presenting with select clinical, laboratory, or brain imaging findings at birth, and those with maternal history of CMV infection during pregnancy.[24] In subsequent years, other states, including Connecticut, Florida, Iowa, Kentucky, Maine, New York, Pennsylvania, and Virginia, have passed legislation for hearing-targeted screening. In 2022, universal newborn cCMV screening was approved in Minnesota, and conditionally approved in New Jersey. Minnesota began screening newborns for cCMV using dried blood spot (DBS) specimens in February 2023.

While cCMV screening strategies and provider awareness may influence the likelihood of diagnosing cCMV infection or disease in infants, prevalence is also likely to vary across jurisdictions due to several factors, including maternal age and racial and ethnic composition of the population.[4] Currently, routine cCMV surveillance is conducted in 10 states. However, surveillance methods vary greatly, and a standardized cCMV case definition is lacking.[24]

Standardized case definitions for cCMV infection and disease would allow for comparisons of infection and disease prevalence among jurisdictions with different cCMV screening strategies and provide evidence to inform national newborn screening policy. Because most infants with cCMV infection never develop sequelae, quantifying the proportion of infants with cCMV disease likely to benefit from universal newborn screening, as compared to current



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Council of State and Territorial Epidemiologists

A1. Clinical Criteria

Cases should be assessed according to absence or presence of clinical evidence as defined below and the clinical data should be included in the case investigation.

In the absence of a more likely alternative etiology:

- An infant with at least one of the following clinical signs during the neonatal period:[28,29]
  - Hepatomegaly
  - Splenomegaly
  - Petechial rash or purpura ("blueberry muffin rash"),

OR

- A child aged 6 years or younger with one or more of the following permanent conditions:[28,29,30]
  - Microcephaly (defined as head circumference measurement >2 standard deviations below the average (or <3rd percentile) for the same age and sex, notation in the medical record, or diagnostic code of microcephaly (e.g., ICD-10 code Q02),
  - Brain imaging abnormalities consistent with cCMV, such as intracranial calcifications, periventricular calcifications, leukomalacia, polymicrogyria, lissencephaly, pachygyria, schizencephaly, or ventriculomegaly
  - Sensorineural hearing loss
  - Seizures
  - Cerebral palsy
  - Chorioretinitis
  - Vision impairment, resulting from conditions consistent with cCMV, such as retinitis, retinal scarring, optic neuritis, optic atrophy, or brain damage resulting in cortical vision impairment

A2. Laboratory Criteria*

Confirmatory Laboratory Evidence†:

- Absence of a negative test (CMV DNA by NAAT or culture) on a urine specimen collected within 21 days of life, **AND**
- Detection of CMV DNA by NAAT from urine, whole blood (including dried blood spot [DBS]), or cerebrospinal fluid (CSF) collected from an infant within 21 days of life, **OR**
- Detection of CMV DNA by NAAT from amniotic fluid specimen, **OR**
- Isolation of CMV in viral ~~cell~~ culture from urine, whole blood, or CSF collected from an infant within 21 days of life, **OR**
- Isolation of CMV in viral ~~cell~~ culture from amniotic fluid specimen, **OR**
- Demonstration of CMV antigen in an autopsy specimen by IHC, **OR**
- Detection of CMV antigen by antigenemia test in whole blood collected from an infant within 21 days of life.

Presumptive Laboratory Evidence:

- Absence of a negative test (CMV DNA by NAAT or culture) on a urine specimen collected within 21 days of life, **AND**
- Detection of CMV DNA by NAAT from saliva collected from an infant within 42 days of life§, **OR**
- Isolation of CMV in viral culture from saliva collected from an infant within 42 days of life§, **OR**
- Detection of CMV DNA by NAAT from urine, whole blood, or CSF collected from an infant within 22–42 days of life¶, **OR**
- Isolation of CMV in viral culture from urine, whole blood, or CSF collected from an infant within 22–42 days of life¶.

** Note: The categorical labels used here to stratify laboratory evidence are intended to support the standardization of case classifications for public health surveillance. The categorical labels should not be used to interpret the utility or validity of any laboratory test methodology.*

† Only valid in the absence of a subsequent negative test on a urine specimen that was completed for confirmatory purposes.

§ If CMV is detected in saliva, repeat testing should be performed using urine.

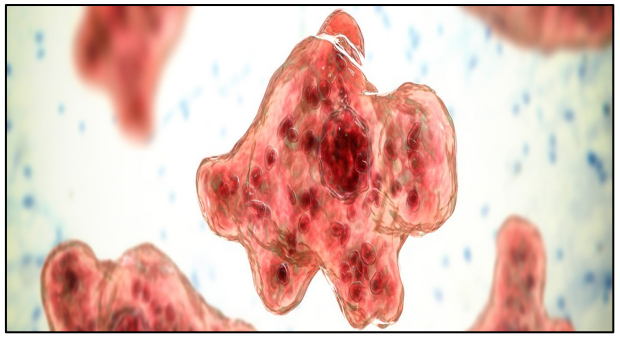
¶ Only valid in the absence of a prior negative test on a urine specimen collected within 21 days of life.

Introduction

- Infectious diseases can be unpredictable or emerge at any time
- But no matter if the diseases are extremely rare or quite common, **surveillance and epidemiology are** the cornerstones of science-based prevention and control recommendations.
- Illustrated by:
    1. Primary Amebic Meningoencephalitis (PAM) due to ***Naegleria fowleri*** Infection
    2. Mosquito-borne Infections

Primary Amebic Meningoencephalitis (PAM) due to ***Naegleria fowleri*** Infection

- In mid-July, a 2-year-old in Nevada died from PAM due to ***Naegleria fowleri*** infection (sometimes known as the "brain-eating amoeba") after swimming in a hot spring.
- In late July, a Georgia resident also died from this infection after swimming in a freshwater lake or pond.
- Extremely rare in the US (about 3 per year), and nearly always fatal.
- In Georgia, our last case was in 2002



Background: ***Naegleria fowleri***

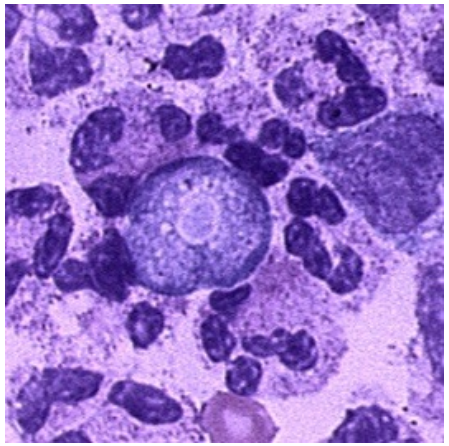
- ***Naegleria fowleri*** is a thermophilic, free-living amoeba that is ubiquitous in warm fresh water (like lakes, rivers, ponds, hot springs) and in the soil.
- In rare instances, the amoeba can infect humans by entering the nose during swimming underwater or diving.
- Once in the nose, it travels to the brain via the olfactory nerves and causes a severe brain infection/meningoencephalitis (PAM).
- You **cannot** get infected from **swallowing** water contaminated with ***Naegleria***, only when contaminated water goes up into the nose.
- It cannot be transmitted from person to person.
- ***Naegleria*** is **not** found in properly treated drinking water and swimming pools.

Naegleria fowleri PAM: Clinical Picture

- Symptoms usually start 1 to 12 days (median: 5 days) after swimming or nasal exposure to water containing ***Naegleria***.
- Symptoms are initially indistinguishable from bacterial or viral meningitis, starting with headache, fever, nausea, vomiting, then rapidly progressing to altered mental status, seizures, coma, and death.
- Case-patients usually die about two weeks (median 5 days) after symptoms begin.
- There have only been 4 documented survivors (of 160 cases) in the US since 1962, and 1 in Mexico.

Naegleria fowleri: Diagnosis/Lab Testing

- PAM cases can be difficult to detect because it initially looks like bacterial meningitis, but then the disease progresses so rapidly that diagnosis often occurs post-mortem.
- PAM is diagnosed in the laboratory by detecting ***Naegleria fowleri*** in a patient's **cerebrospinal fluid (CSF)** or **brain tissue**.
- CDC can perform ***Naegleria fowleri*** diagnostic testing (MUST go through DPH first), but some commercial PCR tests are now available.



Trophozoite of *Naegleria fowleri* in CSF, stained with H&E.

Naegleria fowleri Infection: Treatment

- Early treatment is critical but challenging because many case-patients expire prior to diagnosis.
- The recommended treatment for PAM caused by ***Naegleria fowleri*** includes: IV and intrathecal Amphotericin B; IV azithromycin, fluconazole, rifampin, and dexamethasone (https://www.cdc.gov/parasites/naegleria/treatment-hcp.html)
- Miltefosine, a breast cancer drug, has shown some promise against the free-living amoebae (***Naegleria, Balamuthia, Acanthamoeba***) in combination with the above drugs.

Naegleria fowleri: Epidemiology

- Human infections usually occur in July, August, and September, when freshwater temperatures are high and water levels are low.
- No data exist to accurately estimate the true risk of PAM or what concentration of ***Naegleria fowleri*** in the environment poses an unacceptable risk.
- It is unknown why certain people become infected with the amoebae while millions of others exposed to warm recreational fresh waters do not.

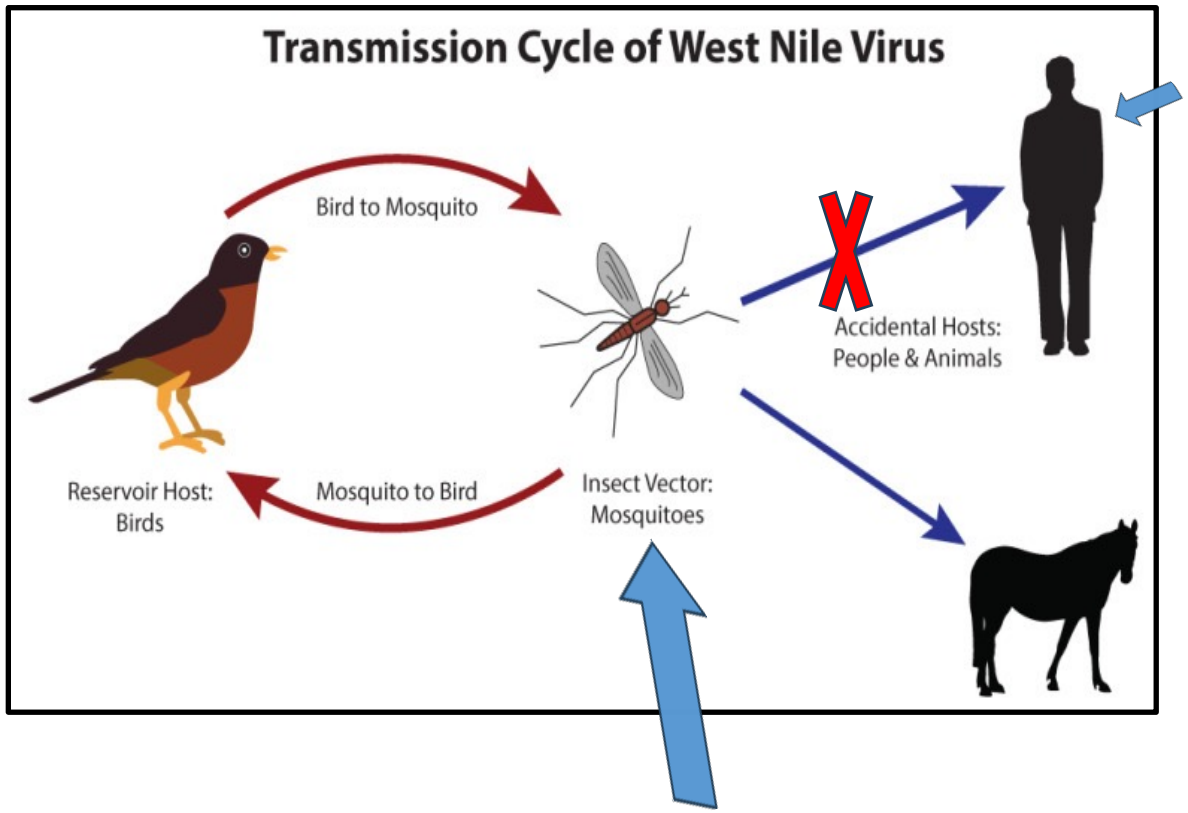
Naegleria fowleri: Prevention

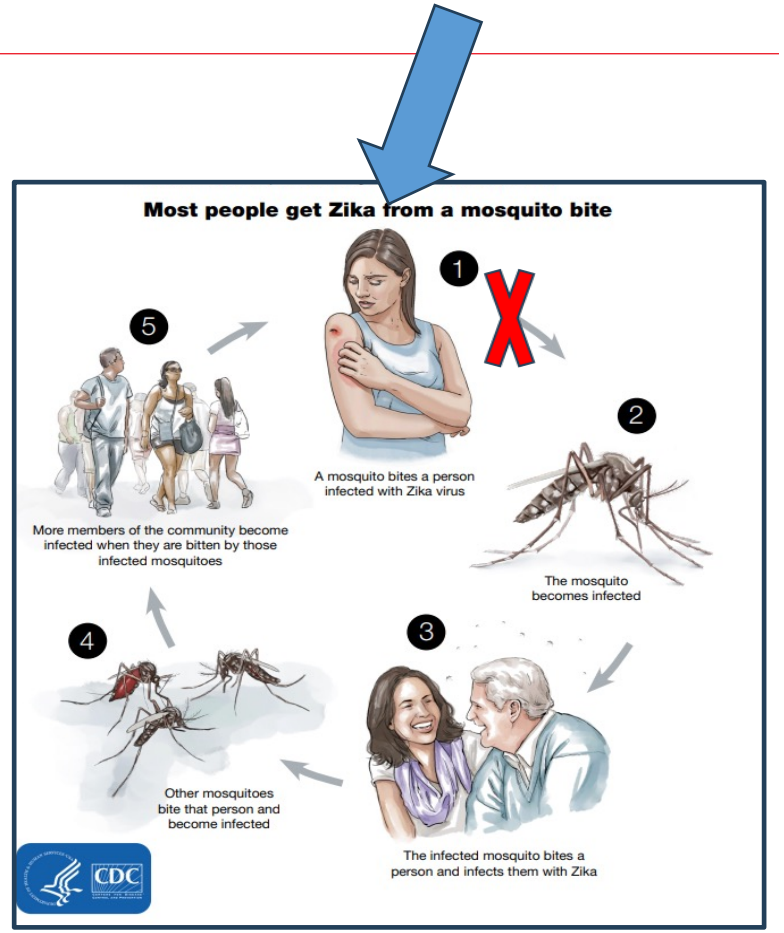
- There is no routine environmental test for ***Naegleria fowleri.***
- Because it is so common, we cannot control the levels of naturally-occurring ***Naegleria fowleri*** in freshwater lakes and rivers. As such, CDC does not recommend testing bodies of water for ***Naegleria fowleri.***
- ***People should always assume there is a low risk for infection whenever entering warm fresh water.***
- **SAFE SWIMMING practices can reduce risk of *Naegleria* infections**
    - Try to prevent water from going up your nose
    - Avoid jumping or diving into bodies of warm fresh water
    - Hold your nose shut, use nose clips, or keep your head above water when in bodies of warm fresh water
    - Avoid digging or stirring up the sediment at the bottom of the lake or river.

Mosquito-borne Diseases

- Mosquito-borne diseases are caused by viruses or parasites that are spread by the bite of an infected mosquito
- Can be either locally-acquired or travel-associated (or both)
- Locally-acquired:
    - **West Nile virus** is the most common virus spread by mosquitoes in Georgia and the continental US. Others include Eastern Equine Encephalitis (EEE) virus, St. Louis Encephalitis (SLE) virus, and LaCrosse Encephalitis virus.
- Travel-associated (US territories too)
    - Malaria, Zika, Dengue, Chikungunya, Yellow Fever
- Mosquito-borne infections can be very severe (range from asymptomatic to fatal)
- Each disease has its own type of mosquito vector and life cycle (KEY to surveillance and control)

Surveillance Approaches

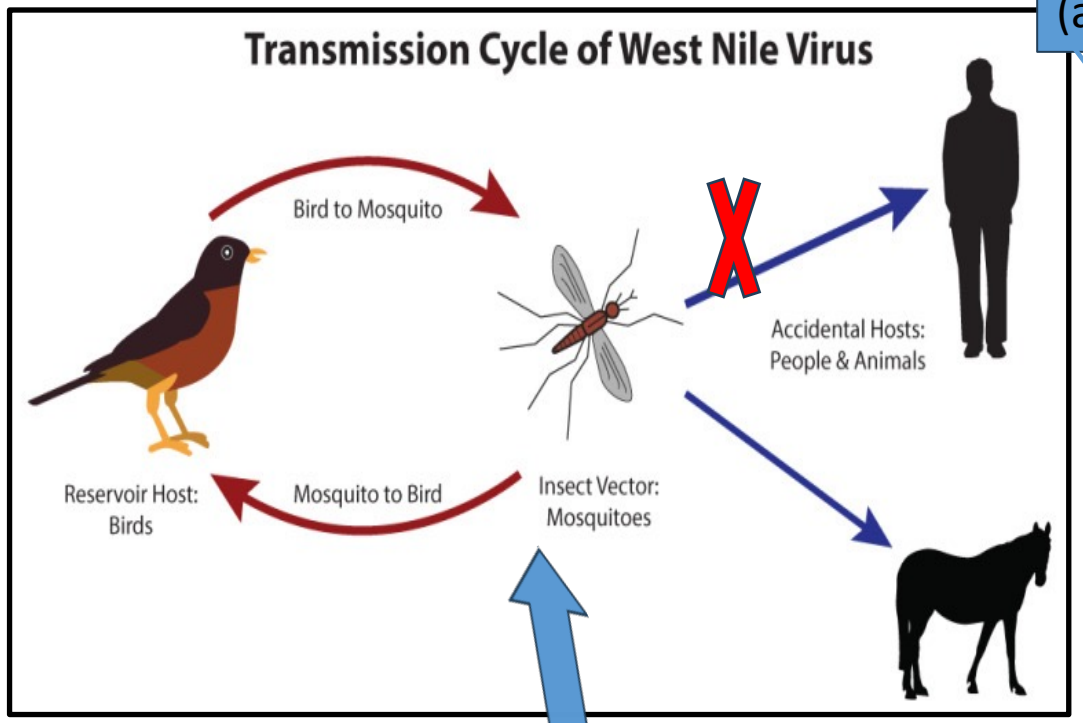




Surveillance Informs Control and Prevention

In Georgia, 2023:
2 human WNV infections
(average 20 per year)

Locally-acquired Infections

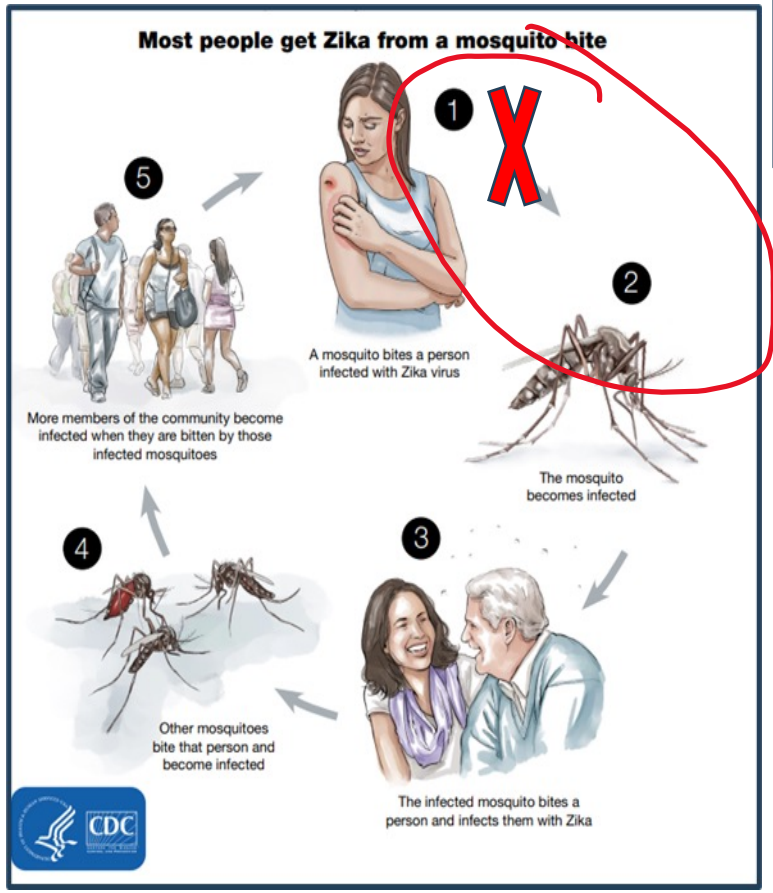


Mosquito pools test positive for WNV

- Targeted mosquito population reduction by larvicide
- Mosquito population reduction by eliminating breeding sites (standing water)
- Reduce likelihood of mosquito bites to people: DEET, clothing, screens

Surveillance Informs Control and Prevention

Travel-associated infections



In Georgia
8 human Zika infections
in last 5 years

- Reduce likelihood of mosquito bites that may infect local mosquitoes: DEET, clothing, screens
- Eliminate mosquito breeding sites (standing water)

Prevention and Control

Surveillance and epidemiology are the cornerstones of science-based prevention and control recommendations.

Questions

For more information, please contact:

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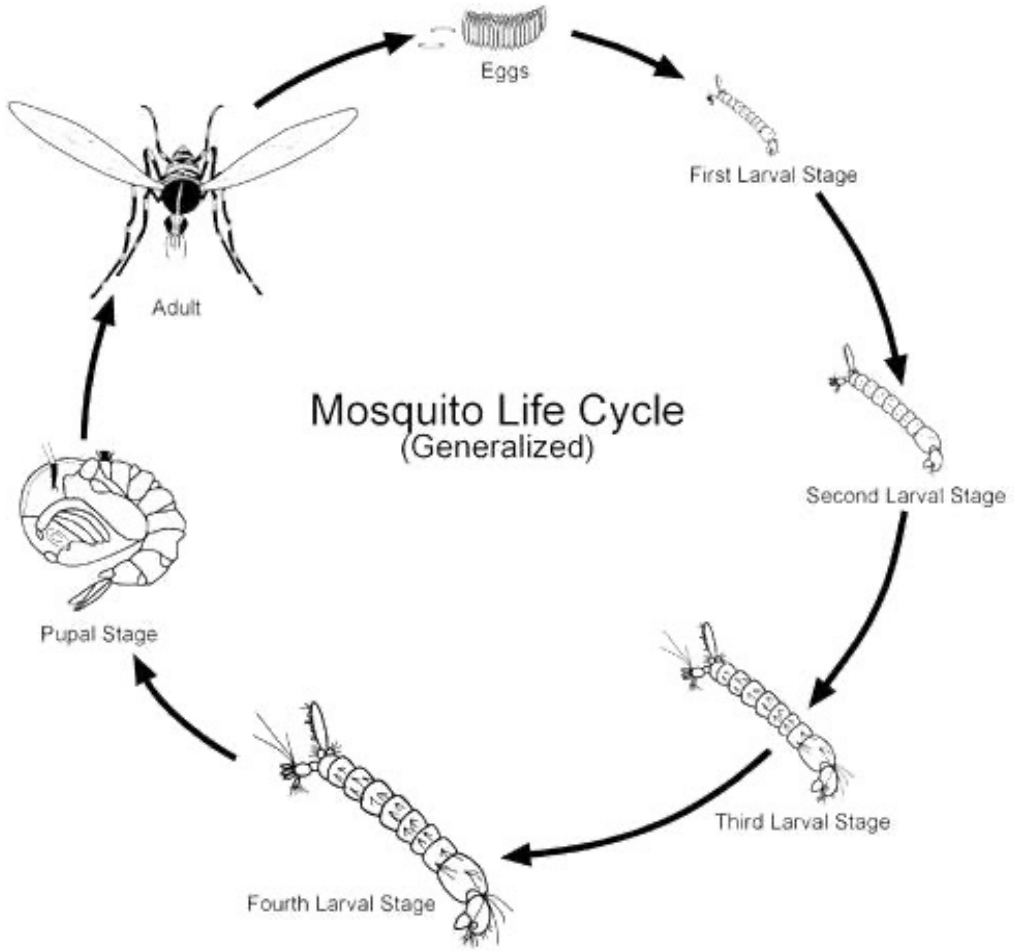
Integrated Mosquito Management

DPH Board of Public Health / Galen Baxter, Environmental Health Director / August 8, 2023

Mosquito Life Cycle

- Egg
- Larva
  - A variety of control options
- Pupa
  - Limited control option
- Adult
  - ULV spray
  - Thermal fogging
  - Barrier spray



Mosquito Control Goals

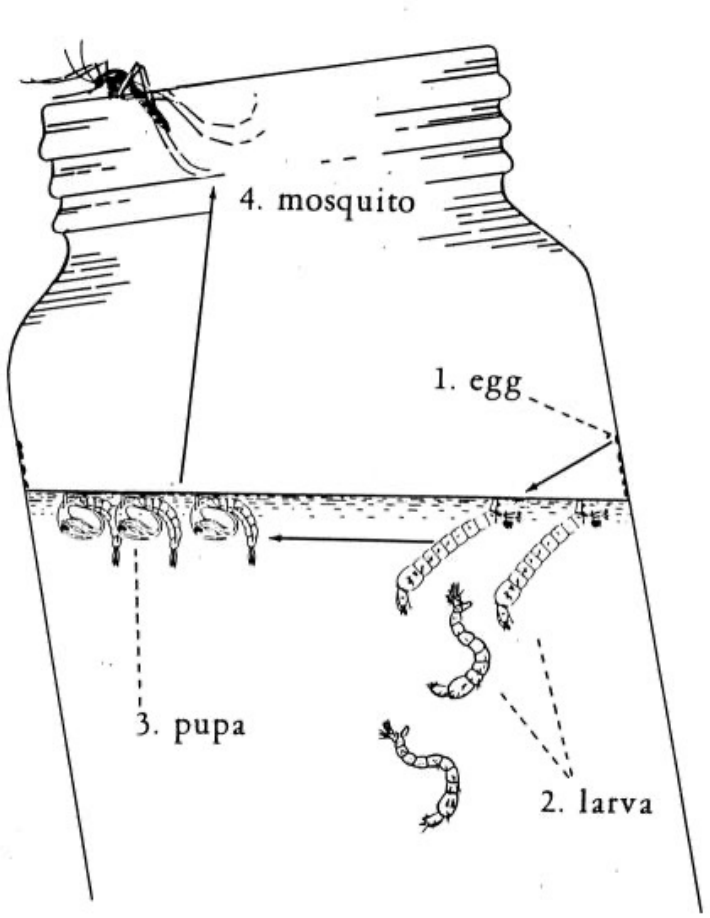
The 4 overlapping aims of mosquito control are to:

- Prevent mosquito bites
- Keep mosquito populations at acceptable densities
- Minimize mosquito-vertebrate contact
- Reduce the longevity of female mosquitoes

Integrated Mosquito Management

- Surveillance – larval & adult
  - Trapping
  - Landing rates
  - Complaints
- Source Reduction – tip & toss
- Larviciding
  - Biological
  - Chemical
- Adulticiding
  - ULV
  - Thermal fogging
  - Barrier spray
- Education & Communication
  - Neighborhood door-to-door
  - Community presentations
  - Media events
  - other
- Mapping
  - A picture is worth 1000 words
  - There are a lot of mapping options out there
- Record Keeping

Disease Prevention



The ability of mosquito control to affect disease transmission depends on:

- The vector involved
- The ability/desire/time to educate the population
- The size of the area to be controlled
- The scope of the control program
- The consistency and amount of funding
- The willingness of Public Health, commercial programs, and Mosquito Control Districts to work together

A Useful Approach

- Proactive Measures
  - Inspection: breeding sites, resting areas, potential concerns
  - Identification: area needing treatment, mosquito species, and any current breeding sites
  - Source reduction: eliminating breeding sites and the success rate of mosquito breeding on property
  - Larvicide treatment: targets standing water or areas where potential breeding exists
- Reactive Measures
  - Adulticide treatment: targets adult mosquito resting areas (barrier spray) or host seeking (ULV)

Mosquito Surveillance

- Trap types
  - Gravid traps attract container- breeding mosquitoes that have had a blood meal and are looking for a place to lay eggs.
  - Light traps attract mosquitoes looking for a blood meal.
- Mosquitoes caught in these traps are counted and identified, then pooled according to date, species, and location and (possibly) sent to a lab for arboviral testing.
- Data sent to DPH are used in summaries sent out to collaborators and others.

Trap Types

Light Traps

- Traps mosquitoes looking for a bloodmeal
- Attractant is CO2 in the form of dry ice or compressed gas
- CO2 mimics human respiration

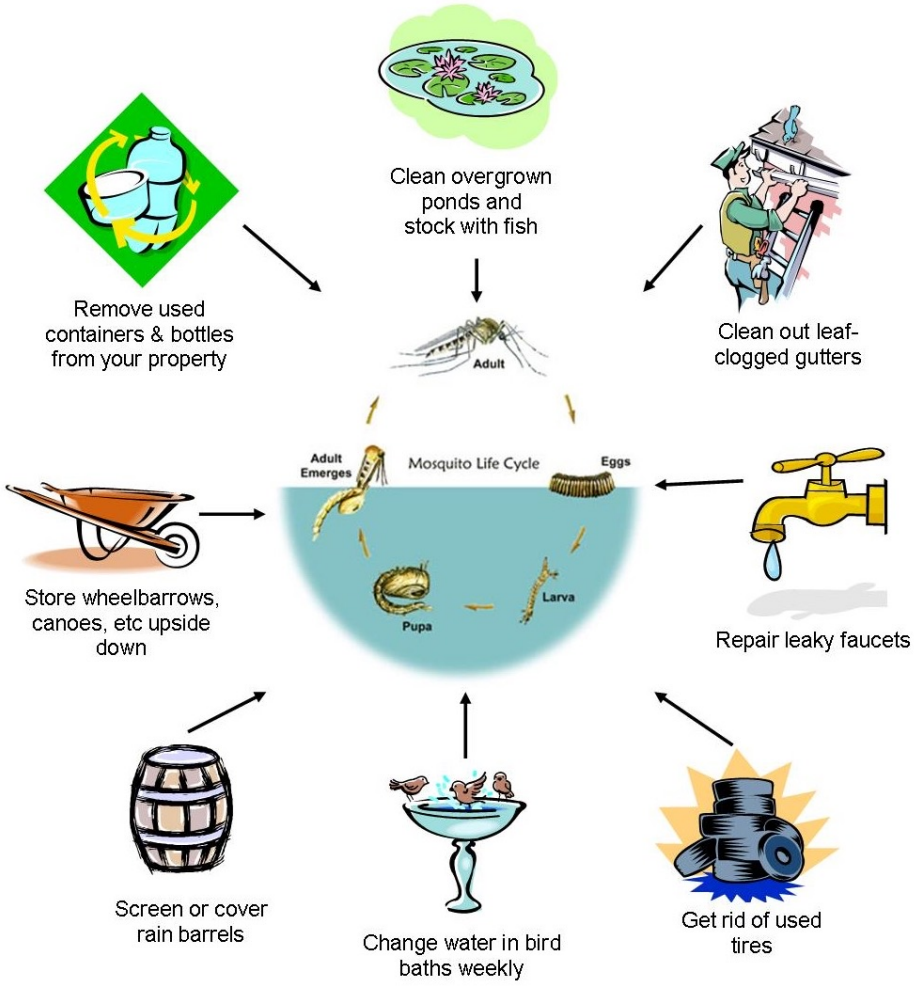
Gravid Traps

- Traps container breeding mosquitoes that lay eggs in stagnant water
- Attractant is usually hay-infused stagnant water
- Female mosquitoes already had one bloodmeal, possibly from WNV infected birds, and looking to lay eggs

Source Reduction - Eliminate Standing Water

6,346 immature mosquitoes in this rainwater-filled frying pan.

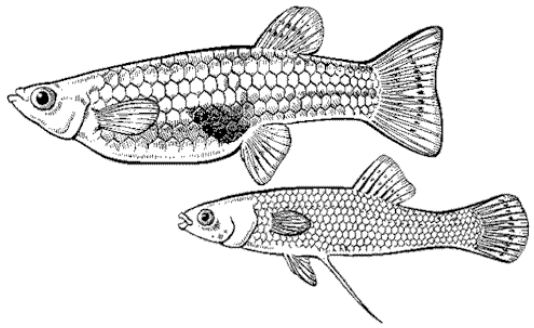
Other Problem Sites



Controlling Mosquito Larvae

- Tip n' Toss
- Larvicide treatment of breeding habitats help reduce the adult mosquito population in nearby areas
- Biocontrol
  - Stock mosquitofish

General Stocking Recommendations	
Ornamental pond (depending on size)	35 -100 fish site depending on size
Storm water facilities	1000 fish per acre
Drainage ditches (3-6 ft. wide)	1 fish/every 3 ft. of ditch length
Sedimentation ponds, wastewater ponds	1000 fish per acre



- Chemical control
  - Larvicides include biorational insecticides, such as the microbial larvicides ***Bacillus sphaericus*** and ***Bacillus thuringiensis israelensi***s, as well as spinosad
  - Larvicides also include other pesticides, such as temephos (OP), methoprene (IGR), oils, and monomolecular films

Larviciding

- Larviciding is not effective against adult mosquitoes.
- The detection of arboviral-positive adult mosquitoes means that there is an increased risk of human disease in the area.
- The mosquito that carries WNV is a container breeder and is difficult to control using just larvicide.
- Are all items in your yard that can hold water even temporarily dumped out at least weekly or stored appropriately? What about vacant lots and commercial sites?
    - **Without the help of <u>everyone</u> in the community, larviciding cannot prevent the emergence of adult container-breeding mosquitoes.**

Controlling Adult Mosquitoes

Adulticides can be applied as area sprays for rapid knockdown and kill, thermal fogging, or barrier sprays for longer control.

- Treatment of adult mosquitoes (adulticiding) is the most visible practice exercised by mosquito control operations. The goal is to reduce transmission of pathogens.
- This option is usually reserved for managing mosquito populations that have reached the adult stage despite efforts to intervene in the larval stage or when such treatments have not, or cannot, be conducted.

Atlanta Case Study (2020)

- Larviciding in catch basins resulted in more than 90% reduction in larval/pupal collections in treated sites.
- Even though larvicides were effective in suppressing larval and pupal populations, no significant reduction was observed in adult ***Culex*** spp collected with traps in the proximity of the treated catch basins or in adults collected resting in catch basins.
- In addition, WNV infection prevalence between treated and untreated sites was similar.
- The authors conclude that, on the scale and frequency applied in this study (0.21-0.37 km^2 study sites, larviciding periods 8-14 weeks), larval control alone may not lead to meaningful reductions in adult populations and WNV prevalence.

Conclusions & Recommendations

- Consistent WNV surveillance is the driver for vector control decisions
- Source reduction and public education campaigns are essential vector control measures
    - Tip n' Toss
    - Personal protection (repellants with DEET, limit activities at peak times)
- Larviciding is important, but has limitations:
    - Patchy applications are likely due to large or inaccessible areas
    - Larviciding alone is extremely unlikely to reduce ***Culex*** populations enough to prevent WNV transmission
- Other methods, including adulticiding, must be applied correctly and per the pesticide label as well to reduce the risk of WNV. This is especially true when source reduction and larval control have failed or are not feasible.

Vector control practices and strategies against West Nile virus
ECDC Technical Report


HELLO, COUNTY HEALTH DEPARTMENT?
I WANT TO REPORT ADVERSE
HEALTH EFFECTS FROM
THE MOSQUITO
SPRAYING.

Questions

For more information, please contact:

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Next Meeting

The next Board of Public Health Meeting
will be held September 12, 2023