



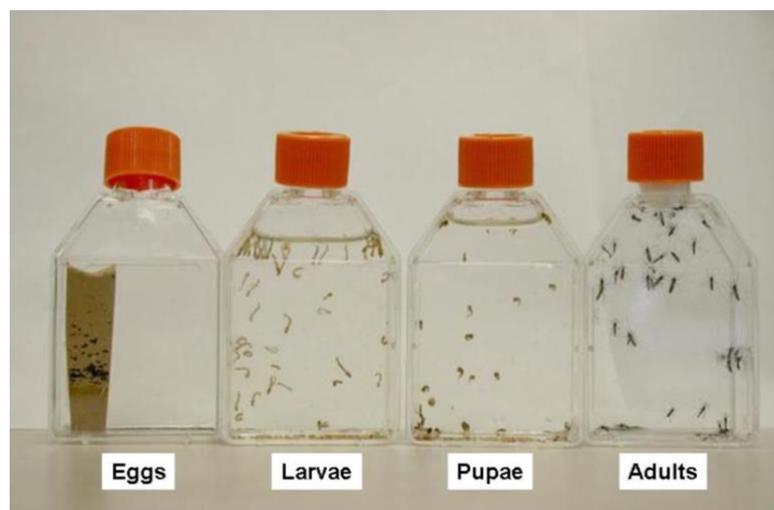
Lifecycle of the Zika-transmitting Mosquito

By the Water Quality & Health Council



[Click here](#) to watch video.

Mosquito borne illnesses [have played a significant role the course of human history](#) and continue to have repercussions on human health. The [World Health Organization \(WHO\)](#) calls the mosquito the “greatest menace” of all disease-transmitting insects, responsible for several million deaths and hundreds of millions of cases every year. Malaria alone, transmitted by *Anopheles* mosquitoes, caused 438,000 deaths in 2015 and sickened 214 million people globally,



Four stages in the life cycle of mosquitoes

Image courtesy of the [US Centers for Disease Control & Prevention website](#)

according to the [World Malaria Report \(2015\)](#). Historically, it was “a leading obstacle to Africa’s colonization,” note the authors of a National Academies Press book on the economics of malaria drugs.¹ “It struck US presidents from Washington to Lincoln, weakened Civil War soldiers by the hundreds of thousands...traveled to California with the Gold Rush and claimed Native American lives across the continent.”²

The *Aedes aegypti* mosquito transmits a host of illnesses, from Zika virus and yellow fever to dengue and [chikungunya](#). The [YouTube video](#) and photo above clearly illustrate the four life stages of the *Aedes aegypti* mosquito, from eggs to adults. Understanding the *Aedes aegypti* mosquito life cycle is key to understanding how to control it.

The “Container-breeding Mosquito”

Standing water is the perfect environment for mosquito breeding because it is where the larvae develop. As summer approaches and Zika virus transmission risk rises, health officials are asking the public to remove even small amounts of standing water. According to a [US Centers for Disease Control and Prevention \(CDC\)](#) blog, the *Aedes aegypti* mosquito “likes to lay eggs in water that collects or is stored in manmade containers.”

We recommend dumping standing water after no more than two days from³:

Vases

Pet Water Bowls

Flowerpots/Saucers

Buckets

Pool and Boat Covers

Birdbaths

Uncovered Trash Cans/Indented Lids

Rain Barrels

Toys

Garden Ornaments that Collect Water

A Multi-front Defense

Besides removing standing water, shore up your defenses against mosquitoes this summer by using a [CDC-approved insecticide](#), such as DEET, picaridin, IR3535, oil of lemon eucalyptus, or para-menthane-diol. Lightweight, long-sleeved shirts and long pants also can help protect you from mosquito bites, particularly while spending extended periods of time outdoors. Finally, be sure that window and door screens are in good repair.

¹ Institute of Medicine (US) Committee on the Economics of Antimalarial Drugs; Arrow KJ, Panosian C, Gelband H, editors. Washington (DC): [National Academies Press \(US\)](#); 2004. On line, available: <http://www.ncbi.nlm.nih.gov/books/NBK215638/>

² *Ibid.*

³ Based on the CDC blog, “Zika Virus: Zika, Mosquitoes, and Standing Water,” posted March 22, 2016. Online, available: <http://blogs.cdc.gov/publichealthmatters/2016/03/zikaandwater/>

Other Mosquito Control Strategies

The [Mosquito Control Association recommends](#) changing the water in birdbaths and wading pools at least once per week, and stocking ornamental pools with “top feeding predacious minnows,” which eat mosquito larvae. Alternatively, ornamental pools may be treated with biorational larvicides (active against a given target, but relatively innocuous to non-target organisms), or S-methoprene-containing (insect growth regulators) products. Chlorine solutions are also known to inhibit mosquito larvae development, probably through an insect growth regulator mechanism. Research is being conducted to determine effective solution concentrations.

Discarded tires can be a mosquito breeding paradise. Avoid storing these outdoors, but if no other options are available, these can be treated with a larvicide.

Additional Tips for backyard swimming pool owners:

- Empty the water from small inflatable and molded plastic kiddie pools immediately after use.
- Keep larger pools properly chlorinated to inhibit mosquito breeding. Leaving to go on vacation? See to it that the pool is treated while you are away, or cover the pool.