2025

West Nile Virus

Outbreak Communication Toolkit

Last updated August 19, 2025

Contents

Background

This West Nile Virus (WNV) Outbreak Communications Toolkit was developed by the Centers for Disease Control and Prevention (CDC) for state and local health departments to adapt and use in local communication about WNV outbreaks.

WNV is the leading cause of mosquito-borne disease in the contiguous United States, yet no medications to treat or licensed vaccines to prevent WNV are currently available. Each year, WNV cases occur across the United States with periodic outbreaks that are large and unpredictable. Additionally, data indicate that people do not consistently practice recommended personal protective behaviors, such as using Environmental Protection Agency (EPA)-registered insect repellent, to prevent mosquito bites.

When an outbreak occurs, it is essential to implement clear and rapid communication with other response activities, such as mosquito control. This helps local communities know their risk, what they can do to protect themselves and their loved ones, and what local authorities are doing.

Outlined in the toolkit are key messages, potential communication platforms, tips for engaging with the media and providing clear information, and several materials and templates that can be downloaded or tailored to fit the local context.

Potential Communication Partners

- Healthcare facilities, including hospitals, nursing homes, dialysis centers, community health clinics, federally qualified health centers
- Large employers in the area, local chapters of professional organizations
- Mosquito control programs
- Community organizations, such as
    - Faith-based organizations
    - HOAs and neighborhood associations
    - Outdoor recreation groups (e.g., golf clubs, sport leagues, hiking groups)
    - Gardening associations
    - Senior centers
    - Social clubs (e.g., Lions Club, Kiwanis, etc.)
- Government organizations, such as
    - City Council
    - County Management Official
    - Mayor's Office
    - Police and Fire Department
    - Parks and Recreation Department
- Local media outlets, including weather
- Administrators of social media groups for people with certain conditions and clinicians

Got questions or requests related to this toolkit?

Contact CDC-INFO

800-232-4636

cdc.gov/cdc-info/index.html

Crisis and Emergency Risk Communication

Six Key Principles

The principles of crisis and emergency risk communication help responders and leaders better reach people with lifesaving information about disease outbreaks and other public health emergencies. More resources: Crisis & Emergency Risk Communication (CERC) | CDC.

Be First
Outbreaks are time-sensitive. Communicating information quickly is crucial. For members of the public, the first source of information often becomes their preferred source.

Be Right
Accuracy establishes credibility. Information can include what is known, what is not known, and what is being done to fill in the gaps.

Be Credible
Honesty and truthfulness should not be compromised during outbreaks.

Express Empathy
Outbreaks create harm, and the suffering, discomfort, or anxiety should be acknowledged in words. Addressing what people are feeling, and the challenges they face, builds trust and rapport.

Promote Action
Giving people meaningful things to do calms anxiety, helps restore order, and promotes some sense of control.

Show Respect
Respectful communication is particularly important when people feel vulnerable. Respectful communication promotes cooperation and rapport.

Communication Platforms

Type	Description
Program Communications (channels owned/controlled by HD or Environmental Services)	
Website	In addition to disease and prevention information, consider posting weekly surveillance and mosquito control information.
Text messaging	Opt-in text messaging services can be used to notify residents of spray events or send prevention information.
Mobile app	Mobile apps for providers can be used to send timely notifications.
Social media	Routine postings on channels such as X, Instagram, and Facebook throughout the season can be adapted depending on current events (e.g., recent rains or positive mosquito pools).
NextDoor	Posts on NextDoor can be tailored to specific neighborhoods for updates on spraying or surveillance.
Yard and road signs	Many jurisdictions post yard signs in areas where positive mosquito pools have been found or when spraying will take place. Highway road signs can also be leveraged to warn about current WNV cases. This may be a more cost effective and faster to deploy than traditional billboards.
Community events	Events like farmers markets or festivals provide opportunities for communities to learn about mosquito control and disease prevention.
School-based programs	One-off school presentations or routine school programs can boost community understanding of mosquito control efforts and disease risk.
News Media	
Press release	Press releases can be used to announce key surveillance events like first positive mosquito pool or human case and reinforce prevention.
Letter to the editor	Letters to the editor written by government officials or families affected by WNV can provide a powerful storytelling opportunity.
Partner Communications	
Email	Periodic emails with timely surveillance, control, and prevention information can complement other outreach efforts. Engagement (opens and link clicks) can also be tracked to inform strategic adaptation.
Presentations	Targeted outreach to groups such as HOAs, city councils, and community organizations can include presentations by health department or mosquito control experts. This provides a forum for community stakeholders to learn more and ask questions.
Print materials	Share materials with community partners for dissemination, like door hangers to HOAs, pocket cards to hospitals, or bookmarks to libraries.

Key Messages

About West Nile virus (WNV)

- WNV is the leading cause of mosquito-borne disease in the contiguous United States. Each year, about 2,000 people get sick, including more than 1,200 severe, life-threatening illnesses and more than 120 deaths.
    - WNV was introduced to the United States in 1999 and has been reported from all contiguous U.S. states and Puerto Rico.
    - In the United States, WNV has caused more than 31,800 cases of neurologic illness and 2,900 deaths from 1999 to 2024.
- WNV is most commonly spread to people by the bite of an infected mosquito.
- Mosquitoes become infected when they feed on infected birds. Infected mosquitoes then spread WNV to people and other animals by biting them.
- WNV infection occurs during mosquito season, which starts in the summer and continues through fall. The number of people diagnosed with WNV illness typically peaks in late August to early September.
- Most people infected with WNV do not feel sick. Some people develop mild flu-like symptoms like fever, headache, and body aches. A smaller number of people develop severe illness, which can be life-threatening and cause permanent disability.
- There are no licensed vaccines to prevent or medications to treat WNV in people.
- The best way people can protect themselves from WNV is to prevent mosquito bites.

More: About West Nile | West Nile Virus | CDC

WNV for the General Public

Symptoms

- About 80% of people infected with WNV do not develop symptoms and may never know they were infected.
- About 20% of people infected with WNV develop mild illness with flu-like symptoms like fever, headache, and body aches.
    - Most people with mild illness recover completely.
    - Most symptoms of mild illness typically resolve within 14 days for most people. However, fatigue and weakness may last for weeks or months.
- Less than 1% of people infected with WNV develop severe illness that affects the central nervous system, requires hospitalization, or results in death.
    - Central nervous system infection (neurologic illness) can cause inflammation of the brain (encephalitis) and the membranes around the brain and spinal cord (meningitis). Rarely, paralysis can also occur.

- Symptoms include high fever, headache, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, vision loss, numbness, and paralysis.
- Recovery from neurologic illness can take several weeks or months. Some effects might be permanent.
- About 10% of people with neurologic illness die.

Risk Factors

- Anyone who lives in or travels to an area where WNV circulates in the contiguous United States is at risk of infection.
  - All states in the contiguous United States have reported cases.
  - People who spend more time outdoors or cannot keep mosquitoes out of their residence between dusk and dawn are at higher risk of infection.
- If infected, anyone can develop mild or severe WNV illness.
- The risk of severe illness—illness that affects the central nervous system, requires hospitalization, or results in death—increases with age or if you have a chronic medical condition or weakened immune system due to an underlying health condition or medication.
  - The risk of severe illness increases with age. For example, people 65 years and older are three times as likely to develop neurologic illness than people younger than 65 years.
  - People with certain chronic medical conditions like cancer, diabetes, high blood pressure (hypertension), or kidney disease are at higher risk of severe illness.
  - People with a weakened immune system, including those who take medications that weaken the immune system, are at higher risk of severe illness. For example, rituximab, ocrelizumab, or similar medications, used to treat cancers, autoimmune diseases, and inflammatory conditions or prevent rejection of transplanted organs, weaken the immune system.

Diagnosis and Treatment

- If you think you or a family member might be sick with WNV, talk with your healthcare provider about ordering a test to look for an infection.
- There are no medicines to treat WNV disease.
- For mild illness, you can often manage your symptoms by:
  - Taking over-the-counter medication, like acetaminophen, for fever, pain, and headaches. Avoid ibuprofen or other non-steroidal anti-inflammatory drugs (NSAIDs) if you live in an area with dengue virus, which is also transmitted by mosquitoes.
  - Staying hydrated by drinking lots of fluids
  - Resting
- Seek immediate medical attention if you experience high fever, neck stiffness, muscle weakness, confusion, or tremors.
- People with severe illness often need to be hospitalized to receive supportive treatment, such as intravenous fluids, pain medication, and nursing care.

Prevention

Note: Prevention messaging should be tailored to the local area since some recommended actions may not be relevant for all parts of the United States.

- The best way to protect against WNV infection is to prevent mosquito bites.
    - Use Environmental Protection Agency (EPA)-registered insect repellent.
    - Wear long, loose-fitting shirts and pants.
    - Avoid being outside between dusk and dawn.
    - Use screens on windows and doors or air conditioning, if available.
    - Use larvicides like mosquito dunks in smaller areas with permanent standing water like ponds.
    - Contact a local mosquito control district or program or licensed professional to treat vegetation near your home or larger areas with permanent standing water.
- There are no licensed vaccines or medications to prevent WNV disease.

- Use EPA-registered insect repellents:
    - Use EPA-registered insect repellents with one of the following active ingredients: DEET, picaridin, IR3535, oil of lemon eucalyptus, para-menthane-diol, or 2-undercanone.
    - When used as directed, EPA-registered insect repellents are proven safe and effective, including for pregnant and breastfeeding women.
        - Do not use products containing oil of lemon eucalyptus or para-menthane-diol on children under 3 years old.
        - Do not apply repellent to a child's hands, eyes, mouth, cuts, or irritated skin.
    - We do not know the effectiveness of non-EPA-registered insect repellents, including some natural repellents.
    - Use the Insect Repellent Chatbot to help you choose a repellent, how to apply repellent, and other ways to prevent mosquito bites.
- Use 0.5% permethrin to treat clothing and gear (such as boots, pants, socks, and tents) or buy permethrin-treated clothing and gear.
    - Permethrin-treated clothing provides protection after multiple washings.
    - Read product information to find out how long the protection will last.
    - Do not use permethrin products directly on skin.

More: Preventing Mosquito Bites | Mosquitoes | CDC

WNV for Healthcare Providers

Transmission

- WNV is transmitted primarily through the bite of an infected *Culex* species mosquito.
- West Nile virus circulates in the environment between mosquitoes and birds. People become infected with the virus when mosquitoes feed on infected birds and then bite people.

- WNV is introduced by inoculation of viral particles into the skin at the mosquito feeding site. From there, WNV spreads to regional lymph nodes where it replicates and then enters the bloodstream causing viremia. This may be followed by invasion of the central nervous system in some cases.
- Humans, horses, and other mammals are "dead end" hosts, meaning that viremia is not high enough for an infected person to transmit the virus to uninfected mosquitoes.
- WNV transmission can also occur through blood transfusion and organ transplantation.
    - Since universal WNV screening of the U.S. blood supply started in 2003, transmission by this route is rare.
    - Living tissue donors are routinely screened for WNV.
    - Currently, WNV screening of living and deceased solid organ donors is currently not required. However, most centers do screen living donors and some centers screen deceased donors for WNV.
- WNV has rarely been transmitted through intrauterine, peripartum, breastmilk, percutaneous (laboratory), and conjunctival exposure.
- Standard precautions are recommended when treating patients suspected or confirmed as having WNV disease in healthcare settings.

More: Transmission of West Nile Virus | West Nile Virus | CDC

Symptoms

- The incubation period from mosquito bite to onset of acute systemic illness is usually 2–6 days but ranges between 2–14 days and may be longer in immunocompromised patients.
- About 80% of human WNV infections are asymptomatic.
- If symptomatic, most people develop febrile illness referred to as non-neuroinvasive disease—or West Nile fever—often involving fever, fatigue, headache, myalgia, rash, vomiting, and/or diarrhea.
- Less than 1% of infected people develop neuroinvasive WNV disease.
    - Neuroinvasive WNV disease typically manifests as aseptic meningitis, encephalitis/meningoencephalitis, or acute flaccid myelitis.
    - Symptoms of meningitis can include headache, photophobia, and meningismus. Meningitis typically develops within 24-48 hours of illness onset.
    - Patients with encephalitis can develop confusion, movement disorders such as tremors, myoclonus, parkinsonism, and cerebellar ataxia, and progress to stupor or coma. Encephalitis typically develops within 24-48 hours of illness onset.
    - Acute flaccid myelitis (AFM) can develop concurrently with meningitis or encephalitis and cause asymmetric limb weakness, areflexia, and cranial neuropathies, and can lead to neuromuscular respiratory failure. AFM typically develops within 24-48 hours of illness onset.
    - WNV-associated Guillain-Barré syndrome can occur 1-8 weeks following acute WNV infection and is characterized by ascending, symmetric weakness and sensory and autonomic dysfunction.

- Many patients have long-term physical, cognitive, and functional sequelae after being hospitalized for WNV disease, with 30–40% of patients being discharged to long-term care or rehabilitation facilities, and >50% having ongoing symptoms for over a year after illness.
- About 10% of people with neuroinvasive disease will die from their illness.

Risk

- Anyone can develop neuroinvasive disease following WNV infection, but the risk increases with age.
    - Based on blood donor studies, about 2% of people aged ≥65 years develop neuroinvasive disease compared with <0.5% of people <65 years.
    - Patients aged 60-69 years are twice as likely, and patients aged ≥70 years are more than 6 times as likely to be hospitalized with WNV disease compared to younger adults.
    - Mortality in patients with neuroinvasive disease is highest for people aged ≥70 years (~20%) compared with younger age groups (~2% for people <50 years).
- Risk of neuroinvasive disease is also increased for patients with cancer, diabetes, hypertension, renal disease, or a weakened immune system.
    - Patients taking B-cell depleting therapies or similar medications to treat cancers, autoimmune diseases, and inflammatory conditions or prevent rejection of transplanted organs are at higher risk of neuroinvasive disease.
    - Mortality from neuroinvasive disease is higher for people with severe immunosuppression (30–40%).
- Healthcare providers should emphasize mosquito bite prevention, especially for people who are at higher risk of developing neuroinvasive disease if infected with WNV.

More: Clinical Signs and Symptoms of West Nile Virus Disease | West Nile Virus | CDC

Diagnostic Testing

- Consider WNV disease in the differential diagnosis of patients with flu-like or unexplained neurological symptoms, especially during months when mosquitoes are active.
- For non-immunocompromised patients, testing for WNV-specific IgM antibodies in serum and/or cerebrospinal fluid (CSF) is recommended.
    - WNV IgM antibodies usually become detectable 3–8 days after onset of illness; if initial testing is negative, it should be repeated on or after the eighth day of illness.
    - In some cases, positive presumptive IgM results should be confirmed by neutralizing antibody testing at CDC or state public health laboratories. Confirmatory testing should be considered for patients with unusual clinical presentations, fatal cases, or to ensure WNV is the infecting virus (e.g., when possible exposure to another cross-reacting flavivirus like dengue or Powassan virus occurred).
- For immunocompromised patients, reverse transcription (RT)-PCR of serum or CSF might be more sensitive than antibody testing for diagnosis of acute WNV disease, especially for patients on B cell-depleting monoclonal antibodies like rituximab.

- Patients with immunocompromising conditions may have prolonged viremia and delayed or absent antibody response.
    - Symptomatic presentation in immunocompromised patients can occur outside of the usual arboviral season (typically June to October or longer in warmer regions).
    - Molecular testing may be preferred for some patients.
- Correct diagnosis is important to stop unnecessary therapies (e.g. antibiotics), limit further diagnostic evaluation, and help inform patient outcomes or direct public health prevention measures. Correct diagnosis can also help to identify rare cases exposure to infected blood or organs.
- Promptly report cases to state or local health departments to allow for appropriate control measures. Timely testing and diagnosis are critical to effective management of WNV disease, enabling early medical intervention, prompt reporting, and public health response.

More: Clinical Testing and Diagnosis for West Nile Virus Disease | West Nile Virus | CDC / Diagnostic Testing Algorithm for Suspected West Nile Virus Disease | West Nile Virus | CDC

Treatment

- There are no approved or recommended therapies to treat WNV infections or disease. Clinical management is supportive.
    - Various drugs have been evaluated or empirically used for WNV disease. However, none has shown conclusive benefit to date.
    - Mild illness can be managed with over-the-counter medication for fever, pain and headaches; staying hydrated; and rest.
- Patients with severe meningeal symptoms often require pain control for headaches and antiemetic therapy and rehydration for associated nausea and vomiting.
- Patients with encephalitis require close monitoring for the development of elevated intracranial pressure, seizures, or inability to protect their airway.
- Patients with acute flaccid myelitis should be monitored closely for acute neuromuscular respiratory failure that can develop rapidly and require prolonged ventilatory support.

More: Treatment and Prevention of West Nile Virus Disease | West Nile Virus | CDC

Mosquitoes

- *Culex* species mosquitoes spread WNV and other viruses like St. Louis encephalitis virus. These mosquitoes are different from the species that spread some other mosquito-borne diseases like dengue, yellow fever, and Zika.
- Only female mosquitoes bite people and animals to get a blood meal. Female mosquitoes need a blood meal to produce eggs.
- *Culex* species mosquitoes are most active from dusk to dawn. When they are not active, they usually rest in grass, shrubs, and other vegetation.
- *Culex* mosquitoes prefer to lay eggs on the surface of permanent standing water like ponds, edges of lakes, swamps, unmaintained swimming pools, and wastewater treatment plants. They also use floodwater areas, like storm drains, ditches, low-lying pastures, and

agricultural areas (citrus groves or rice fields). Sometimes they use small containers around the house like buckets, unused tires, planters, toys, birdbaths, or flowerpots.

More: About Mosquitoes | Mosquitoes | CDC / Life Cycle of Culex Mosquitoes | Mosquitoes | CDC

Mosquito Control

Household-level control

- Keep mosquitoes outside:
  - Use screens on windows and doors or use air conditioning, if available.
  - Repair holes in screens to keep mosquitoes outdoors.
- Emptying small containers that could hold standing water outside the house is important for *general* mosquito control.
- For the mosquitoes that spread WNV:
  - Use mosquito dunks or other larvicides in smaller areas with permanent standing water—like ponds or unmaintained swimming pools—to kill mosquito larvae before they grow into adult mosquitoes.
  - Contact a local mosquito control district or program or licensed professional about using an adulticide on your property to treat cool, dark, and humid areas where adult *Culex* mosquitoes rest, especially thick vegetation.
  - Contact a local mosquito control district or program about treating larger areas with permanent standing water on or near your property, such as agricultural areas, low-lying pastures, and wastewater treatment plants.

Best practices when using insecticides

- Contact a local mosquito control district or program or licensed professional to apply adulticides for you.
- If you are applying insecticides yourself, always follow the label instructions when using an insecticide—like larvicides or adulticides—to kill larvae, pupae, or adult mosquitoes.
  - Use larvicides to treat standing water that will not be used for drinking or cannot be covered, dumped, or removed (for example, ponds or unmaintained pools).
  - Do not apply more product than recommended or reapply more often than stated on product label instructions.
  - Do not apply adulticides directly on outdoor fruits and vegetables or inside near food.
  - Do not apply adulticides to plants in bloom or to plants that bees, butterflies, and other pollinators visit.
  - Keep people and pets out of the area you treat until the adulticide product has dried, usually about 1 hour.

Community-level control

- Local mosquito control professionals monitor the number of mosquitoes in the community and whether they are infected with viruses that can make people sick.
- If the number of mosquitoes in an area becomes too high or if they are found to be infected with WNV, mosquito control professionals may take steps to kill mosquito larvae and adult mosquitoes. These steps can include:

    - Removing places where mosquitoes can lay eggs or water source reduction.
    - Applying insecticides, such as larvicides to decrease the number of mosquito larvae and pupae, or adulticides to decrease the number of adult mosquitoes.
    - Increasing outreach to the public.
- Only adult female mosquitoes spread viruses to people. During an outbreak, the use of adulticides is an important method used to decrease the overall number of adult mosquitoes.
- Aerial and truck spraying help to control and reduce the number of mosquitoes that can spread viruses. This can reduce the chances of people and animals in the community getting sick.
    - When applied by a trained professional and according to the product label, truck and aerial spraying pose minimal risk to people, pets, animals, and the environment.
    - Aerial and truck spraying of adulticides occurs when adult mosquitoes are most active and when pollinating insects are not active—between dusk and dawn.
    - Larvicides can be applied during the day to prevent larvae from growing into adult mosquitoes. Depending on the size of the body of water with larvae, trained professionals might spray larvicides using backpack sprayers, trucks, or airplanes.
- While proper use and application of insecticides pose little to no risk to human health, people can avoid exposure by keeping their family and pets inside with the windows closed while insecticides are applied in their area.

More: Mosquito Control | Mosquitoes | CDC

Frequently Asked Questions (FAQs)

Does my blood type provide natural protection from West Nile virus (WNV)?
Some research suggests mosquitoes may be more attracted to people with certain blood types, but this preference varies by species. Your blood type will not prevent mosquitoes from biting or protect you from WNV infections or disease.

Am I at risk for WNV?
Anyone can get infected with WNV and develop severe illness, but the risk increases with age. You are also at a higher risk if you have:

- Certain chronic medical conditions, such as:
  - Cancer
  - Diabetes
  - High blood pressure (hypertension)
  - Kidney disease
- A weakened immune system due to health condition or medication. For example, certain drugs used to prevent rejection of transplanted organs or treat cancers, autoimmune diseases, and inflammatory conditions weaken the immune system.

What are the risks to my baby if I am pregnant and have WNV?
A woman who is infected with WNV during pregnancy can possibly transmit the virus to her baby, but the risk is low. Only a few cases of WNV infections in newborns have been reported. Women can lower their risk of getting infected with WNV by wearing protective clothing, using insect repellent to prevent mosquito bites, and taking other preventive measures.

If I am pregnant, can I still use insect repellents?
Yes. Protecting yourself from mosquito bites is the only way to prevent infection with WNV. In addition to wearing protective clothing such as long-sleeve shirts and long pants, use insect repellents. Repellents containing active ingredients which have been registered with the EPA are considered safe for pregnant and breastfeeding women. More information: Preventing Mosquito Bites | Mosquitoes | CDC.

Can I get WNV from my loved one with the disease?
No. WNV is not spread through casual contact such as touching or kissing a person with the virus.

Can I get WNV through medical procedures?
Risk of transmission through medical procedures is very low. All donated blood is screened for WNV before being used. The risk of getting WNV through blood transfusions and organ transplants is very low and should not prevent people who need blood transfusions or organs from receiving these life-saving measures. If you have concerns, talk to your doctor.

What should I do if I think I have WNV?
Mild WNV illness typically improves on its own, and people do not necessarily need to seek medical attention. However, they may choose to do so to be tested and know why they are ill. If you develop symptoms of severe WNV illness, such as unusually severe headaches, or confusion, seek medical

attention immediately. Severe WNV illness usually requires hospitalization. Pregnant women and nursing mothers are encouraged to talk to their doctor if they develop symptoms that could be caused by WNV.

Are there vaccines available to prevent WNV?
No. While there are vaccines approved to reduce the risk of infection in horses, there is currently no licensed vaccine for people.

How can I prevent WNV?
The best way to protect yourself and family from WNV is to prevent mosquito bites.

- Use EPA-registered insect repellent when spending time outdoors.
- Wear long-sleeved shirts and pants when possible.
- Limit time outdoors between dusk and dawn when the mosquitoes that spread WNV are most active. If you must be outside, use an EPA-registered insect repellent and protective clothing when possible.
- Install or repair screens on your windows and doors to keep mosquitoes out.

More FAQs:
- West Nile and Dead Birds | West Nile Virus | CDC
- West Nile and Blood Transfusions | West Nile Virus | CDC
- West Nile and Organ Transplantation | West Nile Virus | CDC
- West Nile and Pregnancy | West Nile Virus | CDC
- West Nile and Breastfeeding | West Nile Virus | CDC

Media Relations

Engagement with the media can be a valuable opportunity to communicate important health information and updates to the public. Engagement could include live interviews, email correspondence to answer questions, quotes in articles, and features on local news stations.

Expectations

Generally, the media expect:

- Equal access to information
- Honest answers to their questions
- Timely release of information
- Efficient rumor control, or else they will continue to report the speculation
- Provision of subject matter experts with an official view to report
- Commitment to a schedule for media availabilities
- Responses to their calls or emails
- Clear indication of what is accurate or clarification that information is preliminary and could change
- Clear indication if you do not have an answer and an explanation of the process you're using to get it
- Consistent messaging from your organization and partners
- A degree of understanding about how the news business works
- To be treated with respect

Feature Request for Local News Station

Features on local news stations can be an efficient way to reach local community members, especially older age groups who are at higher risk for severe illness and more likely to watch local news stations. Health departments can proactively contact the news station if they have not already reached out. Staff at the news station would manage the scriptwriting, visuals, and overall production of the WNV segment(s).

Example of proactive outreach language

The [NAME OF HEALTH DEPARTMENT] would like to request a segment to alert the community to West Nile virus (WNV) activity in the local area. If possible, we are also interested in a recurring segment, perhaps either tied with weather segments or news anchor follow-ups, to provide updates [if West Nile virus activity continues to increase / as the outbreak progresses / as mosquito season continues].

Key information to convey

- The most recent surveillance event and what it means (e.g., detection of virus in local birds, *Culex* mosquitoes, or horses; human case or infected blood donor; high or significant increase in mosquito WNV positivity in *Culex* mosquitoes or birds; high, extremely high, or higher than average numbers of human disease cases or birds dying from WNV; reaching outbreak threshold)
- What people can do to reduce their risk of infection

- Who is at increased risk of severe illness
- What health officials are doing, including the health department and mosquito control agency

Examples of sliders or headlines

- Health Alert: West Nile virus detected in [AREA(s)]
- Outbreak: West Nile virus sickens # people in [AREA]
- Outbreak News:
    - West Nile virus detected in local birds
    - West Nile virus confirmed in local horses
    - First human case of West Nile virus confirmed
    - One person hospitalized after getting sick with West Nile virus
    - [#] more people confirmed sick with West Nile virus
- Summer is here, and so are mosquitoes
- Elevated risk for mosquito-borne illness this summer and fall
- Warmer weather brings more mosquitoes that can make you sick
- Mosquito Season: Prevent bites to protect against West Nile virus

Examples of visuals news stations might use

- Pictures of b-roll of *Culex* species mosquitoes
- General pictures or b-roll of mosquitoes biting or flying
- Photos or b-roll of local mosquito habitats
- Insecticide spray truck
- People using personal protective behaviors, such as applying EPA-registered repellent; covering up with long, loose-fitting shirts and pants; checking the screens on windows and doors; applying permethrin to outdoor gear, etc.
- If granted permission, personal testimonial video clips or pictures from people who have had West Nile virus disease
- Current year data maps: https://www.cdc.gov/west-nile-virus/data-maps/current-year-data.html

Example Press Release: First Human Case

The [COUNTY/CITY] Department of Health confirmed the first human case of West Nile virus (WNV) in [AREA] this year. A [ADULT/ADOLESCENT/CHILD] tested positive for the virus after becoming ill [GENERAL TIMING] and is [SHAREABLE DETAILS, e.g., is recovering from the infection, is hospitalized with severe illness].

WNV is spread by mosquitoes and can potentially lead to serious illness in people. Mosquitoes get the virus when they bite an infected bird. People and animals are infected when an infected mosquito bites them. Most cases of human illness are reported during summer and fall months when mosquitoes are more active.

[INSERT QUOTE, e.g., reflections on what this means for human health, risk for future cases or an outbreak, and why this news matters]

Last year, [INSERT HISTORICAL STATE CASE DATA].

Most people (80%) infected with WNV do not show symptoms and may never know they were infected. Some people (20%) may develop a fever with a headache, body aches, joint pain, vomiting, diarrhea, or a rash. These symptoms usually occur within 2 weeks after being bitten by an infected mosquito. Less than 1% of people who are infected develop severe illness that affects the central nervous system, such as encephalitis (inflammation of the brain) or meningitis (membranes that surround the brain and spinal cord); requires hospitalization; or results in death.

Anyone can develop mild or severe illness. However, risk of severe illness increases with age or if you have a chronic medical condition (such as cancer, diabetes, high blood pressure, or kidney disease) or a weakened immune system due to a health condition or medication.

There is no licensed vaccine to prevent or medicines to treat WNV disease. However, there are many steps people can take to help keep their families and communities safer and healthier.

[INSERT QUOTE, e.g., the value of health departments and mosquito control agencies, what they do, why it's important, and reinforcing personal protective behaviors to decrease risk of WNV]

Visit [HEALTH DEPARTMENT] website for more information on mosquito and WNV prevention: [URL].

Example Press Release Template: Outbreak

West Nile Virus Outbreak in [LOCATION(S)]

There is currently an ongoing outbreak of West Nile virus (WNV) in [LOCATION(S)]. As of [DATE], [NUMBER] people have gotten sick, including [HIGH-LEVEL, SHAREABLE OVERVIEW OF CASES].

The [MOSQUITO CONTROL AGENCY] plans to [INSERT MOSQUITO CONTROL ACTIVITY, e.g., conduct truck or aerial spraying]. This action will help decrease the numbers of mosquitoes that infected with WNV and that could spread the virus to more people in our community.

The risk of being infected with WNV is currently very high. Prevent mosquito bites to protect yourself and your loved ones:

- Use EPA-registered insect repellent.
- Wear long, loose-fitting shirts and pants when outdoors.
- Avoid being outside between dusk and dawn.
- Use screens on windows and doors or air conditioning.

Most people (80%) who are infected will not develop symptoms and may never know they were infected with the virus. About 20% of people will develop mild symptoms, including fever, headache, and body aches. A small number of people (less than 1%) develop severe illness, which can include inflammation of the brain, tissues surrounding the brain, and spinal cord. Severe illness can include neck stiffness, disorientation, coma, tremors, muscle weakness, numbness, and paralysis; require hospitalization; or result in death.

Anyone can develop mild or severe illness if they are infected with WNV. However, the risk of severe illness increases with age or if you have a chronic medical condition (such as cancer, diabetes, high blood pressure, or kidney disease) or weakened immune system due to a health condition or medication.

The [HEALTH DEPARTMENT] urges clinicians to consider West Nile virus disease in patients with flu-like symptoms or unexplained neurological symptoms. Information on diagnostic testing is available on the CDC's website: Clinical Testing and Diagnosis for West Nile Virus Disease | West Nile Virus | CDC.

The [INSERT APPROPRIATE AGENCY] will provide updates on the WNV outbreak [INSERT GENERAL TIMING OF NEXT UPDATE AND CHANNEL(S) THAT WILL BE USED].

For additional information contact _____ at _____.

Example Press Release Template: Truck or Aerial Spraying

Truck or Aerial Spraying in [LOCATION] Scheduled for [DATE] to Reduce Number of Mosquitoes

[DATE]

[NAME OF MOSQUITO CONTROL DISTRICT] has scheduled a [truck-based or aerial] spray operation for approximately [NUMBER OF ACRES] within [LOCATION] to help reduce the number of mosquitoes that could spread West Nile virus (WNV) to people. Weather permitting, the application will begin [DAY], [DATE] at approximately [TIME] and continue until about [TIME]. If weather does not permit the application to occur, the application will be made on [DAY, DATE].

[NAME OF INSECTICIDE] will be applied. [INSERT DETAILS ABOUT INSECITICIDE, e.g., how it works, how long it lasts, if it smells, whether it poses any health risks for people, animals, or other insects].

The spray operation is being conducted in response to increased risk of WNV spreading in our community. Spraying is necessary to decrease the number of mosquitoes infected with WNV that could spread the virus to humans and animals. The people conducting the application are specially trained to apply the product so that there is little to no risk of negative health impacts to people, animals, pollinators, or the surrounding environment.

[NAME OF AGENCY], a mosquito control company operating out of [CITY] will conduct the spray operation. [AGENCY] has extensive experience in conducting applications for mosquito control, having treated [EXAMPLES OF PAST WORK]. [AGENCY] is familiar with working in [STATE/COUNTY/CITY] and serves as the applicator for [MOSQUITO CONTROL DISTRICT].

For aerial spraying only
[NAME OF AGENCY] will use a single-engine aircraft flying at an altitude of approximately 300 feet to conduct the aerial application. The aircraft is equipped with an aerial spray guidance system specifically engineered for mosquito control operations. The plane receives real-time meteorological conditions such as temperature, wind speed, and wind direction. This onboard equipment allows us to optimize the application within the intended treatment area, while minimizing drift outside the target zone.

For additional information contact _____ at _____.

Social Media

Examples: General Alerts

Download template to customize for Facebook/X or Instagram

Several people in [AREA(S)] have gotten sick from West Nile virus. Protect yourself and your family by preventing mosquito bites:

- ✓ Use EPA-registered insect repellent.
- ✓Wear long, loose-fitting shirts and pants.
- ✓Avoid outdoor activities from dusk to dawn.
- ✓Use screens on windows and doors or air conditioning.

Download templates to customize for Facebook/X or Instagram

There is an active outbreak of West Nile virus in [AREA(S)]. West Nile virus can cause severe illness. Protect yourself and your loved ones: use EPA-registered insect repellent and take other steps to prevent mosquito bites.

Examples: Populations at Higher Risk of Severe Illness

Age and Risk

Risk of severe illness and complications from West Nile virus increase with age. Protect yourself and your loved ones: use EPA-registered insect repellent and take other steps to prevent mosquito bites.
Preventing West Nile | West Nile Virus | CDC

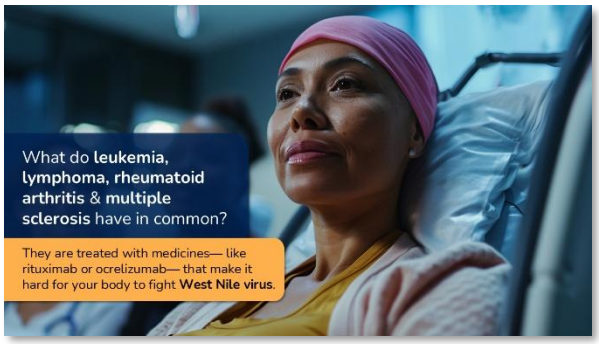
Download for Facebook/X or Instagram

Chronic Medical Conditions

Certain chronic medical conditions increase your risk of severe illness from West Nile virus. Use EPA-registered insect repellent and take other steps to prevent mosquito bites.
Preventing West Nile | West Nile Virus | CDC

Download for Facebook/X or Instagram

B-cell Depleting Therapies



Some treatments can increase your risk of severe illness from West Nile virus. Use EPA-registered insect repellent and take other steps to prevent mosquito bites.
Preventing West Nile | West Nile Virus | CDC

Download for Facebook/X or Instagram

Organ Transplant Recipients

Having an organ transplant increases your risk of severe West Nile virus illness because the medicines you take weaken your immune system. Use EPA-registered insect repellent and take other steps to prevent mosquito bites.
Preventing West Nile | West Nile Virus | CDC

Download for Facebook/X or Instagram

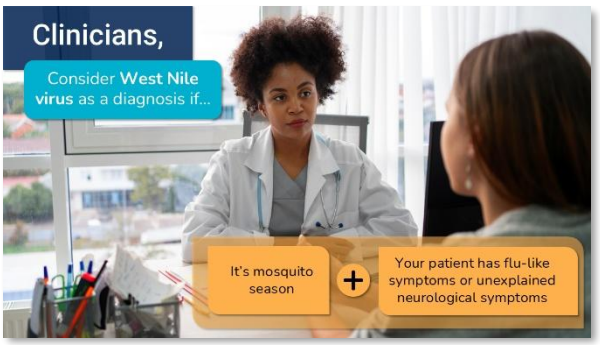
Example Messages and Graphics: Healthcare Providers

Consider WNV—Symptoms

There is an active outbreak of West Nile virus in [LOCATION(S)]. Clinicians, know the signs and symptoms. Consider testing for West Nile virus infection in patients with a febrile or neurologic illness. Counsel patients to prevent mosquito bites.
Clinical Signs and Symptoms of West Nile Virus Disease | West Nile Virus | CDC

Download for Facebook/X or Instagram

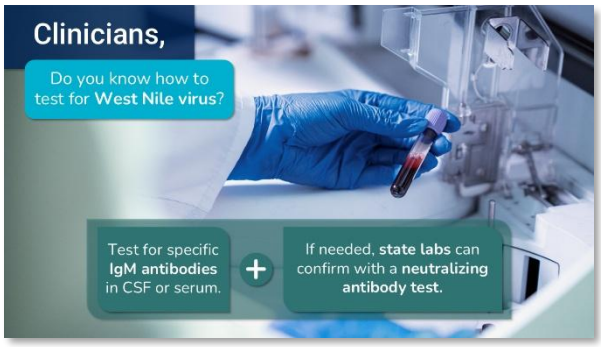
Consider WNV—Season + Symptoms



Mosquito season is here**,** and West Nile virus was just detected in [LOCATION(S)]. Clinicians, keep an eye out for patients with a febrile or neurologic illness and history of possible exposure to mosquitoes. Counsel patients to prevent mosquito bites.
Clinical Signs and Symptoms of West Nile Virus Disease | West Nile Virus | CDC

Download for Facebook/X or Instagram

Testing



If you suspect your patient has West Nile virus, test for IgM antibodies in serum and/or cerebrospinal fluid. RT-PCR may be needed for patients who are immunocompromised, especially if they are on B-cell depleting therapies.
Clinical Testing and Diagnosis for West Nile Virus Disease | West Nile Virus | CDC

Download for Facebook/X or Instagram

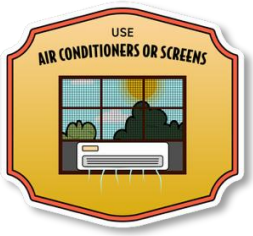
Continuing Education

Mosquito season is here, and West Nile virus was just detected in [LOCATION(S]. Test your knowledge and learn more about West Nile virus: https://bit.ly/WestNileTraining

Download for Facebook/X or Instagram

Fight the Bite Campaign

CDC provides several materials for download that can be paired with mosquito bite prevention messaging for the public: [Fight the Bite | Vector-Borne Diseases | CDC]



Print Products and Templates

Flyer: WNV Alert

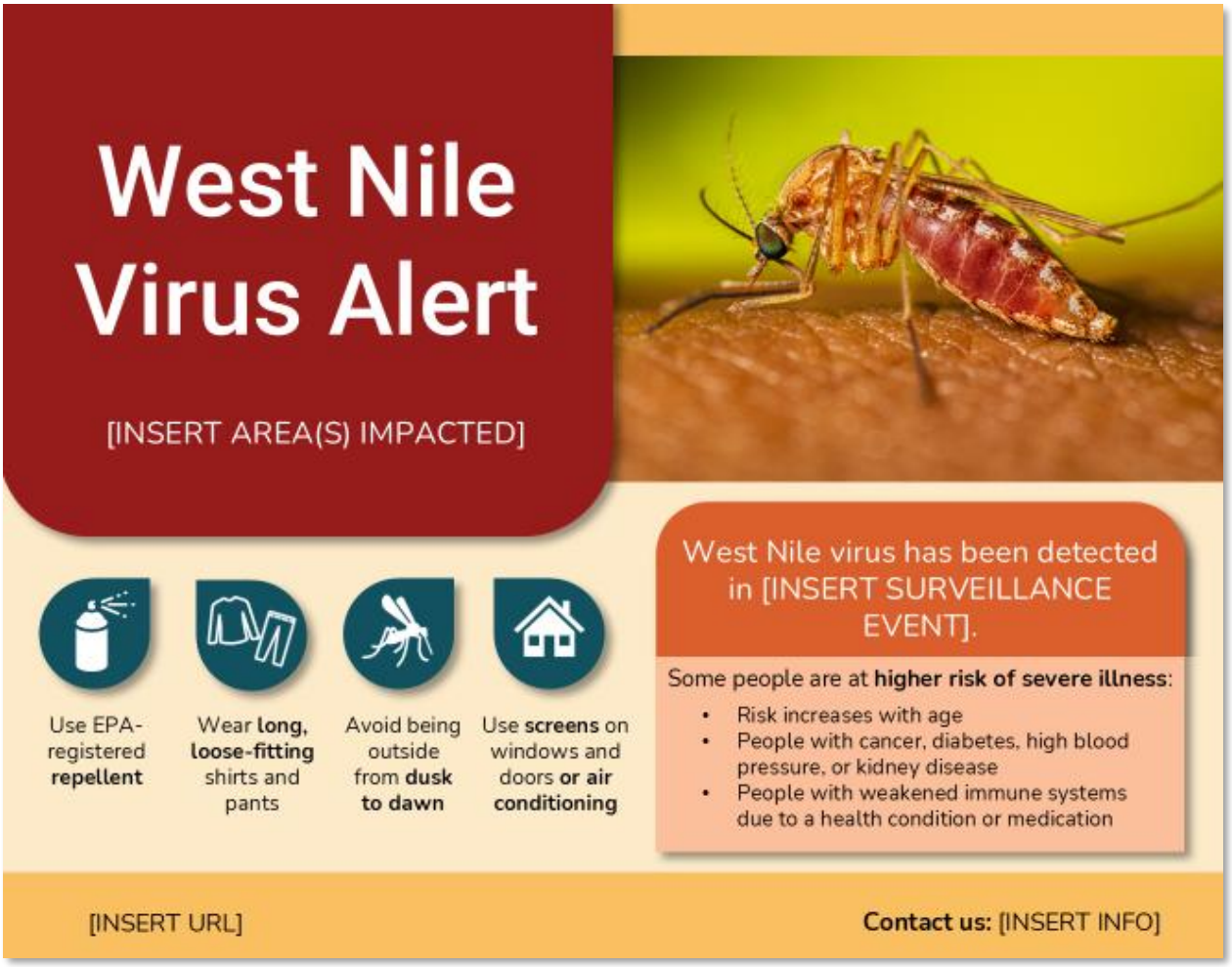
Dimensions: 8.5 x 11 inches

Download template

Postcard Mailer: WNV Alert

Dimensions: 5.5 x 4.3 inches

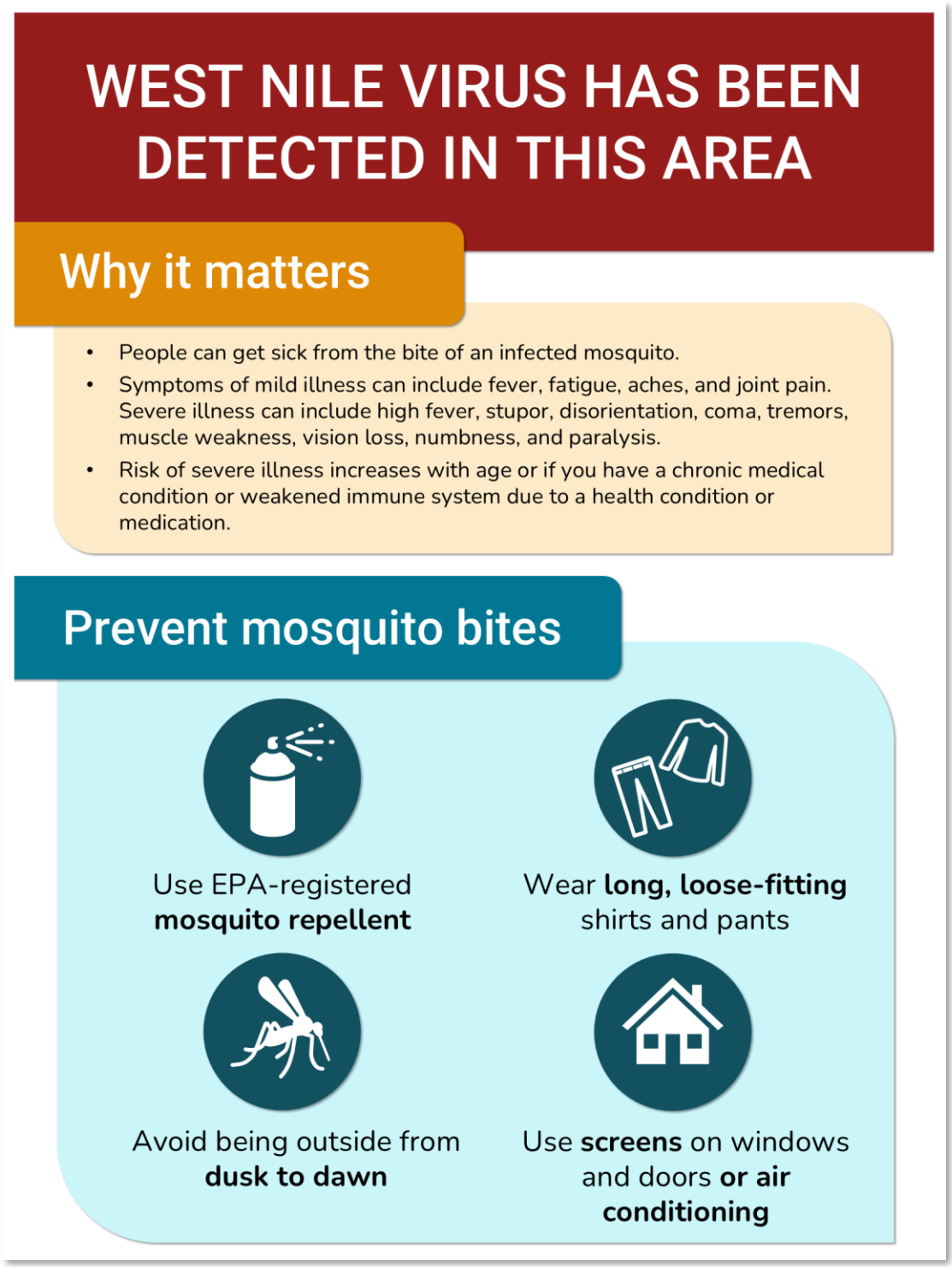
Download template



Outdoor Sign: WNV Alert

Dimensions: 18 x 24 inches

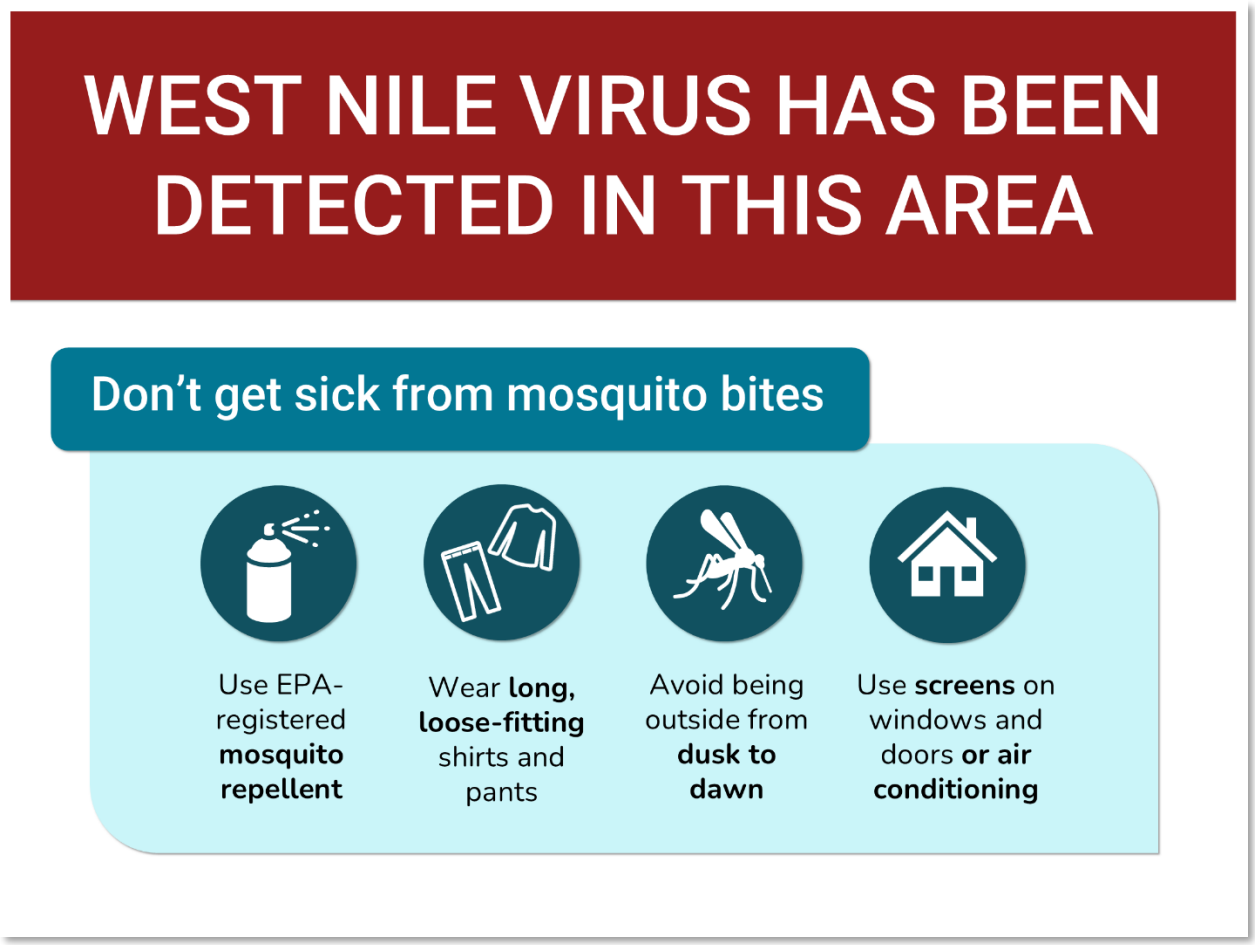
Download



Outdoor Sign: WNV Alert

Dimensions: 24 x 18 inches

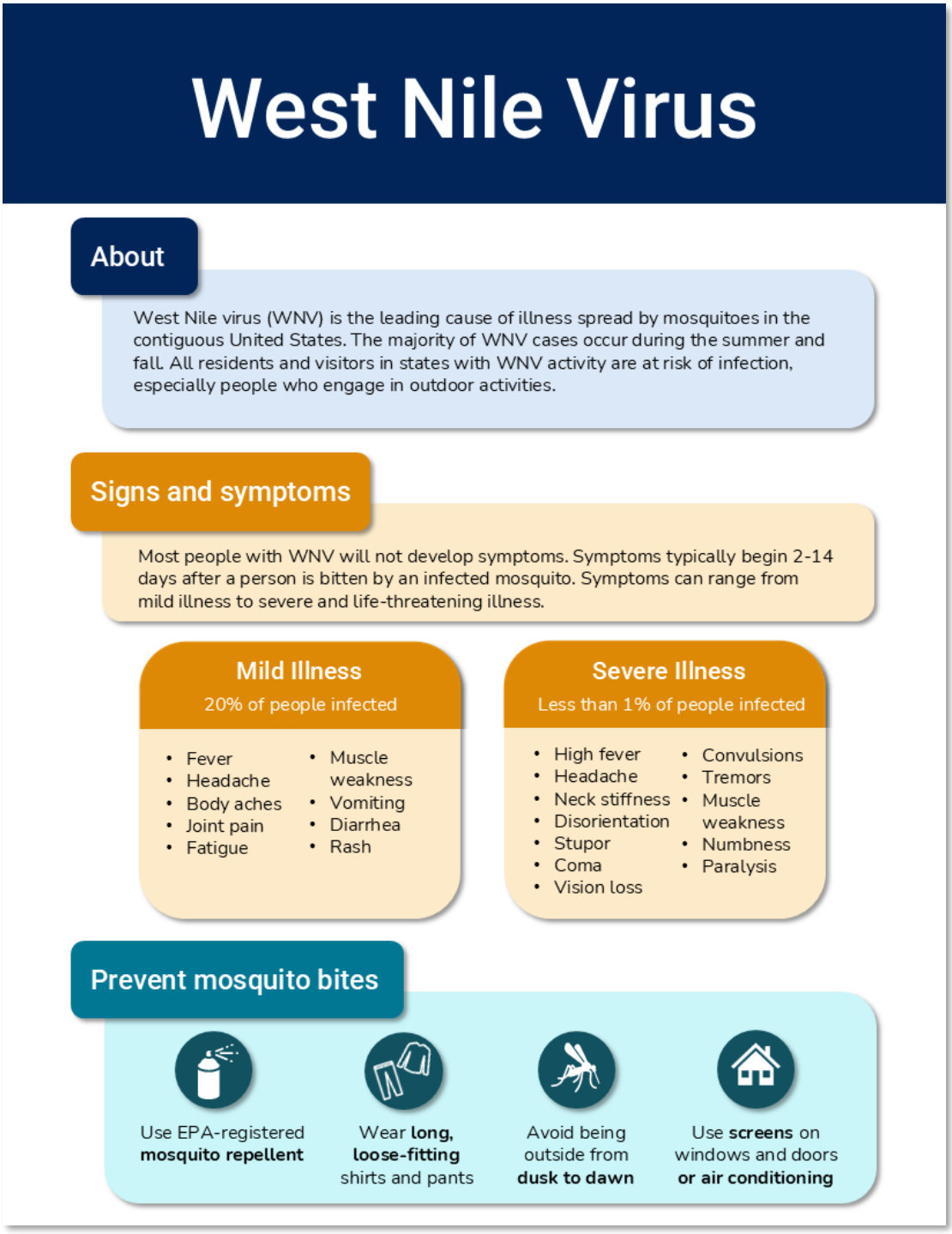
Download



Flyer: About WNV

Dimensions: 8.5 x 11 inches

Download



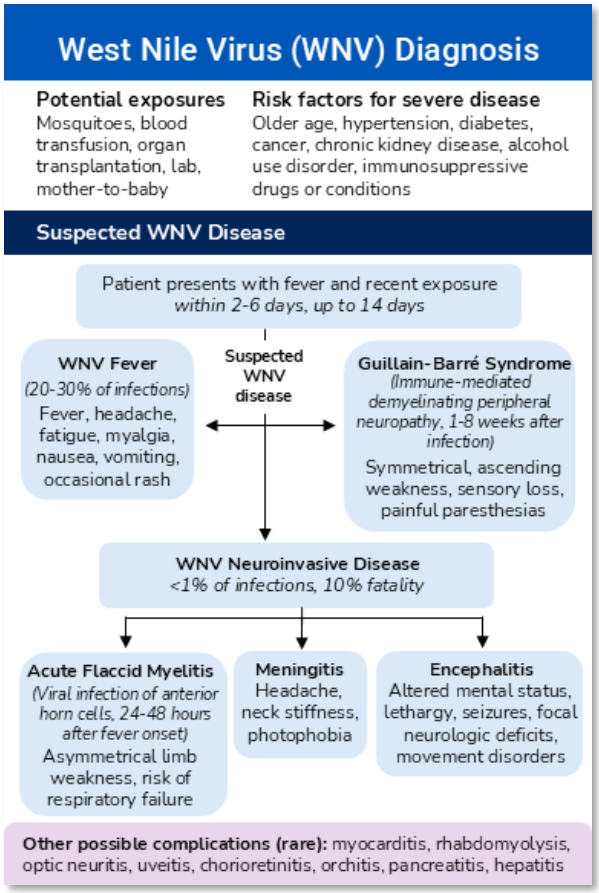
Pocket Card: Diagnostics for Healthcare Providers

For best results, print on card stock and flip on long edge (to line up front side of card to back side). If laminating, print on regular copier paper and use a (heavy) 5 mil laminating pouch.

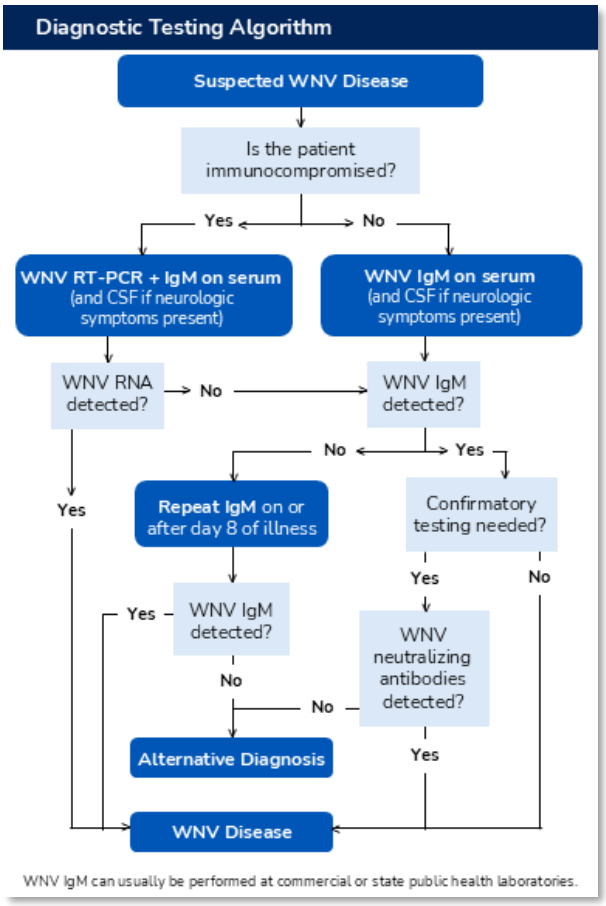
Dimensions: 4 x 6 inches; Download English

Full size (8.5 x 11 inches) is also available for download: Download English / Spanish

Front



Back

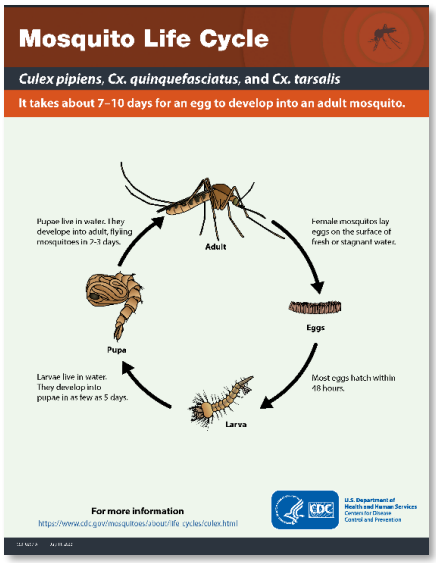


Other Assets

Fact Sheets: Mosquito Life Cycle and Bite Prevention

Several resources, including fact sheets, are available for download at: Communication Resources | Mosquitoes | CDC

Mosquito Life Cycle: *Culex* Species



Download English / Español

Door Hanger

Download English / Español

Protect Yourself from Mosquito Bites

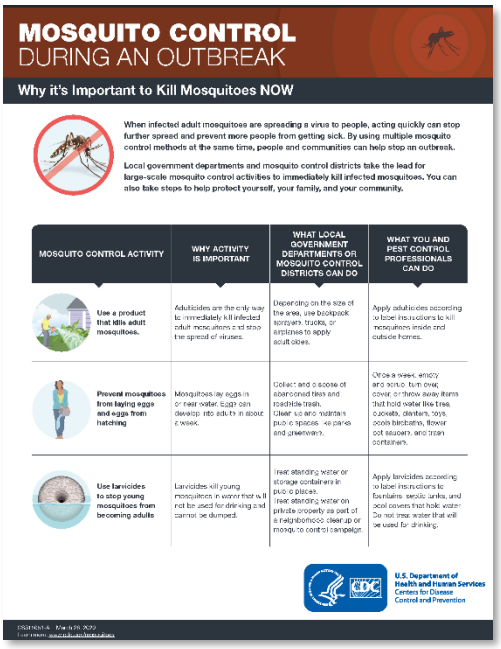
Download English / Español

How to Protect Against Mosquito Bites

Download English / Español

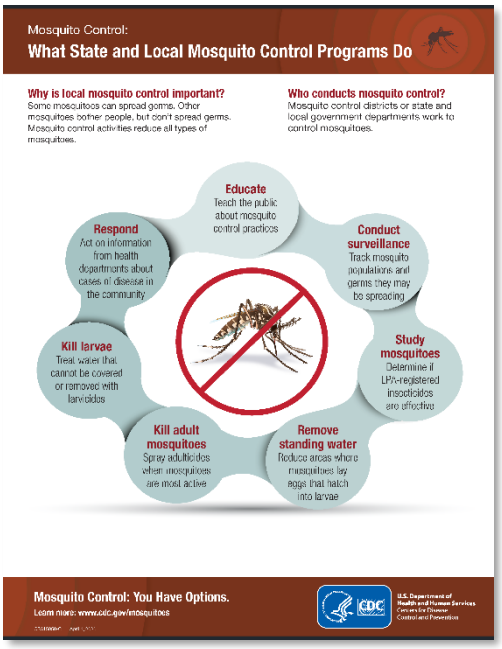
Fact Sheets: Mosquito Control

Mosquito Control During an Outbreak



Download English / Español

About Mosquito Control Programs

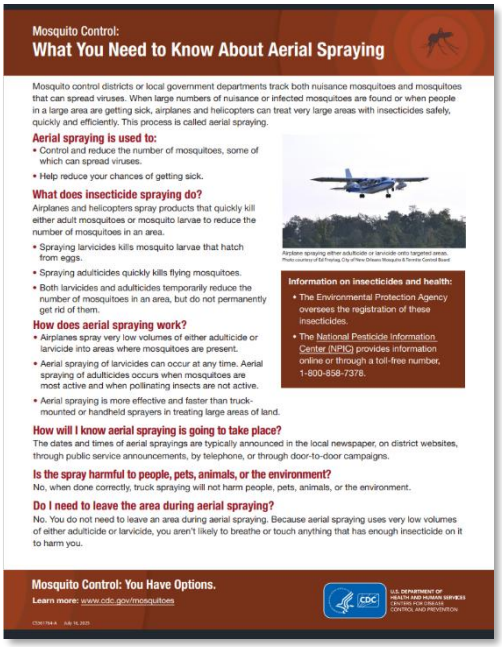


Download English / Español

Truck Spraying

Download English / Español

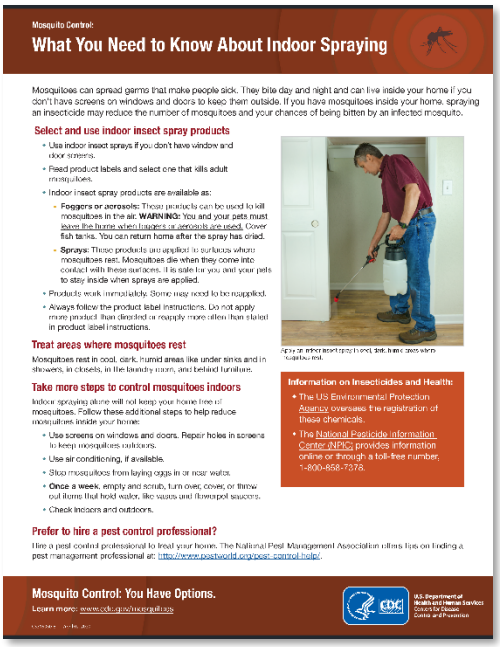
Aerial Spraying



Download English

Fact Sheets: Mosquito Control

Indoor Spraying


Mosquito Control:
What You Need to Know About Indoor Spraying

Mosquitoes can spread germs that make people sick. They bite day and night and can live inside your home if you don't have screens on windows and doors to keep them outside. If you have mosquitoes inside your home, spraying an insecticide may reduce the number of mosquitoes and your chances of being bitten by an infected mosquito.

Select and use indoor insect spray products
- Use indoor insect sprays if you don't have window and door screens.
- Read product labels and select one that kills adult mosquitoes.
- Indoor insect spray products are available as:
  - **Foggers or aerosols:** These products can be used to kill mosquitoes in the air. **WARNING:** You and your pets must leave the home when foggers or aerosols are used. Cover fish tanks. You can return home after the spray has dried.
  - **Sprays:** These products are applied to surfaces where mosquitoes rest. Mosquitoes die when they come into contact with these surfaces. It is safe for you and your pets to stay inside when sprays are applied.
- Products work immediately. Some may need to be reapplied.
- Always follow the product label instructions. Do not apply more product than directed or reapply more often than stated in product label instructions.

Treat areas where mosquitoes rest
Mosquitoes rest in cool, dark, humid areas like under sinks and in showers, in closets, in the laundry room, and behind furniture.

Take more steps to control mosquitoes indoors
Indoor spraying alone will not keep your home free of mosquitoes. Follow these additional steps to help reduce mosquitoes inside your home:
- Use screens on windows and doors. Repair holes in screens to keep mosquitoes outdoors.
- Use air conditioning, if available.
- Stop mosquitoes from laying eggs in or near water.
- **Once a week**, empty and scrub, turn over, cover, or throw out items that hold water, like vases and flowerpot saucers.
- Check indoors and outdoors.

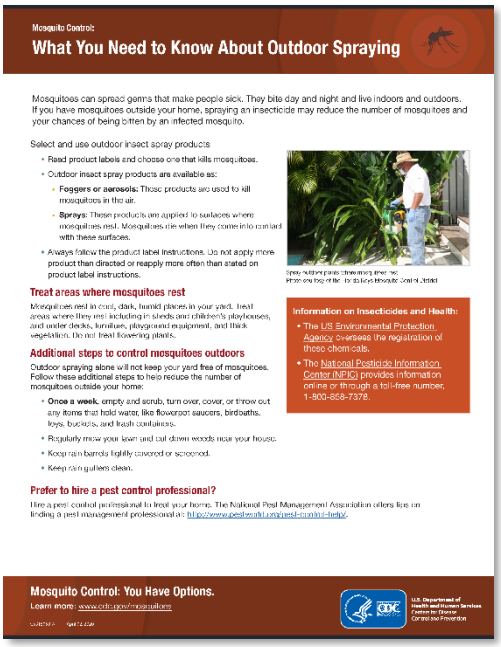
Information on Insecticides and Health:
- The US Environmental Protection Agency oversees the registration of these chemicals.
- The National Pesticide Information Center (NPIC) provides information online or through a toll-free number, 1-800-858-7378.

Prefer to hire a pest control professional?
Hire a pest control professional to treat your home. The National Pest Management Association offers tips on finding a pest management professional at: http://www.pestworld.org/pest-control-help/.

Mosquito Control: You Have Options.
Learn more: www.cdc.gov/mosquitoes

Download English / Español

Outdoor Spraying


Mosquito Control:
What You Need to Know About Outdoor Spraying

Mosquitoes can spread germs that make people sick. They bite day and night and live indoors and outdoors. If you have mosquitoes outside your home, spraying an insecticide may reduce the number of mosquitoes and your chances of being bitten by an infected mosquito.

Select and use outdoor insect spray products
- Read product labels and choose one that kills mosquitoes.
- Outdoor insect spray products are available as:
  - **Foggers or aerosols:** These products are used to kill mosquitoes in the air.
  - **Sprays:** These products are applied to surfaces where mosquitoes rest. Mosquitoes die when they come into contact with these surfaces.
- Always follow the product label instructions. Do not apply more product than directed or reapply more often than stated on product label instructions.

Treat areas where mosquitoes rest
Mosquitoes rest in cool, dark, humid places in your yard. Treat areas where they rest including in sheds and children's playhouses, and under decks, furniture, playground equipment, and thick vegetation. Do not treat flowering plants.

Additional steps to control mosquitoes outdoors
Outdoor spraying alone will not keep your yard free of mosquitoes. Follow these additional steps to help reduce the number of mosquitoes outside your home:
- **Once a week**, empty and scrub, turn over, cover, or throw out any items that hold water, like flowerpot saucers, birdbaths, toys, buckets, and trash containers.
- Regularly mow your lawn and cut down weeds near your house.
- Keep rain barrels tightly covered or screened.
- Keep rain gutters clean.

Information on Insecticides and Health:
- The US Environmental Protection Agency oversees the registration of these chemicals.
- The National Pesticide Information Center (NPIC) provides information online or through a toll-free number, 1-800-858-7378.

Prefer to hire a pest control professional?
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Mosquito Control: You Have Options.
Learn more: www.cdc.gov/mosquitoes

Download English / Español

About Adulticides


Mosquito Control:
What You Need to Know About Adulticides

An adulticide is a type of insecticide used to kill adult mosquitoes. Adulticides may be applied by a mosquito control program, a licensed pest control professional, or as a do-it-yourself application. Adulticides can be used outdoors. Some adulticides kill adult mosquitoes immediately and some continue to kill mosquitoes over longer periods of time. When used according to product label instructions, adulticides do not harm people, pets, or the environment.

Select an adulticide
Mosquito adulticides come in different forms:
- Coils
- Foggers
- Sprays or aerosols

Apply adulticides where mosquitoes rest
Outdoors, mosquitoes rest under plants, in dense brush or tall grasses, and the undersides of leaves on trees and bushes. They can also rest under the eaves on buildings, under decks and porches, and in moist, shady areas.

When using adulticides
- Always follow the product label instructions.
- Do not apply more product than recommended or reapply more often than stated on product label instructions.
- Do not apply outside directly to fruits and vegetables in your garden or inside near food.
- Do not apply to plants in bloom or to plants that bees, butterflies, and other pollinators visit.
- Keep people and pets out of the area you treat until the product has dried, usually about an hour. Remember to follow label instructions.

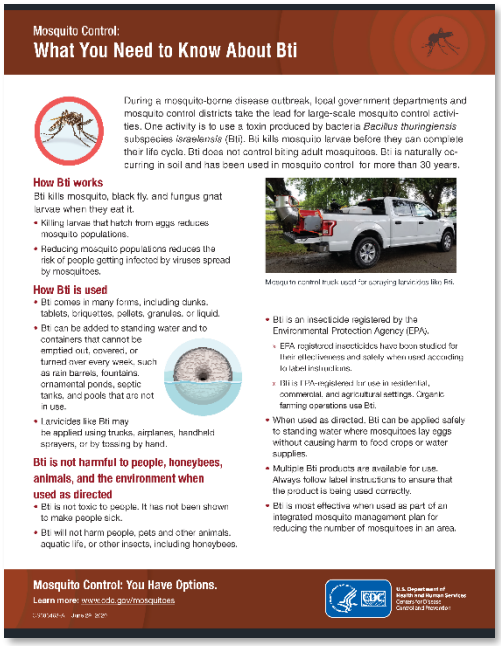
Information on Insecticides and Health:
- The Environmental Protection Agency oversees the registration of insecticides.
- The National Pesticide Information Center (NPIC) provides information online or through a toll-free number, 1-800-858-7378.

Prefer to hire a pest control professional?
Hire a pest control professional to treat your yard and outdoor areas. The National Pest Management Association offers tips on finding a pest control professional.

Mosquito Control: You Have Options.
Learn more: www.cdc.gov/mosquitoes

Download English / Español

Bti


Mosquito Control:
What You Need to Know About Bti

During a mosquito-borne disease outbreak, local government departments and mosquito control districts take the lead for large-scale mosquito control activities. One activity is to use a toxin produced by bacteria *Bacillus thuringiensis* subspecies *israelensis* (Bti). Bti kills mosquito larvae before they can complete their life cycle. Bti does not control biting adult mosquitoes. Bti is naturally occurring in soil and has been used in mosquito control for more than 30 years.

How Bti works
Bti kills mosquito, black fly, and fungus gnat larvae when they eat it.
- Killing larvae that hatch from eggs reduces mosquito populations.
- Reducing mosquito populations reduces the risk of people getting infected by viruses spread by mosquitoes.

How Bti is used
- Bti comes in many forms, including dunks, tablets, briquettes, pellets, granules, or liquid.
- Bti can be added to standing water and to containers that cannot be emptied out, covered, or turned over every week, such as rain barrels, fountains, ornamental ponds, septic tanks, and pools that are not in use.
- Larvicides like Bti may be applied using trucks, airplanes, handheld sprayers, or by tossing by hand.

Bti is not harmful to people, honeybees, animals, and the environment when used as directed
- Bti is not toxic to people. It has not been shown to make people sick.
- Bti will not harm people, pets and other animals, aquatic life, or other insects, including honeybees.
- Bti is an insecticide registered by the Environmental Protection Agency (EPA).
  - EPA registered insecticides have been studied for their effectiveness and safety when used according to label instructions.
  - Bti is EPA-registered for use in residential, commercial, and agricultural settings. Organic farming operations use Bti.
- When used as directed, Bti can be applied safely to standing water where mosquitoes lay eggs without causing harm to food crops or water supplies.
- Multiple Bti products are available for use. Always follow label instructions to ensure that the product is being used correctly.
- Bti is most effective when used as part of an integrated mosquito management plan for reducing the number of mosquitoes in an area.

Mosquito Control: You Have Options.
Learn more: www.cdc.gov/mosquitoes

Download English