



VECTOR-BORNE DISEASE NEWS

A SYNOPSIS OF STATE LEVEL PUBLICATIONS ON VBDS.

SPRING, 2023



FAST FACTS

- Reported cases of **vector-borne diseases in the U.S. have more than tripled since 2004**, characterized by steadily increasing incidence of tick-borne diseases and sporadic outbreaks of domestic and invasive mosquito-borne diseases ⁱ
- **More than 95% of reported human cases of vector-borne diseases are caused by tick bites** ⁱⁱ
- **Reported cases of Lyme disease and West Nile virus represent less than 10% of all estimated cases** ⁱⁱⁱ
- **Ticks transmit a greater diversity of viral, bacterial and protozoan infections than any other arthropod on earth, and in many temperate regions of the world, including Europe and the U.S., tick-borne diseases (TBD) are the most widespread and medically important of all vector-borne infections**^{iv}
- **More than 100 vector-borne viral, bacterial, and parasitic pathogens are known to cause disease in people** ^v
- Since 2004, **nine vector-borne viruses and bacteria new to the United States have been identified** ^{vi}
- Mosquitoes and ticks and the germs they spread are increasing in number and **moving into new areas** ^{vii}
- The expansion of ***Aedes aegypti* mosquitoes and *Ixodes scapularis* ticks is of particular concern** ^{viii}
- In 2017 an invasive vector, *Haemaphysalis longicornis* the Asian longhorned tick was identified for the first time in the U.S. This **exotic tick carries pathogens that cause severe illness or death** in people in other parts of the world ^{ix}
One parthenogenic female (reproduces without males) can produce hundreds or thousands of offspring ^x

STATE REPORTS

ALABAMA

Emerging Infectious Diseases Relapsing Fever Caused by *Borrelia lonestari* after Tick Bite in Alabama, USA Feb, 2023 ...

Increasing clinical availability of molecular diagnostics might identify *B. lonestari* as an emerging tickborne pathogen.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9881794/>

Vector-Borne and Zoonotic Diseases Tick-Borne Pathogens Associated with Medically Important Ticks in Alabama: A Four-Year Survey Dec 26, 2022 ... TBD pathogens associated with anaplasmosis, babesiosis, ehrlichiosis, and spotted fever rickettsiosis were detected in ticks of Alabama. Causative agents for tularemia and Lyme disease were not detected despite previously reported human disease cases. There was also no evidence of Heartland virus despite recent reports of the virus being detected in ticks in Northwestern counties. <https://www.liebertpub.com/doi/full/10.1089/vbz.2022.0038>

WBRC-FOX Tuscaloosa, AL Sept 9 2022 [12:30:54 PM] to keep mosquitoes from biting, be sure to apply insect repellent containing DEET to exposed skin before heading outdoors.

Alabama News Quit bugging me! Tips on coping with bug bites and other summer perils June 2 2022.

... Products containing DEET are considered the most effective repellents... <https://alabamaneewscenter.com/2022/06/11/quit-bugging-me-tips-on-coping-with-bug-bites-and-other-summer-perils/>

Alabama Public Health Mosquito-Borne Diseases May 2 2022. ... Infected mosquito vectors in Alabama have been documented carrying other serious diseases such as **Eastern Equine Encephalitis, Saint Louis Encephalitis, and La Crosse Encephalitis**. <https://www.alabamapublichealth.gov/mosquito/>

ALASKA

On the Trails in Juneau Climate warming and disease spread *No date* ... One kind of tick is reported to be native to Alaska, occurring chiefly on hares, squirrels, and mice; it can carry tularemia bacteria.... The American dog tick (genus *Dermacentor*) is already established in wild mammal populations here; this species (and the brown dog tick) can carry Rocky Mountain spotted fever, which is caused by a *Rickettsia* bacterium.... So far, Lyme disease is rare in Alaska, reported chiefly from people who picked it up in more southern areas. <https://onthetrailsjuneau.wordpress.com/2023/01/24/climate-warming-and-disease-spread/>

ARIZONA

Acta Trop Spatiotemporal Distribution of Vector Mosquito Species and Areas at Risk for Arbovirus Transmission in Maricopa County, Arizona Jan 31, 2023 ... Vector mosquito species are widely distributed and abundant in the urban areas of Maricopa County. ... Abundance of *Ae. aegypti* was highly seasonal, peaking in the third and fourth quarters of the year. *Culex quinquefasciatus*... was abundant throughout the year with several regions consistently yielding high numbers of

mosquitoes. *Culex tarsalis* was abundant but it only reached high numbers in well-defined areas near irrigated landscapes. ... <https://pubmed.ncbi.nlm.nih.gov/36736524/>

Maricopa.gov Public Health Conducting Dengue Surveillance in One Neighborhood Nov 14, 2022 Maricopa County Department of Public Health (MCDPH) has identified one person with dengue, a disease that spreads through mosquitoes, who might have been exposed by an infected mosquito in Maricopa County. <https://www.maricopa.gov/CivicAlerts.aspx?AID=2618>

Yahoo What to Know About the Deadly Mosquito-Borne Disease Showing Up in Arizona Nov 18, 2022 An Arizona resident recently contracted the mosquito-borne disease known as dengue, and the dengue virus has been detected in mosquitoes in the area.... To protect yourself from bites, the CDC recommends using an effective insect repellent (such as one containing **DEET**). <https://www.yahoo.com/now/know-deadly-mosquito-borne-disease-203000957.html>

Open Forum Infectious Disease Morbidity and Functional Outcomes Following Rocky Mountain Spotted Fever Hospitalization-Arizona, 2002-2017 Oct 5, 2022 Eighty hospitalized cases of RMSF ... were reviewed. Of these, 17 (21%) resulted in a fatal outcome. Among surviving cases ... interviewed, most (62%) reported full recovery, 15 (38%) reported ongoing symptoms or reduced function following RMSF illness, and 9 (23%) had evidence of neurologic sequelae at the time of examination. Sequelae included impaired cognition, weakness, decreased deep tendon reflexes, seizures, and cranial nerve dysfunction. Longer hospitalization (25.5 days vs 6.2 days, $P < .001$), a higher degree of disability at discharge (median modified Rankin score 1 vs 0, $P = .03$), and delayed doxycycline administration (6.2 days vs 4.1 days, $P = .12$) were associated with long-term sequelae by logistic regression. ...Life-altering sequelae were common among patients surviving severe RMSF illness. Delayed administration of the antibiotic doxycycline after day 5 was the strongest predictor of morbidity. <https://academic.oup.com/ofid/article/9/10/ofac506/6748963?login=false>

ARKANSAS

Encyclopedia of Arkansas Tickborne Diseases Jun 11, 2020 ... Arkansas ranks at or... near the top among states for three major tickborne diseases. **The state ranked first in 2010 for reported cases of tularemia; fourth for Rocky Mountain spotted fever (RMSF); and tenth in reported cases of human monocytic ehrlichiosis (HME).** ...Spotted fever group rickettsiae (SFGR), Ehrlichiae, and *Borrelia burgdorferi* [were] detected in ticks at Fort Chaffee Joint Maneuver Training Center in Sebastian County. <https://encyclopediaofarkansas.net/entries/tickborne-diseases-14860/>

CALIFORNIA

FoxWeather.com Threats from ticks, fleas and mosquitoes on the rise after historic rainfall, California officials warn Feb 18, 2023... "Our biggest concern right now is West Nile virus. And so that is spread by the bite of an infected mosquito," said (Nizza Sequeira, Public Information Officer for the Marin Sonoma Mosquito and Vector Control District.).... Ticks become active during the rains. ...Use repellent on exposed skin with at least 20% DEET, picaridin, oil of lemon Eucalyptus or any other EPA-registered insect repellent. <https://www.foxweather.com/lifestyle/mosquito-tick-flea-california-threats>

Yahoo Threats from ticks, fleas and mosquitoes on the rise after historic rainfall, California officials warn Feb 18, 2023 <https://www.yahoo.com/lifestyle/threats-ticks-fleas-mosquitoes-rise-120046319.html>

Alameda County Mosquito Abatement District First West Nile positive mosquito found in 2023 Feb 1, 2023 ... The mosquito was collected from western Union City and tested at the district laboratory on January 31, 2023.... **DEFEND** yourself from mosquito bites ... **apply insect repellent containing EPA-registered active ingredients such as DEET, Picaridin, IR3535, or Oil of lemon eucalyptus.**

Marin Independent Journal Marin ticks pose threat after recent storms Feb 3, 2023 ... Studies conducted by the (Bay Area Lyme Foundation) foundation and the Marin/Sonoma Mosquito and Vector Control District ... find that 3-5% of ticks in Marin have the bacteria that cause Lyme disease. **One study by the foundation in 2018 found 38% of surveyed ticks at China Camp State Park had the bacteria....** "Wear long sleeves and long pants and make sure they're light-colored because it's easier to spot the ticks," said Nizza Sequeira of the Marin/Sonoma Mosquito and Vector Control District. "Wear insect repellents." <https://www.marinij.com/2023/02/02/marin-tick-activity-ramps-up-after-recent-storms/>

Los Angeles Times A gross side effect from California's extra wet winter: More disease-carrying ticks this spring Feb 9, 2023 Woodland and beach regions known for tick activity across northwest California could be even more prone to the disease-carrying arachnids this year after the state's extremely wet winter, according to researchers who study ticks and Lyme disease.... (Dan Salkeld, an ecologist at Colorado State University and a scientific advisor for the Bay Area Lyme Foundation) ... encourages [those going outdoors] to take precautions, stay on trails, use repellent and do tick checks after hikes or outdoor excursions. <https://www.latimes.com/california/story/2023-02-09/california-wet-winter-increase-ticks>

KCBX.org UCSB researchers aim to raise awareness of tick-borne Lyme disease in California Jan 17, 2023 ... (Andy MacDonald, UCSB's Bren School of Environmental Science) ...said many people believe tick season is only in the summer, but that's not the case in California...More cases of Lyme disease occur in northern California than in southern California or the Central Coast. ...<https://www.kcbx.org/health-science-and-technology/2023-01-17/ucsb-researchers-aim-to-raise-awareness-of-tick-borne-lyme-disease-in-california>

PacVec Newsletter 12-16-2022 Human Cases: 157, Counties: 27, Two new WNV positive human cases were reported this week from San Bernardino and Tulare counties. Human Cases: 11, Counties: 6, **Eleven human cases of St. Louis encephalitis have been confirmed in the following counties: Sacramento, Los Angeles, Fresno, Kern, Tulare, and Stanislaus.**

Phys.org Mapping Lyme disease across western North America Nov 21, 2022 <https://phys.org/news/2022-11-lyme-disease-western-north-america.html>

KYMA.com Mosquito pool found in Imperial County tested positive for St. Louis Encephalitis - a viral disease Oct 14, 2022 The Imperial County Public Health Department (ICPHD): Apply insect repellent that contains DEET, Picaridin, or oil of lemon eucalyptus according to label instructions to prevent mosquito bites. <https://kyma.com/news/2022/10/14/infected-mosquito-pool-found-in-imperial-county/>

Ticks and Tick-borne Diseases A new species of tick, *Ixodes (Ixodes) mojavensis* (Acari: Ixodidae), from the Amargosa Valley of California Nov 2022 *Ixodes (Ixodes) mojavensis*, n. sp. (Acari: Ixodidae), is described <https://www.sciencedirect.com/science/article/abs/pii/S1877959X22001236>

PLoS Neglected Tropical Diseases A forty-year review of Rocky Mountain spotted fever cases in California shows clinical and epidemiologic changes 2022 ... while RMSF remains rare in California, incidence is increasing, notably in the Hispanic/Latino population. Public health messaging about RMSF...must focus on both sylvatic and peridomestic settings, particularly in Southern California and be culturally appropriate. <https://journals.plos.org/plosntds/article?id=10.1371/journal.pntd.0010738>

KMPH-FOX Fresno, CA Sept 1 2022 [10:42:18 PM] There were 14 human cases and 1 death. West Nile virus is transmitted by mosquito bite. To reduce your risk, use Insect repellents that contain DEET, especially at dawn and dusk.

Neglected Tropical Diseases Epidemiologic and environmental characterization of the Re-emergence of St. Louis Encephalitis Virus in California, 2015-2020 Aug 8 2022. St. Louis encephalitis virus (SLEV) is ... endemic ... in the western and southeastern U.S., including California. From 1938 to 2003, the virus was detected annually in California, but after West Nile virus (WNV) arrived in 2003, SLEV was not detected again until it re-emerged in Riverside County in 2015. There were **24 reported human infections of SLEV in 10 California counties**, including two fatalities (case fatality rate: 8%), compared to 2,469 reported human infections of WNV from 43 California counties, with 143 fatalities (case fatality rate: 6%). From **2015 through 2020, SLEV was detected in 17 (29%) of California's 58 counties**, while **WNV was detected in 54 (93%)**. ... **SLEV infection can be indistinguishable from infection with other flaviviruses such as WNV, which is more prevalent.** <https://doi.org/10.1371/journal.pntd.0010664>

Vector-Borne and Zoonotic Diseases Characterizing Areas with Increased Burden of West Nile Virus Disease in California, 2009–2018 June 2021. ...From 2009 to 2018, **California has reported more human disease cases than any other state in the U.S.** ...10 California counties with the highest number of WNV cases ... accounted for disproportionately large numbers of human cases from 2009 to 2018. ...**High-burden ZIP codes, were identified in nine counties within southern California and California's Central Valley. Despite containing only 2% of California's area and 17% of the state's population, these high-burden ZIP codes accounted for 44% of WNV cases reported and had a mean annual incidence that was 2.4 times the annual state incidence.** <https://doi.org/10.1089/vbz.2021.0014>

Journal of Medical Entomology Assessment of Physician Knowledge, Attitudes, and Practice for Lyme Disease in a Low-Incidence State Sept 20 2022. Overall, the incidence of LD in California is low: approximately 0.2 confirmed cases per 100,000 population. However, California's unique ecological diversity results in wide variation in local risk, including regions with local foci at elevated risk of human disease. The diagnosis of LD can be challenging in California because the prior probability of infection for individual patients is generally low. Combined with nonspecific symptoms and complicated laboratory testing, California physicians need a high level of awareness of LD in California to recognize and diagnose LD efficiently. ...Responding physicians in California had a general awareness of Lyme disease and were knowledgeable regarding diagnosis and treatment. However, we found that physicians in California could benefit from further education to improve test-ordering practices, test interpretation, and awareness of California's disease ecology with elevated levels of focal endemicity, to improve recognition, diagnosis, and treatment of LD in California patients.

COLORADO

Boulder Weekly Citizen science-led study finds ticks expanding into new terrain in Colorado Nov 17, 2022 ... The study, published in the November issue of the peer-reviewed journal *Ticks and Tick-borne Disease*, indicates that the Rocky Mountain wood tick, the most prevalent tick species in Colorado, is expanding into new parts of the state. It also confirmed a new tick species not documented by the Centers for Disease Control (CDC) in Colorado: the American dog tick.... (Emma Harris, research scientist at Colorado State University) encourages folks to take preventative measures like tick checks or putting clothes in the drier after an outdoor adventure. <https://boulderweekly.com/news/citizen-science-led-study-finds-ticks-expanding-into-new-terrain-in-colorado/>

Colorado State University CSU study finds disease-carrying tick populations expanding into Colorado Nov 2022... American dog ticks are present in 16 counties in Colorado where they were not previously identified ... Rocky Mountain wood ticks were found in 38 of the 64 Colorado counties, whereas they had previously only been identified in 33 counties. <https://natsci.source.colostate.edu/csu-study-finds-disease-carrying-tick-populationexp>

CBSN-Denver, CO Sept 10 2022 Boulder County public health is asking neighbors to protect themselves for West Nile virus at least 10 people in the county have been hospitalized with the virus since the beginning of August. That's the total number of hospitalizations the county had last year. Boulder County health recommends using insect repellent with DEET.

CPR News West Nile virus cases in Colorado are up this year, likely due to the hot, moist summer Sept 9 2022. Public health officials are warning Coloradans to cover up and spray insect repellent as West Nile virus cases continue to climb ... State data shows ... 63 confirmed cases of the West Nile virus this year. That's on pace to shatter the rolling five-year average of 99 cases per year. About two-thirds of this year's cases have resulted in hospitalization. "[Coloradans] should make sure that they're using repellent, which contains 'DEET' in it," [Lisa Gallegos, the communicable disease specialist for Montrose, CO] said. <https://www.cpr.org/2022/09/09/west-nile-virus-cases-colorado-summer/>

KKCO11News - Montrose County sees first death from West Nile Virus this season, health officials express concern Aug 25 2022. Mesa County Public Health announced ...that it has seen its first death from West Nile Virus in 2022. ... **Officials expressed concern about the severity of the virus this year.** "Montrose County Public Health is urging individuals to protect themselves from West Nile Virus—five of the eight patients who have had West Nile Virus have been hospitalized—that is a concerning number," said Montrose County Communicable Disease Coordinator Lisa Gallegos. Use of ... DEET-based repellent and avoiding peak times like the cool morning or evening can help reduce your risk." <https://www.nbc11news.com/2022/08/25/montrose-county-sees-first-death-west-nile-virus-this-season-health-officials-express-concern/>

9News - Colorado's first human West Nile Virus case of 2022 detected July 29 2022. A person in Delta County ... is the first confirmed human case found in Colorado ... this year. The virus has also been detected in mosquitoes in Boulder, Larimer and Weld counties. ... Use insect repellents when you go outdoors. Repellents containing DEET, picaridin, IR3535, oil of lemon eucalyptus, or para-menthane-diol products provide the best protection. <https://www.9news.com/article/news/health/west-nile-virus-colorado-case/73-54af47a4-ef1c-4643-91f1-a7bfdfc8ab2f>

MSU Denver News What's behind Colorado's West Nile virus surge? April 13 2022. ...In 2021, there were 175 confirmed cases of the West Nile virus in Colorado. Of those, 11 people died and 101 developed serious neuroinvasive cases such as meningitis and encephalitis. The number of cases represents a **120% increase from the previous five-year average and the largest number of cases in 18 years.** <https://red.msudenver.edu/2022/whats-behind-colorados-west-nile-virus-surge/>

CONNECTICUT

CTPublic.org How mild winters and sudden cold snaps affect local wildlife Feb 17, 2023 *Podcast* Forest ecologist Dr. Susanna Kerio touches on the critical role trees play, and DEEP wildlife biologist Jenny Dickson discusses how a wide variety of animals are affected. Plus, a warning from the state's main tick-tracking center ... <https://www.ctpublic.org/show/where-we-live/2023-02-17/how-mild-winters-and-sudden-cold-snaps-affect-local-wildlife>

Milford-Orange Times Lyme Disease And Disrupted Ecosystems Feb 19, 2023 ...Right now, in February, ticks are already outside and ready to find a mammal to feed on in Orange and Milford. Dr. Goudarz Molaei, chief scientist at the Connecticut Agricultural Experiment Station, has said **while the state lab used to get at most 50 ticks submitted for testing between December and March, they now see close 800 ticks in the same period.** <https://theorangetimes.com/lyme-disease-and-disrupted-ecosystems/>

CT Insider Ticks now active in Connecticut 'year-round,' expert says Jan 16, 2023 Ticks in Connecticut are now surviving during the winter due to climate change, according to The Connecticut Agricultural Experiment Station.... The Connecticut Department of Public Health also recommends people ...[should] consider using insect repellent. <https://www.ctinsider.com/news/article/Ticks-in-CT-survive-cold-season-year-round-17716382.php>

Open Forum Infectious Diseases Using Geospatial Analysis to Describe the Association between Active Tick Surveillance Data and Clinical Cases of Anaplasmosis Dec 15, 2022 **Litchfield County had the highest number of human cases (128) and Fairfield County had the highest proportion of infected ticks (11.25%).** ... Active tick surveillance can be useful in guiding public health interventions and inform public health and clinician education on anaplasmosis.
https://academic.oup.com/ofid/article/9/Supplement_2/ofac492.1202/6903510

Greenwich Time Lyme disease pathogen found in 13% of ticks tested in Greenwich Nov 6, 2022 ...The bacteria that causes Lyme disease was found in...13 percent of ticks analyzed in recent months by the Greenwich Health Department, ... well below the usual rate of infection. Babesiosis, a parasite that can also cause acute health problems, was found in 1 percent of the ticks tested <https://www.greenwichtime.com/news/article/Data-Lyme-disease-pathogen-found-in-13-of-ticks-17541788.php>

WebMD.com Connecticut Sees Deadly Case of Tick-Borne Powassan Virus Jun 8, 2022 The Connecticut Department of Public Health said in a [press release](#) on Tuesday that the resident... died after testing positive for Powassan virus (POWV). This is the first POWV fatality and second POWV case in Connecticut this year. The woman lived in New London County, CT. <https://www.webmd.com/brain/news/20220608/connecticut-deadly-case-tick-borne-powassan-virus>

Hartford HealthCare What Percentage Of Deer Ticks In Connecticut Carry Lyme Disease? Jun 6, 2022 In 2019 testing of 3,517 blacklegged (deer) ticks, **35.7% carried Lyme disease.** <https://hartfordhealthcare.org/about-us/news-press/news-detail?articleId=1738&publicId=462>

Hartford Courant Ticks are on the rise in Connecticut: Here is what they look like and the diseases they carry Apr 27, 2022 State scientist and tick expert Goudarz Molaei of the Connecticut Agricultural Experiment Station has called the tick situation in Connecticut “a major public health concern.” <https://www.courant.com/news/connecticut/hc-news-ct-tick-update-20220427-jfkcdpfgfg3fhj5gyrffxolwi-story.html>

The Journal of Parasitology Prevalence of Infection and Co-Infection and Presence of Rickettsial Endosymbionts in Ixodes Scapularis (Acari: Ixodidae) in Connecticut, USA Feb, 2020 *Ixodes scapularis* ... transmit[s] pathogens responsible for **Lyme disease, anaplasmosis, babesiosis, tick-borne relapsing fever, ehrlichiosis, and Powassan encephalitis.** High prevalence of infection and co-infection with multiple pathogens in *I. scapularis* highlights the public health consequences in Connecticut, a state endemic for Lyme and other tick-borne diseases. <https://meridian.allenpress.com/journal-of-parasitology/article-abstract/106/1/30/426058/Prevalence-of-Infection-and-Co-Infection-and>

Ticks and Tick-Borne Diseases Microbiome analysis of Ixodes scapularis ticks from New York and Connecticut April 15, 2019 **The black legged tick transmits the greatest diversity of pathogens of any tick within the U.S.** Combined, these pathogens **account for >90% of all reported tick-borne diseases.** Lyme disease was **detected in 56.3% of ticks.** Other pathogens were also found. Powassan was present in 3.6%. **19% of ticks were co-infected with two to three pathogens.** <https://doi.org/10.1016/j.ttbdis.2019.04.011>

DELAWARE

Ticks and Tick-borne Diseases Prevalence of *Borrelia burgdorferi* and diversity of its outer surface protein C (*ospC*) alleles in blacklegged ticks (*Ixodes scapularis*) in Delaware May, 2023 ... Delaware has a high incidence of Lyme disease, but the diversity of *ospC* in *B. burgdorferi* in the state has not been evaluated. ...We identified 15 previously characterized *ospC* alleles accounting for nearly all of the expected diversity of alleles across the sites as estimated using the Chao1 index. Nearly 40% of sequenced infections (23/58) had more than one *ospC* allele present suggesting mixed strain infections and the relative frequencies of alleles in single infections were positively correlated with their relative frequencies in mixed infections. Turnover of *ospC* alleles was positively related to distance between sites with closer sites having more similar allele compositions than more distant sites. This suggests a degree of *B. burgdorferi* dispersal limitation or habitat specialization. *OspC* alleles known to cause disseminated infections in humans were found at the highest frequencies across sites, corresponding to Delaware's high incidence of Lyme disease.
<https://www.sciencedirect.com/science/article/pii/S1877959X23000213>

Delaware.gov - First 2022 Delaware Evidence of Eastern Equine Encephalitis Detected in DNREC's Sentinel Chickens Aug 12 2022. ... Delawareans are reminded that the possibility of contracting mosquito-transmitted diseases, including EEE and West Nile Virus (WNV), will continue until colder autumn temperatures in late-October or later.
<https://news.delaware.gov/2022/08/12/first-2022-delaware-evidence-of-eastern-equine-encephalitis>

Delaware Journal of Public Health Lone Star Ticks: An Emerging Threat in Delaware Jan 21 2021...Lone star ticks...play an important role in disease ecology as confirmed vectors for a wide variety of tick-borne pathogens. These pathogens ... cause ehrlichiosis and tularensis in humans... and [include] emerging viruses such as **Heartland, Bourbon, and Tacaribe.** Lone star

ticks are ... **linked to Rocky Mountain spotted fever, southern tick-associated rash illness, and alpha-gal syndrome**, a condition marked by immune reactions to ingestion of mammalian meat...Their **distribution in North America is expanding** ...Lone star ticks are **the most commonly encountered tick in Delaware**, especially in Sussex and Kent Counties... It is **vital for healthcare professionals and health educators to devote more attention to this emerging threat**. <https://diph.org/diph-tools-and-dark-archiving/archives/one-health-v7-i1/>

FLORIDA

Outbreak News Today Florida reports 1st local dengue fever case of 2023 Feb 9, 2023 This follows reporting 68 local cases statewide in 2022—Collier, Broward (2), Miami-Dade (64), and Volusia counties. <https://outbreaknewstoday.com/florida-reports-1st-local-dengue-fever-case-of-2023/>

Florida reports 1st Eastern Equine Encephalitis case in Lake County Feb 11, 2023 The Florida Department Agriculture and Consumer Services reported a Eastern Equine Encephalitis (EEE) case in a 14 year old quarter horse in Lake County. <https://outbreaknewstoday.com/florida-reports-1st-eastern-equine-encephalitis-case-in-lake-county-46543/>

Florida reports 2nd EEE case in St. Johns County horse Feb 15, 2023 <https://outbreaknewstoday.com/florida-reports-2nd-eee-case-in-st-johns-county-horse-41244/>

West Nile virus case reported in Hillsborough County Dec 28, 2022 West Nile virus case reported in Hillsborough County...Apply insect repellent that contains DEET (10-30%), picaridin, oil of lemon eucalyptus, paramenthane-diol, 2-undecanone or IR3535. <https://outbreaknewstoday.com/west-nile-virus-case-reported-in-hillsborough-county-95067/>

Florida Health Health Officials Issue Mosquito-Borne Illnesses Advisory Nov 30, 2022 The Florida Department of Health in Manatee County (DOH-Manatee) today advised residents there has been an increase in mosquito-borne disease activity in areas of Manatee County.... Always use repellents according to the label. Repellents with **DEET**, picaridin, oil of lemon eucalyptus, para-menthane-diol, and IR3535 are effective.... Products with concentrations of up to 30 percent DEET (N, N-diethyl-mtoluamide) are generally recommended. Other U.S. Environmental Protection Agency-approved repellents contain picaridin, oil of lemon eucalyptus, paramenthane-diol, or IR3535. These products are generally available at local pharmacies. Look for active ingredients to be listed on the product label.... mosquito repellents containing oil of lemon eucalyptus should not be used on children under the age of three years. DEET is not recommended on children younger than two months old. [Note: this guidance also applies to picaridin and IR3535] <https://manatee.floridahealth.gov/programs-and-services/infectious-disease-services/documents/2015-09-18-Manatee-Mosquito-Illness-Advisory.pdf>

Historic City News Health officials issue mosquito-borne illnesses advisory Nov 6, 2022 an increase in mosquito-borne disease activity has been detected within the southeast quadrant of St Johns County. One human case of locally acquired West Nile Virus has been confirmed and there is a heightened concern that additional residents may become ill....Products with concentrations of up to 30 percent DEET are generally recommended. <https://historiccity.com/2022/staugustine/news/health-officials-issue-mosquito-borne-illnesses-advisory-138598>

WFLA.com Aerial Mosquito Spraying To Be Conducted In Palm Beach County Oct 10, 2022 ... Mosquito Control advises anyone who will be outdoors after dark use repellent containing the chemical DEET. <https://wflanews.heart.com/featured/florida-news/content/2022-10-10-aerial-mosquito-spraying-to-be-conducted-in-palm-beach-county/>

NorthEscambia.com Mosquito Borne Illness Alert Issued After Confirmed Santa Rosa West Nile Case Oct 12, 2022 The Florida Department of Health in Santa Rosa County has issued a mosquito-borne illness advisory. “A human case of West Nile Virus has been confirmed and there is a heightened concern additional residents will become ill,” ... Repellents with DEET, picaridin, oil of lemon eucalyptus, para-menthane-diol, and IR3535 are effective. <http://www.northescambia.com/2022/10/mosquito-borne-illness-alert-issued-after-confirmed-santa-rosa-west-nile-case>

Gulf Breeze News Health officials issue mosquito-borne illness advisory Oct 13, 2022 <https://news.gulfbreezenews.com/subscribe/>

Lancet Regional Health - Americas A molecular surveillance-guided vector control response to concurrent dengue and West Nile virus outbreaks in a COVID-19 hotspot of Florida Mar 19, 2022...As expected, DENV-positive pools were in urban areas; however, we found WNV-positive mosquito pools in agricultural and recreational areas with no historical reports of WNV transmission. These findings demonstrate the importance of proactive arbovirus surveillance in mosquito populations to prevent and control outbreaks, particularly when other illnesses (e.g., COVID-19), which present with similar symptoms, are circulating concurrently. **Growing evidence for substantial infection prevalence of dengue in mosquitoes in the absence of local index cases suggests a higher level of dengue endemicity in Florida than previously thought.** <https://www.sciencedirect.com/science/article/pii/S2667193X22000485?via%3Dihub>

Lancet Regional Health - Americas A molecular surveillance-guided vector control response to concurrent dengue and West Nile virus outbreaks in a COVID-19 hotspot of Florida Mar 19, 2022....DENV-positive pools were in urban areas; however, we found WNV-positive mosquito pools in agricultural and recreational areas with no historical reports of WNV

transmission. These findings demonstrate the importance of proactive arbovirus surveillance in mosquito populations to prevent and control outbreaks, particularly when other illnesses (e.g., COVID-19), which present with similar symptoms, are circulating concurrently. **Growing evidence for substantial infection prevalence of dengue in mosquitoes in the absence of local index cases suggests a higher level of dengue endemicity in Florida than previously thought.**

<https://www.sciencedirect.com/science/article/pii/S2667193X22000485?via%3Dihub>

Insects Imported Dengue Case Numbers and Local Climatic Patterns Are Associated with Dengue Virus Transmission in Florida, USA 2022, Dengue virus transmission from *Aedes aegypti* mosquitoes to humans is a growing issue in the state of Florida...The majority of cases have occurred in the southernmost counties, even though *Ae. aegypti* are present throughout much of Florida. Counties with the highest average temperatures, highest minimum temperatures, and lowest maximum temperatures were significantly more likely to have local dengue virus transmission. ...Moderate rainfall and ... travel-related dengue cases were also significantly associated with local transmission. **This is the first study of its kind to identify county-level risk factors for dengue incidence in Florida.** ... <https://www.mdpi.com/2075-4450/13/2/163>

<https://collier.floridahealth.gov/newsroom/2022/08/0825MosquitoBorneIllnessAdvisory.html>

Entomology Today - Another Invasive Mosquito Species Arrives in Florida Dec 18 2020. *Aedes scapularis* is a mosquito that can spread **yellow fever, Venezuelan equine encephalitis virus, and other human pathogens.** It has a wide range, from Texas to parts of South America and throughout much of the Caribbean. ... *Ae. scapularis* is now established in mainland Florida in Broward and Miami-Dade counties. ... ***Ae. scapularis* could potentially spread further northward and westward to fill any contiguous areas that are environmentally suitable [and] could vector diseases to people in Florida.** Of Florida's 16 established non-native mosquitoes, 13 were first detected in the state since 1985, and 10 were first detected since 2000. ...Southern Florida has had outbreaks of dengue and Zika viruses transmitted by *Aedes aegypti*. This mosquito has **transmitted Zika and dengue in Miami-Dade County and dengue in Key West, FL in past years [and]... has been found ... in Gainesville.** <https://entomologytoday.org/2020/12/18/another-invasive-mosquito-species-florida-aedes-scapularis/>

GEORGIA

WSB-TV2 [Atlanta] Mosquitoes test positive for rare but potentially deadly virus in Georgia May 27 2022. ... EEE is a virus that is spread to people through the bite of an infected mosquito. Only a few cases are reported in the U.S. each year. **Although rare, EEE is very serious. Approximately 30% of people with EEE die and many survivors have ongoing neurological problems.** ... **Use insect repellent containing DEET, picaridin, IR3535 or oil of lemon eucalyptus on exposed skin and/or clothing.** <https://www.wsbtv.com/news/georgia/mosquitoes-test-positive-eastern-equine-encephalitis-georgia>

OutdoorLife Georgia Man Dies After Contracting Tick-Borne Heartland Virus Apr 8 2022. A man in Baldwin County, GA, has died following a Lone Star tick bite that infected him with the Heartland Virus.... Officials ... confirm that the tick-borne virus is relatively new to the state. <https://www.outdoorlife.com/survival/heartland-virus-tick-death-georgia/>

NBC News - Lone star tick, linked to Heartland virus, now found in 6 states Mar 16 2022. Ticks carrying a mysterious and rare virus that can sicken or even kill older adults or people with underlying conditions have been found in at least six states.... **Lone star ticks in Georgia ... picked up the Heartland virus,** Emory University researchers reported in *Emerging Infectious Diseases*, a CDC publication. ...<https://www.nbcnews.com/health/health-news/lone-star-tick-linked-heartland-virus-people-found-georgia-rcna20328>

HAWAII

PacVec Newsletter New Study - Field evaluation of In2Care mosquito traps to control *Aedes aegypti* and *Aedes albopictus* in Hawai'i Island Jan 27, 2023. *Aedes aegypti* and *Aedes albopictus* mosquitoes are high priorities for mosquito control in Hawai'i because they frequently bite humans and are vectors of dengue, yellow fever, Zika, and chikungunya viruses. These mosquitoes have been responsible for multiple past dengue outbreaks in Hawai'i.

The Enlightened Mindset What to Pack for a Trip to Hawaii in June – The Ultimate Guide Jan 10, 2023... Insect repellent will help ward off any pesky mosquitoes. Look for one that contains DEET or Picaridin. <https://www.lihpao.com/what-to-pack-for-a-trip-to-hawaii-in-june/>

IDAHO

PacVec Newsletter 11-11-2022 Three human cases of WNV were confirmed in two counties: Ada and Canyon.

KIVI-ABC Boise, ID Sept 1 2022 Last year, 2 people died from the West Nile virus complications in Idaho. ...Use an insect repellent containing DEET....

KTVB.com Mosquitoes in Elmore and Payette Counties test positive for West Nile virus Aug 3, 2022 Mosquitoes carrying West Nile virus (WNV) have been detected in Elmore County and Payette County, prompting health officials to

issue precautions to the public....: ...Apply DEET or other EPA-approved insect repellents to exposed skin and clothing.
<https://www.ktvb.com/article/news/local/west-nile-virus-detected-in-elmore-county-idaho-mosquitos/277-9fed7e64-2fba-4bca-a659-38484157f57b>

Idaho Dept. of Health and Welfare -- ... Mosquitoes and ticks can cause serious illness May 13 2022. In Idaho, public health officials are most concerned about **West Nile virus from mosquitoes and Rocky Mountain Spotted Fever, tick-borne relapsing fever, and tularemia from ticks.** ... For both mosquitoes and ticks, use insect repellent approved by the EPA on exposed skin and clothing.... <https://healthandwelfare.idaho.gov/dhw-voice/avoid-getting-bitten-mosquitoes-and-ticks-can-cause-serious-illness>

ILLINOIS

Create TV Chicago, IL Dec 11, 2022 It's important to use insect repellents ... that contain DEET. That's probably one of the best, the best, insect repellent out there. [10:45:15 AM] Ticks are very active right now and they also carry some pretty bad diseases.

One Health Knowledge, attitudes, and practices of Illinois medical professionals related to ticks and tick-borne disease Dec, 2022 Of 346 respondents, 80% correctly identified Lyme disease as endemic to Illinois, and 95% were familiar with diagnostic testing for Lyme. Knowledge of other TBDs present in the state was highest among physicians, yet **only 26% of physicians believed Rocky Mountain spotted fever (RMSF) to be present in Illinois, and only 17% believed ehrlichiosis to be endemic. Only 32% of physicians knew the cause of Alpha-gal syndrome and fewer than 18% were aware of available diagnostic testing.** <https://www.sciencedirect.com/science/article/pii/S2352771422000568?via%3Dihub>

KFVS12.com Positive case of Heartland virus reported in Jackson County, Ill. Aug 23, 2022 The third in the state since 2018, was reported recently in southern Illinois. <https://www.kfvs12.com/2022/08/23/positive-case-heartland-virus-reported-jackson-county-ill/>

WGNTV - West Nile Virus found in Sterling Aug 7 2022. Mosquitoes collected ... near the northwest edge of Sterling have tested positive for the West Nile Virus (WNV) according to Rian Nailor, director of environmental health for the Whiteside County Health Department.... Apply insect repellent that contains DEET, picaridin, oil of lemon eucalyptus or IR 3535...
<https://wgntv.com/news/west-nile-virus-found-in-sterling/>

West Nile Virus Activity in DuPage County Prompts Health Advisory Aug 5 2022. ...The DuPage County Health Department...[is] reminding residents to protect themselves from mosquito bites Use an insect repellent containing DEET ... and reapply according to directions. <https://www.dupagehealth.org/CivicAlerts.aspx?AID=818>

Chicago Parent Best Bug Repellents for Kids June 15 2022. ... OFF! Family Care Insect & Mosquito Repellent... has thousands of five-star ratings on Amazon, and for good reason. The product's powder dry formula prevents skin from getting oily or sticky, plus the aerosol spray allows for easy application. It does contain DEET, which the Environmental Protection Agency says is safe to use on kids two months and older... <https://www.chicagoparent.com/parenting/health/best-bug-repellents-for-kids/>

INDIANA

WVPE.org Lack of data, info leaves Indiana doctors unprepared for more tick diseases Jan 19, 2023 **Why don't many doctors know more about tick diseases? A lot of it has to do with a lack of information and the tricky nature of tick borne diseases. Many tick diseases never get reported — creating a data gap.....** The Gulf Coast tick — which carries a disease similar to Rocky Mountain spotted fever — was found in Indiana starting in 2019. (Catherine Hill, Purdue University entomology professor) said the invasive Asian longhorned tick — that's been found in 17 states — could also cause problems in the state..... Indiana doctors lack knowledge about ticks. <https://www.wvpe.org/2023-01-19/lack-of-data-info-leaves-indiana-doctors-unprepared-for-more-tick-diseases>

WFYI.org Indianapolis How to protect yourself from tick diseases Jan 24, 2023 Catherine Hill, Purdue University entomology professor, said to use an Environmental Protection Agency-approved bug repellent — preferably one that has at least 20-30 percent DEET. The EPA has a searchable database of approved bug sprays here. <https://www.wfyi.org/news/articles/how-to-protect-yourself-from-tick-diseases>

WIMSRadio.com State officials urge precautions against mosquitoes due to detection of rare virus Oct 7, 2022 State public health and animal health officials ... [report] detection of Eastern equine encephalitis (EEE) virus activity in multiple northern Indiana counties.... Use an EPA-registered insect repellent containing DEET, picaridin, IR3535, oil of lemon eucalyptus, or 2-undecanone on clothes and exposed skin. <https://wimsradio.com/2022/10/07/state-officials-urge-precautions-against-mosquitoes-due-to-detection-of-rare-virus/>

The Conversation La Crosse virus is the second-most common virus in the US spread by mosquitoes – and can cause severe neurological damage in rare cases Sept 9 2022. Like sunscreen, insect repellents may need to be reapplied while spending time outdoors. prevent bites. <https://theconversation.com/la-crosse-virus-is-the-second-most-common-virus-in-the-us-spread-by-mosquitoes-and-can-cause-severe-neurological-damage-in-rare-cases-184412>

Fox59.com West Nile Virus mosquitoes found in Indiana Sep 2, 2022 West Nile Virus mosquitoes have been found in Monroe County ...<https://fox59.com/indiana-news/west-nile-virus-mosquitoes-found-in-indiana/>

WYFI Warmer weather in Indiana brings out the ticks June 6, 2022 ...Lee Green, senior medical entomologist with the Indiana State Department of Health, said there are several species of ticks found in Indiana that present health dangers including the blacklegged tick...Green ...recommends applying a repellent with DEET or Picaridin.
<https://www.wfyi.org/news/articles/warmer-weather-brings-out-the-ticks>

IndyStar.com Scrub Hub: Are ticks across Indiana getting worse? Should Hoosiers be worried? May 31, 2022 Ticks...are silent stalkers that actually secrete a chemical in their bite so you won't even know they've latched on.... There are **three species of ticks that are common in Indiana, and they are capable of transmitting at least nine different pathogens**, according to Catherine Hill, a Purdue University professor of entomology and vector biology. The first is the black-legged or deer tick, which Hill describes as "public enemy No. 1." This is the tick responsible for Lyme disease and can be found all across Indiana. There are more than 100 cases of Lyme disease reported in the state every year. The second species Hill watches for in Indiana is the lone-star tick.... This is an aggressive tick that is more common in the southern parts of Indiana, and its bite has been linked to triggering alpha-gal syndrome, an allergy to red meat. The last type are the American dog and brown dog ticks, which are all over the state, Hill said, and can transmit Rocky Mountain spotted fever. A few dozen cases of the disease are reported in Indiana every year... <https://www.indystar.com/story/news/environment/2022/05/31/tick-encounters-across-indiana-rise-climate-change-plays-role/9557362002/>

IOWA

Des Moines Register West Nile virus-positive mosquitos detected in Des Moines. Here's how to protect yourself. Aug 26, 2022 Cases of West Nile virus in Iowa last spiked in 2018, when 104 Iowans contracted the virus, severely sickening 73 and killing three. Since then, case numbers have been in the single digits, according to the CDC. The CDC has reported one presumed case of the virus in Iowa this year. <https://www.desmoinesregister.com/story/news/health/2022/08/25/west-nile-virus-positive-mosquitoes-prompt-city-wide-treatment/7898476001/>

Scientific Reports Surveillance and genetic data support the introduction and establishment of *Aedes albopictus* in Iowa, USA Feb 8 2022. *Aedes albopictus* is a competent vector of several arboviruses that have spread throughout the U.S. over the last three decades. ...Surveillance efforts from 2016 to 2020 ...detected stable and persistent populations of *Aedes albopictus* in three Iowa counties. ... *Ae. albopictus* are overwintering and have likely become established in the state.
<https://doi.org/10.1038/s41598-022-06294-5>

KANSAS

Children's Mercy.org Stick it to ticks this summer – easy ways to avoid, remove and treat tick bites Jul 10, 2022 ... Most of us associate ticks with Lyme disease, but the **type of ticks that carry Lyme disease are not common in the central Midwest**... Use an insect repellent like DEET wipes or spray to protect any exposed skin. According to the American Academy of Pediatrics, DEET-containing repellents are safe to use on children over 2 months old.
<https://www.childrensmercy.org/parent-ish/2022/07/ticks/>

LJ World.com Tick-borne illness season is ramping up in Kansas; ... (Infectious disease physician Dr. Christopher C. Penn) said some of the most common tick-borne illnesses seen in the Lawrence area are Rocky Mountain spotted fever, ehrlichiosis and tularemia, all of which are bacterial infections.... <https://www2.ljworld.com/news/general-news/2022/jun/11/tick-borne-illness-season-is-ramping-up-in-kansas-ku-researchers-hope-project-could-help-people-identify-the-pests/>

KWCH12 TICKS: Here's what experts say you should know May 20 2022. It's tick season around the U.S and Kansas. "They have all those legs out there, ready to grab onto stuff," said Emily Davis with the Great Plains Nature Center. Experts warn that vector-borne diseases, including Lyme, will pose higher than average risks across much of the United States this year. ... Also make sure if you are out in grassy areas, ...remember things like DEET insect repellent.
<https://www.kwch.com/2022/05/20/ticks-heres-what-experts-say-you-should-know/>

KENTUCKY

Daily News ERA Kentucky has the fastest growing Lyme disease outbreak in the US, insurance data suggests Aug 26, 2022 Kentucky has the fastest growing Lyme disease outbreak in America, insurance claims data suggests. ...More aggressive northern ticks [are advancing] into southern and midwestern states. Statistics showed Kentucky was recording 10 claims per 100,000 people in 2021, up from just five in 2016 — a doubling in five years. <https://dailynewsera.com/2022/08/26/kentucky-has-the-fastest-growing-lyme-disease-outbreak-in-the-us-insurance-data-suggests/>

LouisvilleKY.gov Mosquitoes carrying West Nile virus found in two more Louisville ZIP codes Aug 26, 2022 The Louisville Metro Department of Public Health and Wellness (LMPHW) has found mosquitoes infected with West Nile virus ...in two

additional Louisville ZIP code areas: 40258 and 40272. Mosquitoes with West Nile were previously reported in ZIP codes 40203, 40206, 40208, 40211, 40212, 40214 and 40215. ...Positive mosquitoes [were found] in ZIP codes 40203, 40206, 40208, 40211, and 40212.

WKDZ Radio – Understanding Insect Repellents June 10 2022. Insect repellents are chemicals that protect us from blood-feeding arthropods, primarily mosquitoes, ticks, black flies, and biting gnats.... DEET, Picaridin, IR3535, and oil of lemon eucalyptus are recommended for use by the CDC based upon their endurance and effectiveness against biting arthropods. <https://www.wkdzradio.com/2022/06/10/understanding-insect-repellents/wireready-ag/>

WKYT Lexington, KY Be vigilant outside: Kentucky’s tick populations expected to rapidly rise Mar 23 2022. Tick ... populations ... could have the potential to be greater than in previous years [said Jonathan Larson, Extension Entomologist with the University of Kentucky]. ... **Heartland virus is circulating more within ticks across the Midwest and even here in the south.** <https://www.wyvt.com/2022/03/23/be-vigilant-outside-kentuckys-tick-populations-expected-rapidly-rise/>

LOUISIANA

KATC.com West Nile detected in Iberia Parish Oct 10, 2022 LSU School of Veterinary Medicine Louisiana Animal Disease Diagnostic Laboratory (LADDL), has reported West Nile Virus activity in mosquito samples submitted for testing by the Iberia Parish Mosquito Control District.... Apply mosquito repellent that contains DEET, Picaridin or Oil of Lemon Eucalyptus and apply as directed on the label. <https://www.katc.com/news/iberia-parish/west-nile-detected-in-iberia-parish>

BRProud.com Tick bites, the dangers and treatment options Jun 29, 2022 ... Ticks ... can carry diseases such as Babesiosis, Ehrlichiosis, Lyme disease, Rocky Mountain spotted fever, Southern tick-associated rash illness (STARI), Tick-borne relapsing fever, and Tularemia.... Use a repellent with DEET (on skin or clothing) or permethrin (on clothing) ... <https://www.brproud.com/news/tick-bites-the-dangers-and-treatment-options/>

WAFB.com Tick bites causing allergic reactions to red meat becoming more common in Louisiana May 19, 2022 The tick that’s making people allergic to red meat is becoming more common in Louisiana. It’s called the “Lone Star Tick” because of the small white mark on its back. Aaron Gross, an Assistant Professor at Virginia Tech, is one of the few looking into the “Alpha-gal syndrome.” ... <https://www.wafb.com/2022/05/19/tick-bites-causing-allergic-reactions-red-meat-becoming-more-common-louisiana/>

MAINE

News Center Maine Tick lab at UMaine has new line of defense against ticks Jan 27, 2023 ...Incidence of Lyme Disease was up in 2022 at a little more than 2,600 cases, more than a thousand cases compared to 2021.... Another \$2.5 million is slated for tracking species of ticks that are emerging in Maine, including the Lone Star tick, which is linked to a lifetime allergic condition known as Alpha-gal syndrome. It causes food allergies to red meat such as beef, pork, and other mammal products. <https://www.newscentermaine.com/article/news/health/tick-lab-university-of-maine/97-325234c4-f23e-4ba5-a1f0-8f544db21ef7>

Press Herald UMaine gets federal funds for tick research as state sets record for Lyme disease cases Dec 29, 2022 ...[There has been] an explosion of tick-related illnesses in recent years, with reports of **Lyme disease increasing 20-fold** between 2000 and 2016, according to the Center for Public Integrity. <https://www.pressherald.com/2022/12/29/umaine-gets-federal-funds-for-tick-research-as-state-sets-record-for-lyme-disease-cases/>

WGME.com Even in the winter Mainers aren’t safe from deer ticks Jan 5, 2023“With recent years and these warm winters, it’s not unprecedented by any means to be seeing tick activity now,” said Griffin Dill, who heads up the tick laboratory at the University of Maine. “Unfortunately it’s our new normal.”...Dill encourages anyone who spends time outdoors when it’s above 40 degrees Fahrenheit to conduct full body checks when they get back inside. Pets should also be checked over. <https://wgme.com/news/local/even-in-the-winter-mainers-arent-safe-from-deer-ticks-lyme-disease-anaplasmosis-babesiosis-prevention-bullseye-rash-maine-cdc-body-aches-chills-fevers-headache-swollen-lymph-nodes-umaine-study-deer-tick>

Bangor Daily News Ticks congregate in certain areas of Acadia National Park, UMaine study shows Nov 16, 2022 A new study from the University of Maine has found clusters of tick populations in the park, which could help inform prevention strategies for tick-borne illnesses like Lyme disease....The researchers also tested ticks and small mammals in the area for multiple tick-borne pathogens and found ... pathogens that cause Lyme disease, babesiosis and anaplasmosis. <https://www.bangordailynews.com/2022/11/16/bdn-maine/ticks-congregate-in-certain-areas-of-acadia-national-park-umaine-study-shows/>

OutbreakNewsToday.com Maine on track to break records for anaplasmosis, babesiosis, and Lyme disease cases in 2022 Oct 7, 2022 The Maine Center for Disease Control and Prevention (Maine CDC) urges Maine people and visitors to take precautions against tick bites this fall. Deer ticks can carry the germs that cause tickborne diseases. In Maine, these include Lyme disease, anaplasmosis, babesiosis, hard tick relapsing fever (*Borrelia miyamotoi*), and Powassan virus. These germs spread through the bite of an infected deer tick. Thus far in 2022, Maine CDC has recorded:1,977 cases of Lyme disease,

677 cases of anaplasmosis, 161 cases of babesiosis, 10 cases of hard tick relapsing fever, which the U.S. Centers for Disease Control and Prevention formerly identified as *B. miyamotoi* or *B. miyamotoi* disease, 4 cases of Powassan encephalitis ... Use an EPA-approved repellent like DEET, picaridin, IR3535, or oil of lemon eucalyptus.

<https://outbreaknewstoday.com/maine-on-track-to-break-records-for-anaplasmosis-babesiosis-and-lyme-disease-cases-in-2022/>

Press Herald Lyme disease rebounding in Maine this year Aug 17 2022. **Cases of Lyme disease are rebounding in Maine**, with the number of cases so far this year on pace to exceed the totals for 2020 and 2021. Maine recorded 1,433 Lyme cases through Aug. 14 this year, compared with 1,127 in all of 2020 and 1,510 in all of 2021, according to the Maine Center for Disease Control and Prevention. The deer ticks ... will actively search for hosts well into the autumn

<https://www.pressherald.com/2022/08/17/lyme-disease-rebounding-in-maine-this-year/>

Maine NBC News Center - Waldo County resident dies from tick-borne illness Apr 20 2022. A Waldo County resident has died from the rare Powassan virus.... Only about 25 cases of Powassan virus are reported each year, with **Maine identifying 14 cases since 2010**. ...Use EPA-approved insect repellent on skin and Permethrin on clothing.

<https://www.newscentermaine.com/article/news/health/tick-and-lyme/maine-center-for-disease-control-and-prevention-confirms-fatal-case-of-powassan-virus-spread-by-ticks/97-6bdefad0-3f2d-471c-b2e8-10795e7fa76c>

MARYLAND

House Grail 5 Types of Ticks in Maryland (With Pictures) Nov 28, 2022 ...There are 90 species of ticks in the United States, but Marylanders need to watch out for five types that are present in the state....American Dog Ticks...Black-Legged Ticks (Deer Ticks)... Brown Dog Ticks...Lone Star Ticks...Gulf Coast Ticks..... <https://housegrail.com/types-of-ticks-in-maryland/>

WRC-NBC Hagerstown, MD June 2 2022 [*and Consumer Reports*] testing paints a pretty clear picture. No matter the brand or kind of repellent you are using, products made with 25% to 30% DEET work the best.

MASSACHUSETTS

MassLive.com DPH reports sixth state case of West Nile virus Oct 7, 2022 A sixth Massachusetts resident has become infected with the West Nile virus, state Department of Public Health officials said Last year, 11 people in Massachusetts were infected with the West Nile virus. No cases of mosquito-borne Eastern equine encephalitis (EEE) have been detected in Massachusetts this year.... Health officials emphasize ... using insect-repellent products containing DEET, permethrin, picaridin, oil of lemon eucalyptus or IR3535. <https://www.masslive.com/news/2022/10/dph-reports-sixth-state-case-of-west-nile-virus.html>

The Wanderer Marion Mosquito and West Nile Virus Sept 7 2022. ... West Nile Virus (WNV) has been detected in mosquitoes collected from Marion. The current WNV risk level for Marion is low. **Mosquitoes are most prevalent from May to August, but remain active until the first time temperatures fall below freezing.** WNV is most commonly transmitted to humans by the bite of an infected mosquito. The mosquitoes that carry this virus are common throughout the state and are found in urban as well as more rural areas. ... Apply insect repellent when outdoors. Use a repellent with DEET (N, N-diethyl-m-toluamide), permethrin, picaridin (KBR 3023), oil of lemon eucalyptus [p-methane 3, 8-diol (PMD)] or IR3535 ... <https://www.wanderer.com/happenings/marion-mosquito-and-west-nile-virus/>

WBZ-AM-CBS Boston, MA June 15 2022 [Re Powassan] ...The daily check for ticks might not cut it. Get yourself some bug spray with DEET.

WUPE.com - A Rampant Pest Problem Plagues Massachusetts with No End In Sight May 18 2022. ...Residents throughout Berkshire County and all across ...Massachusetts are being given fair warning regarding an influx of ticks that have resurfaced as health officials across the U.S. reiterated that tick season begins from the early part of spring to late fall (October and November). ... The lone star tick is especially aggressive during this time of the year. **The lone star tick is a common pest in the region, accounting for over 90% of tick bites in the Southeastern states. These pests have made their way up towards the Eastern seaboard and to the Midwest in recent years.** ... A necessary piece of equipment should include ... EPA-registered insect repellent...Wear long sleeved shirts and pants for added protection. <https://wupe.com/a-rampant-pest-problem-plagues-massachusetts-with-no-end-in-sight/>

MICHIGAN

Open Forum Infectious Diseases Descriptive data on trends among patients hospitalized with Lyme disease in Southwest Michigan, 2017-2021 Dec 7, 2022 The number of hospitalized Lyme patients in our area hospitals increased sharply, while admissions for Lyme carditis and neuroborreliosis increased in parallel. **Southwest Michigan is becoming an endemic area for Lyme disease.** <https://academic.oup.com/ofid/advance-article/doi/10.1093/ofid/ofac658/6881689>

WKZO - Kalamazoo County health officials release info on tick disease report Sept 11 2022. Kalamazoo County health officials have released the results of a survey regarding blacklegged ticks. A total of 92 ticks were submitted to the Centers

for Disease Control to check for five distinct disease-causing bacteria...with **24 of them testing positive. 21 of the ticks indicated they carried Lyme Disease, while the other three had Anaplasmosis.** Lyme disease is the most common vector-borne disease in the US. County health officials emphasize that the threat of ticks continues through the fall, usually subsiding with the first hard frost. <https://wkzo.com/2022/09/11/kalamazoo-county-health-officials-release-info-on-tick-disease-report/>

WMYD-MNT Detroit, MI Sept 10 2022 Health officials are advising people to take precautions to protect against mosquito bites. That includes using insect repellent with DEET and limiting outdoor activities from dusk to dawn

FOX17 Lone star tick found in Kalamazoo County May 26 2022. A lone star tick has been identified in Kalamazoo County. Lone star ticks are typically located in the eastern, southeastern and south-central portions of the U.S. but have been known to occur in southern Michigan. According to the Kalamazoo County Health and Community Services Department, lone star ticks have a distinctive white “lone star” marking on their backs. Lone star ticks will readily bite people and animals. ... “Preventing tick bites is essential to preventing tick-borne disease, including using insect repellent with DEET and performing tick checks on yourself, children, and pets,” says Lucus Pols, Environmental Health Division chief. <https://www.fox17online.com/news/local-news/kzoo-bc/kalamazoo/lone-star-tick-found-in-kalamazoo-county>

District Health Department, Tick Prevention (2022) - According to the Michigan Department of Health and Human Services (MDHHS): **Cases of Lyme disease in Michigan jumped from 451 in 2020, to 878 in 2021.** Lyme disease is the most common tick-borne disease. Cases of **Anaplasmosis increased from 17 confirmed cases in 2020, to 56 cases in 2021.** Anaplasmosis is the second most common tick-borne disease. **Benzie, Dickinson, Manistee, and Menominee counties** saw the largest increase of Anaplasmosis. ... Use insect repellent... containing DEET or Picaridin on exposed skin. <https://www.dhd10.org/tick-prevention-2022/>

Journal of Medical Entomology Eastern Equine Encephalomyelitis in Michigan: Historical Review of Equine, Human, and Wildlife Involvement, Epidemiology, Vector Associations, and Factors Contributing to Endemicity 2022. Outbreaks in Michigan have occurred over an 80-yr interval... 36 confirmed human cases have occurred, including 10 in 2019 (6 deaths) and 4 in 2020 (2 deaths). Human cases ranged in age from 1 to 81 yr; 70% were male, and **fatality rate of 34.3%.** Equine and human cases occurred from **July to October**, peaked in August, and cluster in space in southwestern and southeastern lower Michigan.**Geographic spread to northern areas of the state suggests expansion of this disease system into new and unsuspected foci.**

MINNESOTA

KNSIRadio - Robust Mosquito Population This Year, Tips To Keep From Being Bit June 16 2022. ...Assistant Professor at the University of Minnesota, Jon Oliver, says prevention is the key. “Prevention like repellents and reducing mosquito population by clearing up empty containers are the best options.” Oliver says ... use bug repellent with DEET. <https://knsiradio.com/2022/06/16/expert-robust-mosquito-population-this-year-tips-to-keep-from-being-bit/>

Y.105FM – Warning: Tick Found in Minnesota Causes Meat Allergy May 20 2022. **The Lone Star Tick is confirmed to Be In Minnesota, Iowa, Wisconsin, and Illinois....** <https://y105fm.com/lone-star-tick-minnesota-iowa-wisconsin/>

Neurohospitalist An Overview of Jamestown Canyon Virus Disease 2021... Wisconsin and Minnesota **have reported more than half of ...known cases** Unlike La Crosse virus disease which has a predilection for children, there is no such age predilection with Jamestown Canyon. **Neuroinvasive disease has been reported in children, young adults, and older adults....** ...Cases may present with fever, fatigue, myalgia, and/or headache. Some patients may present with upper respiratory symptoms (e.g., cough, rhinitis, pharyngitis), which is uncommon for arboviral infections. **About half of reported cases are neuro-invasive presenting with meningitis or meningoencephalitis....** Treatment of Jamestown Canyon virus disease is supportive since no specific antivirals are available. <https://journals.sagepub.com/doi/10.1177/19418744211005948>

MISSISSIPPI

WCBI-CBS TV Columbus-Tupelo-West Point, MS Nov 22, 2022 ...So, one of the easiest ways to think about preventing it is, when you're going to be out and about and could potentially get a tick on you, is **use insect repellent.**

Clarion Ledger Mississippi health department reports a 2nd case of West Nile virus Feb 15 2022. A second case of West Nile virus... was reported in a Hinds County resident.... West Nile virus season typically occurs **July through October.** ...**Mosquitoes can carry the virus anytime of the year.** The Mississippi State Department of Health reported the state's first 2022 case Jan. 28. ... Since 2015, five people in Mississippi have died of the virus. <https://www.clarionledger.com/story/news/2022/02/15/mississippi-health-department-reports-2nd-case-west-nile-virus/6801978001/>

MISSOURI

Inergy Health & Senior Services Dec 29, 2022 With warmer weather on the way, the Missouri Department of Health & Senior Services (DHSS) wants to remind people living in and visiting the state to take precautions against tick bites. Ticks can transmit serious, potentially deadly, illnesses and they can be active anytime the ground isn't frozen.... Use an insect repellent with a minimum of 20% DEET, picaridin or IR3535 on exposed skin for protection that lasts several hours whenever you spend time outdoors. ... <https://inergy.com/amp/news-releases-health-senior-services-264/>

SciTechDaily A Looming Problem – Longhorned Tick Discovered in Northern Missouri Dec 20, 2022 Worldwide, the Longhorned tick costs livestock farmers millions of dollars in lost agricultural income, and it is now in northern Missouri.... Last year, the Longhorned tick was found in the southern part of the state. This recent finding signals an additional economic burden to cattle farmers owing to ticks. This is because the Longhorned tick infestation might lead to a considerable loss in weight gain for cattle, similar to an already widely widespread condition called anaplasmosis; but so far, the threat from this species of tick to cattle — and humans and their pets — in Missouri remains low...infestation of the Longhorned tick can lead to possible transmission of bovine theileriosis, a disease that kills red blood cells in cattle. <https://scitechdaily.com/a-looming-problem-longhorned-tick-discovered-in-northern-missouri/>

Tick and Tick-borne Diseases Prevalence of Bourbon and Heartland viruses in field collected ticks at an environmental field station in St. Louis County, Missouri, USA January, 2023 To assess the prevalence of these viruses in ticks, we collected 2778 ticks from eight sampling sites at Tyson Research Center... Overall, 14 (3.9%) and 27 (7.6%) of the pools were positive for **Bourbon virus and Heartland virus** respectively. In 2019, 11 and 23 pools were positive for Bourbon and Heartland viruses respectively. These positives pools were of males, females and nymphs. In 2021, there were 4 virus positive pools out of which 3 were positive for both viruses and were comprised of females and nymphs. Five out of the 8 sampling sites were positive for at least one virus. This included a site that was positive for both viruses in both years. **Detection of these viruses in an area close to a relatively large metropolis presents a greater public health threat than previously thought.** https://www.sciencedirect.com/science/article/pii/S1877959X22001820?dgcid=rss_sd_all

Columbia Missourian Blood-sucking bugs: Tick populations on the rise in Missouri Jul 26, 2022 According to the CDC, there are three common ticks in Missouri — the Lone Star tick, the Deer tick and the American Dog tick.... The Lone Star tick transmits ehrlichiosis, Heartland virus, tularemia and STARI. The Deer tick transmits Lyme disease, anaplasmosis, ehrlichiosis, babesiosis, *Borrelia miyamotoi* and Powassan disease. The American Dog tick transmits tularemia and Rocky Mountain spotted fever. The Gulf Coast tick, growing more common in Missouri, looks similar to the American Dog tick. [Researchers] collected four Gulf Coast ticks in 2020 and 60 in 2021. An illness carried by the Gulf Coast tick [is] *Rickettsia parkeri* rickettsiosis... Wearing insect repellents also helps avoid being bitten. The conservation department recommends using a product with a 20% DEET concentration. https://www.columbiamissourian.com/news/blood-sucking-bugs-tick-populations-on-the-rise-in-missouri/article_74906cfa-fbcc-11ec-bd46-7f2de23f62e7.html

NBC-KSN.com – Summertime Ailments June 5 2022. ... Dr. Susarla says Lyme Disease is not that common in the Four States. "Make sure that youuse insect repellents... that have chemicals like DEET, you can spray that over your skin. <https://www.fourstateshomepage.com/news/local-news/summertime-ailments/>

MONTANA

Montana.gov West Nile Virus Confirmed in Mosquito Samples, Horse in Two Montana Counties Aug 25,2022 State and local public health officials are reporting the season's first West Nile virus (WNV) detections in positive mosquito samples in **Dawson and Lewis and Clark** counties. ...Detection of WNV in mosquitoes and horses is an early warning that Montanans are at an increased risk of infection....In 2021, two human cases were reported (Rosebud and Lewis and Clark counties), and both were neuroinvasive. <https://dphhs.mt.gov/News/2022/August/WestNileVirusConfirmedinMosquitoSamples,HorseinTwoMontanaCounties>

103.7 The Hawk – It's Tick Season in Montana. ... April 5 2022. Ticks in Montana can carry a number of nasty diseases, including: **Rocky Mountain Spotted Fever (RMSF), Colorado Tick Fever, Tularemia, (commonly known as "rabbit fever"), Tick-borne relapsing fever.** ...Apply insect repellent that contains DEET on your exposed skin and/or apply repellents containing permethrin that can be sprayed on boots and clothing, and will last for several days. <https://kmhk.com/montana-ticks/>

NEBRASKA

Zoonoses and Public Health Detection of *Borrelia burgdorferi* infected *Ixodes scapularis* (Acari: Ixodidae) associated with local Lyme disease transmission in Nebraska, USA, 2021. Feb 13, 2023. In August 2021, the Nebraska Department of Health and Human Services was notified by a local public health department of a **cluster of two Lyme disease cases** in patients with local exposure to wooded areas in a county located in their jurisdiction.... The results of this study document the **fourth known established population of *I. scapularis* in Nebraska and confirms the first detection of *B. burgdorferi* s.s. in field collected ticks from Nebraska.** <https://europepmc.org/article/med/36785942>

Omaha World Herald February Health Matters: Climate change already impacting Nebraskans' health Feb 19, 2023... Nebraska already is a hotspot for mosquito- and tick-borne diseases.... More than 4,000 Nebraskans are known to have contracted West Nile disease since the virus arrived in 1999, giving the state the **fourth-highest cumulative tally of reported cases. Nebraska** is surpassed only by states with larger populations: California, Colorado and Texas. https://omaha.com/lifestyles/health-med-fit/health-matters/climate-change-already-impacting-nebraskans-health/article_c0ca6a06-a97a-11ed-9cfa-7b2551e7c957.html

Journal of Medical Entomology First Record of an Established Population of *Triatoma sanguisuga* (Hemiptera: Reduviidae) in Richardson County, Nebraska July 20 2021. ... This is the first record of an established population of *T. sanguisuga* and *T. cruzi*-infected **kissing bugs in Nebraska**. <https://doi.org/10.1093/jme/tjab122>

NEVADA

Reno Gazette Journal Odds of tick bite-induced Lyme disease low in Nevada but higher in Tahoe, Sierra foothills Jun 21, 2022 Four types of ticks are found in the Reno/Tahoe area...: Rocky Mountain wood ticks, Western black-legged ticks, American dog ticks and Brown dog ticks. The Western black-legged tick is the most important Lyme disease vector in the area.... Ticks, especially Lyme-disease carrying varieties, are more prevalent in the western foothills of the Sierra Nevada and Tahoe than in Nevada.... <https://www.rgi.com/story/news/2021/06/21/ticks-nevada-odds-ticks-causing-lyme-disease-higher-tahoe/7774444002/>

News2 - Protecting Yourself Against Ticks in Northern Nevada April 6 2022. Diseases caused by ticks, mosquitoes and fleas have tripled in recent years, according to the CDC. In 2016, there were more than 25,000 confirmed cases of Lyme disease, which is spread by ticks. ...northern Nevada is home to a different type of tick, [Jim Shaffer, Vector Borne Diseases Coordinator] explains, "The American Dog Tick or the 'Wood Tick'... transmits Rocky Mountain Spotted Fever."... He advises anyone heading out for a hike to...use insect repellent, and be sure to check your body for any blood-suckers after spending time outdoors.https://www.2news.com/protecting-yourself-against-ticks-in-northern-nevada/article_98672f5a-488f-506a-8e3e-abb61ec234f8.html

NEW HAMPSHIRE

St. Joseph Hospital Tick Bites increasing in New Hampshire, health officials say Apr 14, 2022 ... New Hampshire is a prime location for deer ticks, which carry Lyme disease and results in a wide range of symptoms.... People are encouraged to wear repellent with DEET, and when heading inside after spending time outdoors, put clothes in the dryer to kill off ticks. <https://stjosephhospital.com/tick-bites-increasing-in-new-hampshire-health-officials-say/>

WMUR9 - Tick bites increasing in New Hampshire, health officials say April 14 2022. Health officials are warning that **emergency department visits for tick bites in New Hampshire have been increasing since mid-March**. According to the CDC, the **Northeast leads the nation in the rate of tick bites, averaging 103 bites per 100,000 emergency department visits — 10 times the south central region of the country**. ...People are encouraged to wear repellent with DEET, and when heading inside after spending time outdoors, put clothes in the dryer to kill off ticks. <https://www.wmur.com/article/tick-bites-increasing-new-hampshire/39729817#>

NEW JERSEY

Ticks and Tick-borne Disease Microhabitat modeling of the invasive Asian longhorned tick (*Haemaphysalis longicornis*) in New Jersey, USA Mar, 2023 Models identified northern New Jersey as the area with the highest habitat suitability for *H. longicornis* with **26 out of 28 total positive locations** ...The first detection of an established population *H. longicornis* in the US was within this region, (Rainey et al 2018), which is broadly included in the Eastern broadleaf forest province subject to more **continental climate with vegetation characterized by tall deciduous broadleaf forest often dominated by oak-hickory cover** (McNab et al., 2007). *Haemaphysalis longicornis* [thrives in] **forested to shrubby or mixed habitats, roughly similar to eastern broadleaf forest habitat in the US...** <https://www.sciencedirect.com/science/article/pii/S1877959X23000080>

Ticks and Tick-borne Diseases Tick abundance and diversity are substantially lower in thinned vs. unthinned forests in the New Jersey Pinelands National Reserve, USA March, 2022 ...Thinned plots were significantly drier and warmer than unthinned plots. ...Average **questing tick abundance was 92% lower in thinned** as compared with unthinned plots. Of the three main tick species collected in unthinned plots (*Amblyomma americanum*, *Ixodes scapularis*, and *Dermacentor albipictus*) **only *A. americanum* and a single *I. scapularis* were collected in thinned plots**. Prevalence of *Ehrlichia* species in *A. americanum* did not differ between treatments, and the sole *I. scapularis* collected in a thinned plot was infected with *Borrelia burgdorferi* sensu lato. ...The **much lower tick abundance in thinned plots indicates a lower risk of human-tick encounters**. ...**Landscape and forest management can reduce local tick abundance, thereby reducing tick-borne disease risk**. <https://www.sciencedirect.com/science/article/pii/S1877959X22002084>

New Jersey Dept. of Health NJDOH, NJDEP and NJDA Urge Precautions to Protect Against West Nile Virus Aug 25 2022. Three male residents tested positive earlier this month for West Nile virus in Bergen, Morris, and Ocean counties. ... In a

typical year, there are eight human WNV infections reported. **Last year, New Jersey had 36 human cases of WNV. WNV activity is elevated in mosquitoes this year, but is similar to five-year average trends.** ... "August and September are the months that we see most West Nile virus cases in New Jersey," said Health Commissioner Judith Persichilli. "It is important that residents take steps to protect themselves by using an EPA-registered insect repellent..."

<https://www.nj.gov/health/news/2022/approved/20220825b.shtml>

WHYY.org Bit by a tick in New Jersey? Rutgers scientists want you to mail it in Jul 3, 2022 ... If you live in the Garden State and happen to find a tick on yourself or a pet, scientists at Rutgers University want you to send it to them in the mail. "We're trying to develop surveillance for ticks in New Jersey, which doesn't currently exist," said [Dr. Dina Fonseca](#), a professor of entomology in the Center for Vector Biology at Rutgers. <https://whyy.org/articles/nj-rutgers-scientists-want-you-to-mail-in-ticks/>

Open Forum Infectious Diseases Seroprevalence of Powassan Virus Infection in an Area Experiencing a Cluster of Disease Cases: Sussex County, New Jersey, 2019 March 2022. In 2019, a geographically focal cluster of 3 Powassan virus neuroinvasive disease cases occurred in New Jersey. ...A serosurvey of 273 adult area residents ...estimated that immunoglobulin M seroprevalence was 0.31% ... 23% ... of infections result in neuroinvasive disease.

<https://doi.org/10.1093/ofid/ofac023>

NEW MEXICO

SantaFeNewMexico.com Experts expect heavy tick season after warm New Mexico winter Jul 25, 2022 ... "We worry about them because they spread a lot of diseases," said Jason Schaller, curator of entomology at the Albuquerque BioPark. "And a lot of people have severe allergic reactions to the saliva of ticks, which can result in temporary paralysis. It's pretty freaky, actually." ... Elizabeth VinHatton, an environmental scientist with the state Department of Health, said New Mexico has other types of ticks that can spread disease to humans and animals. The Rocky Mountain wood tick can spread Rocky Mountain spotted fever, which can lead to symptoms similar to those of early Lyme disease: rashes on the wrists, palms, ankles and soles, as well as a fever and headache. VinHatton said the bacterial illness can be difficult to detect. If a patient goes to a doctor complaining of a fever and headache, she said, "The first thing he isn't going to think of is it's Rocky Mountain spotted fever." https://www.santafenewmexican.com/news/local_news/experts-expect-heavy-tick-season-after-warm-new-mexico-winter/article_aaa7a174-caf3-11eb-941d-dfb4521297bb.html

Journal of Medical Entomology Distribution and Occurrence of *Amblyomma maculatum* sensu lato (Acari: Ixodidae) and *Rickettsia parkeri* (Rickettsiales: Rickettsiaceae), Arizona and New Mexico, 2017–2019 *Amblyomma maculatum* ... are the vector of *Rickettsia parkeri* in Arizona, where **nine cases of *R. parkeri* rickettsiosis have been identified since the initial case in 2014.** A total of 275 *A. maculatum* s.l. [Gulf Coast] ticks were collected from 34 locations in four counties in Arizona and one county in New Mexico..... ***Rickettsia parkeri* was detected in 20.4% of the ticks, including one specimen collected from New Mexico, the first report of *R. parkeri* in *A. maculatum* s.l. from this state.**

<https://academic.oup.com/ime/article/57/6/2030/5869531>

NEW YORK

LymeDisease.org New York toddler's fight against tick-borne Powassan virus Feb 21, 2023 In November 2022, after weeks of doctors visits, 2-year-old Cali Neri of New York was diagnosed with severe encephalitis caused by tick-borne Powassan virus. <https://www.lymedisease.org/ny-toddler-powassan-virus/>

Work Comp Central Lawmakers to Consider Making Lyme Disease an Occupational Illness Jan 31, 2023 NY lawmakers will...consider making Lyme disease an occupational illness ...Lyme disease and other tick-borne diseases would also be considered disabilities if the worker is presumed to have caught the disease in the scope of employment.

<https://www.workcompcentral.com/news/article/id/003be4cbe1d9ee4867fb358f31b4d2e802d57597>

Emerging Infectious Diseases Powassan Virus Lineage I in Field-Collected *Dermacentor variabilis* Ticks, New York, Feb, 2023 Powassan virus is a tickborne flavivirus that can cause lethal or debilitating neurologic illness. It is ...transmitted by *Ixodes* spp. ticks **but might spill over to sympatric *Dermacentor* species. We detected Powassan virus lineage I from a pool of field-collected *D. variabilis* ticks in New York, USA.** https://wwwnc.cdc.gov/eid/article/29/2/22-0410_article?

Emerging Infectious Diseases Bourbon Virus Transmission, New York, USA Jan 1, 2023 In July 2019, **Bourbon virus RNA was detected in an *Amblyomma americanum* tick removed from a resident of Long Island, New York, USA.** Tick infection and white-tailed deer (*Odocoileus virginianus*) serosurvey results demonstrate **active transmission in New York, especially Suffolk County,** emphasizing a need for surveillance anywhere *A. americanum* ticks are reported.

https://wwwnc.cdc.gov/eid/article/29/1/22-0283_article

Lyme Disease Association Powassan Virus Detected in *D. Variabilis* Ticks in New York Jan 26, 2023 ...**POWV is assumed to be primarily transmitted by *Ixodes* spp. ticks in North America.** There has been recent focus on *Dermacentor* spp.

[American dog tick] ticks because they are found in POWV endemic areas and bite humans....In this study they detected Powassan virus lineage I from a pool of field-collected *D. variabilis* ticks in New York, USA... suggesting that **POWV can exist in this tick species, either because of incidental exposure or because of its own sylvatic cycle.** <https://lymediseaseassociation.org/lyme-tbd/research-articles/peer-reviewed-articles/powassan-virus-detected-in-d-variabilis-ticks-in-new-york/>
Original Study Emerging Infectious Diseases Powassan Virus Lineage I in Field-Collected Dermacentor variabilis Ticks, New York, USA Feb, 2023 https://wwwnc.cdc.gov/eid/article/29/2/22-0410_article

Essex County Health Department Tick-borne Disease No date Lyme Disease is the most commonly confirmed Deer Tick-borne disease being transmitted from ticks to people in Essex County. <https://essexcountyny.gov/Health/tick-borne-diseases/>

Emerging Microbes & Infections Identification and Characterization of Novel Lineage 1 Powassan Virus Strains in New York State Dec 12, 2022 For the first time in 45 years, we detected four POWV-1 isolates, including the first reported isolation of POWV-1 from *I. scapularis*..... Sequencing revealed genetic divergence between NYS POWV-1 isolates, with two distinct foci. ...These data suggest the emergence of divergent POWV-1 strains in alternate tick hosts and maintenance of genetically and phenotypically discrete POWV-1 foci. <https://www.tandfonline.com/doi/full/10.1080/22221751.2022.2155585?cookieSet=1>

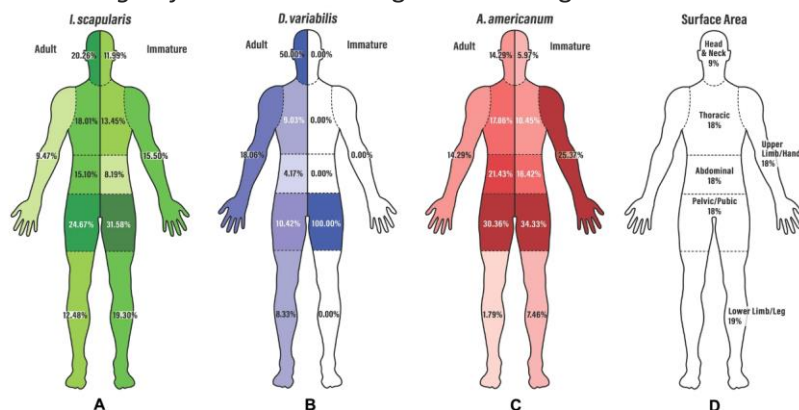
Open Forum Infectious Diseases Clinical significance of Rickettsia rickettsii antibody testing among children in Eastern Long Island, New York Dec 15, 2022 172 charts were included. Average age was 14 years. 56% were male. Of RMSF classic triad symptoms, **52% had fever, 41% rash, and 44% headache.** Of RMSF case categories, 2 (1.2%) were confirmed, 3 (1.7%) probable, 10 (5.8%) suspected, 14 (8.1%) unlikely, and 143 (83%) negative. Both confirmed cases had fever, rash and headache. False positive and true positive Rr Ab rates were 8.9% (n=5) and 2.9% (n=5), respectively. 5 patients with false positive Ab received doxycycline within 14 days of Ab collection date. **Among children in a low-incidence region, Rr Ab were frequently obtained without signs of infection, including half without fever. The cause of false positive Rr Ab in patients lacking RMSF symptoms is unknown, but may be due to non-severe infection or cross-reactivity with other Rickettsia.** Focused testing on those with suggestive symptoms may avoid unnecessary treatment and anxiety. https://academic.oup.com/ofid/article/9/Supplement_2/ofac492.1144/6903453

News-Medical.net Active transmission of Bourbon virus in New York Dec 20, 2022 BRBVwas first isolated from a resident of Bourbon County [MO]. Human cases of BRBV were identified in Missouri, Oklahoma, and Kansas. BRBV is a close relative of the Oz virus isolated in Japan from a tick species (*Amblyomma testudinarium*). **The lone star tick (A. americanum) has been identified as a likely BRBV vector.** ... In July 2019, the epidemiologists of the New York State Department of Health (NYSDOH) were notified about the detection of BRBV RNA in a resident of Long Island, New York, with a partially engorged lone star tick removed from that individual. <https://www.news-medical.net/news/20221220/Active-transmission-of-Bourbon-virus-in-New-York.aspx>

North Country Now Ticks still active in St. Lawrence County in late fall, early winter months Dec 1, 2022 While Lyme Disease continues to be the most prominent tick-borne disease, some rising diseases in St. Lawrence County include anaplasmosis, ehrlichiosis, and babesiosis. Specifically, **St. Lawrence County has seen an increase in anaplasmosis.** To date in 2022, there have been 62 reported cases, which exceeds the 52 cases reported in 2020. In 2021, there were a total of 129 reported cases. <https://www.northcountrynow.com/news/ticks-still-active-st-lawrence-county-late-fall-early-winter-months-0331116>

Scientific Reports Human attachment site preferences of ticks parasitizing in New York Dec 3, 2022 ... These data resulted in the identification of species-specific preferences for location, with *D. variabilis* preferentially biting the head and neck and *A. americanum* preferring the thighs, groin, and abdomen. *Ixodes scapularis* was found across the body, although it showed a significant life stage difference with **adults preferring the head, midsection, and groin, while nymphs/larvae preferred the extremities.** *Ixodes scapularis* was found across the body, although it showed a significant life stage difference with adults preferring the head, midsection, and groin, while nymphs/larvae preferred the extremities. Infection

with *Borrelia burgdorferi* resulted in a significant change in attachment.



A representation of the body segment distribution of (A) *I. scapularis*, (B) *D. variabilis*, and (C) *A. americanum*. These are divided into adult and nymph/larval ticks for each species. These are compared to the corresponding average predicted surface area of each bodily segment (D). Statistically significant changes in distribution were observed compared to the assumption of equal distribution over the body, with *D. variabilis* strongly preferring the head and neck and *A. americanum* preferring the groin/pelvic/thigh area, with *I. scapularis* showing a more somewhat even distribution. Figures were generated with assistance from Sabra Snyder.

site.

<https://www.nature.com/articles/s41598-022-25486-7>

News Break Tick-borne diseases continue to rise: Don't ignore symptoms Nov 15, 2022 Tick-borne diseases are continuing to rise in Central New York and St. Lawrence County Public Health Department is reminding New Yorkers to not ignore symptoms.... <https://www.newsbreak.com/news/2825097662234/tick-borne-diseases-continue-to-rise-don-t-ignore-symptoms>

Ticks and Tick-borne Diseases Rapid invasion and expansion of the Asian longhorned tick (*Haemaphysalis longicornis*) into a new area on Long Island, New York, USA March, 2022 Asian longhorned tick, *Haemaphysalis longicornis*, has invaded Long Island, NY. *H. longicornis* has rapidly expanded on Long Island. *H. longicornis* is abundantly present in the Appalachian forest ecological zone of Long Island. https://www.sciencedirect.com/science/article/pii/S1877959X2200190X?dgcid=rss_sd_all

NYC Health West Nile Virus Detected in Record Number of Mosquitoes Two Human Cases Reported Aug 16 2022. ...West Nile virus has been detected in two people and a record number of WNV-infected mosquitoes have been detected in New York City ... across all five boroughs. **Mosquitoes infected with WNV are typically present in NYC from July through October, with peak activity during August and September.** ... Health Commissioner Dr. Ashwin Vasana: "Use an EPA registered insect repellent ... containing picaridin, DEET, oil of lemon eucalyptus (not for children under three), or products that contain ... IR3535. <https://www1.nyc.gov/site/doh/about/press/pr2022/west-nile-virus-detected-in-record-number-two-human-cases-reported.page>

UrbanCNY Mosquitoes Found Positive for Eastern Equine Encephalitis Virus Aug 16 2022. ...Mosquitoes from ... Cicero have tested positive for Eastern Equine Encephalitis virus (EEEV). EEEV is ... spread by the bite of an infected mosquito, so it is extremely important to use personal protection measures to reduce the risk of being bitten by mosquitoes. ... The use of insect repellents containing DEET, Picaridin, IR3535, oil of lemon eucalyptus, and other products that have been approved by the Environmental Protection Agency (EPA) is also recommended. <https://www.urbancny.com/mosquitoes-found-positive-for-eastern-equine-encephalitis-virus/>

Oswego County - Oswego County Announces EEEV in Albion and Mexico Aug 16 2022. The Oswego County Health Department announced today that Eastern equine encephalitis virus (EEEV) was found in two mosquito pools (samples). One was in the town of Mexico and the other was in ...Albion. ... Insect repellents that contain DEET, picaridin or oil of lemon eucalyptus are effective. https://www.oswegocounty.com/news_detail_T17_R1910.php

Bio Med Central (BMC) - Spatial and temporal patterns of the emerging tick-borne pathogen *Borrelia miyamotoi* in blacklegged ticks (*Ixodes scapularis*) in New York Jan 14 2021. ... One of the newer tick-borne pathogens in the United States is *Borrelia miyamotoi*..., a bacterium that causes relapsing fever, found in ixodid ticks throughout the northern hemisphere. ...Overall infection prevalence of questing nymphal ticks across all sites was ~ 1%, but prevalence at individual sites was as high as 9.1%. Only 0.4% of questing larval ticks were infected. The locally high prevalence of *B. miyamotoi* in the New York/New England landscape suggests the importance of vigilance by health practitioners and the public.<https://parasitesandvectors.biomedcentral.com/articles/10.1186/s13071-020-04569-2>

NORTH CAROLINA

Vector-borne and Zoonotic Diseases Investigation of a Symptomatic Tick Bite Patient Confirms *Borrelia burgdorferi* in *Ixodes scapularis* and White-Footed Mice in Ashe County, North Carolina Jan 10, 2023. ... We confirmed *Borrelia burgdorferi sensu stricto* ...in the attached tick and later from mice trapped inside the cabin where the patient stayed. <https://www.liebertpub.com/doi/abs/10.1089/vbz.2022.0042>

Open Forum Infectious Diseases Alpha-gal Syndrome in the Infectious Diseases Clinic: A series of five cases in central North Carolina Dec 12, 2022.....All patients had an elevated alpha-gal IgE and clinical presentation consistent with AGS....Four patients were seen by at least one non-allergy specialist prior to referral to ID. **Patients reported substantial improvement in their symptoms following dietary restriction.... ID (Infectious Disease) physicians should be aware of AGS as a cause of persistent, non-specific symptoms following a tick exposure or tick-borne illness.**
<https://academic.oup.com/ofid/advance-article/doi/10.1093/ofid/ofac663/6887856>

WTVD-ABC Raleigh-Durham, NC Sept 8 2022 Health alert, first case of West Nile virus confirmed in **Cumberland County**. State health officials say the public should not be alarmed but vigilant protecting themselves from mosquito bites. You can do that by cleaning out standing water on your property using insect repellent with DEET when outdoors.

New Hanover County Gov West Nile Virus identified locally, preventative measures recommended July 29 2022. West Nile Virus has been identified ...as the cause of a recent case of encephalitis in a **New Hanover County** resident. ... Public Health Director David Howard: "...Individuals should use EPA-approved insect repellent according to instructions on the label when outdoors. <https://news.nhcgov.com/news-releases/2022/07/westnile-virus-identified-locally-preventative-measures-recommended/>

WRAL.com Best insect repellents for protection from tick and mosquito-borne diseases May 31 2022. Bug season is here, which means you'll need a good insect repellent to protect you from bites. But not all repellents can get the job done. *Consumer Reports* has tested more than 50 of them to find out which ones will let you enjoy the great outdoors, bug-free. CR's testing paints a pretty clear picture: No matter which brand or type of repellent you're using, products made with 25 to 30% Deet work the best. <https://www.wral.com/cr-s-top-tested-insect-repellents-2022/20308635/>

NORTH DAKOTA

The Times Record Prevention of West Nile virus begins with protecting yourself June 12 2022. The North Dakota Department of Health ... reminds residents that preventing mosquito bites is the most effective way to avoid West Nile virus disease. ... Use insect repellent registered with the U.S. Environmental Protection Agency (EPA) that contains ingredients such as DEET, picaridin, IR3535, oil of lemon eucalyptus, PMD, 2-undecanone, and permethrin (clothing only).
https://www.times-online.com/news/prevention-of-west-nile-virus-begins-with-protecting-yourself/article_37ce0ac6-e76c-11ec-9e83-93618418b917.html

OHIO

Only In Your State Be On The Lookout, Clevelanders: A New Type Of Tick Has Been Spotted In Ohio Feb 20, 2023 ...keep your eyes peeled for the Asian longhorned tick (ALHT) this summer....Nonetheless, since its arrival in 2017, it has been spotted in at least 17 states. Unfortunately, they've also been positively identified in **Southern Ohio**.
<https://www.onlyinyourstate.com/ohio/cleveland/asian-longhorned-ticks-cle/>

Insects Invasive *Aedes japonicus* Mosquitoes Dominate the *Aedes* Fauna Collected with Gravid Traps in Wooster, Northeastern Ohio, USA Jan 6, 2023 ... (adult) *Ae. japonicus* mosquitoes were the most abundant mosquito species collected with gravid traps in Wooster ...Its presence may increase the risk of future arbovirus outbreaks in Wooster, Ohio.
<https://www.mdpi.com/2414-6366/8/1/1>

Ohio County's Journal Asian longhorn tick spread in Ohio in 2022 Nov 20, 2022 The Ohio Department of Agriculture (ODA) announced in ...the discovery of an **Asian longhorned tick in Gallia County**. <https://oci.com/2022/11/asian-longhorn-tick-spread-in-ohio-in-2022/>

UHHospitals.org Young Patient Overcomes Paralysis Linked to Tick Bite Nov 9, 2022 Dr. Zhang (*pediatric infectious disease specialist with UH Rainbow Babies & Children's Hospital*) advises that the best way to prevent tick-borne illness is to avoid tick bites in the first place. Use bug spray with DEET and wear long clothing pre-treated with the pesticide permethrin.
<https://www.uhhospitals.org/Healthy-at-UH/articles/2022/11/young-patient-overcomes-paralysis-linked-to-tick-bite>

WCPO-ABC TV Cincinnati, OH Oct 11, 2022 [6:24:35 AM] In the past decade, the number of Ohioans diagnosed with Lyme disease has exploded. Just **67 people in 2012 to nearly 600 in 2021** doctors recommend if you are outdoors even now use insect repellent.

News5Cleveland.com This map shows where Lyme disease cases have been reported in 2022 Jun 18, 2022 On Friday, the Tuscarawas County Health Department released a map showing what counties have the highest prevalence of Lyme disease

cases across the state: Summit, Geauga, Wayne, Holmes, Stark, Tuscarawas and Carroll counties this year in Northeast Ohio. Additional cases have been reported in Southeast and Southern Ohio. <https://www.news5cleveland.com/news/local-news/this-map-shows-where-lyme-disease-cases-have-been-reported-in-2022>

OKLAHOMA

The Ardmoreite Best tips for avoiding summer mosquitoes June 10 2022. ... More than 60 mosquito species appear seasonally in Oklahoma from March through November, but most adult mosquitoes are pests in the May through June timeframe, particularly after heavy rains. ... Wear insect repellent such as DEET. Repellents containing 10-30% DEET products are most effective ... <https://www.ardmoreite.com/2022/06/10/best-tips-for-avoiding-summer-mosquitoes/>

Vector Borne Zoonotic Dis. 2021 Mar 17. **Detection of *Rickettsia amblyommatis* and *Ehrlichia chaffeensis* in *Amblyomma americanum* Inhabiting Two Urban Parks in Oklahoma** Mar 17 2021. For the past 30 years, the number of people infected with causative agents of ehrlichiosis, Rocky Mountain spotted fever, and spotted fever group rickettsiosis (SFGR) has increased in Oklahoma. **33.6%** (146/434) of the *A. americanum* [Lone star] ticks were **positive for *Rickettsia amblyommatis*** and **15.2%** (66/434) were **positive for *Ehrlichia chaffeensis***.<https://pubmed.ncbi.nlm.nih.gov/33733878/>

OREGON

PacVec Newsletter 11-11-2022 Three human cases of WNV were confirmed in two counties: **Malheur and Baker**.

Oregon Environmental Council Take a Tick Seriously Jul 3, 2022 ...In Oregon, Lyme disease is being reported more often Ticks are ... most common east of the Cascades and in Southern Oregon. Most cases of Lyme disease have been reported in **Hood River and Josephine Counties**.... <https://oeconline.org/take-a-tick-seriously/>

The New York Times The Tick That Causes a Meat Allergy Is on the Move May 13 2022. Researchers have traced the syndrome to the lone star tick... historically found in the southern U.S., but ... increasingly being spotted in parts of the Midwest and the Northeast. ...Climatic conditions are also suitable for the ticks to establish populations along the coast of Washington, **Oregon** and California, other models indicate. <https://www.nytimes.com/2022/05/13/us/lone-star-tick-bite-meat-allergy.html>

PENNSYLVANIA

Master Essay, University of Pittsburgh West Nile Virus in Allegheny County, Pennsylvania in 2022 - A Surveillance Report 2023. During the 21-week summer season, Allegheny County had 137 positive mosquito samples collected from the 549 gravid traps set during this time. ...Two confirmed human WNV cases have been reported so far in 2022 in Allegheny County. <http://d-scholarship.pitt.edu/44032/>

The Daily News Funding to aid in tickborne disease initiative Nov 3, 2022 The most recent statistics from the Centers for Disease Control and Prevention (CDC) show that **Pennsylvania has a high incidence rate of Lyme disease cases.** ... https://www.huntingdondailynews.com/news/local/funding-to-aid-in-tickborne-disease-initiative/article_02b08722-fd4b-5ccd-8e48-28a9d942cb05.html

Latrobe Bulletin Wolf administration: Protect yourself from mosquitoes, ticks while outdoors this fall Oct 11, 2022 ... Pennsylvania has reported 14 human West Nile virus cases, including one death in Philadelphia County and one death in Franklin County.... The DEP recommends ... using repellents containing DEET or permethrin-impregnated clothing. https://www.latrobebulletinnews.com/lifestyles/wolf-administration-protect-yourself-from-mosquitoes-ticks-while-outdoors-this-fall/article_dbbf1a90-9ce7-561a-b853-09a432beb2f4.html

Penn Medicine Tick-Borne Illnesses, Lyme Disease, and Summer Fever Oct 12, 2022 ... Pennsylvania seeing its first West Nile Virus positive mosquito pools ... in the counties of **Montgomery, Philadelphia, Bucks, and in Cumberland.** ...It's ... definitely a motivator for me to **wear Deet mosquito repellent.** (*Kathleen Degnan, MD, Associate Director of Antimicrobial Stewardship, Hospital of the University of Pennsylvania*). <https://www.pennmedicine.org/for-health-care-professionals/for-physicians/physician-education-and-resources/physician-interviews/2022/october/summer-fever-tick-borne-illness>

CDC Emerging Infectious Disease Rise in Babesiosis Cases, Pennsylvania, USA, 2005–2018 August 2020 Babesiosis is an emerging infection in ... **Pennsylvania**.... Clinicians need to be made aware of its clinical manifestations as well as the risk factors associated with severe disease. All 4 cases from 2018 were thought to be acquired in southcentral Pennsylvania counties...Prior reports of cases were predominately in the southeast and northeast counties of the state. https://wwwnc.cdc.gov/eid/article/26/8/19-1293_article?deliveryName=USCDC_351-DM33366

Lehigh Valley Press LYME DISEASE Pa. leads nation in cases Aug 25 2022. **Pennsylvania leads the nation in the number of Lyme disease cases, and evidence is showing that rates are on the rise.** <https://www.lvpnews.com/20220825/lyme-disease-pa-leads-nation-in-cases/>

FOXNews56 West Nile Virus detected in Lackawanna & Luzerne Counties Aug 2 2022. The presence of the West Nile Virus has been detected in ... **Lackawanna, Luzerne ... [and] in Wilkes-Barre** and surrounding areas. No human cases have been reported at this time. ... Use insect repellents ... An effective repellent will contain DEET, picaridin, or lemon eucalyptus oil. <https://fox56.com/news/local/west-nile-virus-detected-in-lackawanna-luzerne-counties>

NY Post Pennsylvania toddler contracts rare illness from tick bite July 30 2022. Fifteen minutes. That's all it took to transmit a rare, dangerous and debilitating tick-borne disease that seriously sickened an energetic, witty and generally healthy 3-year-old Pennsylvania boy. ...Three days after he was discharged, ... **Johnny tested positive for Powassan virus – a rare and dangerous tick-borne disease.** <https://nypost.com/2022/07/30/pennsylvania-toddler-contracts-rare-illness-from-tick-bite/>

Lehigh Valley Live 'Rare but dangerous' tickborne virus spreading around Pa... Mar 14 2022. Another illness transmitted by ticks is spreading around Pennsylvania.... It's ... a type of Powassan virus. DTV is considered "rare but dangerous," officials said The illness had been **found in 16 Pennsylvania counties**....At each of ... three locations, **the infection rate exceeded 80% of ticks sampled**.... Apply tick repellents containing permethrin to clothing and EPA-registered insect repellents such as DEET to exposed skin before entering the outdoors. Reapply as needed according to product label instructions. <https://www.lehighvalleylive.com/news/2022/03/rare-but-dangerous-tickborne-virus-spreading-around-pa-what-you-can-do.html>

TribLive.com - Pennsylvania tick survey turns up concentrations of rare Powassan virus variety March 21 2022. State researchers are seeing a troubling uptick in a form of Powassan virus carried by black-legged ticks... DEP has posted signage to alert the public about Deer tick virus and will conduct control measures and additional testing to reduce and monitor the number of ticks present in the recreational areas with high positivity rates for DTV [Deer tick virus is a type of Powassan virus], which is **present in 15 Pennsylvania counties**. ...Apply tick repellents containing permethrin to clothing and **EPA-registered insect repellents such as DEET** to exposed skin before entering the outdoors. Reapply as needed according to product label instructions. <https://triblive.com/local/regional/pennsylvania-tick-survey-turns-up-concentrations-of-rare-powassan-virus-variety/>

RHODE ISLAND

Press release Final RI Mosquito Report of 2022: No WNV or EEE Detected Oct 14, 2022 ...Use EPA-approved bug spray with one of the following active ingredients: DEET (20-30% strength); picaridin, IR3535; and oil of lemon eucalyptus or paramenthane.... https://www.einnews.com/pr_news/595981374/final-ri-mosquito-report-of-2022-no-wnv-or-eee-detected

ABC6.com The meat allergy tick spotted in Rhode Island Aug 1, 2022 We've heard of the deer tick and the dog tick but this year, there's a new tick in town. Meet the lone star tick. This fast moving and aggressive biting tick can do more than make a meal out of you. It can give you a bona-fide food allergy. <https://www.abc6.com/the-meat-allergy-tick-spotted-in-rhode-island/>

NBC10WJAR – Rhode Island tick expert weighs in on Powassan Virus April 21 2022. Thomas Mather, professor of Public Health Entomology at the University of Rhode Island, says .. ticks ... can be active almost any time in Southern New England. Mather said black legged ticks are carriers of both Lyme Disease and Powassan Virus. <https://turnto10.com/news/local/south-kingstown-rhode-island-tick-bite-prevention-awareness-lyme-disease-powassan-virus-summer-months-potter-woods-hikes-april-21-2022>

NewportRI.com Newport, RI DEET vs. natural mosquito repellent: What works? What's safe? Aug 30, 2019 And yes, those include DEET, which is considered safe by state and federal health officials...Although DEET is toxic if swallowed, the U.S. Centers for Disease Control and Prevention says repellents with DEET should not cause health problems. DPH says DEET should not be used on infants under two months old. On older children, concentrations of 30% or less are acceptable. Products that contain more than 30-50% DEET do not provide better protection, but they do last longer, according to state and federal sources. A 20% concentration provides about four hours of protection. DEET should be applied to clothes and exposed skin.... <https://www.newportri.com/news/20190830/deet-vs-natural-mosquito-repellent-what-works-whats-safe>

SOUTH CAROLINA

EquiManagement.com Yearling Dies from EEE in South Carolina Jan 24, 2023 A yearling Quarter Horse colt in Berkeley County, South Carolina, has died after contracting Eastern Equine Encephalitis (EEE).... Look for EPA-labeled products containing active ingredients such as DEET, picaridin (KBR3023), or oil of lemon eucalyptus (p-menthane 3,8-diol). <https://equimanagement.com/news/edcc-health-watch/yearling-dies-from-eee-in-south-carolina/>

Inergency.com South Carolina Officials Announce Infestation of Asian Longhorned Ticks, Ask Public to Help Limit Spread of Tick-Borne Diseases Nov 10, 2022 State health officials ask all South Carolinians to be mindful of ticks when enjoying time outdoors. To help prevent tick bites and possible exposure to tick-borne illnesses: Use U.S. Environmental Protection Agency (EPA)-registered insect repellents containing DEET, picaridin, IR3535, oil of lemon eucalyptus, para-menthane-diol, or 2-undecanone. <https://inergency.com/amp/south-carolina-officials-announce-infestation-of-asian-longhorned-ticks-ask-public-to-help-limit-spread-of-tick-borne-diseases/>

Medical Xpress.com - Tick season has arrived in the South. How to avoid bites and what to watch out for April 15 2022. ...Of the tick species that bite humans, **four are found throughout the Southeast, including ...South Carolina.**
<https://medicalxpress.com/news/2022-04-season-south.html>

SOUTH DAKOTA

South Dakota State News First Two Human West Nile Virus Detections of 2022 Reported in Minnehaha and Spink Counties Aug 3 2022. The South Dakota Department of Health confirmed South Dakota's first two human West Nile virus (WNV) detections of the 2022 season. South Dakota has reported more than 2,681 human cases and 47 deaths since WNV was first reported in 2002. ... Dr. Joshua Clayton, state epidemiologist: "**The rate of severe infection** that includes swelling of the brain and spinal cord with symptoms of stiff neck, confusion, and muscle weakness **is highest in South Dakota** and other Midwest states." <https://news.sd.gov/newsitem.aspx?id=30470>

University of South Dakota - Discovery of Ticks in Eastern South Dakota Informs USD Student of Issues Related to Public Health March 24 2022. [The student] discovered the black-legged tick and the lone star tick. The black-legged tick has only been seen sporadically over the last several decades in the state, and the lone star tick had never been recorded in South Dakota before. There is presence of breeding populations of both ticks in several locations based on CDC criteria.
<https://www.usd.edu/the-south-dakotan/discovery-of-ticks-in-eastern-south-dakota-informs-usd-student-of-issues-related-to-public-health>

TENNESSEE

East Tennessee State University Doctoral Thesis Emerging Tick-Borne Diseases in Northeast Tennessee 2023.... Study results indicate a low to moderate risk for tick-borne illness exposures among human populations... Species distribution modeling and clinical case data reports suggested an increasing exposure risk from improved habitat suitability. Increased risk is related to climate change and tick population growth in metropolitan areas. ...Surveillance and control methods are summarized for integration into public health interventions. <https://dc.etsu.edu/etd/4163/>

Mosquito Squad Do All Ticks in Tennessee Carry Diseases? No date ..There are four prominent types of ticks in Tennessee: The black-legged tick, ... the lone star tick, the American dog tick, the brown dog tick. All ... have the potential to spread diseases, but that doesn't mean that every tick bite will result in a tick-borne illness for you, your family member, or your pet. ...We should try to avoid ticks as much as possible. <https://www.mosquitosquad.com/nashville/about-us/blog/tick-control/do-all-ticks-in-tennessee-carry-diseases/>

WHBQ-FOX TV Memphis, TN Oct 9, 2022 West Nile virus can have no symptoms, but it can also lead to severe illness and even death. The health department recommends that use an insect repellent that contains DEET.

WLMT-CW TV Memphis, TN Oct 7, 2022 The agency confirmed another case of West Nile virus this week. This makes four so far across the state all of which are in Shelby County. The Shelby County Health Department asks everyone to wear insect repellent containing DEET ...

WVLT CBS8 Rare mosquito disease finds home in Tennessee... Sept 26 2020. ...**La Crosse encephalitis is the No. 1 pediatric 'arbovirus' in the country**, Dr. Becky Trout Fryxell said. <https://www.wvlt.tv/2020/09/27/rare-mosquito-disease-finds-home-in-tennessee-while-mosquito-season-lengthens/>

TEXAS

Goliad Advance-Guard Tips and tricks for dealing with ticks Feb 18, 2023 ...Ticks are ...can be encountered all year around.... Applying insect repellent around ankles, waist, wrists and neck can be helpful. Pretreating clothing with permethrin (follow instructions on the label). https://www.mysoutex.com/goliad_advance_guard/news/sports/tips-and-tricks-for-dealing-with-ticks/article_368b64ae-ae06-11ed-8749-87aa93c851ad.html

University of Texas at El Paso ProQuest Dissertation Biology and Epidemiology of Dengue Viruses In The El Paso and the Surrounding USA And Mexico Border Communities Dec 22, 2022 ... **14.1% (11/78) and 8.3% (4/48) of past and recent DENV infection, respectively were detected in Ciudad Juarez.** ...Past evidence of DENV in El Paso, Texas was 0.74% (11/1472), suggesting **no autochthonous dengue transmission occurred in El Paso**, Texas unlike other seroprevalence rates reported in dengue endemic areas.... Disseminated infection rates of DENV-2 (FSB 3381) and DENV-2 (328298) in El Paso and Rio Grande **Ae. aegypti mosquitoes significantly increased through the incubation period and reached the highest rate (80% to 100%) at 14 days of incubation.** A low transmission rate of DENV-2 (FSB 3381) and DENV-2 (328298) ranging from **2% to 3% was observed in El Paso and Rio Grande Ae. aegypti mosquitoes' saliva.** ...No travel history was reported in the patient before the onset of illness, suggesting locally acquired dengue **The transmission rate of viii DENV-1 isolate in El Paso and Rio Grande Ae. aegypti mosquitoes ranged from 3.23% to 5.71%.**
<https://www.proquest.com/openview/91f687146b05de7d55b08fb2b46c07fb/1?pq-origsite=gscholar&cbl=18750&diss=>

Emerging Infectious Diseases Increased Seroprevalence of Typhus Group Rickettsiosis, Galveston County, Texas, USA Jan, ... We conducted a serosurvey that demonstrated Rickettsia typhi antibodies increased from 1.2% in 2013 to 7.8% in 2021 ($p < 0.001$). These findings support pathogen reemergence rather than enhanced recognition alone.

https://wwwnc.cdc.gov/eid/article/29/1/22-1206_article?ACSTrackingID=USCDC_353-DM96214&ACSTrackingLabel=Zoonoses%20Articles%20in%20the%20January%202023%20Emerging%20Infectious%20Diseases%20Journal&deliveryName=USCDC_353-DM96214

Austin American Statesman Travis County officials confirm local case of West Nile virus Dec 14, 2022 Austin Public Health officials: Use insect repellent containing DEET. Spray both your exposed skin and your clothing.

<https://www.statesman.com/story/news/healthcare/2022/12/14/first-2022-austin-west-nile-virus-case-confirmed-by-officials/69726319007/>

Frontiers in Public Health Personality and city culture predict attitudes and practices toward mosquitoes and mosquito-borne diseases in South Texas Nov 7, 2022 ... The attitude that mosquitoes are a risk positively correlated with three parameters; knowledge of Zika, use of insect repellent, and treating the yard.

<https://www.frontiersin.org/articles/10.3389/fpubh.2022.919780/full>

KFOXTV.com 3 new cases of West Nile virus reported in El Paso Nov 4, 2022 Health officials announced there were three new cases of the severe central nervous system West Nile Virus and West Nile Virus Fever reported in El Paso....

<https://kfoxtv.com/news/local/3-new-cases-of-west-nile-virus-reported-in-el-paso>

Fort Worth Star-Telegram ... Here's what to know. Nov 8, 2022 "...When used as directed, EPA-registered insect repellents are proven safe and effective, even for pregnant and breastfeeding women," says the Centers for Disease Control and Prevention.

<https://www.star-telegram.com/news/local/article268244622.html#storylink=cpy>

El Paso Matters Nov 4, 2022.... Three more West Nile virus cases have been reported among El Paso County residents, the public health department announced Friday. That brings this year's total severe cases to 10, in addition to two deaths from the virus....

<https://elpasomatters.org/2022/11/04/lead-walmart-prosecutor-withdraws-from-el-paso-shooting-case/>

City of Georgetown Mosquito traps test positive for West Nile Virus in Georgetown Oct 13, 2022 Two mosquito trap samples collected Oct. 11 in Georgetown have tested positive for West Nile virus....As part of its Fight the Bite campaign the Health District recommends the 3 Ds of mosquito safety:...Defend by using an EPA-approved insect repellent.

<https://georgetown.org/2022/10/13/mosquito-traps-test-positive-for-west-nile-virus-in-georgetown/>

ABC13 - West Nile virus found in Montgomery County mosquitoes, officials say June 6 2022. ... Use insect repellent containing DEET, picaridin or oil of lemon eucalyptus.

<https://abc13.com/montgomery-county-west-nile-mosquitoes-bites-in-texas-what-is-mosquito-samples/11934229/>

LMTOnline Community health advisory: Travel-related malaria cases confirmed Apr 20 2022. Laredo Health's Epidemiology Division [reports the] first two confirmed (adult and pediatric; family unit) **travel-related cases of malaria** for 2022. ...

<https://www.lmtonline.com/news/article/Community-health-advisory-Travel-related-malaria-17100732.php>

NBC5DFW - DCHHS Reports First Human West Nile Case Apr 8 2022. On April 8, the Dallas County Health and Human Services reported its first human case of West Nile Virus (WNV) infection in Dallas County for 2022. ... Whenever you're outside, use insect repellents that contain DEET or other EPA-approved repellents and follow instructions.

<https://www.nbcdfw.com/news/local/dchhs-reports-first-human-west-nile-case/2936196/>

UTAH

PacVec Newsletter 11-11-2022 Utah's first human case of WNV was confirmed in a male between the ages of 65 and 84 in September 2022. Two additional human cases are under investigation in Weber and Uintah counties.

Summit County Health Tick Information Jun 22, 2022... The primary species of tick found in Utah is the Rocky Mountain Wood Tick, which often comes into houses on infested pets. Other species include the Winter Fern Tick, Mountain Sheep Tick, Western Black-Legged Tick and Brown Dog Tick.... Repellent... has been shown to reduce the chance of a tick bite. Tick repellents are most effective when they contain DEET, picaridin, IR3535, Oil of Lemon Eucalyptus (OLE), para-menthane-diol (PMD), or 2-undecanone.

<https://summitcountyhealth.org/ticks/>

KSL TV Experts Believe Drought, Pandemic Could Be Cause For Increased Tick Sightings In Utah Jun 1, 2022 ... (Wendy Wilson, Assistant Manager Antelope Island State Park) said the number of ticks reported has been rising steadily over the past several years. "When I first came out here about ten years ago, I didn't hear of one tick incident for the first five or six years ...," Wilson said. "Now, I hear about it every year." Wilson said to protect themselves, visitors to Antelope Island State Park should use insect repellent and check themselves and their pets before heading home.

<https://ksltv.com/463418/experts-believe-drought-pandemic-could-be-case-for-increased-tick-sightings-in-utah/>

Salt Lake Tribune - ..>**The 'goldilocks zone' for West Nile Virus.** March 31 2022. Gary Hatch, the director of the Davis Mosquito Abatement District, agreed. "Last year, we had 301 positive mosquito pools, which is more than double what we've had in the past." <https://www.sltrib.com/news/health/2022/03/31/climate-change-may-push/>

VERMONT

VermontBiz - Alburgh mosquito pool is first to test positive in 2022 surveillance season Aug 22 2022. *Vermont Business Magazine* A sample of mosquitoes collected in Alburgh have tested positive for West Nile virus. Historically, the virus has been found in all counties of Vermont. <https://vermontbiz.com/news/2022/august/22/mosquitoes-test-positive-west-nile-virus>

Burlington Free Press Tick populations are increasing and so is Vermont's Lyme disease rate; Here's what to know Feb 24 2022. The number of **tickborne illnesses commonly top 400 confirmed cases per year** ..., whereas in the early 1990s they were rare, according to the Vermont Department of Health. Vermont Lyme, an organization that researches Lyme infections in the state, reported that as of 2019, **Vermont's 3-year average incidence rate for Lyme disease was the second highest in the U.S....** <https://www.burlingtonfreepress.com/story/news/2022/02/24/vermonts-tick-populations-rising-due-weather-urbanization/6828673001/>

Rutland Herald RRMCM Health Talk: Be smart about ticks July 3 2021. ...Tick infections like **anaplasmosis, ehrlichiosis and babesiosis... are ...becoming more well-known. Lyme disease is the most common tick infection in Vermont and every year, we see more cases.** At Rutland Regional Medical Center (RRMC), we are aware of this trend. ...Use insect repellent containing 20-30% DEET. https://www.rutlandherald.com/features/weekend_magazine/rrmc-health-talk-be-smart-about-ticks/article_eadf6077-ac19-518d-ac57-41f2f48d7bbc.html

VIRGINIA

WSET.com DMV's unseasonably warm winter is having an impact on insects -- here's what to know Feb 14, 2023 ...Ticks [are]gonna become active sooner. ...If you're going out for a walk, stay on the trail. If you're gonna get into the weeds, be sure you have tick repellent on your footwear or your clothing. <https://wset.com/news/local/dc-weather-virginia-maryland-unseasonably-warm-winter-impact-on-insects-ugs-dmv-warmer-high-temperatures-insects-coming-out-earlier-spring-cherry-blossoms-plants-black-legged-ticks-bs-pollinators-mosquitoes-aphids-growing-season-dmv>

Rappahannock News Lyme disease is on the rise in Rappahannock. Nov 20, 2022... Local residents and experts believe misdiagnoses and under-reported cases of tick diseases paint a skewed image of a health issue that is endemic in Virginia.... https://www.rappnews.com/foothills_forum/lyme-disease-is-on-the-rise-in-rappahannock-the-pandemic-observed-by-how-much/article_eb9482be-6936-11ed-8bf3-fb13245100f7.html

Alpha-gal Syndrome: The link between ticks and red-meat allergy Nov 27, 2022 ...The allergy to meat sourced from mammals has begun to make its presence known as it continues to plague local residents. "It is a disease that is in the process of being defined. It is not well defined, so we don't have a good idea of the numbers of cases in Virginia," said Dr. David Gaines, Public Health Entomologist for the Virginia Department of Health. "We don't want to make it reportable until we understand it better." https://www.rappnews.com/foothills_forum/alpha-gal-syndrome-the-link-between-ticks-and-red-meat-allergy/article_1239f53c-6e39-11ed-a169-637472db08c1.html

Journal of Medical Entomology Tick Species Composition, Collection Rates, and Phenology Provide Insights into Tick-Borne Disease Ecology in Virginia Aug 23, 2022 ... **I. scapularis from the northeastern United States are migrating into western Virginia and contributing to the higher incidence of Lyme disease in this region.** ... <https://academic.oup.com/jme/advance-article-abstract/doi/10.1093/jme/tjac121/6673506?redirectedFrom=fulltext>

Pathogens Pathogen Spillover to an Invasive Tick Species: First Detection of Bourbon Virus in Haemaphysalis longicornis in the United States April 2022. The Asian longhorned tick, is an invasive tick species present in the USA since at least 2017 and has been detected in **one-third of Virginia counties.** While this species is associated with the transmission of multiple pathogens in its native geographical range of eastern Asia, little is known about its ability to acquire and transmit pathogens in the USA... Emerging tick-borne viruses such as Bourbon virus ...are of concern, as these ... pathogenic agents have caused fatal clinical cases, and little is known about their distribution or enzootic maintenance. Bourbon virus RNA was detected in one nymphal stage *H. longicornis* from **Patrick County, one nymph from Staunton City, and one larval pool and one adult female tick from Wythe County, Virginia.** ... **Blood tested from local harvested deer revealed a 11.1% antibody seroprevalence against Bourbon virus, exposure which further corroborates that this tick-borne virus is circulating in the southwest Virginia region.** ... *H. longicornis* can carry Bourbon virus and that pathogen spillover may occur from native to invasive tick species. <https://doi.org/10.3390/pathogens11040454>

CBS19News UVA Health weighs in on tick season May 20 2022. ...For prevention, [Dr. Jeff Wilson at the University of Virginia Health System] encourages using DEET insect repellent and checking pets for ticks. <https://www.cbs19news.com/story/46540571/uva-health-weighs-in-on-tick-season>

National Library of Medicine Host interactions of *Aedes albopictus*, an invasive vector of arboviruses, in Virginia, USA Feb 18 2021. *Aedes albopictus* is a potential vector of ... dengue, chikungunya, and Zika, and may also be involved in occasional transmission of other arboviruses such as West Nile, St. Louis encephalitis, eastern equine encephalitis, and La Crosse viruses. ... <https://pubmed.ncbi.nlm.nih.gov/33600413/>

WASHINGTON

The Islands' Sounder Time to talk about ticks Feb 14, 2023 ...Warmer weather means that ticks will once again be questing for warm-blooded hosts including pets and people. Some islanders have already collected their first ticks of the new year for Kwiaht's tick-borne disease study. ... In 2022, Kwiaht received 182 ticks from islanders; 56 percent of them came from Orcas and 38 percent from San Juan Island. Lopez, Shaw, Waldron, Obstruction, and Canoe accounted for all the rest. Nearly three-quarters of these ticks were found on dogs (70 percent), and most of the rest were **on humans (21 percent)**; ... <https://www.islandssounder.com/life/time-to-talk-about-ticks/> Fifteen ticks collected last year **(9 percent) were carrying at least one pathogen that can cause disease in humans and other mammals. A little over half of these ticks were infected with the malaria-like parasite Babesia, which until recently was almost exclusively seen in the eastern states, but is now being found on the Pacific Coast.** ... **Other pathogens ... in island ticks include Rickettsia (associated with spotted fever), Ehrlichia, Anaplasma, and Mycoplasma.** <https://theorcasonian.com/tik-tok-its-now-time-for-a-ticks-talk/> **The Journal of the San Juan Islands Ticks widespread in islands but diseases rare, study finds** Aug 26 2022. ...Only about ten percent of island ticks are infected with pathogens that can cause you harm. ... While the great majority were native Western Black-legged ticks ...about one in 10 ticks collected were not native to the Pacific Northwest: **the eastern Black-legged tick or "deer tick" and American dog tick**, both originally from east of the Rocky Mountains, and the **Western dog tick** native to California. Few deer and dog ticks have previously been reported from Washington State, mainly east of the Cascades. <https://www.sanjuanjournal.com/life/ticks-widespread-in-islands-but-diseases-rare-study-finds/>

The Spokesman Review Whatcom County man first to acquire tick-borne disease anaplasmosis within Washington state Aug 18 2022. A Whatcom County man ... became the first Washington state resident to acquire a case of the tick-born disease anaplasmosis within the state. ... Apply EPA-registered insect repellents to clothing and skin. <https://www.spokesman.com/stories/2022/aug/18/whatcom-county-man-first-to-acquire-tick-born-dise/>

PacVec Newsletter 11-11-2022 Six WNV-positive mosquito samples were detected in two counties: Benton and Kittitas, Washington state. **A total of four human cases of WNV were recently reported** (three out-of-state acquired and one unknown exposure location).

Washington State Department of Health First locally acquired human case of tick-borne disease anaplasmosis hospitalizes Washington resident Aug 18, 2022. A Whatcom County man in his 80s was hospitalized with severe disease... after working in the brush in Mason County where he was likely bitten by an infected tick... Apply EPA-registered insect repellents to clothing and skin, following label instructions. <https://doh.wa.gov/newsroom/first-locally-acquired-human-case-tick-borne-disease-anaplasmosis-hospitalizes-washington-resident>

The Leavenworth Echo Mosquito Repellents Aug 10 2022. ...Mosquitoes are found all over the world. They cause millions of deaths yearly from illnesses transmitted through their bite. DEET is considered the gold standard for insect repellents. It was developed for the United States military in 1949 and available to consumers in 1956. Although the concentration in DEET products varies from 5% to 100%, concentrations above 50% may work longer but don't provide more protection. Products containing 23.8% DEET have been proven completely effective in protecting against mosquito bites for 5 hours. ... DEET is still the most common mosquito repellent. It is found in over 200 products approved by the FDA and is considered very safe if used as directed. For best results, apply it every 4-6 hours, and avoid using it on synthetic fibers, vinyl, or plastics. The most widely used plant-based insect repellents are oil of lemon eucalyptus (OLE) and citronella oil. Repel® Plant-Based Lemon Eucalyptus pump spray contains OLE. **Plant-based compounds are more pleasant to use, but their effectiveness wanes after only 20 minutes compared with 5 hours with DEET. To sustain the repellent effect of natural compounds, intense research is underway to develop sustained release delivery systems like microemulsions, microcapsules, and nano emulsions.** <https://www.leavenworthecho.com/columnists/mosquito-repellents>

WEST VIRGINIA

WVVA Not cold enough to freeze ticks in their tracks Nov 1, 2022 ...The most common tick-borne diseases Dr. Dillion sees in our area include Lyme Disease, Ehrlichia, and Anaplasmosis. <https://www.wvva.com/2022/11/02/petting-my-dog-led-me-finding-30-ticks/>

WVNews.com Ticks surveillance provides insight into surge in tickborne diseases in West Virginia Jun 6, 2022 As cases of Lyme disease continue to **skyrocket in West Virginia** and concerns over other tickborne diseases mount, tick surveillance programs are finding **high densities of infected ticks in populated areas**, indicating that disease transmission may be

occurring close to home in many instances. The incidence of Lyme disease has been climbing in West Virginia, jumping **nearly 269% from 2015, when there were 289 reported cases, to 2020, when there were 1,065 reported cases.**

https://www.wvnews.com/news/wvnews/ticks-surveillance-provides-insight-into-surge-in-tickborne-diseases-in-west-virginia/article_0aaa75de-e34d-11ec-802f-bfe7870f3d20.html

Office of the Governor - Doctors confirm Lyme disease diagnosis June 1 2022. Gov. Jim Justice today ... confirmed a diagnosis of Lyme disease. ... "When you go outdoors, monitor yourself for ticks and use insect repellent to stay safe."

<https://governor.wv.gov/News/press-releases/2022/Pages/Governor-Justice-Doctors-confirm-Lyme-disease-diagnosis.aspx>

WISCONSIN

Point Plover Metro Wire Rare case of rabbit fever reported in Portage Co. Feb 7, 2023 A rare case of **tularemia** has been reported in Portage Co. <https://spmetrowire.com/rare-case-of-rabbit-fever-reported-in-portage-co/>

News 8000.com Wisconsin DNR, DHS remind public to protect from tick bites Jan 24, 2023 Use an EPA-registered insect repellent when you head outdoors. You can also treat your clothes in advance with permethrin.

https://www.news8000.com/lifestyle/health/wisconsin-dnr-dhs-remind-public-to-protect-from-tick-bites/article_c01fe661-fdc0-5f13-b604-1d288e72ab76.html

Vector-borne and Zoonotic Diseases Detection of Rickettsia montanensis in Dermacentor variabilis in Northern Wisconsin Nov 2, 2022. We collected ticks in Ashland County, ...in northern Wisconsin, and tested 16 ... *Dermacentor variabilis* for the presence of rickettsial bacteria....Of the samples sequenced, three matched for *R. montanensis* (~19% of the 16 ticks tested). In this study, we report the **presence and prevalence of *R. montanensis* in northern Wisconsin.**

<https://www.liebertpub.com/doi/10.1089/vbz.2022.0055>

Wisconsin Medical Journal Acute Fever of Unknown Origin: A Presentation of West Nile Encephalitis July 21 2022. West Nile virus is an asymptomatic infection in most cases, but it can present with a rare complication of deadly neuroinvasive disease. ...[It] can lead to encephalitis, which is a challenging diagnosis. ...We report this case to increase awareness among clinicians to include West Nile virus in the differential diagnosis of encephalitis with fever of unknown origin, particularly in endemic areas. <https://pubmed.ncbi.nlm.nih.gov/35857697/>

Southern Wisconsin on course for more mosquitoes than last year June 7 2022...Despite a cold April. PJ Liesch, UW-Madison bug expert, said weather is the biggest factor. ... To keep them away, Liesch said spray with DEET....

<https://www.cbs58.com/news/southern-wisconsin-on-course-for-more-mosquitos-than-last-year>

WAOW News9 – Enjoying the outdoors? Watch out for ticks and mosquitoes April 27 2021. ... "We know that we're in a Lyme hotspot, but I've also seen some other tick-borne illnesses that I hadn't previously seen within these last few years," said Katelyn Frankwick, Physician Assistant with Aspirus Clinic in Marshfield.

<https://waow.com/2021/04/27/enjoying-the-outdoors-watch-out-for-ticks-and-mosquitoes/>

J Neuropathol Exp Neurol A Fatal Case of Powassan Virus Encephalitis Oct 5 2020 Powassan virus (POWV) ...causes a rare and potentially **life-threatening neuroinvasive disease**.... The **number of reported POWV cases has recently increased** in the U.S. We report a fatal case of POWV meningoencephalomyelitis in **Northern Wisconsin** following a documented tick bite. <https://pubmed.ncbi.nlm.nih.gov/33020816/>

Neurohospitalist An Overview of Jamestown Canyon Virus Disease 2021..... Since the 1960s, human cases of Jamestown Canyon virus disease have been reported throughout the United States, though there appears to be a geographic predilection for northern states.... Approximately 10–75 cases per year have been reported throughout the United States since then, though many other cases have likely gone unidentified.... **Wisconsin and Minnesota have reported more than half of these known cases** Unlike La Crosse virus disease which has a predilection for children, there is no such age predilection with Jamestown Canyon. **Neuroinvasive disease has been reported in children, young adults, and older adults**.... ...Cases may present with fever, fatigue, myalgia, and/or headache. Some patients may present with upper respiratory symptoms (e.g., cough, rhinitis, pharyngitis), which is uncommon for arboviral infections. **About half of reported cases are neuro-invasive presenting with meningitis or meningoencephalitis**.... Treatment of Jamestown Canyon virus disease is supportive since no specific antivirals are available. <https://journals.sagepub.com/doi/10.1177/19418744211005948>

WYOMING

Wyoming Department of Health - Plague Confirmed in Albany County Cat Sept 1 2022. Laboratory testing has recently confirmed a rural **Albany County cat died of plague**... According to the federal Centers for Disease Control and Prevention, during 2010-2019 there was an average of five human plague cases each year in the United States.

<https://health.wyo.gov/plague-confirmed-in-albany-county-cat>

A-Z-Animals.com Ticks in Wyoming Jun 24, 2022 ..Even a state that gets as cold and dry as Wyoming is home to ticks. In fact, there are two very common species of ticks in the state...**Rocky Mountain wood ticks** may transmit Colorado tick fever or Rocky Mountain spotted fever to human hosts. ...The largest ticks in Wyoming are American dog ticks. They look similar to Rocky Mountain wood ticks and transmit some of the same diseases. American dog ticks are the primary vector for Rocky Mountain spotted fever. ... <https://a-z-animals.com/blog/ticks-in-wyoming/>

WYO4News WDH discusses potentially serious insect-spread diseases with warmer weather May 13 2022. A few potentially serious insect-spread diseases ... can be avoided ..., according to the Wyoming Department of Health (WDH)....**Serious diseases sometimes spread by infected ticks in Wyoming include tularemia, Rocky Mountain spotted fever (RMSF), and Colorado tick fever (CTF).** ...Apply insect repellents such as those containing 20 percent or more DEET and/or picaridin. <https://wyo4news.com/news/wdh-discusses-potentially-serious-insect-spread-diseases-with-warmer-weather/>

PROTECTION/PREVENTION

Yahoo How Safe is DEET? Jul 30, 2022 ...Scientists still consider **DEET to be the standard against which other, newer insect repellent active ingredients are judged.** Year after year, most of *Consumer Reports'* recommended insect repellents are Deet-based. Broad scientific consensus holds that **the chemical is safe when used as directed on the label....**Deet ..., when applied to skin or clothing, repels a number of biting insects, including mosquitoes, ticks, flies, and fleas. Deet doesn't kill ...bugs, but protects against them by keeping them from landing on your skin or clothes, or from biting if they do land....<https://news.yahoo.com/safe-deet-060037650.html>

HowStuffWorks.com – Does Bug Spray Expire? June 7 2022. ...DEET...is the active ingredient in many...bug repellents, ... theoretically, an infinite shelf life. ...**The amount of DEET doesn't have anything to do with how well insect repellent works; it determines how long it works. According to the University of Michigan School of Medicine, a bug spray with 20 percent DEET will protect for about five hours;** spray with 7 percent DEET will protect for two or three hours. <https://home.howstuffworks.com/home-improvement/household-hints-tips/insect-control/does-bug-spray-expire.htm>

Input Mag.com – Best Mosquito Repellents June 1 2022. ...What's the best bug spray? ...You've got two main options, DEET and picaridin.... <https://www.inputmag.com/guides/best-mosquito-repellents-sprays-traps-zappers-stop-bites>

Vox Here's where dangerous ticks are spreading across the US — and what to do about them May 27 2022. The black-legged tick... can transmit bacteria that causes Lyme disease...**The number of US counties with an established population has more than doubled. The lone star tick — a species implicated in potentially fatal allergic reactions to red meat, among other conditions — is also spreading fast.** ...CDC estimates that nearly half a million people now get Lyme disease in the US each year, and there's been a steady rise in reported cases in the past three decades. ...**Use an insect repellent registered by the EPA.** <https://www.vox.com/22567258/ticks-spreading-lyme-disease-deer-mice-reforestation-climate-change>

Discovery Life May 26 2022 [5:19:15 PM] To prevent infection from **leishmaniasis**, travelers to Asia, the Middle East, southern Europe, and South America should use DEET-based insect repellent to avoid being bitten by sand flies.

CNET Wellness How to Protect Yourself From Tick Bites and Lyme Disease Apr 14 2022. ... Apply ... repellent every 4 to 6 hours, and find one that has a 30 to 35% concentration of DEET. The sprays with a lower concentration of DEET work, he [Dr. James Marvel, an emergency medicine doctor at Stanford Health Care and wilderness medicine expert] says, but not as well. <https://www.cnet.com/health/how-to-protect-yourself-from-tick-bites-and-lyme-disease/>

Yahoo!News What You Need to Know About Bug Spray for Kids Apr 14 2022. ... Experts say that insect repellents registered with the Environmental Protection Agency—including those containing DEET—pose little hazard when used appropriately. ...DEET products earn most of our top scores, with concentrations of 25 to 30 percent providing the most reliable and longest-lasting protection—repelling mosquitoes for longer than 6½ hours for some products we tested. <https://news.yahoo.com/know-bug-spray-kids-060028075.html>

US News Is Lyme Disease on the Rise? March 15, 2021...Wear insect repellent. The EPA recommends selecting a product that contains DEET, p-Menthane-3,8-diol, picaridin, oil of lemon eucalyptus, citronella or IR 3535. All are compounds that have been registered with the EPA and can be found in a variety of commercially available insect repellent sprays and lotions...<https://health.usnews.com/health-care/patient-advice/articles/is-lyme-disease-on-the-rise>

CNN Why tick season could be worse in the summer of Covid-19 July 5, 2020 ... Dr. Segal-Maurer (*an MD of specializing in infectious diseases at New York Presbyterian Medical Group*) says "You need to use DEET. It's gotta be 30%. You need to watch where you hike. And then you need to do a body check when you get back inside." <https://www.cnn.com/2020/07/05/us/ticks-lyme-disease-covid-summer-scn-trnd/index.html>

Citizen Times Tips to avoid and treat summer rashes April 28 2021. ... **Board-certified dermatologist Elizabeth Kiracofe** said ...: To prevent bug bites, use insect repellent that contains 20 – 30 percent DEET and wear appropriate clothing. <https://www.citizen-times.com/story/life/family/2021/04/28/tips-avoid-and-treat-summer-rashes/7196093002/>

USA TODAY Fact check: Limes spiked with cloves are not effective in repelling mosquitoes June 24, 2020 ...DEET-based products provide complete protection against mosquitoes for the longest amount of time compared to botanical repellents. ...Non-DEET repellents cannot be relied on for protection in environments where the threat of mosquitoes are prevalent... ...Studies show that the risks of DEET... are very low when used as directed <https://www.usatoday.com/story/news/factcheck/2020/06/24/fact-check-clove-spiked-limes-deter-mosquitoes/3241517001/>

Today.com How to choose the best bug repellent, according to experts June 10, 2020 "Use Environmental Protection Agency-recommended repellents. Ingredients like DEET, Picaridin, IR3535 and oil of lemon eucalyptus work well," said **Laura C. Harrington, a professor in Cornell University's entomology department.** <https://www.today.com/shop/best-mosquito-repellents-t183341>

KOMO.com Seattle, WA Consumer Reports tests 43 insect repellents to find what works May 20, 2020 ...The top-performing products contained the active ingredient DEET. "It's consistently high performing and we really think it provides reliable protection," said Catherine Roberts, *Consumer Reports* associate health editor. ... 15 of the 20 recommended insect repellents this year contain DEET. The others had picaridin or oil of lemon eucalyptus – which sounds like it comes from a plant, but it's chemically synthesized.

Good Housekeeping 13 Bug Sprays for Kids and Babies to Help Protect During Your Next Family Outing Apr 29, 2020 ...DEET... is considered safe for anyone older than 2 months. <https://www.goodhousekeeping.com/childrens-products/g32269687/best-bug-sprays-for-babies-kids/>

Przegląd Epidemiologiczny Susceptibility of *Dermacentor reticulatus* tick to repellents containing different active ingredients 2019 DEET is considered by many to be the 'gold standard' of insect repellents, and we have also confirmed this in our studies. DEET expressed the higher repellency after 7 hours of application (90%) comparing to other formulations. Other repellents Picaridin 20% and IR3535 12% were effective only up to four hours after application (the efficacy was 85% and 40%, respectively). <https://www.ncbi.nlm.nih.gov/pubmed/31134780>

Time DEET Is the Most Effective Bug Spray. But Is It Safe? Jul 25, 2019 ...A *New England Journal of Medicine* study concluded that ... DEET is among the most effective ways to prevent bites. "I use DEET all the time when I'm working in the field," says Jonathan Day, a professor of medical entomology at the University of Florida....Existing research suggests that applying DEET is a safe, effective way to protect yourself and your family from potentially disease-carrying bugs. <https://time.com/5347546/is-deet-safe/>

Environmental Working Group's Top Three Bug Repellent Recommendations For Kids Jul 10, 2019 Our top picks are DEET, Picaridin and IR3535..... If you're using DEET to protect kids in an area known for ticks' carrying Lyme disease bacteria or for Zika outbreaks, a concentration of 20 percent to 30 percent may be appropriate... .. DEET is a reasonable choice when used as directed, even for children. ... **EWG researchers** concluded that it is ...generally safer than is commonly assumed. <https://www.ewg.org/childrenshealth/22764/ewg-s-top-three-bug-repellent-recommendations-kids>

CBS News June 10, 2019 Some ways you can avoid tick-borne disease when spending time outdoors is to wear DEET, tuck your pants into your socks, avoid tall grass, shower immediately after being outside and have someone check your body. ...Time is of the essence, **Dr. David Agus (professor of medicine and engineering at the Keck School of Medicine at USC and the USC Viterbi School of Engineering)** warned. "Take a straight tweezers, pull straight out and put the tick into alcohol. The quicker you remove it the better ...The saliva is what contains the bacteria and the virus." While most diseases like Lyme are treatable, there have been two cases of the **Powassan virus reported in New Jersey. It is not treatable. "It's got a 10 percent mortality rate and 50 percent of people who get this virus have permanent neurologic injury. So have someone search you for ticks and pull them off right afterward.** Avoid it. Wear Deet." <https://www.cbsnews.com/news/tickborne-diseases-are-one-the-rise-heres-what-you-need-to-know/>

Scouting Magazine The colorful history of fighting off pesky pests May/June, 2019. The CDC and EPA agree that repellents DEET and picaridin are effective at fending off insects... While there are pros and cons to all repellents, **concerns about the side effects of DEET have been largely put to rest....** <https://scoutingmagazine.org/2019/04/the-colorful-history-of-fighting-off-pesky-pests/>

Centers for Disease Control and Prevention (CDC) Jan 8, 2019 **WNV is now well established in the lower 48 states of the U.S.** ...**Avoidance of mosquito bites is the only practical preventive measure available.**

References

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- ⁱⁱ Paddock CD, Lane RS, Staples JE, et al. CHANGING PARADIGMS FOR TICK-BORNE DISEASES IN THE AMERICAS. In: Forum on Microbial Threats; Board on Global Health; Health and Medicine Division; National Academies of Sciences, Engineering, and Medicine. Global Health Impacts of Vector-Borne Diseases: Workshop Summary. Washington (DC): National Academies Press (US); 2016 Sep 21. A8. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK390439/>
- ⁱⁱⁱ CDC: https://www.cdc.gov/ncezid/dvbd/pdf/Brochure_National_Framework_VBDs-P.pdf
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- ^v CDC: https://www.cdc.gov/ncezid/dvbd/pdf/Brochure_National_Framework_VBDs-P.pdf
- ^{vi} CDC: https://www.cdc.gov/ncezid/dvbd/pdf/Brochure_National_Framework_VBDs-P.pdf
- ^{vii} Washington Post: <https://www.washingtonpost.com/news/to-your-health/wp/2018/05/01/diseases-spread-by-ticks-mosquitoes-and-fleas-more-than-tripled-in-the-u-s/>
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- ^x United States Department of Agriculture: https://www.aphis.usda.gov/animal_health/animal_diseases/tick/downloads/longhorned-tick-sitrep.pdf