

Winter 2024

Northward Migration of Mosquito-Borne Diseases

Climate Change & Human Activity Increase Risk to Human Health

Climate alterations in the Northern Hemisphere -- rising temperatures and changes in rainfall -- are bringing mosquitoes (and their deadly diseases) to areas which were once inhospitable and rarely survivable for these pesky insects. But now, they're moving further northwards into the United States and Western Europe; higher latitudes and higher elevations within various states and countries are seeing mosquito-borne diseases more frequently. Of the many diseases that mosquitoes can spread to humans, dengue, chikungunya, Zika virus, West Nile, yellow fever, and malaria are on the radar of vector biologists. According to the World Health Organization, these diseases are spreading to new places that are currently unprepared to deal with them, especially with the predicted, near-record numbers.

The reality check for people living in the U.S. and Europe will be learning to deal with new health threats and that includes behavior change. Since mosquitoes breed in discarded plastic waste filled with small amounts of water or pools of stagnant water, and they thrive in urban environments, changing human activity will be critical. Local outbreaks that were once seasonal in Florida, Texas, Arizona, and Hawaii will require year-round vigilance and additional vector-control strategies. Public messaging currently utilized in these sates will need to be employed in other states so everyone can actively protect themselves and vulnerable populations, particularly young children and older adults.

Reducing Risk of Mosquito Bites & Transmission of Mosquito-Borne Diseases

- Apply mosquito repellent when outdoors during mosquito season.
- Wear long sleeves, long pants, and other protective clothing when walking through areas known to breed mosquitoes.
- Remove any stagnant water from gutters, flowerpots, buckets, or outdoor containers.
- Install screens on windows and doors.
- Keep doors & windows closed whenever possible.
- Use netting over beds when sleeping.
- Keep swimming pools & water features chemically-treated and the water circulating.
- Drain any pools that are not being used regularly.
- Utilize professional pest control services if necessary.

RESEARCH PEARLS:

Wireless Acousto-Mechanical Sensing

A new type of physiological monitoring involves recording the subtle respiratory and gastrointestinal sounds that the human body makes. These sounds, akin to the ones detected by a stethoscope, help a physician assess a person's physiological functioning and detect potential health problems, but in this case, the monitoring is continuous.

Researchers at Northwestern University have introduced miniature wearable devices that are applied to the skin and stream data to a smart phone or tablet in real time. The recorded sounds help physicians evaluate cardiorespiratory function, gastrointestinal activity, respiration, and swallowing. The researchers noted the high degree of accuracy of these devices and advocate their use for monitoring of premature babies who are prone to apnea (cessation of breathing) and GI problems due to their underdeveloped lungs and GI systems.

Nat Med. 2023 Nov 16;doi: 10.1038/s41591-023-02637-5.

Blue Zone Diets

Eating Like the Centenarians in Ikaria

Inhabitants of the small Greek island in the Aegean Sea follow a variation of the Mediterranean diet. The emphasis is on plant-based foods including vegetables, fruits, olive oil, legumes, whole grain cereals and a moderate intake of wine. Meat consumption is relatively low. What differentiates the Ikarian diet from the traditional Mediterranean diet is that it is higher in coffee, potato, and full-fat dairy consumption. Rich in polyphenols and antioxidants, boiled Greek coffee is reported to have cardio-protective and immune benefits with less caffeine.

If you want to eat like a Ikarian, structure your overall eating pattern as follows:

Enjoy daily

<u>Vegetables</u>: carrots, tomatoes, potatoes, broccoli,

kale, spinach, wild greens

<u>Fruits</u>: berries, apricots, plums, figs, pomegranates,

kiwi, watermelon, oranges, lemons <u>Legumes</u>: chickpeas, lentils, beans <u>Grains</u>: whole grain bread and cereals

<u>Fish & Seafood</u>: salmon, sardines, trout, herring <u>Fats</u>: olive oil, nuts (especially walnuts and almonds)

Dairy: goat's milk, cheese, yogurt

Beverages: red wine, boiled Greek coffee

Sweets: honey

Herbs & Spices: rosemary, thyme, basil, oregano,

sage, mint, mugwort, garlic

Enjoy occasionally

Meat: beef, chicken, pork, goat

Avoid

<u>Meat</u>: processed or cured meats (ham, sausages) <u>Processed Foods</u>: soda, candy, snack bars, instant or ready-to-eat foods



Dear Dr. Liker...

My elderly father is not frail but has had some falls lately. Could his hearing issues contribute?



Yes, it's a possibility. Research shows that mild hearing loss in

older adults can more than double the risk of falling. Research also shows that individuals can significantly reduce their risk of falling by wearing hearing aids. The key factor was that hearing restoration via hearing aids had to be consistent. This means that the hearing aids have to be worn consistently -- something that not everyone wants to do on a regular basis.

Researchers found that people who wore hearing aids enjoyed a 50% reduction in fall risk compared to non-users. Those who wore their hearing aids for at least four hours daily fared even better. And those who wore them consistently enjoyed a 65% reduction in risk of falling.

Age-related hearing loss may involve denial, anger, or embarrassment, which lead to non-utilization of hearing aids. Vanity can also be a problem. If this is the case, your father may be swayed by the argument that falling often initiates loss of independence, disability, or even death. Falls top the list for cause of death from injury in adults 65+. Encourage your father to make an appointment with an audiologist. Dizziness due to medication use or balance-related inner ear problems should be ruled out.

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LIKER CONSULTING, INC.

The Center for Executive & Corporate Health

Harley R. Liker, M.D., M.B.A.

9675 Brighton Way, Suite 350 Beverly Hills, CA 90210

E-mail: hliker@likerconsulting.com www.harleyliker.com/healthreport

Publisher and Editor-in-Chief – Harley Liker, M.D., M.B.A. Senior Editor – Karen Edwards, M.S.

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