

New Coalition Tackles Growing Threat of Vector-Borne Diseases

by Erin Cadwalader

In 2016, Zika became a threat to the United States and was first listed as a nationally notifiable condition to the US Centers for Disease Control and Prevention (CDC). At that time, the CDC's Division of Vector-Borne Disease (DVBD) lacked the funding to launch the robust response needed at the city and county levels. Furthermore, only about a dozen entomologists were employed by the agency, far fewer than was needed to respond to the emerging crisis of a disease spread by mosquitoes. The Zika outbreak made it clear that the nation's public health infrastructure was ill-suited to address this kind of large-scale emergency.

In September 2016, Congress appropriated nearly \$1 billion to multiple health-related agencies, including \$394

million to the CDC (GAO 2018). But, despite that one-time influx of funding, the overall amount of funding to CDC has remained low, and there are still only around a dozen entomologists in the CDC DVBD. Now, in 2020, as the ongoing Covid-19 pandemic has only further demonstrated, our national public health infrastructure remains underfunded and underappreciated until a crisis hits.

According to the CDC, between 2004 and 2016, reported human disease cases in the US resulting from arthropod bites – primarily ticks and mosquitoes – tripled (Rosenberg et al 2018). Furthermore, nine new diseases transmitted by ticks and mosquitoes were discovered or introduced in that same timeframe. However, for the majority

of arthropod-borne diseases, we have limited or no meaningful treatment options. Consequently, vector management remains one of the most effective strategies for reducing the transmission of vector-borne disease.

The management of these disease vectors largely occurs through private companies and state, county, and city health departments. The latter receive their funding from their respective state and local governments, and they often find themselves subject to inconsistent budget shortfalls, leading to unstable employment for the underfunded entomologists and epidemiologists. The CDC also supports these entities through Epidemiology and Laboratory Capacity (ELC) grants, but the rates at which that money

American Mosquito Control Association	https://www.mosquito.org
American Society of Tropical Medicine and Hygiene	https://www.astmh.org
Association of Public Health Laboratories	https://www.aphl.org
Association of State and Territorial Health Officials	https://www.astho.org
Council of State and Territorial Epidemiologists	https://www.cste.org
Entomological Society of America	https://www.entsoc.org
Florida Medical Entomology Laboratory	https://fmel.ifas.ufl.edu
Georgia Mosquito Control Association	https://www.gamosquito.org
Global Vector Hub	https://globalvectorhub.lshtm.ac.uk
Infectious Diseases Society of America	https://www.idsociety.org
Lee County Mosquito & Hyacinth Control Districts	https://www.lcmcd.com
Midwest Center of Excellence for Vector-Borne Disease	http://mcevbd.wisc.edu
Minnesota Department of Health	https://www.health.state.mn.us
Mosquito and Vector Control Association of California	https://www.mvcac.org
National Association of County and City Health Officials	https://www.naccho.org
National Association of Vector-Borne Control Officials	
National Environmental Health Association	https://www.neha.org
National Pest Management Association	https://npmapestworld.org
North Carolina Mosquito and Vector Control Association	https://www.ncmvca.org
Northeast Regional Center for Excellence in Vector-Borne Diseases	https://www.neregionalvectorcenter.com
Pacific Southwest Center of Excellence in Vector-Borne Diseases	https://pacvec.us
Puerto Rico Vector Control Unit	http://prvectorcontrol.org
Society for Vector Ecology	https://www.sove.org
Southeastern Regional Center of Excellence in Vector-Borne Diseases	http://cdcsercoevbd-flgateway.org
The New Jersey State Mosquito Control Commission	https://www.nj.gov/dep/mosquito
TickEncounter Resource Center, University of Rhode Island	https://tickencounter.org
Western Gulf Center of Excellence for Vector-Borne Diseases	https://www.utmb.edu/wgcvbd

Figure 1: Members of the Vector-Borne Disease Network, from <https://www.entsoc.org/sci-pol/VBD-Network>.

is allocated fluctuates from year to year. Meanwhile, the CDC remains under-supported when it comes to the annual funding levels that Congress appropriates. Last year, for instance, the DVBD at CDC was able to fund only about one-third of the grant requests it received for the ELC program.

The CDC has received less than \$8 billion per year in recent years, a small amount relative to the breadth of priorities for which the agency is responsible, and of which vector-borne disease is just one of many (CDC 2020). The National Institutes of Health (NIH), by comparison, received \$41.7 billion in fiscal year (FY) 2020. The NIH's National Institute of Allergy and Infectious Diseases (NIAID) alone received nearly \$6 billion in FY 2020 (NIAID 2020). Much of the bipartisan support for the NIH stems from the robust patient advocacy community, who effectively lobby their elected representatives in Congress to continue investing in the development of cures and treatments. While an ounce of prevention may proverbially be worth a pound of cure, it takes time and energy to make that case to policymakers in a data-driven way.

Out of this need for effective collective advocacy for vector research and management arose the Vector-Borne Disease Network (VBDN). Established in May 2019, the VBDN is a stakeholder group of nonprofit organizations, including professional associations like the AMCA, vector control groups, and educational institutions such as the CDC regional Centers of Excellence (COE) for Vector-Borne Diseases (VBD), all of whom recognized the need for a strong, shared voice on this subject. The coalition advocates for funding for research and management of VBD, connects the community of vector professionals, and envisions a world where human suffering from vector-borne disease is reduced. The Entomological Society of America (ESA) leads the effort and assumes an organizing role in developing and sustaining the

network, but the participation of a diverse set of 27 member organizations is what is making an impact; see Figure 1.

As Dr Ary Faraji, AMCA President and Executive Director of the Salt Lake City Mosquito Abatement District, eloquently puts it, *“Established and exotic VBD are emerging or re-emerging and continue to plague humanity with unprecedented impact. All the while, global climate change, the rapidity and frequency of international travel, and reduction of funding and resources further exacerbate our public health challenges. The creation of the VBDN is a much needed and sensible venture that further enhances the communication, partnership, and unanimity of various groups, which will help all of us serve as better stewards of public health and comfort.”*

VBDN LEGISLATIVE PRIORITIES FOR CAPITOL HILL

One of the most valuable functions of a coalition is enabling multiple organizations with a shared set of priorities to communicate with policymakers while articulating one collective, coherent message. While each group will have individual priorities as well, the strength of a coalition comes from the number and breadth of organizations, representing constituencies across the nation, all asking for the same thing. Through the VBDN, we emphasize the importance of supporting vector management, as well as research and outreach on this important topic, to Congressional appropriators that have jurisdiction over the CDC budget.

As a coalition we can also collectively endorse legislation that supports the objectives of the group. For instance, legislation that came to be known as the Kay Hagan Tick Act was introduced in the US Senate in May 2019 by Senators Susan Collins (R-ME) and Tina Smith (D-MN), with Senator Angus King (I-ME) as the first co-sponsor. Among the priorities in the legislation were the reauthorization of

the regional COE in VBD for five years at \$10 million per year and the authorization of the ELC grants at \$20 million per year. The VBDN leadership was offered the opportunity to review an early draft of the legislation and suggested changes that added more of a vector-management focus. The VBDN subsequently developed a letter supporting the legislation which many coalition members joined as signatories; see (VBDN 2019).

To help raise awareness about the importance of the issues in the Kay Hagan Tick Act to vector management and public health, organizations individually met with Congressional staff. Groups of researchers from the COEs also visited Capitol Hill to meet with Congressional staff to help them better understand what these novel research, education, and outreach groups do within their states and districts and to offer themselves as a resource in the future when VBD threats arise. The COEs are housed at universities across the country, but they work with state departments of health and other entities, and most Congressional staff were unaware of their existence. Helping the staff of elected representatives understand the importance of vector management as a strategy for preventing the spread of VBD and the growing threat they pose to their state and district was a critical step in building support for the legislation. The investment of time and energy paid off, and the Kay Hagan Tick Act was signed into law in December 2019.

Congress also passed the Strengthening Mosquito Abatement for Safety and Health (SMASH) Act as part of the Pandemic and All-Hazards Preparedness and Advancing Innovation Act of 2019 last summer, another piece of legislation on which members of the VBDN had advocated individually as well as collectively. The passage of these laws demonstrates strong bipartisan support for investments in public health and preparedness.

Getting the authorizing legislation passed is only half the battle, however, as funding has yet to be appropriated. Due to restrictions on the amount of funding Congress can appropriate to each agency for FY 2021, there isn't any real opportunity for growth this year, and that was the case even before the emergence of the coronavirus pandemic. To address this, the VBDN has submitted letters to House and Senate appropriators and also invited the Senate majority and minority appropriations staff that oversee the CDC budget to meet with the VBDN through a videoconference. Despite social distancing necessities, this provided the opportunity for staff to talk with the coalition about the current state of funding conversations on Capitol Hill and to hear from the VBDN members. While this was not as satisfying as the smaller, in-person group meetings with representatives from the VBDN that had been planned for this spring, any and every organization that advocates on policy issues is likewise recalibrating during this pandemic and getting creative in their engagement.

THE COVID-19 PANDEMIC IMPACT AND OPPORTUNITIES

In addition to the regular FY 2021 appropriations for the CDC, the VBDN is looking for other ways to support efforts to bolster the public health infrastructure through the COVID-19 stimulus bills. One piece of good news, which addresses a collective priority that emerged in the first meeting of the VBDN members in December 2019, is the need for greater data collection, coordination, and sharing. The *Coronavirus Aid, Relief, and Economic Security (CARES) Act*, passed in March, included \$500 million for the Data Modernization Initiative at the CDC and can be spread out over several years. This funding will help transform public health data systems to save lives in the future.

Additionally, driven partly by the

COVID-19 pandemic, Representatives Diane DeGette (D-CO) and Fred Upton (R-MI) are looking to introduce an update to the *21st Century Cures Act*, legislation they authored that was initially passed in 2016 (DeGette & Upton 2020). Currently, VBD is not a part of that draft proposal, but some VBDN members have been meeting with staff and attempting to ensure it is not left out of any new iterations of that legislation.

CONNECTING THE VECTOR MANAGEMENT COMMUNITY

One other positive outcome of the VBDN so far is it has enabled deeper connections between stakeholders in the vector management community to share resources, information, and effective strategies. Given limited resources and various levels of funding, this is a great benefit of a large mailing list of organizations with shared priorities. It has already led to some groups connecting directly via introductory calls to learn about each other's challenges and share effective approaches to public outreach in a variety of contexts.

All of this represents remarkable progress and value in the first year of the VBDN's existence, and we're just getting started. We appreciate the active support from our VBDN members like AMCA, and we see many future opportunities to ensure vector control research and management remain part of the national public health strategy. This goal is strengthened by bringing organizations together with the same message about the pressing importance of leveraging vector management to reduce human disease and suffering.

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