Regional Centers of Excellence in Vector-Borne Diseases

BUILDING OUR NATION’S CAPACITY TO RESPOND

The five Regional Centers of Excellence in Vector-Borne Diseases were established in 2017 to strengthen our nation’s ability to prevent and rapidly respond to current and emerging vector-borne disease threats. We combine innovative applied research programs with public health expertise and practice to support the vector-borne disease workforce through workshops, resources, and networks.

We serve a catchment area of over 330 million people across 41 state and territorial jurisdictions of the United States in high-risk areas for vector-borne disease.

APPLIED RESEARCH

- Conduct applied research to develop and validate innovative and effective vector-borne disease prediction, prevention, and control tools and methods.
  - Improve mosquito & tick surveillance
  - Address gaps in knowledge of vector biology & disease transmission
  - Investigate and identify effective prevention and control methods
  - Disseminate findings directly to the public health community

RESPONSIVE TRAINING

- Train vector biologists, entomologists, and medical providers in the knowledge and skills required to address vector-borne disease concerns.
  - Training grants for working professionals
- Innovative academic programs for the next generation of public health entomologists
- Hands-on and web-based workshops to reach broad audiences in the vector surveillance & control community

COMMUNITY OF PRACTICE

- Strengthen and expand collaboration between academic communities and public health organizations for surveillance, prevention, and response.
  - Targeted working groups with diverse membership from academic and public sectors
- Guidance to state and local agencies on effective approaches for vector surveillance & control
- Enhanced networks for communication, data sharing, and integration of research and public health practice
OUR COMBINED EFFORTS

→ National survey of tick surveillance programs, addressing a gap in our knowledge of baseline program operations in tick surveillance and control in the US, and barriers to program success

→ Aedes Challenge, an invasive mosquito forecasting challenge across the 5 CoE regions, engaging modelers with public health and vector control decision-makers

→ Smartphone Apps allowing people living in high-risk areas for ticks and tick-borne diseases to receive educational materials, participate in tick exposure research, and access information for tick control & tools to protect themselves from tick bites

REGIONAL PROGRAM HIGHLIGHTS

→ Research Fellowship Program supporting 42 undergraduate and graduate students on research projects with academic and public health partners in the region

→ Implementing studies to measure impact of mosquito larval control on adult populations and disease prevalence, and testing the impact of Ultra-Low-Volume spray treatments on adult mosquito populations in the Chicago area

→ CoE academic and public health partners engage in rapid communication and collaboration in joint efforts to sample mosquitoes in areas with Jamestown Canyon Virus cases

→ Rapid response to the invasive Asian longhorned tick, providing open-access resources and initiating applied research projects to understand this tick’s impact on human health

→ Over $1 million in funding for academic trainees, supporting an innovative graduate training program in vector biology and public health in the Northeast

→ 23 applied research initiatives, measuring the impact of vector control efforts on human disease risk and identifying training gaps and needs for our nation’s vector-borne disease workforce

→ CalSurv Gateway – a scalable system for rapid data reporting that services 117 US vector control and public health agencies

→ Annual open call for training grants, providing over $3.2 million in funding dedicated to students in the Pacific Southwest

→ 27 research and development projects at 10 universities examining new and existing ways to detect, characterize, and control threats from mosquito- and tick-borne diseases

→ Effective collaboration between academic and local governmental institutions through close working ties with 12 departments of health, vector control districts, and six academic institutes, enabling studies of new, cutting-edge vector control approaches

→ Trained over 300 individuals through 3-month internships & existing and newly established workshops across the Southeast and Caribbean, addressing identified gaps from vector biology to leadership development

→ Online Mosquito Training Program bringing the commercial pest management workforce into public health entomology

→ Diverse projects evaluating interventions using traditional and innovative vector control techniques to reduce yellow fever mosquito abundance in South Texas

→ Newly developed online courses in fundamentals of public health entomology, with inter-institutional graduate student exchange experiences among partnering universities

→ Trained 2,309 individuals from vector control, animal control, and public health fields through 1-day workshops and 3-day Master of Vector Borne Disease Management Certification workshops throughout Texas, Louisiana, and Mississippi