DHHS, CDC Vector-Borne Disease Regional Centers of Excellence

Northwest Regional Center of Excellence in Vector-Borne Disease in Idaho

In October 2016, the Centers for Disease Control and Prevention (CDC) accepted proposals for the establishment of Regional Centers of Excellence (RCE) in Vector-Borne Diseases. The announcement indicated that $50 million had been set aside for the program and that CDC expected to make five awards. The award ceiling was $10 million.

The CDC awarded four $10 million cooperative agreements – Cornell University, University of Wisconsin, University of Florida and University of Texas Medical Branch/Texas A&M – and extended an additional smaller $8 million award to the University of California (Pacific Southwest RCE). Although the program announcement indicated that awards would be made with recognition of region-specific concerns, these awards leave the entire Northwest, an underserved region of major concern for vector-borne diseases, without funding or representation in this network.

Background

The University of Idaho (UI) submitted a proposal in collaboration with Washington, Wyoming, Alaska, Montana and Oregon for a six-state Northwest Regional Center of Excellence. The six-state proposal focused on diseases that are endemic to this very large Northwest region, such as plague, relapsing fever, tick-borne rickettsioses, tick-borne viruses, West Nile encephalitis, and Lyme disease, and on diseases that could potentially be introduced into the region, such as Japanese encephalitis, tick-borne encephalitis, western equine encephalitis and others.

The Northwest proposal covers more land area (greater than three-fold that of the Midwest five-state RCE administered by the University of Wisconsin) than any of the funded proposals and includes nearly 50 researchers from nine state universities, as well as public health officials and vector control officials from across the region. The proposal would establish a network for collaboration, sharing knowledge and increasing the workforce in vector-borne diseases in the Northwest, which is one of the most underserved regions for research and training for vector-borne diseases in the United States.

Upcoming Goals

There are significant regional differences in vector ecology, pathogen transmission dynamics, and resources for vector-borne disease training, surveillance and control in the Northwest region relative to those in funded areas. For example, vector arthropods in the Northwest thrive in the greatest diversity of landscapes with the greatest density of wildlife and wildlife habitats in the U.S, including the largest contiguous wilderness areas in the U.S., dense coastal and inland forests, expansive mountain ranges, vast river valleys, high deserts, and productive steppes and plains. Ecological changes over the past decades, driven in large part by environmental change, are readily apparent in Northwestern landscapes. While these changes have not yet impacted species diversity, some changes have already altered the prevalence of vector-borne diseases and more are likely to be altered in the future. For example, a 2017 spatiotemporal model of mosquito-borne disease outbreaks has predicted significant future expansion into the Northwest of the Asian tiger mosquito, a vector for many pathogenic human viruses that has adapted to a wide climate range. This introduction would have devastating consequences to a region that is already unable to adequately address current challenges in vector-borne diseases. Environmental change has also

For more information, please contact:
Janet E. Nelson, Vice President for Research and Economic Development
janetenelson@uidaho.edu | 208-885-6689 | www.uidaho.edu/research/federal-relations
resulted in the expansion of several tick vector species and associated pathogens into Alaska, a state that is
without a comprehensive state vector control program. Tick-human interactions and resulting infections adversely
impact underserved, largely rural populations in the Northwest. In particular, the epidemic of Rocky Mountain
Spotted Fever (RMSF) that started in the U.S. in 2002 has resulted in a dramatic increase in disease incidence
(278.6 percent) in the Northwest, second only to the North Central region (283.7 percent). Current statistics from
the CDC indicate that the RMSF epidemic is continuing unabated with current case numbers in Idaho and Montana
approaching 20 cases per million residents, the highest prevalence in the U.S. behind the North Central Region.
Accordingly, the Northwest is underserved, impacted and underfunded relative to the regional impact of vector-
borne diseases.

Projected Impact of Continued and Increased Funding
Significant deliverables from the proposed program would include training of 150 graduate students and 75
postdoctoral fellows from the partner states over five years. Training would include six-state cooperative courses
and workshops for trainees, public health practitioners, and vector control officials. Graduate and postdoctoral
trainees would work directly with Northwest state departments of health and mosquito and vector control districts
to translate cutting-edge research for improved outbreak response in the region. Program resources and training
provided directly to the state labs are designed to synergize with this training and expand regional capacity in
response to vector-borne diseases. The program would also develop regional core units for cost-effective vector
identification and pathogen detection, insecticide resistance monitoring, and critical disease modeling
infrastructure for improved surveillance and outbreak prediction that do not currently exist in the region.

Accounts: Labor: HHS Appropriations/HHS/CDC/Emerging and Zoonotic Infectious Diseases

For more information, please contact:
Janet E. Nelson, Vice President for Research and Economic Development
janettenelson@uidaho.edu | 208-885-6689 | www.uidaho.edu/research/federal-relations