

PROGRAM ACTIVITY REPORT (PAR)



WILDLIFE DISEASE SURVEILLANCE DATA

Wildlife disease surveillance is an essential part of understanding the potential for zoonotic disease transmission to both human and livestock populations. One of the goals of the NWDP is to use disease surveillance to understand pathogen occurrence in wildlife and to identify potential transmission routes that result in disease spill-over to other species. By comparing wildlife disease data to human and/or livestock disease occurrence, it is possible to identify when increased disease risk occurs; however, this approach does face difficulties because of the ecological complexity associated with these disease dynamics.



Recently, the NWDP has attempted to elucidate some of these associations. One example is looking at plague seroprevalence in coyotes in relation to human cases. A recent regional study that resulted from collaborations between the CDC, the Arizona Department of Health Services, and the NWDP identified a temporal association between human plague cases and coyote sero-

prevalence. The link between coyote seroprevalence and human disease is not always straightforward,

because long-term antibodies are not necessarily indicative of recent infection; however, focusing in on animals with higher titers -- suggesting a more recent exposure -- helped to reveal the association.

There are also several other newly released studies that have looked into links between wildlife disease surveillance data and human disease occurrence. A study in Belgium found that a Puumala virus outbreak in humans coincided with high levels of Puumala virus antibody in bank voles. This association between wildlife exposure and human disease incidence was only

detected because wildlife monitoring had been in place before, during, and after the time period marked by an increase in human disease. The arrival of West Nile Virus in the United States also saw the development of several new techniques to understand how human disease incidence related to bird morbidity and mortality events, seasonal pathogen detection in mosquitoes, equine disease, as well as to when disease is first detectable in sentinel species. Another recent study reported using Lyme disease seroprevalence in dogs as a measure of disease risk in humans.

The NWDP will continue to evaluate wildlife disease surveillance data to increase understanding of disease risk. This includes current projects that are examining feral swine diseases and the potential for them to impact domestic swine.

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The original artwork on this page was created by the National Wildlife Disease Program's Erika Kampe and Sarah Goff