“Leptospirosis prevention: are we there yet?”

Leptospirosis is a neglected disease caused by a bacterium transmitted through contact with contaminated environmental sources such as soil and water, and a major cause of morbidity and mortality among residents of resource-poor countries. In the US and other industrialized countries, there is increasing awareness of leptospirosis as the cause of disease among inner-city populations, military personnel, and individuals engaged in swimming and water sports. Despite its public health impact, no effective prevention is available. The major challenge has been developing a vaccine that protects against all the genetically diverse pathogenic species and >300 serovars which are potential agents for leptospirosis. All attempts to identify candidates that can be used as a widely-applicable vaccine against leptospirosis has failed. This crucial knowledge gap has hampered the development of an effective universal vaccine that can provide synergistic health and societal benefits by preventing transmission and disease in domestic animals and the risk of spill-over infections in humans. I will discuss our past and current work to close those gaps.