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Overview of emerging and detection of arboviral disease in South Africa

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The National Institute for Communicable Diseases in South Africa investigates humans for arboviral infections. Rift Valley fever/RV virus, the most important re-emerging arbovirus, first appeared in 1951 but has persisted in wildlife reservoirs and flood water mosquito vectors *Aedes* spp. ever since, resulting in irregular, unpredictable local emerging outbreaks throughout the country or large epidemics in central SA. The last epidemic of 2010-2011 resulted in 278 human confirmed cases and 25 deaths. West Nile/WN and Sindbis/SIN fever outbreaks commonly occurred simultaneously with RVF epidemics transmitted from birds by one of the same species mosquitoes used by RVF virus, i.e. *Culex* spp. e.g. 10% SIN detection rate in 2010. WN and SIN human infection on the central SA Highveld has been continuous but limited to sporadic cases annually e.g. 1.3% SIN detection rate (2006-2009). These viruses caused mainly fever with no mortalities or severe disease in humans in SA; although a fatal human WN case was reported in 2014. The evolution of Dengue/DEN and chikungunya/CHIK viruses into a form better adapted to human-to-human mosquito transmission is the principal cause of their emerging, and explosive spread into urban environments globally. DEN virus has not yet permanently established in an urban mosquito-human-mosquito cycle, neither exists in enzootic cycle in SA. Only a DEN outbreak occurred in Durban in the early 1900s. CHIK occurs in north-eastern parts of SA and few locally acquired cases/outbreaks are the result of accidental spill-over to humans. A concern is the growing urban CHIK and DEN (n=121, 2008-2014) imported cases.

Biography

Veerle Msimang is a bio-engineer, from Ghent University with a Master of Science in Veterinary Epidemiology and Public Health, from University of London Royal Veterinary College. She has worked on a number of animal production development and disease research projects in Singapore, South Africa, Ecuador and Madagascar. She is now epidemiologist for the Centre for Emerging and Zoonotic Diseases of the National Institute for Communicable Diseases in Johannesburg, South Africa, which she joined since 2007. She has authored and contributed to various publications in infectious disease epidemiology and is a growing expert in the epidemiology of zoonotic and vector-borne diseases.

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