

# CHIKUNGUNYA VIRUS OUTBREAK IN KARACHI, PAKISTAN

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In September 2016, National Institute of Health (NIH) issued a warning that there is a risk of Pakistan being affected by Chikungunya virus (CHIKV) because New Delhi, India's capital was facing one of the worst outbreaks of this mosquito-borne virus. Therefore, there was a risk that this virus will be exported to the neighboring areas through infected travelers especially when no facilities were available to check CHIKV infected people at airports or at Wagah border.<sup>1</sup>

The warning went unheeded and in December, 2016 Karachi exploded with the outbreak of a mysterious disease catching more than 30,000 people in one month so that the Sindh Government had to declare a state of emergency.<sup>2</sup> Initially denied by WHO that any case of CHIKV has been detected in Pakistan<sup>3</sup> but soon confirmed the mysterious disease to be Chikungunya<sup>4</sup> - a viral disease causing high grade fever and severe arthralgia in afflicted patients. In the Kimakonde language, spoken in southeast Tanzania and northern Mozambique, "chikungunya" means "to become contorted" and stands for the stooped appearance of sufferers with acute joint pain.<sup>5</sup>

Hundreds of patients with complaints of high grade fever and severe arthralgia kept reporting at health facilities in Malir and Khokharapar followed by Jalbani Goth, Liaquat Market, Mandra Goth and Gharibabad.<sup>6</sup> The doctors at Saudabad Hospital reported that suspected Chikungunya fever patients were coming on daily basis.<sup>7</sup> According to the regional disease surveillance and response unit in Karachi, out of the nine samples tested for disease diagnosis at the National Institute of Health, Islamabad, four were found positive for CHIKV.<sup>8</sup>

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Chikungunya is a viral disease transmitted from humans to humans by the bites of infected female mosquitoes of species *Aedes aegypti* and *Aedes albopictus* which are also notorious for transmitting Dengue virus (DENV). The onset of illness occurs usually between 4 and 8 days but can range from 2 to 12 days after the bite of an infected mosquito. The clinical presentation includes fever and severe joint pain besides headache, muscle pain, nausea, fatigue and rash. The disease can be misdiagnosed in areas where dengue is common because it shares some clinical signs with it. Although there is no appropriate therapy for the disease, it is not fatal in majority of cases but can become chronic and debilitating. The treatment is focused on symptomatic relief.<sup>5</sup>

CHIKV is an RNA virus belonging to genus Alpha virus and family Togaviridae.<sup>9</sup> CHIKV has affected millions of the people in Africa and Southeast Asia, since it was first reported in 1952 in Tanzania.<sup>10</sup> It has recently re-emerged in countries around the Indian Ocean where climatic conditions favor high vector density, causing millions of infections. Prevention is the main countermeasure because there is no specific therapy. Prevention requires avoiding mosquito bites and insect control in the endemic countries. Diagnosis is based on the detection of virus by PCR (polymerase chain reaction) or by virus culture on the first days of infection, and by serological tests in later stages. Patients returning from epidemic/endemic areas with compatible clinical symptoms are likely to be infected by CHIKV until proved otherwise.<sup>11</sup>

In a study carried out in India out of total 44 confirmed Chikungunya cases 16 (36.4%) turned out to be positive for DENV IgM also. This can be attributed to either coinfection or dual infection. The CHIKV and DENV-affected areas overlap with each other in Asia. Thus there is a chance for mosquitoes to become coinfecting with both viruses and can result in significant coinfection.<sup>12</sup>

Since CHIKV and DENV share identical vector, the preventive and precautionary measures already in place for controlling Dengue<sup>13</sup> should have been also effective for any surge of Chikungunya transmission. The fact that outbreak occurred puts a big question on the performance of Health Department. It should also be investigated that why the warning

issued by NIH in September 2016 about the possible outbreak of CHIKV was ignored and no strategy was planned to avert the crisis.

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### CONFLICT OF INTEREST

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