

Abstract

# Investigation of Dengue Fever Outbreak- District Peshawar, Pakistan, September 2017

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## Abstract

**Background:** About 50 to 100 million people get infected with Dengue every year. Since 2003, Pakistan has seen multiple outbreaks with biggest one in 2011 in Lahore involving 22,000 cases. From August 6 to September 16, 2017, 112 Dengue fever cases were reported to a hospital in town X of District Peshawar.

**Objective:** A case-control study was conducted to assess the magnitude of the disease, evaluate risk factors and recommend control measures.

**Methods:** A desk review of available records and active case finding was conducted. A case was defined as fever of  $>38^{\circ}\text{C}$  for 2 to 10 days with minimum two of the following; headache, rash, retro-orbital pain, myalgia and bleeding in a resident of town X from July 24 to September 21, 2017 and a positive NS-1 test. Age and sex-matched controls were identified from the same locality. A structured questionnaire was used to collect information about cases and controls. Frequencies were calculated, attack rates computed, and odd ratios determined at 95% confidence interval with p value  $<0.05$ .

**Results:** A total of 140 cases were identified (28 cases through active case finding) with mean age of 28.9 years (range 8-55 years). Male to female ratio was 8:1 with an overall attack rate of 9.3%. The most affected age group was 21-30 years (AR=15.1%). Out of 140 cases, 88 had open water containers in the house (OR=3.9, 95% CI=2.5-6.0) and 84 had larvae present in their households (OR=2.5, 95% CI=1.6-3.8). Regular use of repellents and screened doors and windows showed to have a protective effect.

**Conclusions:** Presence of open water containers inside the house served as breeding grounds for the vector and were the most probable cause of the outbreak. Regular use of repellents was shown to be protective. Local breeding sites were destroyed, and residents were educated about the risk factors and protective measures.

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