

Abstract

# Measles Outbreak Investigation in Village Bara, Khyber Agency, Pakistan-February 2017: Case Control Study

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## Abstract

**Background:** Measles is highly contagious and remains a leading cause of childhood mortality. Outbreaks of Measles were reported from various parts of Pakistan, particularly tribal areas. In February 2017 Measles outbreak was reported from Bara, Khyber Agency.

**Objective:** To confirm the outbreak, assess its magnitude, identify risk factors and to implement prevention and control activities to stop spread of the outbreak.

**Methods:** A case was defined as Rash with fever and cough, coryza or conjunctivitis in a child younger than 14 years of age, resident of Bara, during 3rd February to 15th March, 2017. Active search of cases done. Data was collected using a pretested structured questionnaire and analyzed using Epi Info version 7.1. Descriptive analysis was done followed by age & sex matched case control study. Case fatality rate, attack rate, vaccine efficacy, and secondary infectivity rates were calculated.

**Results:** Total 42 cases were identified. The Epi curve ranges from 3rd February to 15th March with a bi-modal peak on 23rd Feb and 5th March. Mean age of the cases was 37 months (range 1-120 months). Males were 52.38% (n=22). Socioeconomic status of parents was poor (28.57% laborers, 38.10% earn below 10000 PKR/month, 59% fathers were literate while all mothers were illiterate). Case Fatality rate was 7.14% (n=3). Vaccination showed protective effect [OR 0.12 (95% CI: 0.03-0.40;  $P < .05$ )]. Vaccination coverage survey showed 46.3% coverage for Measles-1. Secondary infectivity was high in houses where children were more than 7 in number [OR 8.67 (95% CI: 1.76-42.6,  $P < .05$ )]. Distance from health facility (>3kms) showed higher odds of getting the illness [OR 2.89 (95% CI: 1.22-6.84);  $P < .05$ ].

**Conclusions:** This study in a post-conflict repatriated population showed relationship of low socioeconomic status, low vaccination coverage, distance from health facility and overcrowding with the disease. Awareness sessions and mop-up vaccination in the area contributed in controlling the outbreak.

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