

MEASLES OUTBREAK IN THE NIŠAVA AND TOPLICA DISTRICTS FROM 2017 TO 2018

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Measles was the leading cause of death among children under 5 years of age before the introduction of mandatory vaccination.

The objective of the paper was to describe the epidemiological and clinical characteristics of the affected individuals in the large measles outbreak in 2017-2018 in the Nišava and Toplica Districts.

Descriptive study was done. For the investigation of the outbreak, the general principles of the case definition of the European Union (EU) Commission Decision of 2012 were used. Laboratory investigations of initial patients were conducted at the Center for Control and Prevention of Diseases in the Institute of Public Health Niš, and all specimens were sent for anti-measles IgM/IgG antibody tests to the reference laboratory of the Institute of Virology, Vaccines and Sera "Torlak" in Belgrade.

A total of 1327 (584 males and 743 females) cases were reported from 23 November 2017 to 28 July 2018, when it ended. The average age was 35 years (range from < 1 to 70 years). The highest number of patients (510; 38.4%) were in the 30-39 year age group and the lowest number (34; 2.6%) was in the 15-19 year age group. Infants represented 5.3% of all affected and children from primary schools accounted for 4.4% out of all affected. One-fourth of the outbreak cases (338; 25.5%) were unvaccinated. Only 37 (2.8%) patients received two doses of the combined vaccine against measles, mumps, and rubella (MMR) and 50 (3.8%) received one dose. For the majority of affected cases (902; 68.0%) vaccination status was unknown. Measles-related complications were registered in 962 (72.5%) patients. Complications were the most common in infants (92.9%) and among children 1-6 years of age (88.2%). Malnutrition was the most frequent complication (823 cases; 62.0%) followed by diarrhea (590 cases; 44.5%) and pneumonia (122 cases; 9.2%); encephalitis was reported in 1 case. Measles-related deaths in the observed outbreak were confirmed in four patients (all laboratory-confirmed, three unvaccinated and an immune compromised child). The case-fatality rate of 0.3 per 100 measles cases was determined.

The probable causes of this large measles outbreak were insufficient vaccination and low vaccine coverage with MMR vaccine and accumulation of a high susceptible population. Four measles-related deaths were registered. Monitoring of the vaccination status, high vaccine coverage and effectiveness of MMR vaccine are essential for the prevention of measles outbreaks.

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Key words: measles, outbreak, vaccination coverage, complications, deaths