

# Outbreaks of Measles in Albania

Alma Robo<sup>1</sup>, Silva Bino<sup>2</sup>

<sup>1,2</sup>Institute of Public Health, Tirana, Albania

**Abstract:** Measles is an infection target to be eliminated from the European region. Despite the very high immunization coverage for MMR two measles outbreaks, occurred in Albania during 2006-2007. Epidemiological investigation was carried out to identify sources of infection, transmission routes, and assess operational implications for elimination of the disease. Data were obtained from the infectious diseases surveillance systems and field epidemiological investigations. Overall 68 measles cases were reported, sustained by two different genotypes. Genotype D4 was likely imported from Greece by a Roma family and subsequently spread to the rest of roma population in several districts. There was a common link among the outbreaks within the Roma community of Saranda, Elbasani, Tirana, Kurbin, and Durres. Half of the children infected within the Roma population were unvaccinated. The outbreak in Shkodra which started in a day care center was unique and a separate outbreak from the others. Genotype B3 was responsible for the second outbreak and was imported by an Italian nun who cared for the children.

**Keywords:** measles, outbreak, roma, rash, virus genotype

## 1. Introduction

Measles is an infection target to be eliminated from the European region (1). Although good progress has been made in controlling measles and rubella transmission in the European Region the incidence of measles was high in 2010 (2). European countries still have to undertake further measures to reach the Measles and Rubella elimination goal (3). High quality surveillance data is critical to monitor the progress of Measles and Rubella elimination program. High coverage with two doses of measles and rubella vaccine needs to be achieved and maintained, possible by conducting supplementary immunization activities to specifically target susceptible populations and hard-to-reach groups (3). All countries should ensure commitment to provide sufficient resources to reach the elimination goal by engaging in multi-sectorial partnerships, targeting population pockets with low coverage rates, and by using the European Immunization Week as an opportunity to strengthen routine immunization (4). In addition, health systems on the whole may benefit from this measles and rubella elimination program. Albania was among the first countries to embrace the WHO objective. Despite the very high immunization coverage for MMR two measles outbreaks, occurred in Albania during 2006-2007. Epidemiological investigation was carried out to identify sources of infection, transmission routes, and assess operational implications for elimination of the disease.

## 2. Material and Methods

Data were obtained from the infectious diseases surveillance systems and field epidemiological investigations. The case definition for outbreak investigation was defined as a child with a "rash maculopapular and fever" and the diagnosis was established by clinical signs, confirmed by serologic results. Sera samples from all the suspected cases were tested for Measles IgM by ELISA and molecular genotyping of virus by the regional reference laboratory.

## 3. Results and Discussion

Measles and rubella Surveillance in Albania is an active surveillance, conducted by epidemiological services of all

country districts. Source of case reporting is the clinician of every health service of all levels throughout the country, from primary, secondary and tertiary health care system. Reports are forwarded to the Institute of Public Health (IPH) with the individual case reporting form accompanied with the serum-specimen for laboratory confirmation at national measles and rubella laboratory (8). The active surveillance on vaccination coverage of measles and rubella and other EPI antigens, on the basis of the official vaccination documentation represents one of the routine activities of district epidemiological services under the IPH technical guidance and supervision. As a result of enhanced laboratory-based surveillance with confirmation of clinically suspected sporadic cases of measles and rubella the incidence of M/R in Albania was 0 over the period 2002 – 2005 (9). Although there is a high immunization coverage, there are vaccination "gaps" which led to increasing number of vulnerable children, were the cause of small outbreaks in different districts of Albania especially among the Roma community who remains problematic regarding the immunization. Despite the very high immunization coverage for MMR two measles outbreaks, occurred in Albania during 2006-2007. Epidemiological investigation was carried out to identify sources of infection, transmission routes, and assess operational implications for elimination of the disease. Overall 88 cases with rash maculopapular were reported. 36 (41%) of cases were from Shkodra district where was a unic outbreak without epidemiological link to other districts, whereas 52 (59%) of cases were from other districts with epidemiological link between them. Distribution of cases of rash maculopapular by district is presented in fig 1. 68 (77.3%) resulted positive for measles IgM sustained by two different genotypes. Genotype D4 was likely imported from Greece with index cases a child in a Roma family and subsequently spread to the rest of roma population in several districts (fig. 2). As a result of uncontrolled migration of the roma population in different cities there was a common link among the outbreaks within the Roma community of Saranda, Elbasani, Tirana, Kurbin, and Durres. In the district of Tirana, intra hospital transmission of measles occurred from roma children admitted to hospital as the result of contact between children into the corridors of the ward. The age range of children was 6 months to 14 years old. All of the children infected within

the Roma population were unvaccinated. The outbreak in Shkodra which started in a day care center was unique and a separate outbreak from the others. According to the case definition 36 cases were found of which 26 (72%) tested positive for Measles IgM antibodies. 10 (38%) were females and 16 (62%) male. The median age was 4 years (range: three months to 12 years). Median serial interval was 2 days. Most of the patients had Koplik spots, coryza and conjunctivitis. 15 (58%) cases were unvaccinated. Distribution of cases by place of residence is shown in fig. 3. All patients recovered and no fatal cases. Genotype B3 was responsible for the second outbreak and was imported by an Italian nun who cared for the children. Pockets of low vaccine coverage individuals (Roma/children from remote rural communities) facilitated the measles infection to spread.

#### 4. Conclusion

Communities with low vaccine coverage represent a more serious public health threat than do sporadic susceptible individuals. The successful elimination of measles requires additional efforts to immunize low vaccine coverage population subgroups, including hard-to-reach individuals. An enhanced surveillance system, which includes viral genotyping to document chains of transmission, is an essential tool for evaluating strategy to control and eliminate measles. Supplemental immunization campaigns were conducted in affected communities. The vaccination of this community it difficult despite the commitment of the health staff. Families with their children are in ongoing migration all over the country. Some families remain abroad for many years. They refuse the vaccination of their children. Threaten and intimidate the health staff when notified for vaccination dates. They show a very low level of health culture. Supplemental vaccination campaigns were conducted by the IPH in collaboration in the affected districts. Also, screening door-to-door and supervision, was conducted along with enhanced surveillance was implemented in the affected community. During this process the vaccinators in collaboration with the mediators were able to register the unvaccinated Roma children from 0-14 years old and other children between 0-14 years old, not belong to Roma population, which had missed the vaccination or they were not registered before. Also they informed parents about the importance of vaccination in an early age (11). During the same process the supervisors followed the work and were able to evaluate the work and the whole screening process. They work consisted in verification of the immunization strategy situation through documentations and interviews, verification of the status of vaccine registries in the health

centers and evaluation of the work during the screening process.

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**Table 1:** The frequency and percentage of cases with ras maculopapulat by district, 2006-2007

District	N	%
Tirane	29	33
Sarande	3	3
Elbasan	12	14
Kurbin	3	3
Shkoder	36	41
Lushnje	1	1
Lezhe	1	1
Berat	1	1
Durres	1	1
M. Madhe	1	1
<b>Total</b>	<b>88</b>	<b>100.0</b>

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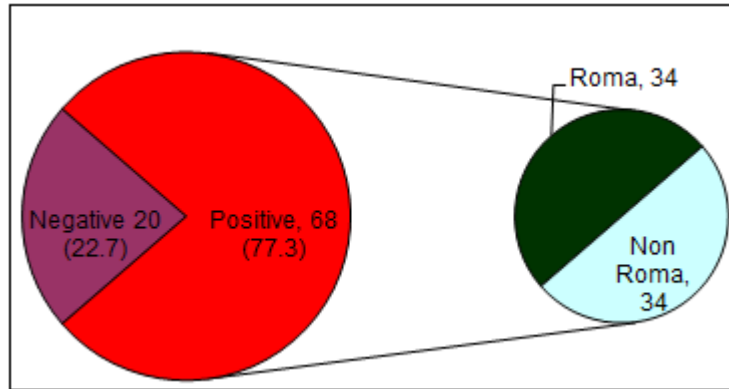


Figure 2: Distribution of cases by laboratory confirmation. N = 88



Figure 3: Transmission chain by index case imported from Greece