



## ORIGINAL RESEARCH

### Screening for viral Hepatitis B in the Roma community in Tirana, Albania

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### Abstract

**Aim:** According to the previous studies conducted in Albania involving Roma communities and in general populations, the prevalence of HBV was 13% and 7%-9%, respectively. Due to this high prevalence of HBV and difficulties accessing adequate healthcare, a screening was performed in some areas where Roma populations live. The aim of this study was to assess the prevalence of HBV in the Roma population in Albania in order to make evidence-based recommendations for increasing the awareness of the population about this disease and increase the access to the vaccination.

**Methods:** A cross-sectional study was conducted in three rural areas and in four urban areas in Tirana district with known limited population movement. OpenEpi was used to calculate the sample size. The laboratory methods used consisted of the immune chromatographic method, Rapid Test and ELISA.

**Results:** 27 out of 174 specimens tested positive for HBV. The prevalence of HBsAg was 15.5% (95%CI=10.8%-21.6%). The age-related positivity of HBsAg was 10.6% for the age-group 19-24 years, 19.4% for the age 25-44 years and 11.8% for the age 45-59 years. Of the positive cases, 15 were females and 12 were males. The areas with the highest positivity rate for HBsAg were Tufina (24%), Health Care Center no.8 (23.1%) and Sauk (15.4%).

**Conclusion:** A higher prevalence of HBV was found among Roma population in Tirana district compared to the general population. The age-group 25-44 years, males, and people residing in Tufina area showed a higher HBsAg positivity rate. Improvement of the sentinel surveillance, increase of the awareness about the disease, promotion of vaccination and healthy behaviour, are the recommended actions that should target the Roma population.

**Keywords:** HBV, prevalence, Roma, screening.

**Conflicts of interest:** None.

## Introduction

Hepatitis B represents inflammation of the liver caused by hepatitis B virus (1). The disease spreads through contact with infected blood, infected semen or other infected body fluids or from infected mother to baby at birth. HIV, multiple sex partners, homosexual relations and unprotected sex increase the risk of HBV. HBV can cause acute or chronic infection; the acute infection could be very mild (mostly undetected) to severe forms requiring hospitalization (2). Most persons infected with HBV are able to “clear” the virus. Chronic HBV could lead to serious liver and overall health problems, including liver cancer and death. The best way to prevent HBV is through vaccination (3). Pregnant women and blood donors are usually considered as representatives of general population regarding prevalence of HBV whereas high risk groups comprise injecting drug users, males who have sex with males, migrants, etc (4). Roma in Albania are recognized as an important ethnic minority. Official sources state that there are about 35,000 Roma individuals in Albania. Roma communities are found all over the country, but the largest are settled in central and southeast regions of Albania. Roma population is a vulnerable group in Albania (5). According to previous studies conducted in Roma communities, the prevalence of HBV was 13% (6), and the prevalence of HBV in the general population is 7%-9%. Vaccination is mandatory in Albania since 1994 for all newborns within 24 hours of birth. The National Immunization Program (under IPH Department of Control of Infectious Diseases) has conducted several vaccination campaigns in order to reduce the gap and increase the immunization into the Roma population. Vaccination coverage of Roma children is high on the first doses due to vaccination at birth done

in maternities. For example, during 2014, in Tirana, in 114 Roma children born, 113 (99%) were vaccinated at 24 hours of birth. After that, there is a gradual decrease of coverage for further doses of basal vaccination (from 90% at 2 months - 67% at 4 months - 57% at 6 months) (7). Vaccination is free-of-charge for the Roma population and other vulnerable groups near GP practitioners. Roma families have difficulties accessing adequate healthcare because they do not pay health insurance within the insurance scheme, which in turn, denies them benefiting from the services in due way (8). The aim of this study is to estimate the prevalence of viral hepatitis in this population at risk in order to make evidence-based recommendations for increasing the awareness of population about these diseases and promote the vaccination.

## Methods

This cross-sectional study was conducted among Roma population in Tirana district during the year 2016. The total Roma population in Tirana is around 16,000 persons. Rural areas of Tufine, Babrru, Sauk and urban areas that correspond to Health care Center No.11, No.8, No.7 and No.10 were selected for the study. The total study population consists of 2,022 individuals including all Roma population resident in these areas. For each positive person was recommended to visit the specialist for further follow-up.

## Screening tests

The methods used included the immune chromatographic method, the Rapid Test and ELISA.

*HBsAg Rapid Test:* Infection with the Hepatitis B virus is characterized by the appearance of certain viral markers including Hepatitis B surface Antigen (HBsAg) in the blood. HBsAg Rapid Test is a visually read, qualitative immunoassay

for in vitro detection of Hepatitis B Surface Antigen in serum or plasma. The test is intended as an aid to diagnosis of Hepatitis B infection. The antigen found in the envelope of HBV is designated Hepatitis B Surface antigen (HBsAg) and its presence in serum or plasma indicates active HBV infection.

HBsAg Rapid Test is a simple, one-step test that detects the presence of HBsAg. This is only a screening test. The test does not rule out Hepatitis B infection because HBsAg may not be present in sufficient quantity to be detected at a very early stage of infection. Positive results must be confirmed by other diagnostic procedures and clinical data. The systematic use of rapid tests performed at points-of-care may facilitate hepatitis B virus (HBV) screening and substantially increase HBV infection awareness.

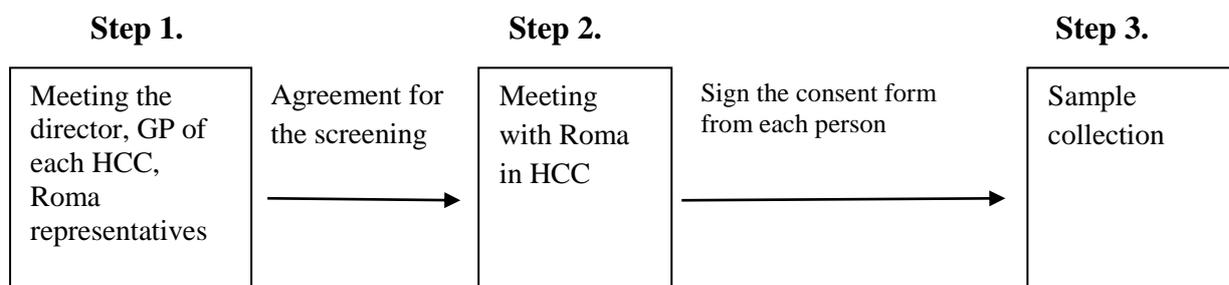
*Case definition:* A positive case is considered any person that tested positive for HBsAg with Rapid test and then confirmed with ELISA method.

*Sample size:* OpenEpi (9) was used to calculate the sample size. Areas where the process was conducted were selected according to the number of population and their internal migration. There were taken into consideration the areas where the movement of the population is stable and the number of them is higher than the other areas where Roma lives.

The selected areas were rural ones of Tufine, Babrru, Sauk and urban areas corresponding to Health care Center No.11, No.8, No.7 and No.10. A total of 174 individuals were included in the study according to the method of probability proportional to size.

***Recruitment process / Selection of individuals***

The working group was composed by state and territorial epidemiologists and microbiologists. The chart below shows the steps that the working group did in the field.



Step 1 - In each area we contacted the director of the health care center, general practitioners, and representatives of the relevant Roma associations who were informed in advance with the procedure of screening. They all agreed for this screening.

Step 2 - Meeting with each Roma resident in the HCC. They were selected randomly at site. To all of them it was explained about the disease and the reason of this screening test. Before performing the

procedure each person signed a consent form.

Step 3 - The process of the blood samples collection.

***Data and specimens collection***

*Inclusion criteria:* Eligible for the study were only individuals aged 19 years and older.

*Exclusion criteria:* Individuals aged 0-18 years because they were already vaccinated against HBV. Also from the

study were excluded all persons that suffered from other liver diseases. The reason for both these exclusion criteria was to control for the confounding factors that could affect the results of the study.

An individual questionnaire with demographic and vaccination data was matched to each serum sample. All sera samples collected were analyzed in National Virology Laboratory in Institute of Public Health.

#### **Statistical analysis**

Data was analyzed using the Statistical Package for the Social Sciences (SPSS) (version 20.0). Categorical variables are presented as absolute frequencies and percentages. Chi-square test was used to compare the proportions between

categorical variables. A p-value  $\leq 0.05$  was considered significant.

#### **Results**

In total, 174 individuals were tested for Viral Hepatitis B. 29.9% of them were males and 70.1% females with a mean age 33.7 (10.7) years and range 19 to 59 years. The majority of individuals (53.4%) belonged to age group of 25-44 years old ( $p < 0.01$ ).

Overall, 27 individual tested positive for HBV. The prevalence of HBsAg was 15.5% (95% CI 10.8% to 21.6%). The positivity rate for HBV among males was (23.1%) as compared to females (12.3%), without significant difference  $p = 0.1$  (Table 1).

**Table 1. Testing results by gender**

<b>Gender</b>	<b>Tested cases for HBV</b>	<b>Positive cases</b>	<b>Percent positive</b>
<b>Female</b>	122	15	12.3
<b>Male</b>	52	12	23.1

The most affected was the age group 25-44 years (19.4%), followed by age group 45-59 years (11.8%)  $p = 0.3$  (Table 2).

**Table 2. Testing results by age group**

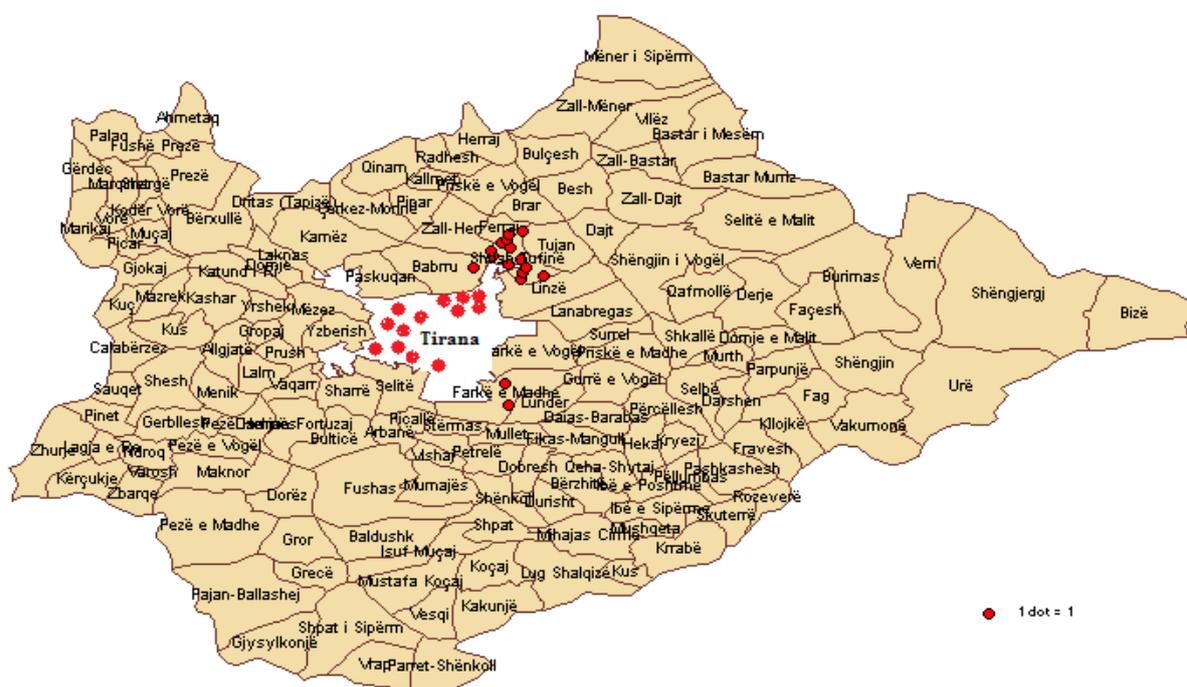
<b>Age-group</b>	<b>Total cases</b>	<b>Positive for HBsAg</b>	<b>Percent positive</b>
<b>19-24 years</b>	47	5	10.6
<b>25-44 years</b>	93	18	19.4
<b>45-59 years</b>	34	4	11.8

No significant difference in positivity rate for HBV was found by areas of the study, as shown in Table 3.

**Table 3. Distribution of HBV cases by areas**

Study area	No. of samples	No. of samples positive for HBsAg	Percent positive
Tufine	49	12	24.5
Babrru	9	1	11.1
Health center no.8	26	6	23.1
Health center no.7	12	1	8.3
Sauk	13	2	15.4
Health center no.11	14	1	7.1
Health center no.10	51	4	7.8
<b>Total</b>	<b>174</b>	<b>27</b>	<b>15.5</b>

**Figure 1. Distribution of HBV cases by area in Tirana district**



### Discussion

Albania is among countries with a relatively high prevalence of HBsAg. A previous study conducted in general population in 2009 reported a prevalence of 9.5% (10). The presence of one or more

serological markers of HBV infection and the high rate of infection in children aged 1 to 10 years confirms the endemic nature of this virus in Albania. The above-mentioned data of HBV infection in Albania were undoubtedly related to low

hygiene and poor economic situation, overcrowded conditions, lack of disposable needles and syringes, lack of safe blood and its products for transfusion, inadequate sterilization of reusable equipment, difficulties in obtaining appropriate personal equipment to prevent exposure to blood, and lack of an immunization program against HBV before the year 1994. Taking into consideration the reinforcement of the general preventive measures, such as the implementation of the safe injection procedures, proper sterilization of the medical and dental equipment, proper screening of the blood and its products, and progress in health education and vaccination of some high-risk groups (health care workers, hemodialysis and thalassemic patients), the significant reduction of HBV markers among the non-vaccinated general population (9.5%) compared to the previous rate of 1993-1995 (18%-19%), may be attributed to the 12 consecutive years of vaccination of newborn children against HBV. In a study conducted in 2011 the prevalence of HbsAg in adolescents of area Peze-Ndroq in Tirana was 22.4% versus 15.1% in adults (11). In our study conducted in 2018

a higher prevalence of HBV was found among Roma population in Tirana district compared to the general population. Considering the high prevalence of HBV in Roma population and the problems that this vulnerable group has towards the vaccination process and difficulties accessing adequate healthcare, the Institute of Public Health (IPH) in collaboration with the Directorate of Public Health of Tirana have performed screening in some areas where Roma populations live.

Limitations: the study was conducted only in the areas with known limited population and using a convenience sampling approach which potentially introduces a selection bias. The laboratory testing included only the Rapid test and ELISA and not PCR which is a confirmatory method in diagnosing HBV.

### **Conclusion**

Improvement of the sentinel surveillance for detecting new HBV cases, increasing of the awareness about the disease, promoting healthy behaviour, health education and vaccination in order to increase vaccination coverage are the recommended actions that should target the Roma population.

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