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MEASLES DOES NOT WANT TO LOSE GROUND

Bryantseva E.V.,
Associate professor of Epidemiology Department of Tashkent Medical Academy
Matnazarova G.S.,
Head of the Epidemiology Department of the Tashkent Medical Academy
Abdukaharova M.F.,
Associate professor of Epidemiology Department of Tashkent Medical Academy
Nematova N.U.,
Head teacher of Epidemiology Department of Tashkent Medical Academy
Tirkashev O.S.,
Assistant, Department of Epidemiology, Samarkand State Medical University

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Abstract. The article presents the results of an epidemiological analysis of measles cases in the Republic of Uzbekistan and, in particular, in Tashkent for the period from January to July 2023.

The epidemiological features of cases of measles infection in Uzbekistan at this stage have been studied and described.

Key words. Measles infection, intensive indicator, vaccinated and unvaccinated persons, age range, reasons for non-vaccination, vaccination, national immunization days.

Introduction. According to the information on measles published by the World Health Organization (WHO), the epidemiological situation is currently complicated in 157 countries of the world, especially in India, Pakistan, Turkey, Ukraine, and Russia. The measles outbreak in neighboring Tajikistan, Kyrgyzstan and Kazakhstan is becoming epidemic.

The World Health Organization reported that the epidemiological situation for measles in the world and the European region worsened in 2023 due to people who refused vaccination.

At the end of July 2023, 23 thousand cases of measles were registered in Ukraine, 4954 in Serbia, 2576 in France, 2476 in Greece, 2476 in Italy, 1396 in Russia, 1128 in Georgia, about 2 thousand in Kazakhstan, Kyrgyzstan – more than 1700 [11,12].

There has been an increase in the incidence since the beginning of 2023 in Austria, the UK and Uzbekistan, and in some other countries [1].

The measles outbreak in 2023 is largely due to the fact that the population has a fairly large non-immune group of people due to an increase in the number of people who refused to have measles vaccine, and one of the important causes of the measles outbreak in many European countries was the COVID-19 pandemic and the announced quarantine. The COVID-19 pandemic has exacerbated existing disparities between countries in terms of immunization. In many countries, during the height of the pandemic, routine immunization of the population was interrupted or postponed for an extended period. In many countries, routine immunization of the population was interrupted or postponed for an extended period during the height of the pandemic. In 2021, a large

number of children worldwide missed the measles vaccine – almost 40 million: 25 million children did not receive the first dose of the vaccine and another 14.7 million did not receive the second dose [2]. According to WHO, in 2021, 128 thousand people died from measles in the world. They are mostly small children under the age of five.

For adults, measles is also dangerous with severe complications. Adults usually get sick much more severely than children [3].

It should be noted that despite the restrictions imposed during the pandemic, Uzbekistan continued the campaign of routine immunization. There was a need to conduct a clean-up immunization and maintain the achieved indicators. In the Republic of Uzbekistan, vaccination is carried out in accordance with the recommendations of WHO and GAVI (Global Alliance for Vaccines and Immunisation). Uzbekistan successfully cooperates with many partners in the immunization program. Close and fruitful cooperation has been established with reputable international and foreign organizations, Regional Centers, such as WHO, UNICEF, GAVI, etc.

In 2018 and 2020, measles infection was imported into Uzbekistan and there was an outbreak of measles at the end of 2019 in 2020. In December 2020, the Ministry of Health of Uzbekistan appealed to international organizations for help: the WHO Measles Fund, GAVI and vaccine manufacturers. 640,000 doses of measles vaccine were provided by the Indian Vaccine Institute to help Uzbekistan fight measles, which was used for mass immunization. A mass immunization campaign was launched in the city of Tashkent, Kashkadarya and Samarkand regions from February 10 to 20. Government funds were used to additionally purchase measles and rubella (MR) vaccines, which made it possible to cover and carry out mass immunization throughout the country, as a result of which it was possible to stop the measles outbreak.

Thanks to the comprehensive measures taken in 2021, not a single case of measles infection was registered in Uzbekistan.

Epidemiological surveillance measures have been strengthened in the republic, all suspected cases of measles are being investigated, and a forecast of the morbidity incidence is being carried out. According to the forecast, the country received measles and rubella (MR) vaccine for additional vaccination (in June 2022, Uzbekistan received 3 million 350 thousand doses of measles-rubella vaccine), which was used to prevent measles.

However, in 2022, several cases of measles were reported in Uzbekistan. To combat this infection, in order to prevent measles in the Republic of Uzbekistan, National Immunization Days (NID) were held in November and December 2022. Children aged 6 months to 5 years (4 years, 11 months and 29 days) were vaccinated with a 2-component MR vaccine (measles, rubella), as a result of the NID, 98.4% of children in Uzbekistan were vaccinated against measles.

An increase in measles cases has been observed again in Uzbekistan, with the largest number registered in Tashkent since February 2023.

Goal. To study the epidemiological features of cases of measles infection in the Republic of Uzbekistan.

Material and methods. For the epidemiological analysis, statistical data and materials on the incidence of measles infection of the Committee for Sanitary and Epidemiological Welfare and Public Health of the Republic of Uzbekistan and the city of Tashkent were used. Epidemiological research methods were applied; in particular, operational epidemiological analysis was applied.

Results and discussions.

In February 2023, the first cases of measles (imported from Turkey and Egypt) were registered in Uzbekistan (Tashkent city). There has been an increase in confirmed cases of measles since March (Fig. 1).

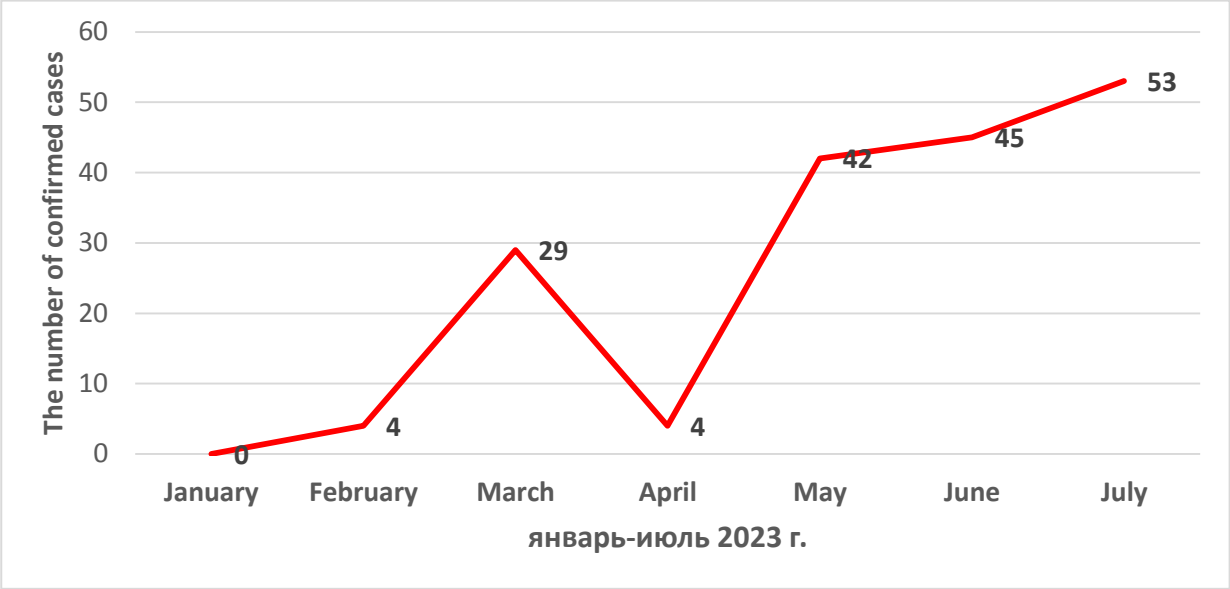

Fig. 1 Registered cases of measles in the Republic of Uzbekistan (January-July 2023)

Currently, measles infection has been registered in 8 regions of Uzbekistan, as well as in the Republic of Karakalpakstan and in Tashkent (Fig. 2).

According to the Committee for Sanitary and Epidemiological Welfare and Public Health, from February to July 2023, 319 suspected measles cases were recorded in the Republic of Uzbekistan, of which 177 (55.5%) cases were laboratory confirmed using enzyme immunoassay (ELISA).

The largest number of registered cases of measles is noted in Tashkent with an intensive incidence rate of 5.2, then in the Tashkent region - 0.9, then in the Syrdarya and Fergana regions with intensive rates of 0.7 and 0.6, respectively, per 100.000 population (Fig. 2).

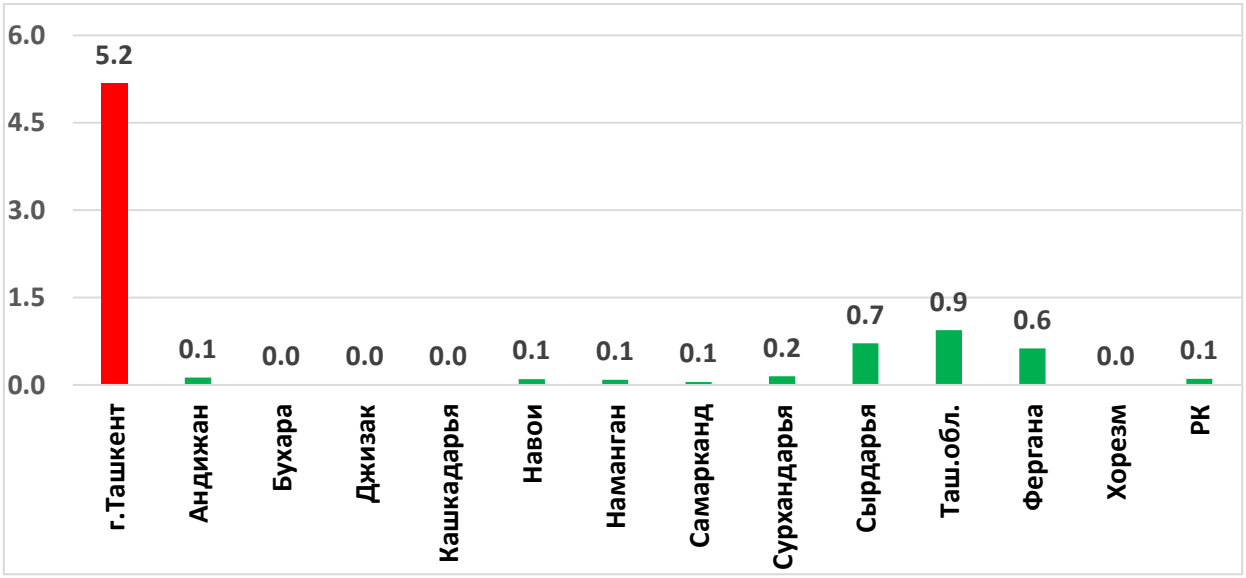

Fig. 2 Intensive rate of confirmed measles cases in Republic of Uzbekistan (January-July 2023).

The age range varied from 5 months to 55 years; thus, the youngest patient with a confirmed diagnosis of Measles was 5 months old, and the oldest was 55 years old.

There has been observed a high susceptibility to the disease in children aged 1 to 2 years - 29% (of the total number of measles cases) in Uzbekistan as a whole and 27.2% in Tashkent are children of this age. In second place in terms of the number of cases are children aged 3 to 6 years - 19% and 24.3%, respectively (Fig. 3). A large percentage of cases occur in children under the age of 1 year - 18 and 17.5%, respectively.

So, we observed 1 patient at the age of 5 months among sick children up to 1 year of age, 5 patients - 6 months of age and further - patients of different ages up to 1 year.

According to the literature, the proportion of seronegative children aged 12 months in 80 - 90.0% are children with deviations in health status and revaccination of such children in 30.4 - 33.3% of cases does not lead to the formation of antibodies to the measles virus in a protective titer, which can contribute to the formation of risk groups in an unfavorable epidemic situation [4].

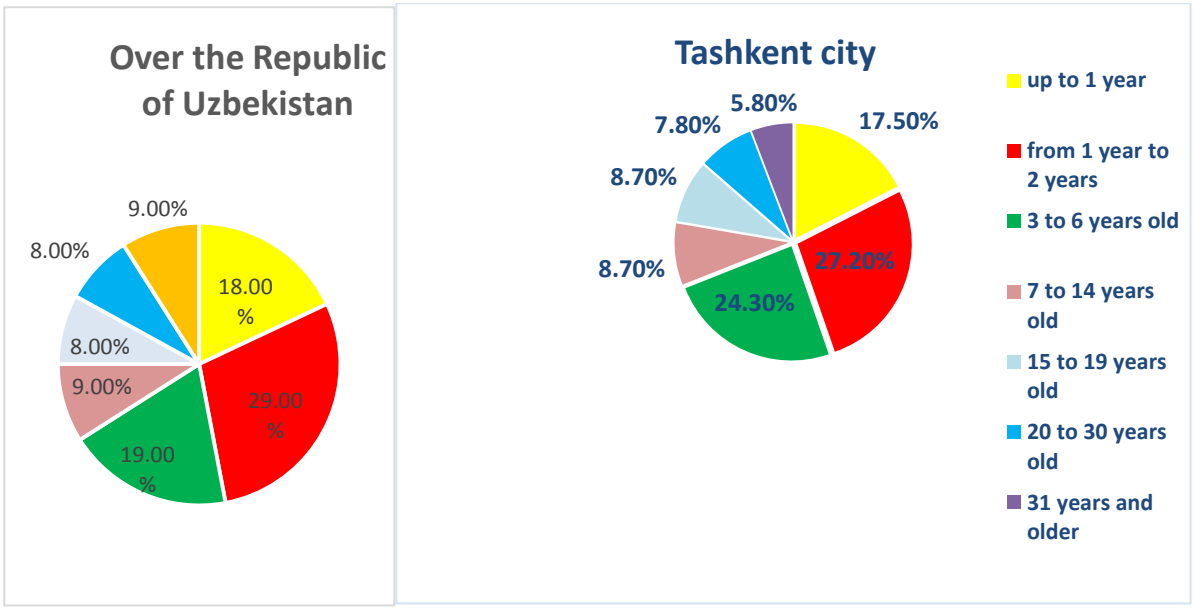

Fig. 3 Age composition of confirmed cases of measles in the Republic of Uzbekistan and in Tashkent (January-July 2023, in %)

It should be taken into account that in children born from immune mothers, the blood contains IgG antibodies to the measles virus, but by 6 months the level of antibodies to the virus decreases to 70% and by the year these children may be seronegative and vulnerable to this infection.

Women with a complicated pregnancy can also give birth to children susceptible to measles infection [5].

At the present time, there is an increase in measles infection among the adult population. It is difficult to tolerate measles for adults, as complications develop more often due to the large presence of endogenous flora and concomitant, chronic diseases. So in our studies, 9% (of the total numbers of cases) were patients over the age of 31 years. Patients were 32, 41, 48, 51, 53 and 55 years old.

The increase in measles cases is primarily due to unvaccinated people. An analysis of the vaccination status of confirmed cases of measles in the country showed that 82% of all cases of

measles are people who have not received measles vaccine (refusal to vaccinate, children not vaccinated by age, medical exemptions) and 18% were people who received 1 or 2 vaccine doses (Fig. 4).

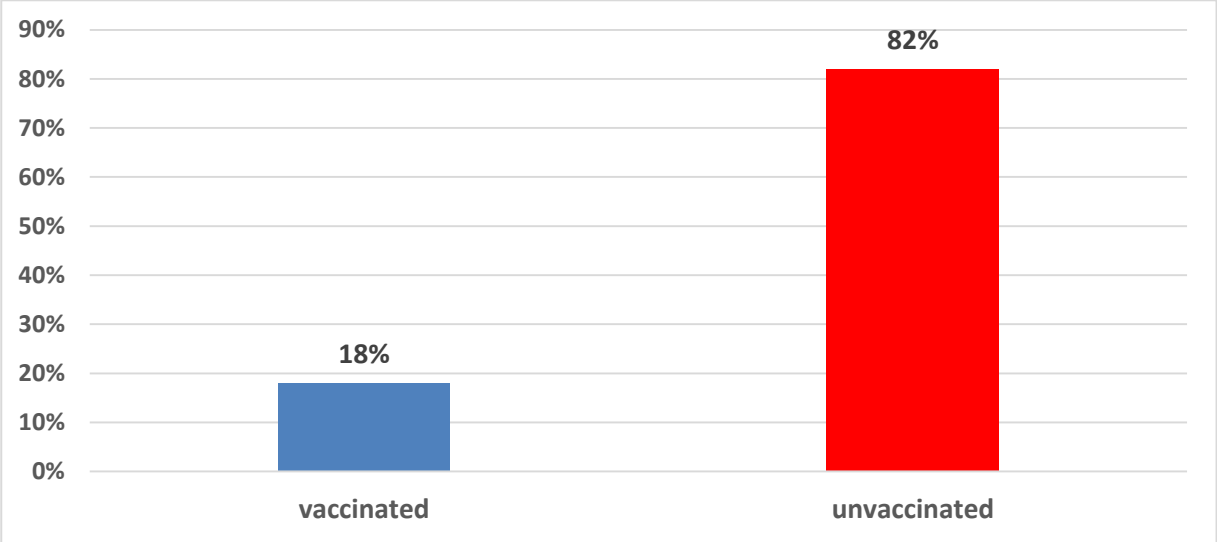

Fig.4. Analysis of the vaccination status of confirmed cases of measles in the Republic of Uzbekistan (January-July 2023, in %)

In 2020, in the Republic of Uzbekistan, the number of measles cases among people who refused vaccination was about 10.0%, for the period from February to June 2023; this figure was 27.6% just only in Tashkent (Fig. 5). In 17.0% of cases among the sick there are children who received 1 vaccination or the 2nd second dose of the vaccine in 10.5% of cases. The high percentage (17.0%) of cases among children who received the first dose of the vaccine can be explained by the fact that the sick did not have time to develop antibodies (AT) to the virus, and if they were formed, they have not been formed in insufficiently high titers to protect against infection. There were persons who had not reached vaccination age and it was 10.5%, i.e. - children under 1 year of age.

The main reasons for the lack of vaccination in children with measles are also medical exemptions (11.8%), lack of vaccination in persons arriving from other countries (3.9%). In 18% of cases, we had no information about vaccination.

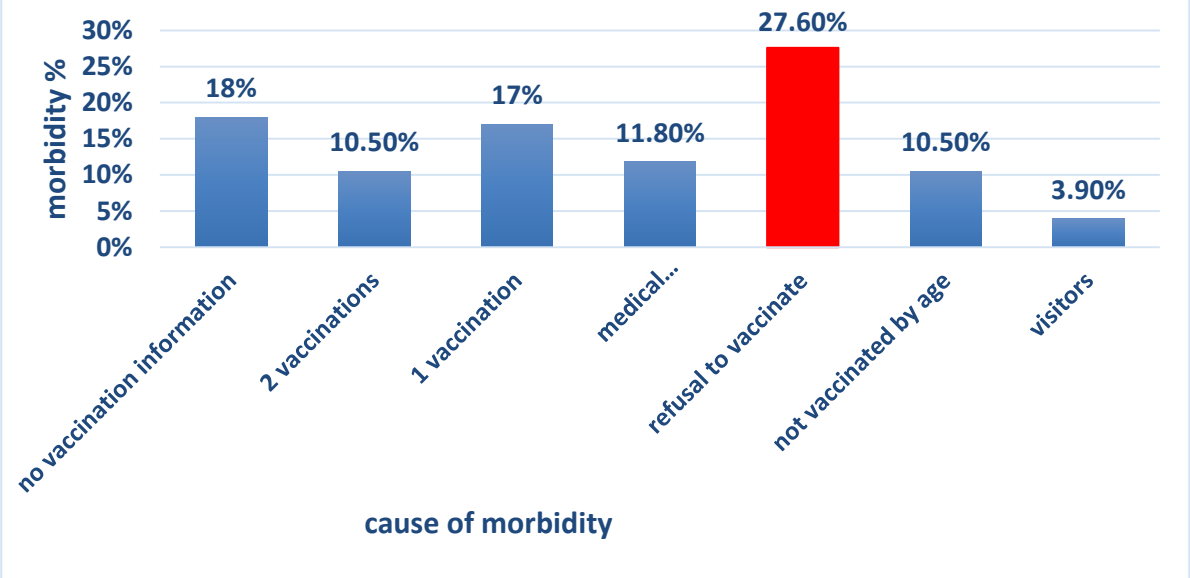

Fig. 5 Causes of measles incidence in Tashkent city (January-July 2023)

Analyzing the socio-professional composition of confirmed cases of measles in the Republic of Uzbekistan, we came to the conclusion that 65.0% of the sick are an unorganized contingent, 1.0% are organized children attending kindergartens, 11.0% are schoolchildren and 23.0% are adult contingent (Fig. 6).

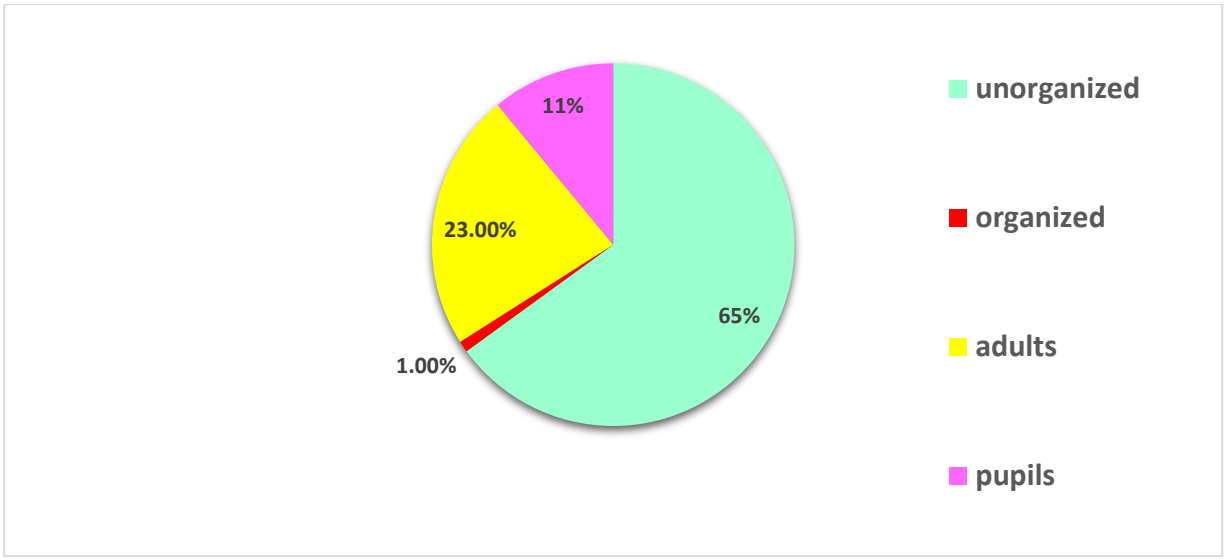

Fig.6 Socio-professional composition of confirmed cases of measles in the Republic of Uzbekistan (January-July 2023, in%)

When it comes to the distribution of patients by sex, here we did not reveal any differences. People get measles regardless of gender. In our studies, the ratio of males and females is 1:1 (Fig. 7).

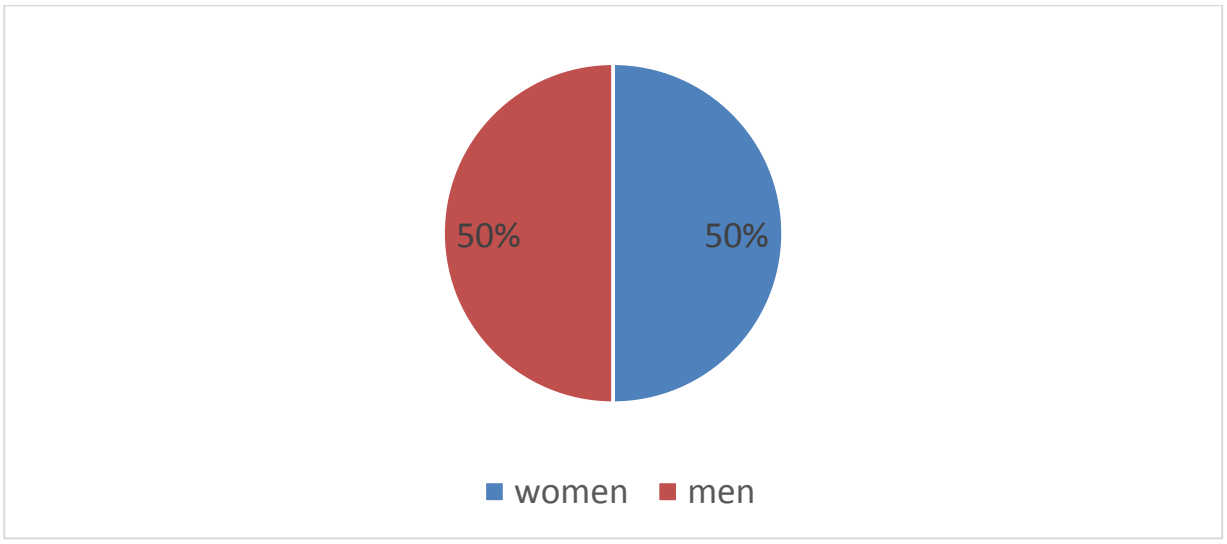

Fig. 7. Distribution of measles incidence by gender (%)

The main cause of measles outbreaks, wherever they occur, is insufficient vaccination coverage against this infection, and since measles is extremely infectious (contagious index of 100%) anyone who does not have antibodies against measles is at high risk of getting measles. It is necessary to maintain a consistently high coverage of preventive vaccinations for children and adults at least 95-98% to maintain epidemiological well-being and prevent the growth of morbidity and outbreaks of infections.

On the basis of the Laws of the Republic of Uzbekistan "On the protection of the health of citizens" of 29.08.1996, as well as "On State Sanitary Supervision" of 03.07.1992. and the

immunization policy pursued by WHO, rules and norms for the immunoprophylaxis of infectious diseases of citizens in our State were developed [8;9].

In Uzbekistan, as in many countries of the world, routine measles vaccination is carried out at 12 months, since it is believed that until this age, antibodies transmitted from the mother during pregnancy remain in the blood of the child [10], the 2nd (revaccination) is carried out children at the age of 6.

Scientists have proven that, having had measles, a person loses the immune memory of all pathogens that he has encountered before - about every cold, every strain of flu, bacteria and viruses, and, most importantly, about every vaccination - the effect of resetting immunity.

The loss is almost complete and permanent. The body has to re-learn what is harmful to it in the environment and what is not [6].

Therefore, the only and most reliable way to protect against measles infection is vaccination. Most people who received measles vaccinations in a timely manner are reliably protected from the onset of infection and its severe complications [7].

Conclusion.

1. According to our data, in modern conditions in the Republic of Uzbekistan, measles in children is recorded more often in the age group from 1 to 2 years (29% of the total number of children with measles); in second place measles is recorded among children aged 3-2 years up to 6 years (19%) and then among children of the first year of life (from 5 months) - 18%;
2. The main reasons for the lack of children vaccination with measles in Tashkent are refusal to vaccinate (27.6%), lack of information about vaccination (18%) and medical exemptions (11.8%), migration of the population, both within the country, and citizens who arrived from abroad who did not receive measles vaccinations within the given timeframe.
3. 65.0% of patients are unorganized children, adults are in second place - 23.0%, schoolchildren are in third - 11.0%;
4. Reducing the incidence of measles can be facilitated by: timely detection and isolation of patients with measles, exclusion of measles introductions into organized children's groups, prevention of nosocomial outbreaks of measles and timely scheduled double immunization of children against measles with preventive vaccination coverage of children and adults at least 95-98%.

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