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Measles is an acute infectious disease caused by the measles virus. The main clinical manifestations are fever, rash, and catarh. The measles virus is transmitted as an aerosol, droplet or by contact, and its infectivity is markedly high. Measles patients frequently develop complications and may die if they develop pneumonia or encephalitis. Although it is rare, those who have caught and recovered from measles can develop subacute encephalitis with a poor prognosis known as subacute sclerosing panencephalitis (SSPE) several to 10-odd years after recovery (see p. 52 of this issue). The World Health Organization (WHO) estimated that 109,638 people, mainly from measles can develop subacute encephalitis with a poor prognosis known as subacute sclerosing panencephalitis (SSPE) several to 10-odd years after recovery (see p. 52 of this issue). The World Health Organization (WHO) estimated that 109,638 people, mainly children in developing countries, died from measles in 2017 (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6276384/pdf/pdf_06_mm6747a6.pdf).

On the other hand, measles is considered to be an infectious disease that can be eliminated because humans are the only natural host of the measles virus, and vaccines with excellent efficacy, safety, and cost are available. Measles elimination is defined as the absence of endemic measles virus transmission in a defined geographic area, such as a region or country, for 12 months or longer in the presence of a well-performing surveillance system.

In Japan, a two-dose vaccination schedule using the measles-rubella combined (MR) vaccine was introduced in 2006, and at the end of 2007, the “Guidelines for the Prevention of Specific Infectious Diseases: Measles” (hereinafter referred to as the guidelines) were issued. In order to strengthen the immunity against measles among teens, who were the focus of the measles outbreak, a catch-up immunization program for age groups corresponding to the 1st year of junior high school and the 3rd year of high school was implemented for 5 years (from 2008 to 2012) as a routine vaccination. As a result of these countermeasures, the number of measles patients has markedly decreased since 2009, and the Regional Verification Committee of the WHO Western Pacific Region verified in March 2015 that Japan had achieved measles elimination and this status has been maintained as of 2017.

Measles notifications under the National Epidemiological Surveillance of Infectious Diseases (NESID) system

Measles is a category V infectious disease according to the “Act on the Prevention of Infectious Diseases and Medical Care for Patients with Infectious Diseases” (the Infectious Diseases Control Law) (for the notification criteria and disease classification, see: http://www.niid.go.jp/niid/images/iasr/35/410/de4101.pdf). The annual number of notified measles cases was 11,013 in 2008, when measles became a notifiable disease, but the annual number has been 35-732 cases since 2009. In 2018, a total 279 cases of measles were notified (as of February 28, 2019) (Fig. 1). These included an outbreak initiated by a tourist from overseas that reached 101 cases, the largest number of cases since the achievement of measles elimination (see pp. 53 & 54 of this issue), an outbreak initiated by foreign workers (see p. 55 of this issue) and outbreaks that spread through medical facilities (see pp. 57 & 58 of this issue). In addition, an outbreak of measles in a population with low vaccination coverage was reported from January to February 2019 (see p. 60 of this issue).

In terms of disease classification the number of measles cases with three main manifestations (fever, rash, and catarh) was 205 (laboratory-confirmed cases: 197 and clinically-diagnosed cases: 8). 73.5% of the total 279 measles cases and the number of modified measles cases, which were atypical and laboratory-confirmed with one only or two manifestations, was 74 (26.5% of the total 279 measles case).

Since 2016, laboratory-confirmed cases (laboratory-confirmed measles cases and modified measles cases) account for more than 95% of all cases (Fig. 2 in p. 50).

Regarding the age distribution, measles used to be an infectious disease that primarily affected children under 5 years of age; however, in 2008, when measles became a notifiable disease, measles outbreaks occurred mostly among teens and those in their...
and maintain the high antibody positivity level; 2) strengthen surveillance in order for patients to be detected early and appropriate virus is brought in. To this end, it is required to: 1) maintain the vaccination coverage of 2 doses of routine vaccination at 95% or higher measles virus from abroad. It is important to set up a situation from ordinary times where infection does not spread even if the measles the number of overseas visitors is expected to increase. Under such circumstances, it is difficult to completely prevent the entry of the abroad and 19 million Japanese went abroad. With international events, such as the Rugby World Cup, being held in Japan in 2019, important to promote information sharing among municipalities for smooth epidemiological investigation (see p. 66 of this issue) and public health institutes (PHIs), the Department of Environmental Health and Food Safety, the Ministry of Health, Labour and Welfare, and Infectious Diseases, and 2) other data covering various aspects of infectious diseases. The prefectural and municipal health centers and Surveillance of Infectious Diseases undertaken in compliance with the Act on the Prevention of Infectious Diseases and Medical Care for Patients with Infectious Diseases, and the Department of Environmental Health and Food Safety, the Ministry of Health, Labour and Welfare, and quarantine stations, have provided the above data.

The statistics in this report are based on 1) the data concerning patients and laboratory findings obtained by the National Epidemiological Surveillance of Infectious Diseases undertaken in compliance with the Act on the Prevention of Infectious Diseases and Medical Care for Patients with Infectious Diseases, and 2) other data covering various aspects of infectious diseases. The prefectural and municipal health centers and public health institutes (PHIs), the Department of Environmental Health and Food Safety, the Ministry of Health, Labour and Welfare, and quarantine stations, have provided the above data.

THE TOPIC OF THIS MONTH-Continued

Further measures to be taken
Measles is still endemic in many countries (see p. 63 of this issue). In 2018, approximately 31 million people visited Japan from abroad and 19 million Japanese went abroad. With international events, such as the Rugby World Cup, being held in Japan in 2019, the number of overseas visitors is expected to increase. Under such circumstances, it is difficult to completely prevent the entry of the measles virus from abroad. It is important to set up a situation from ordinary times where infection does not spread even if the measles virus is brought in. To this end, it is required to: 1) maintain the vaccination coverage of 2 doses of routine vaccination at 95% or higher and maintain the high antibody positivity level; 2) strengthen surveillance in order for patients to be detected early and appropriate virus is brought in. To this end, it is required to: 1) maintain the vaccination coverage of 2 doses of routine vaccination at 95% or higher and maintain the high antibody positivity level; 2) strengthen surveillance in order for patients to be detected early and appropriate virus is brought in.
図3. 麻疹患者の年齢分布，2008–2018年
Figure 3. Age distribution of notified measles cases, 2008–2018, Japan

表1. 麻疹患者の予防接種歴別出数，2008–2018年
Table 1. Yearly number of notified measles cases by vaccination status, 2008–2018, Japan

表2. 麻疹ウィルス感染症の発生状況と渡航歴と渡航先，2018年
Table 2. Measles virus infection/detection by epidemiological situation, travel history and destination abroad, 2018

図5. 年齢別/年齢群別麻疹抗体陽性率，2018年度
Figure 5. Proportion of seropositive against measles virus by age and vaccination status, fiscal year 2018, Japan