



Measles in Iceland

As discussed in previous issues of Epi-Ice, measles cases have repeatedly occurred on board airplanes since 2016 after a stopover in Iceland. In only in one case did the infection pass to another person after the infected one returning to Iceland. It can be assumed that good participation in the general vaccination programme has prevented measles from spreading in Iceland. Measles is an acute highly contagious respiratory tract viral infection.

On 14 February 2019, an adult unvaccinated male arrived in the country with measles and infected six individuals of whom four got characteristic measles and three got modified measles due to a previous history of vaccination. The sequence of events is described in Figure 1.

Modified measles is well known in vaccinated individuals after contact with infected individuals, but they do not become severely ill and pose little risk of transmission. Of the four who got symptomatic measles, two children under the age of 18 months were unvaccinated and two were unvaccinated adults.

Various quarantine measures were undertaken when the first measles case had been diagnosed. Passengers

who had been exposed to the infected individual were informed and given instructions on how to respond. The dissemination of information to the public through the media, the telephone hotline 1700, the Health Service, the website of the Directorate of Health and the Facebook account of the Chief Epidemiologist was considered successful. Vaccination against measles was offered to everyone in East Iceland aged 6-18 months and in the Capital area vaccination was made available to people of all ages, while in other parts of the country vaccination of children over 12 months of age was recommended. In addition,

all those born after 1970 were offered vaccination if it was unclear whether they had been vaccinated or not. Those who had been exposed to infected individuals were advised to stay in home quarantine for three weeks from possible infection.

Sufficient amount of vaccine was successfully provided to meet the existing need for disease protection. A total of 6.800 individuals were vaccinated during the period from mid-February to early March. This outbreak of measles was assumed to have come to an end by the end of March as the longest incubation period of measles is three weeks from infection. There were

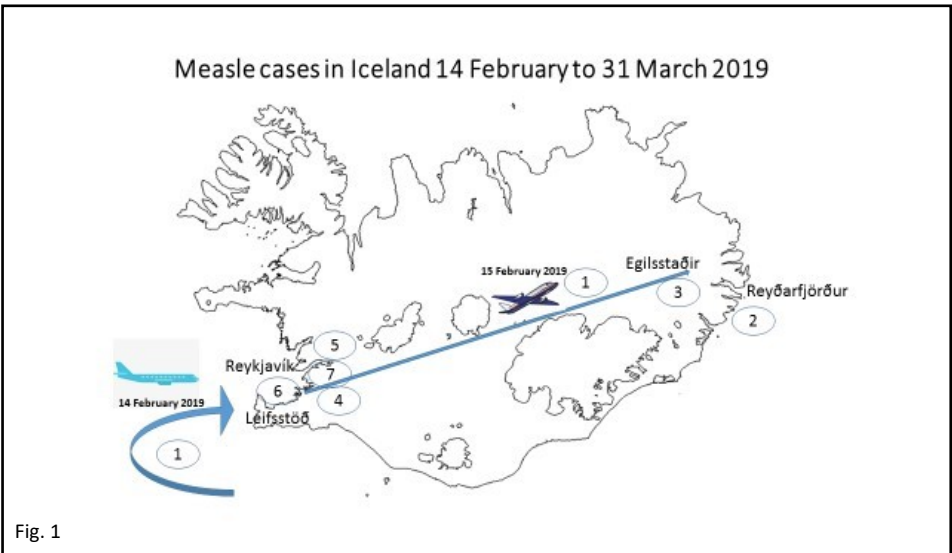


Fig. 1

Cont. p. 2

Contents:	Page.
Measles in Iceland	1
Listeriosis	2
Tuberculosis.....	3
Legionellosis	3
Yersiniosis.....	4
Influenza during the winter season 2018–2019	4

Editorial board
 Thorolfur Gudnason, Chief Epidemiologist
 Agnes Gísladóttir
 Asa St. Atladóttir
 Gudrun Sigmundsdóttir
 Hrafnhildur B. Stefánsdóttir
 Iris Marelsdóttir
 Juliana Hedinsdóttir
 Kamilla S. Josefsdóttir
 Marianna Thordardóttir

Editor
 Haraldur Briem, Special Advisor

Directorate of Health
Chief Epidemiologist for Iceland

Baronsstíg 47
 101 Reykjavík
 Tel: +354 5101900
 Fax: +354 5101920
 E-mail: mottaka@landlaeknir.is
 www.landlaeknir.is

15 cases of mild symptoms of measles attributable to vaccination, which is a known side effect of the vaccine. The frequency of such side effects could therefore be about 0.2%. The vaccine contains attenuated measles virus that does not transmit to other susceptible persons.

It is certain that many interacting factors played a role to containing the measles outbreak. First, the herd immunity seems to be sufficiently good in

the society and secondly, through the concerted effort of the health care system, the public and the importer of the measles vaccine, successful preventive measures could be undertaken.

In recent years, the Chief Epidemiologist has repeatedly pointed out that measles vaccination cover at the age of 18 months is unacceptable (91–93%), as 95% participation is necessary to ensure good herd immunity. When surveying children aged 2–10 years, the

participation has turned out to be about 95–96%. This means that a large number of children in this country seem to get their first measles vaccination after the age of 18 months, which in turn indicates that the health care recall system needs improvement. However, the inclusion of 12-year-old children in the second measles vaccination is quite acceptable, or over 95%.

Listeriosis

In early January this year, a 48-year-old woman with underlying immunosuppression became ill with listeriosis due to infection caused by the bacteria *Listeria monocytogenes*. She died two weeks later from the infection. She reported consuming smoked and cured salmon around Christmas time 2018. Leftovers of these products had been frozen, and culturing revealed heavy contamination of *L. monocytogenes*. Subsequent cultures from the Icelandic production facility revealed contamination with *L. monocytogenes*. The production was discontinued, all foods were recalled, and necessary cleaning processes undertaken. Smoked products from the manufacturer had been exported to France and the distributors there were notified. No bacterial infections were reported due to the consumption of the Icelandic products within the European Union (EU) or the European Economic Area (EEA). In 2017, a total of 2,502 cases of listeria infection were

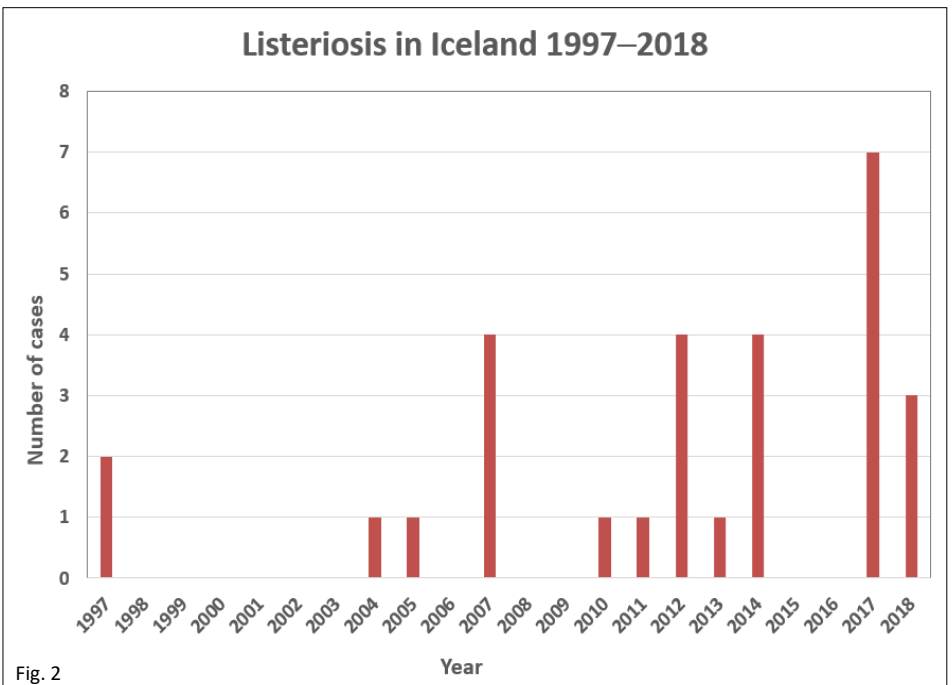


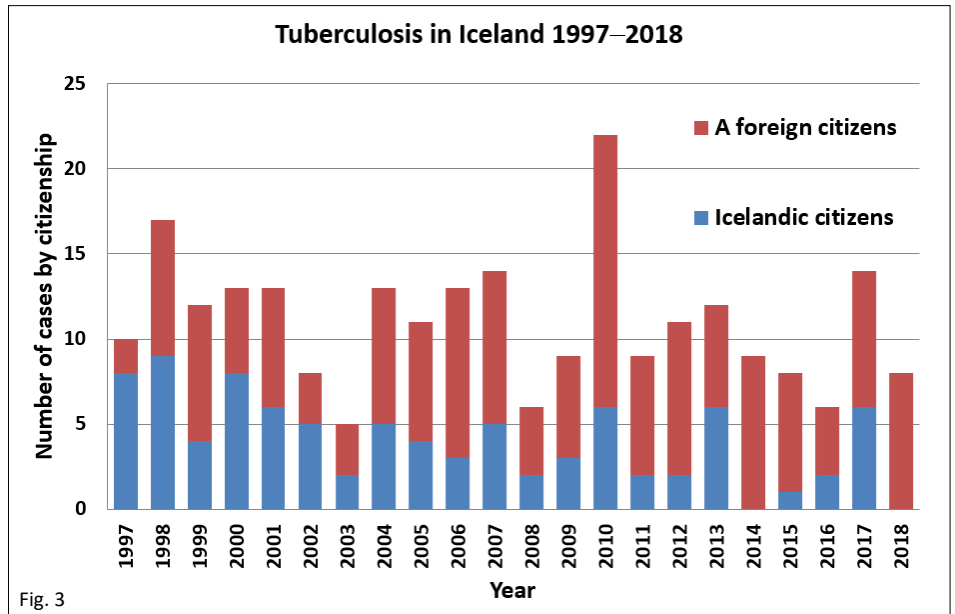
Fig. 2

identified within the EU/EEA with 14% mortality. That year, seven cases of the disease were diagnosed in Iceland. Four of these patients died, three elderly people with underlying diseases and a

new-born baby. The infections were considered domestic in six of these cases. The incidence of listeria infections appears to have been increasing in Iceland over the past two decades.

Tuberculosis

In February this year, lung tuberculosis was diagnosed in an Icelandic middle-aged person. It is believed likely that he was infected in a developing country. An extensive search for a potential transmission of tuberculosis infection to those who might have been exposed is underway in Iceland and about 300 people have been investigated to that end. The final result of this investigation is not yet available. Tuberculosis has been rare in Iceland in recent years. In 2018, eight cases of tuberculosis were detected, all in foreigners.



Legionellosis

In mid-February of this year, severe pneumonia caused by the bacterium *Legionella pneumophila* was detected in an elderly male. He lives in a block of flats for the elderly in the Reykjavík area. The Health Inspection Authority of the Capital Area was contacted, which explored the water pipelines in the building and found the bacteria in large quantities in the water-heads of the flat and, in smaller quantities, in other flats connected to the same pipeline. The bacteria were not found in other water pipelines in the building. Temporary reparations consisted of letting hot water (over 60°C) run for 2–3 minutes before taking a shower to clean the bacteria from the shower

heads. Also, the pipeline in question needs to be repaired.

Legionella is a bacterium that lives in water and is common all over the world. It can withstand temperatures from 0–50°C, but lives best at 30–40°C. The bacteria can settle in closed ends of water pipelines in buildings where the water remains stationary and the temperature is not high, and they can be transmitted when aerosol is formed from water pipelines or water tanks (e.g. in the shower) and susceptible individuals inhale it.

Healthy individuals can get the bac-

terium into their airways without becoming ill and it is not very dangerous in those cases. Severe illnesses such as pneumonia predominantly occur in people with underlying risk factors, mainly high age, smoking, chronic lung disease, immunodeficiency, alcoholism, and renal failure.

No other residents of the building seem to have been affected by these bacteria.

Yersiniosis

In January 2019, two cases of yersiniosis caused by the bacterium *Yersinia enterocolitica* were detected. This is a bacterium found in the intestines of animals, especially pigs. It is rarely detected in Iceland but is well known in the other Nordic countries. The results of a prospective study conducted in patients with acute diarrhoea in Iceland in 2003–2007 revealed that infections caused by *Y. enterocolitica* were uncommon, or below 1% of the cases. The main symptoms of the infection are gastroenteritis and abdominal pain that mimic appendicitis. Blood infections are known, while allergic reactions are well known with *erythema nodosum* and other skin rashes. Joint pain can

follow. The prognosis for patients is generally good without antibiotic treatment. Serious side effects are joint infections that can cause long-term symptoms. The yersin-

iosis cases reported in 2018 were diagnosed at the end of the year so that the last four infections are close in

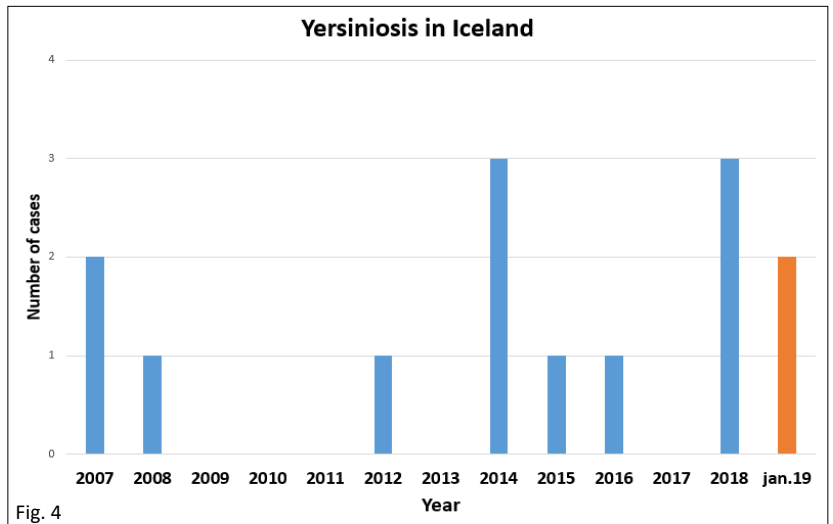


Fig. 4

time and appear to be of domestic origin. The infections have not been shown to have a common origin.

Influenza during the winter season 2018–2019

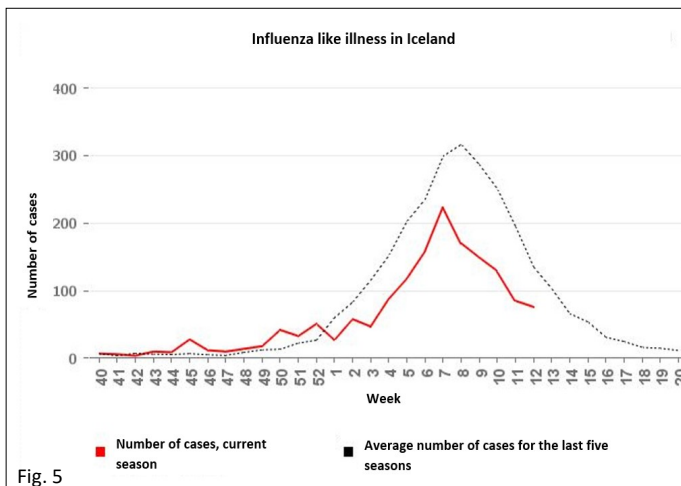


Fig. 5

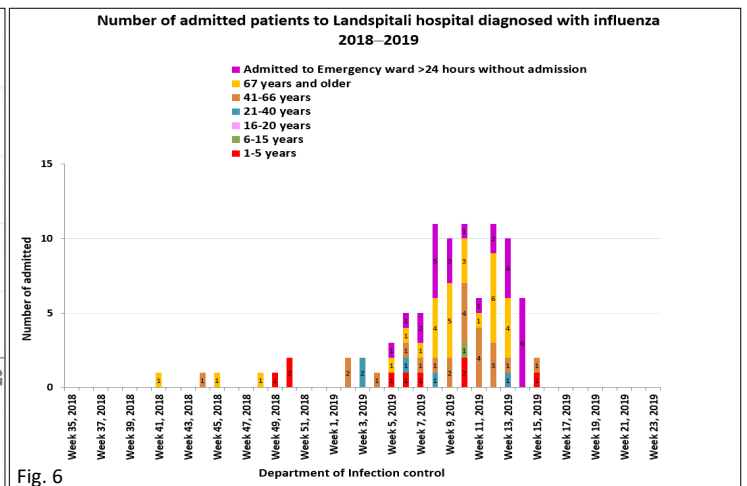


Fig. 6

The influenza epidemic began in Iceland at the beginning of 2019 and was almost extinct by the end of March. As shown in Fig. 5, the epidemic has been far less intense in the society compared to the average of the past five years. Most of those affected were diagnosed with influenza A (H1N1), or 51%, while 47% had influenza A(H3N2). There were a few cases of influenza A that were not further analysed. Much fewer cases were

due to influenza B in the winter of 2019, or 1.4%, while last year, 60% were diagnosed with confirmed influenza B.

Simultaneously with the decrease in influenza in the community, admissions to the Landspítali University Hospital also decreased according to information from the Department of Infection Control of Landspítali University Hospital, see Figure 6.

It can be assumed that widespread vaccination against the influenza last autumn was a contributing factor in mitigating the influenza epidemic of this past winter, as more than 70,000 individuals were vaccinated, which is a greater attendance than ever before.