Public Health Scotland

Immunisation and vaccine-preventable diseases quarterly report

July to September 2023 (Q3)

An Official Statistics publication for Scotland

Published	05 December 2023
Type	Statistical report
Author	Public Health Scotland
Topics	Health protection
	Immunisations

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About this release

Our quarterly update

This release by Public Health Scotland (PHS) provides quarterly information on the following immunisations and vaccine-preventable diseases under surveillance in Scotland:

- Diphtheria
- Haemophilus influenzae (H.influenzae)
- Measles
- Meningococcal disease
- Mumps
- Pertussis
- Invasive pneumococcal disease
- Rotavirus
- Rubella
- Shingles
- Tetanus

Next release

The next release of this publication will be 5 March 2024.

Main points

Vaccine-preventable disease

As a result of measures and restrictions implemented in response to the COVID-19 pandemic most vaccine preventable diseases under surveillance in this report showed a notable reduction from the second quarter of 2020. Case numbers for some vaccine preventable diseases have been increasing in 2023, and invasive Haemophilus influenzae case numbers are higher than those reported in recent years. This is being closely monitored by PHS.

Invasive bacterial diseases

To the end of the third quarter of 2023, case numbers for invasive pneumococcal disease were higher than case numbers for the equivalent periods in 2022, 2021 and 2020, but lower than those for the same period of 2019. Case numbers for meningococcal disease were higher than those for the equivalent period in 2022, 2021 and 2020, but lower than 2019. Case numbers for invasive Haemophilus influenzae to the end of the third quarter of 2023 are higher than for the equivalent period in the previous four years.

There were 321 invasive pneumococcal disease cases reported to the end of the third quarter of 2023, compared with 429 cases in the same period of 2019, 222 cases in 2020, 181 in 2021 and 233 in 2022.

There were 38 cases of meningococcal disease reported to the end of the third quarter of 2023, compared with 43 in the same period of 2019, 28 in 2020, 8 in 2021 and 19 in 2022.

There were 76 cases of invasive Haemophilus influenzae reported to the end of the third quarter of 2023, compared with 52 in the same period in 2019, 42 in 2020, 18 in 2021 and 47 in 2022. This is being closely monitored.

Measles, mumps and rubella

There were no cases of measles reported to the end of the third quarter of 2023. In 2022, there was one case of measles reported which was imported from outwith the UK and was the first case reported in Scotland since 2019.

There were 14 cases of laboratory-confirmed mumps reported to the end of September 2023, nine of which were reported between January and March. There were seven laboratory-confirmed cases of mumps reported in 2022 and one in 2021. This is a considerable reduction from the 864 cases reported in 2020 and 784 cases reported in 2019.

There have been no reported cases of rubella in Scotland since 2017.

Pertussis

There were no cases of laboratory-confirmed pertussis in the first quarter of 2023, three cases reported in the second quarter, and 14 cases in quarter three, bringing the total number of cases to the end of September to 17. In 2022 and 2021, there were three and four cases of pertussis reported, respectively. This is a considerable decline from the 198 cases reported in 2020 and 746 cases reported in 2019.

Results and commentary

Diphtheria

Background information

Diphtheria is an acute bacterial infection affecting the upper respiratory tract or the skin, caused by the diphtheria toxin produced by toxigenic strains of Corynebacterium diphtheriae (C. diphtheriae), Corynebacterium ulcerans (C. ulcerans), and less commonly Corynebacterium pseudotuberculosis (C. pseudotuberculosis).

The most common symptoms of diphtheria affecting the upper respiratory tract are membranous pharyngitis with fever, lymphadenopathy and upper respiratory tract soft tissue swelling 'bull neck' potentially leading to life-threatening airway obstruction. Cutaneous diphtheria may cause pus-filled blisters on legs, hands and feet, and ulceration of the skin.

In unvaccinated or partially vaccinated individuals, systemic absorption of the toxin can lead to late complications such as cardiac and neurological conditions, and sometimes death.

Surveillance

Diphtheria has been rare in the UK because babies and children have been vaccinated against it since the 1940s. Prior to the introduction of a vaccine up to 70,000 cases a year were confirmed, causing around 5,000 deaths.

There was one case of toxigenic diphtheria (C.ulcerans) reported in the third quarter of 2023. Prior to this, the last case of toxigenic diphtheria in Scotland was reported in 2020.

The UK Health Security Agency (UKHSA) reported an increase in cases of toxigenic C. diphtheriae among asylum seekers arriving by small boat to England since 2022, with similar increases reported elsewhere in Europe. Further details can be found here: Diphtheria: cases among asylum seekers in England, 2022 and 2023 - GOV.UK (www.gov.uk).

Vaccination Information

More information on vaccines against diphtheria can be found on the following pages:

- 6-in-one vaccine
- 4-in-one vaccine
- 3-in-one vaccine

Vaccine uptake statistics

Vaccine uptake statistics for children are published in Teenage booster immunisation statistics Scotland - School year 2020/2021 and childhood immunisation statistics quarterly report.

Haemophilus influenzae

Background information

Haemophilus influenzae (H. influenzae) are bacteria commonly carried in the respiratory tract, which can cause acute invasive disease. They are divided into encapsulated and unencapsulated (non-typeable) strains. Encapsulated strains can be classified into six serotypes, from a to f, of which type b (Hib) was most prevalent prior to vaccine introduction. Infection with H. influenzae can cause the following conditions:

- meningitis
- septicaemia
- acute respiratory infections

Less frequent conditions which may be caused by H. influenzae infection include:

- epiglottitis
- osteomyelitis
- septic arthritis

For more information on H. influenzae type b, visit NHS inform.

In 1992, following introduction of the Hib vaccine for young children, the number of H. influenzae type b cases fell dramatically, not only in the vaccinated group but also in older age groups.

Due to reduced carriage of the organism within the respiratory tract of vaccinated children, transmission to the wider community was effectively suppressed.

The addition of the Hib booster vaccine in 2006 to the childhood immunisation schedule, reduced case numbers further.

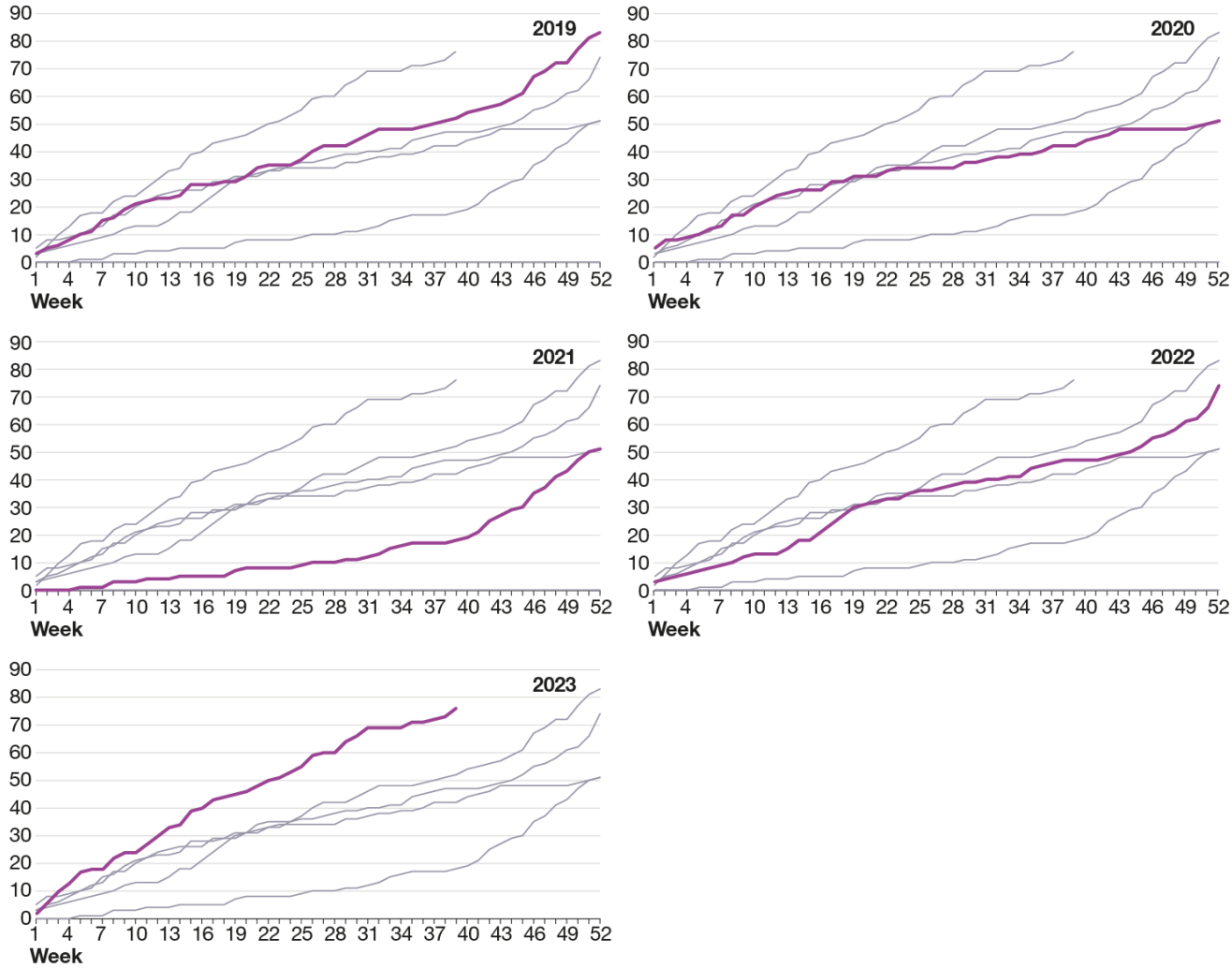
In Scotland, typing is conducted on cases with positive laboratory reports for invasive H. influenzae in order that national trends in disease subtypes can be monitored.

Further enhanced surveillance is carried out for all invasive H. influenzae cases identified in children under the age of five and type b strains across all age groups.

Surveillance update for July to September 2023

There were 17 invasive H. influenzae cases reported in the third quarter of 2023, bringing the total number of cases to the end of the third quarter to 76 as shown in Figure 1. This is higher than the number of cases reported for the same period of the previous four years (range 18 to 52).

Figure 1: Cumulative number of Haemophilus influenzae cases reported to PHS, 2019 to 2023 (week 39)



Of the 76 cases reported to the end of the third quarter of 2023:

- 46 were people aged over 40 years
- five were people aged between 21 and 40 years
- eight were people aged between five and 20 years
- 17 were children aged under five years old, eight of whom were infants aged under one year.

Figure 2 demonstrates the epidemiological impact of the Hib vaccine, for those aged under five (routinely vaccinated group) and for all ages (including under-fives).

There was a marked decrease in cases from 1992 in all age groups, followed by a rise in case numbers in the early 2000s. Case numbers decreased again following the introduction of the Hib booster vaccine, and figures have remained relatively stable since 2011. See the vaccine-preventable disease summary for the number and incidence of Haemophilus influenzae disease in Scotland over the last five years.

Figure 2: Laboratory reports of invasive Haemophilus influenzae type b disease in Scotland, 1988 to 2023 (week 39)

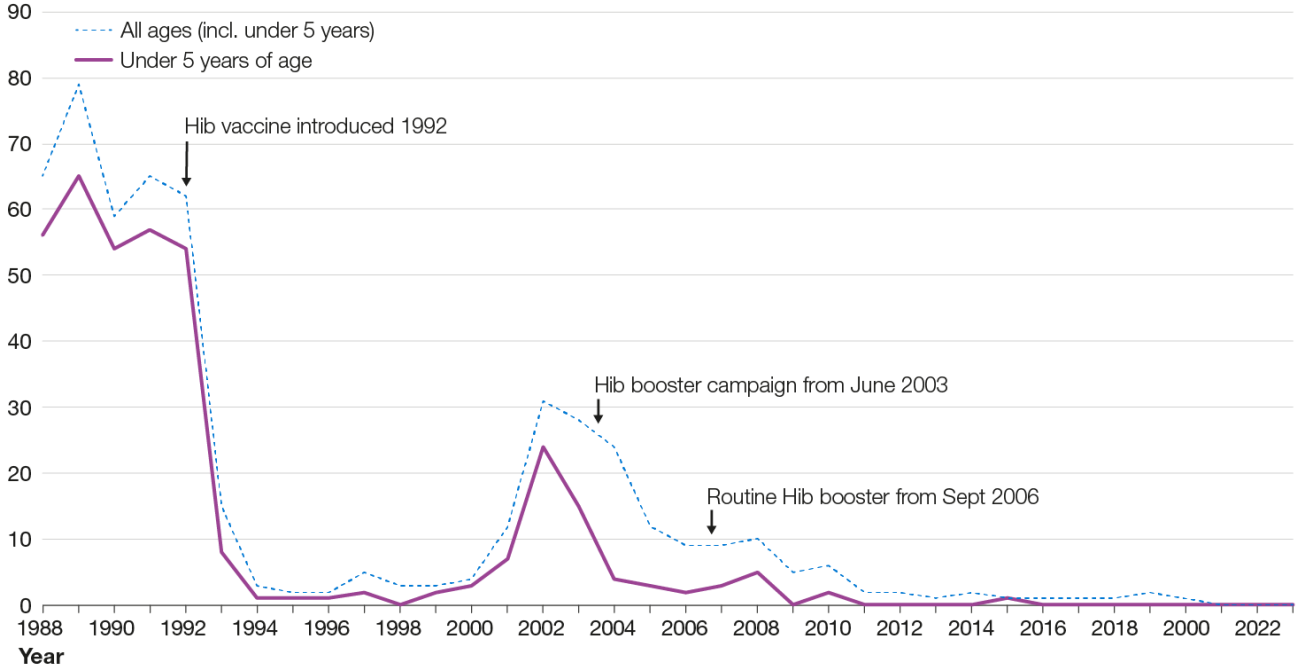
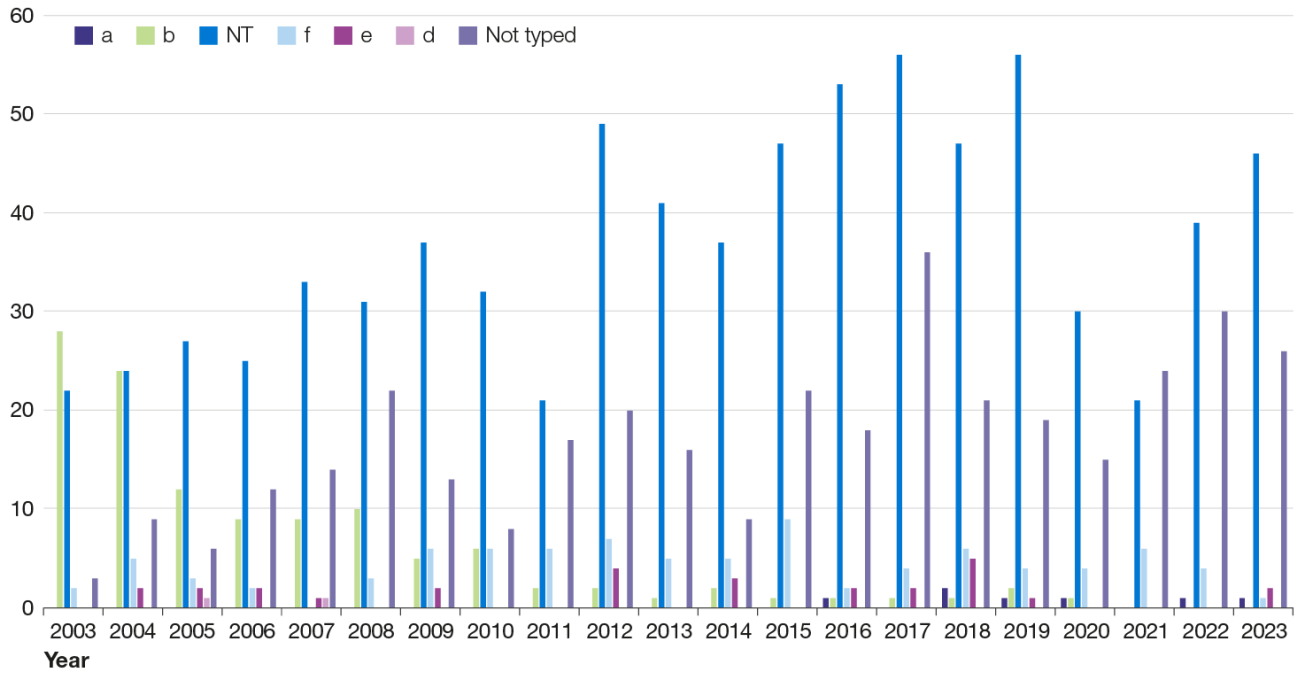


Figure 3 presents laboratory reports by serotype, since the introduction of the Hib booster campaign in 2003.

Of the 76 isolates in the first half of 2023: isolates

- 46 were non-typable (i.e., non-encapsulated type)
- two were identified as type e
- one was identified as type a
- one was identified as type f
- typing was not carried out/available for the remaining 26 isolates

Figure 3: Laboratory reports of Haemophilus influenzae by serogroup, 2003 to 2023 (week 39)



Vaccination information

More information on vaccines against invasive Haemophilus influenzae type b can be found on the following pages:

- 6-in-one vaccine
- Hib/MenC vaccine

Vaccine uptake statistics

Vaccine uptake statistics are published in our childhood immunisation statistics quarterly report.

Measles

Background information

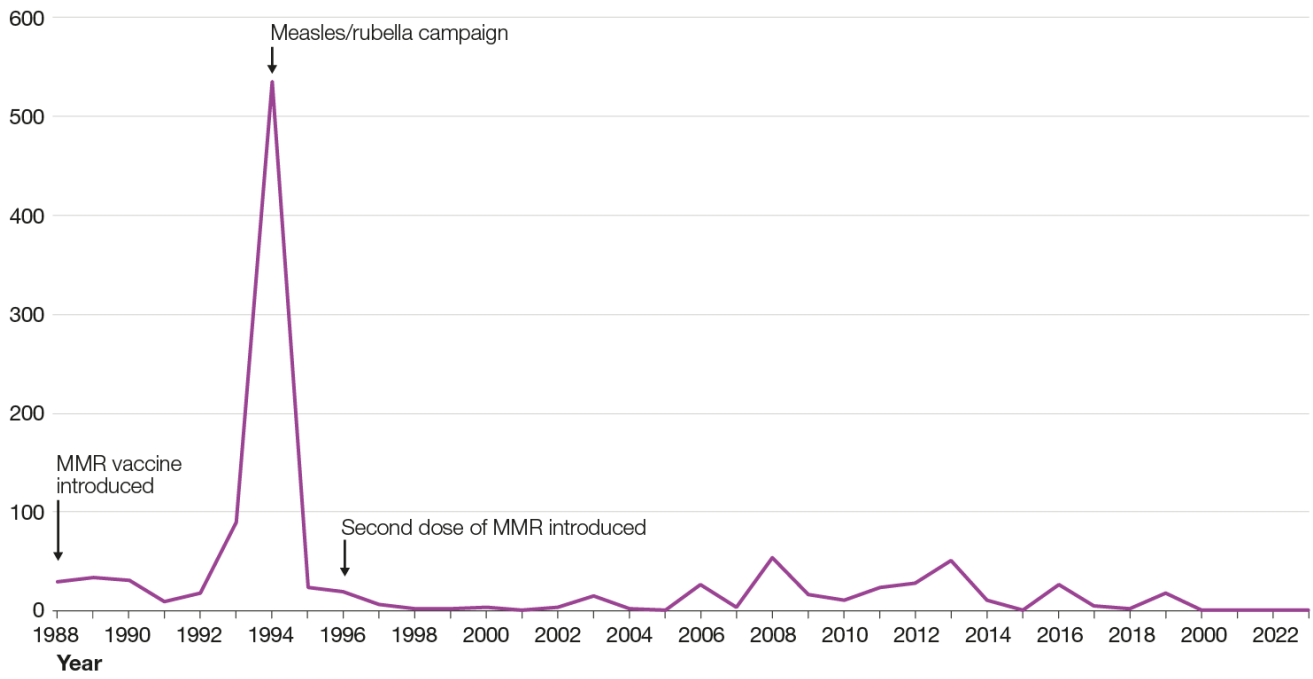
Measles is a rash illness resulting from infection with the measles virus. It can affect people of all ages but infants less than one year of age and those who are immunocompromised are at increased risk of complications and death. It is one of the most communicable diseases with one case having the potential to infect another 12 to 18 individuals through airborne transmission and respiratory droplets in susceptible populations.

Before vaccination, measles was a very common childhood disease in Scotland and deaths attributable to measles were substantial.

Following the introduction of measles vaccine in 1968 and the subsequent introduction of the MMR vaccine in 1988, the incidence of the disease has decreased dramatically.

However, as Figure 4 shows, outbreaks have occurred in recent years. These outbreaks have largely occurred in under-immunised populations.

Figure 4: Number of laboratory-confirmed cases of measles in Scotland by year, 1988 to end of September 2023



Surveillance update for July to September 2023

There were no cases of laboratory-confirmed measles reported to the end of the third quarter of 2023, and only one case reported in 2022 which was the first case reported since 2019.

As shown in Figure 5, the number of cases each year has been variable. See the vaccine-preventable disease summary for the number and incidence of measles in Scotland over the last 5 years.

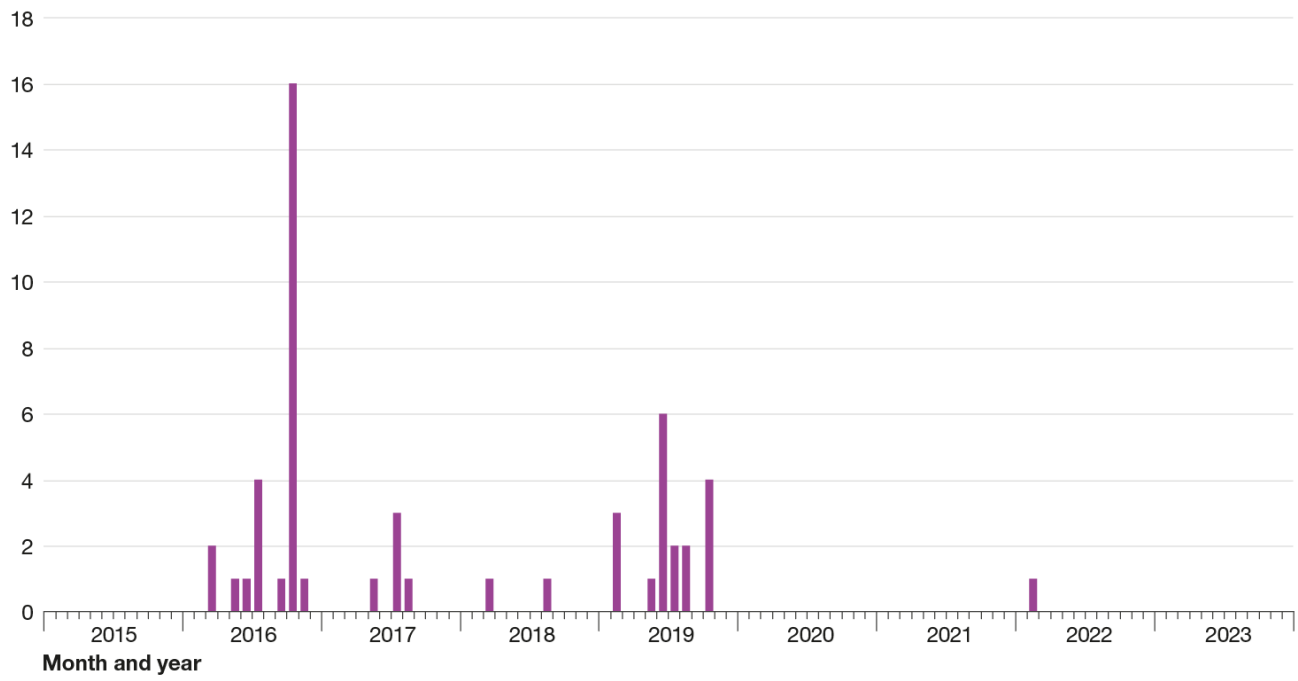
A single case in 2022 (February) was imported from outwith the UK. No further transmission occurred in Scotland, highlighting the success of the MMR vaccination programme and the importance of maintaining high vaccine uptake in Scotland.

Of the 18 laboratory-confirmed cases of measles reported in 2019:

- one case was acquired elsewhere within the UK, outwith Scotland, from which two further Scottish cases were identified,
- seven cases were imported from outwith the UK, and resulted in two import-related cases in Scotland,
- six laboratory-confirmed cases of measles in Scotland were of unknown origin, four of which had typing available. The type identified (D8) indicated that these cases were strains identified elsewhere in the UK and Europe, which demonstrates transmission within the UK and across the continent prior to the COVID-19 pandemic.

In highly vaccinated populations such as Scotland, it is rare but possible for individuals who have received two doses of MMR vaccine to develop symptoms following exposure to a measles case. However, symptoms are usually attenuated, and individuals are unlikely to be as infectious.

Figure 5: Number of laboratory-confirmed cases of measles in Scotland by month and year, 2015 to September 2023



The age distribution of measles cases has varied over recent years, but most cases are observed in children and young adults. Of cases reported in 2019, the median age of the 18 laboratory-confirmed measles cases was 24 years. This is similar to the median age of cases in 2016, which was 22 years, and 2017 which was 27 years. Of the two laboratory-confirmed cases reported in 2018, one case was in the under one year age group and the other case reported was in the 30 to 39 year age group.

Measles in Europe

Measles outbreaks occurred across Europe throughout 2018 and continued into 2019 but there was a notable reduction in cases from March 2020. Following a rise in laboratory-confirmed cases since late 2022, several countries in the WHO European Region have reported measles cases in recent months. In February 2023, WHO Europe issued the following press statement: Immediate and targeted catch-up vaccination needed to avert measles resurgence.

In the most recent 12 months up to September 2023 there were a total of 1238 cases of measles reported to the European Centre for Disease Prevention and Control. The EU/EEA countries with highest reported rate of cases between this time period were Liechtenstein, Romania, Austria and Belgium with rates of 76.3, 48.7 and 17.2 and

3.7 cases per million of population, respectively.

Data published by UKHSA reports a total of 128 cases of laboratory confirmed measles in England between 1 January to the end of June 2023, the majority of which were reported in London. However, all regions in England have had at least one case reported this year.

Ongoing measles activity in Europe and globally poses a threat to international travellers and Scotland will continue to face an elevated risk of imported cases from other countries and other regions of the UK.

Vaccination information

More information on vaccines against measles can be found on the following page:

- MMR vaccine

Vaccine uptake statistics

Vaccine uptake statistics are published in our childhood immunisation statistics quarterly report.

Meningococcal Disease

Background information

Meningococcal disease is an invasive infection of Neisseria meningitidis (N. meningitidis) bacteria in:

- blood
- cerebrospinal fluid (CSF)
- other normally sterile site

Meningococcal disease cases overwhelmingly show symptoms of meningitis (inflammation of the meninges) or septicaemia (blood poisoning). It can also present as a combination of both or as a rarer clinical presentation, such as joint infection. Meningitis can be caused by a variety of viruses or bacteria, of which N. meningitidis is one. Meningococcal disease is a significant cause of morbidity and mortality in children and young adults.

Although approximately 10% of the population are estimated to carry N. meningitidis in the nasopharynx, the vast majority do not have symptoms or develop invasive disease. Invasive cases acquire infection through inhalation of, or direct contact with, respiratory droplets, from either an infected person or asymptomatic carrier.

N. meningitidis is classified according to its outer membrane characteristics via a process known as serogrouping. There are several different serogroups, the most common of which in the UK is B, followed by W. Cases of serogroup Y, Z and C disease have also been reported.

In 1999, the Meningococcal Invasive Disease Augmented Surveillance (MIDAS) system was introduced.

The surveillance scheme is managed jointly by Public Health Scotland and the Scottish Haemophilus Legionella Meningococcus and Pneumococcus Reference Laboratory (SHLMPRL).

Surveillance data from MIDAS informs the epidemiology of meningococcal disease in Scotland, as analyses can be conducted according to:

- age
- serogroup
- molecular typing
- clinical presentation
- outcome

Against a background of declining cases of meningococcal disease in the UK, surveillance indicated that there had been an increase in cases of severe invasive disease caused by serogroup W (MenW) since 2009. Clinical follow up of cases revealed that intensive care admission was high, particularly among older children and young adults, and for the first time in a decade MenW was associated with fatal outcomes in children and adolescents. MenACWY vaccine was recommended by the Joint Committee on Vaccination and Immunisation (JCVI) and offered to 14 to 18-year-olds as a measure to address the increasing number of meningococcal serogroup W cases in this age group. A phased catch-up programme ran in Scotland between August 2015 and March 2016.

The vaccine was also offered to students under the age of 25 attending university for the first time from Autumn 2015. MenACWY vaccine continues to be offered routinely to those in secondary school year 3 (S3).

Surveillance update for July to September 2023

There were 14 cases of meningococcal disease reported in the third quarter of 2023, bringing the total number of cases to the end of the third quarter of 2023 to 38. This is higher than the number of cases reported for the same period in 2022 (n=19), 2021 (n=8) and 2020 (n=28), but lower than in 2019 (n=43) as shown in Figure 6.

Figure 6: Cumulative number of meningococcal disease cases reported to MIDAS, 2019 to 2023 (week 39)

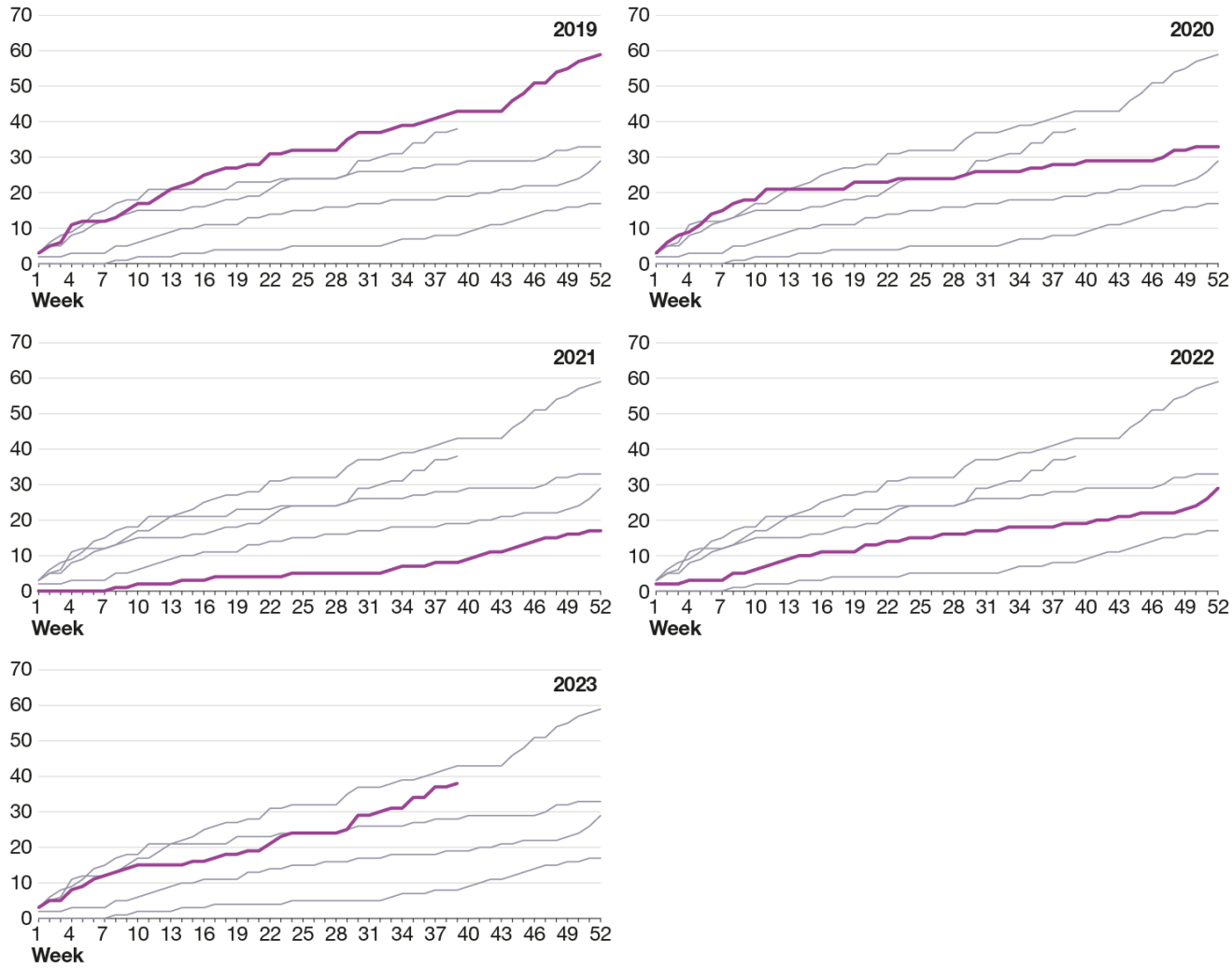
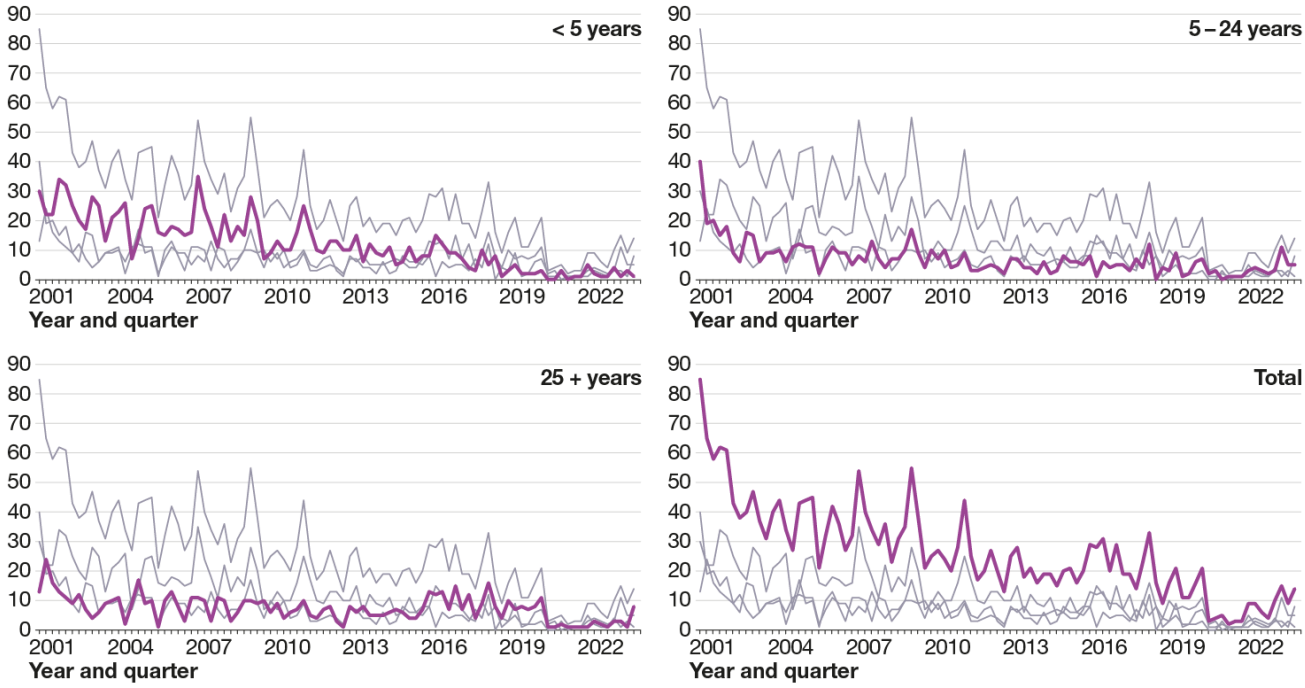


Figure 7 shows the number of meningococcal disease cases, according to age group and by quarter from 2001 to the end of the third quarter of 2023.

To the end of the third quarter of 2023, there were:

- five cases aged under five years, three of whom were aged under one year
- 21 cases in the five to 24 years age group
- 12 cases in those aged 25 years or over

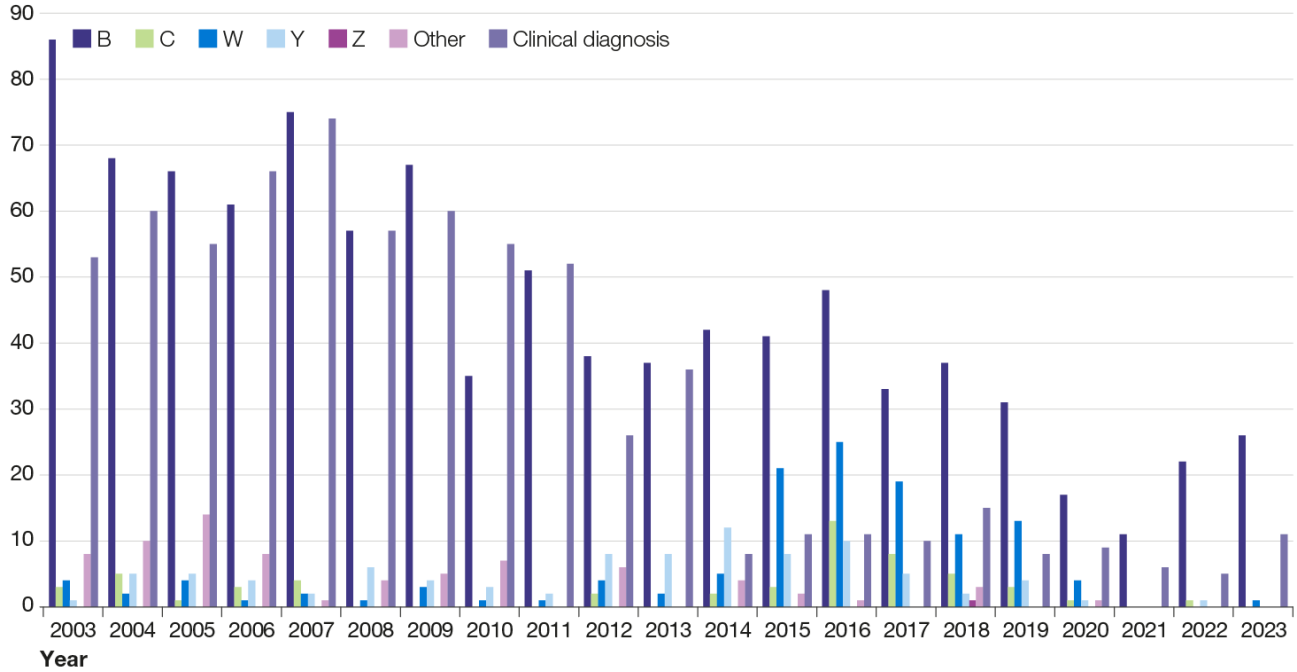
Figure 7: Meningococcal disease cases reported to MIDAS by age group and quarter, 2001 to 2023 (week 39)



Of the 38 cases of meningococcal disease reported to the end of the third quarter of 2023:

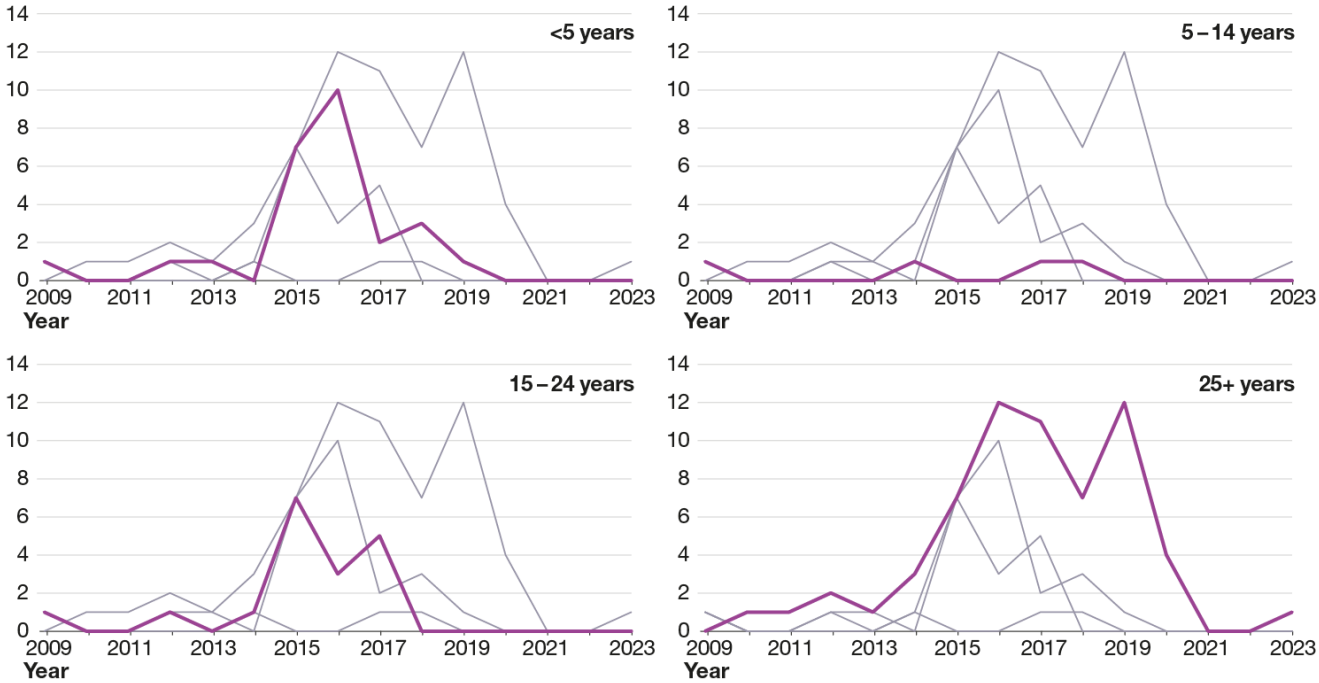
- 26 were serogroup B
- one was serogroup W
- 11 cases were based on clinical diagnosis, as shown in Figure 8

Figure 8: Meningococcal disease cases reported to MIDAS by serogroup, 2003 to 2023 (week 39)



Serogroup W cases continue to be reported separately following introduction of the MenACWY immunisation programme. Figure 9 demonstrates a positive impact of the MenACWY vaccine for the eligible population. One serogroup W case has been reported in 2023 so far (first quarter).

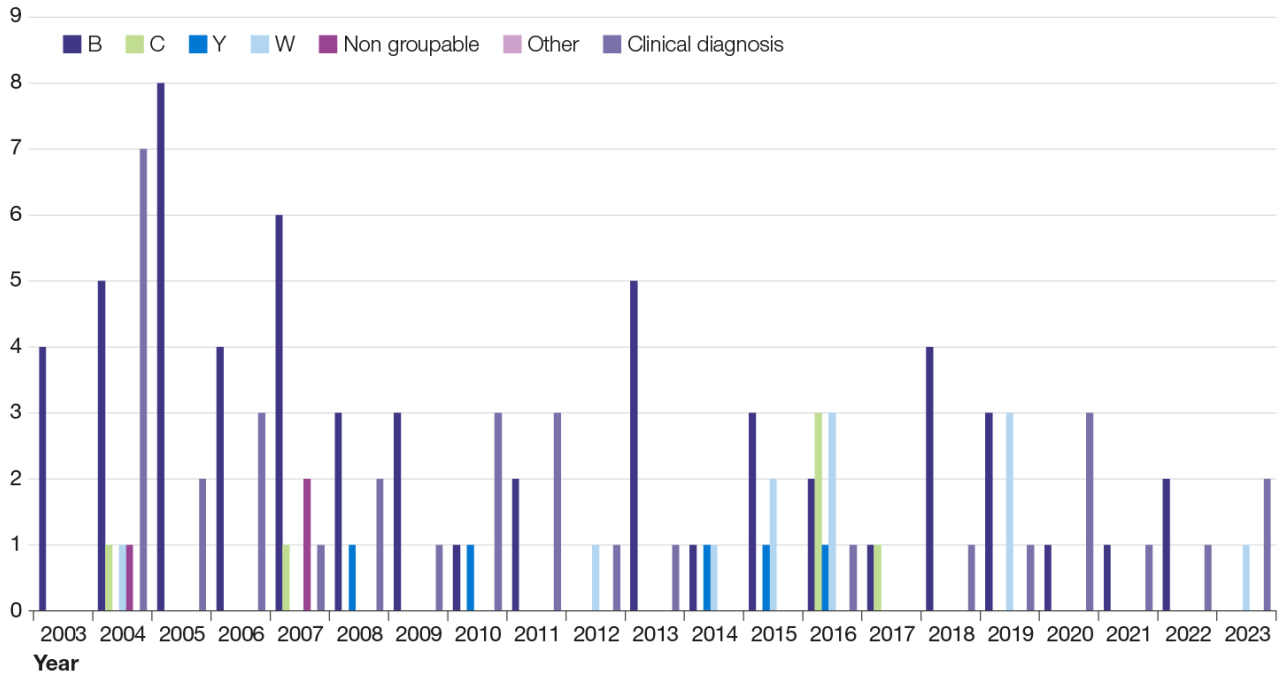
Figure 9: Meningococcal serogroup W by age group reported to PHS 2009 to 2023 (week 39)



The number of deaths between 2003 and the end of the third quarter of 2023, reported by serogroup, is shown in Figure 10. There were three deaths from meningococcal disease to the end of quarter 3 of 2023.

See the vaccine-preventable disease summary for the number and incidence of invasive meningococcal disease in Scotland over the last 5 years.

Figure 10: Meningococcal deaths by serotype reported to PHS 2003 to 2023 (week 39)



Vaccination information

More information on vaccines against meningococcal disease can be found on the following pages:

- MenB vaccine

- Hib/MenC vaccine
- MenACWY vaccine

Vaccine uptake statistics

Vaccine uptake statistics are published in our childhood immunisation statistics quarterly report.

Vaccine uptake statistics for the teenage MenACWY vaccine can be found at: Teenage booster immunisation statistics Scotland Publications - Public Health Scotland.

Mumps

Background information

Mumps is a disease resulting from infection by the mumps virus.

It was a common childhood disease prior to the introduction of the MMR vaccine in 1988, with more than 85% of adults having evidence of previous infection.

The rate of disease has decreased substantially following the introduction of the vaccine. However, there was a widespread increased incidence of mumps throughout the UK, from 2004 with the number of laboratory-confirmed cases peaking in 2005. These numbers substantially declined by 2008 although cases have remained higher than those reported before 2004.

Cases of mumps are commonly identified by laboratory testing based on positive PCR or IgM serology and reported to PHS, with only laboratory-confirmed cases presented in this report. However, many cases of mumps may be diagnosed clinically, with no laboratory confirmation testing, or go undiagnosed since individuals may not present to healthcare. Therefore, the reliance on laboratory reports may represent an underestimate of the true rate of disease in the community.

For more information on mumps, visit NHS Inform.

Surveillance update for July to September 2023

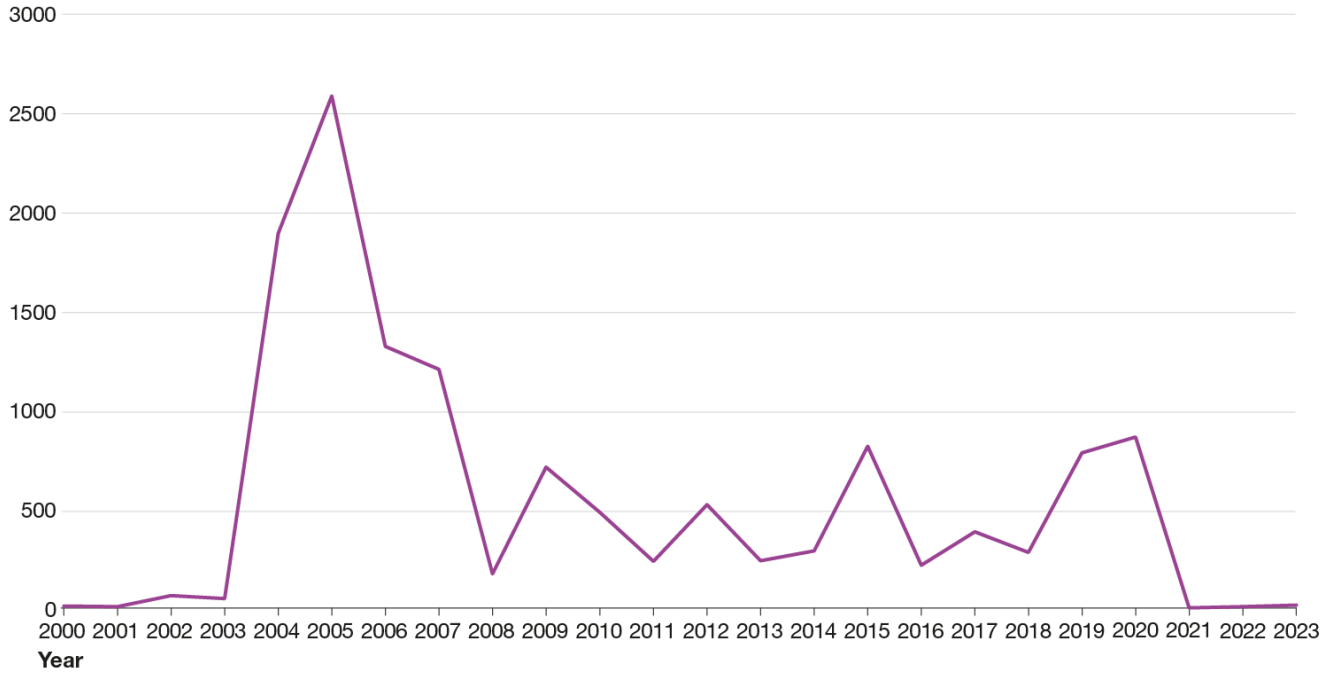
There were 14 cases of laboratory-confirmed mumps reported to the end of September 2023, nine of which were reported between January and March. In 2022 there were seven laboratory-confirmed cases of mumps reported in total.

Since April 2020, there has been a substantial reduction in number of cases of mumps reported with only one laboratory-confirmed case of mumps reported in 2021. As shown in Figure 11, outbreaks occurred in:

- 2009
- 2012
- 2014 to 2015

At these points in time, most of the individuals affected were adolescents and young adults in higher education who had not received two doses of MMR vaccine.

Figure 11: Number of laboratory-confirmed cases of mumps in Scotland by year, 2000 to September 2023

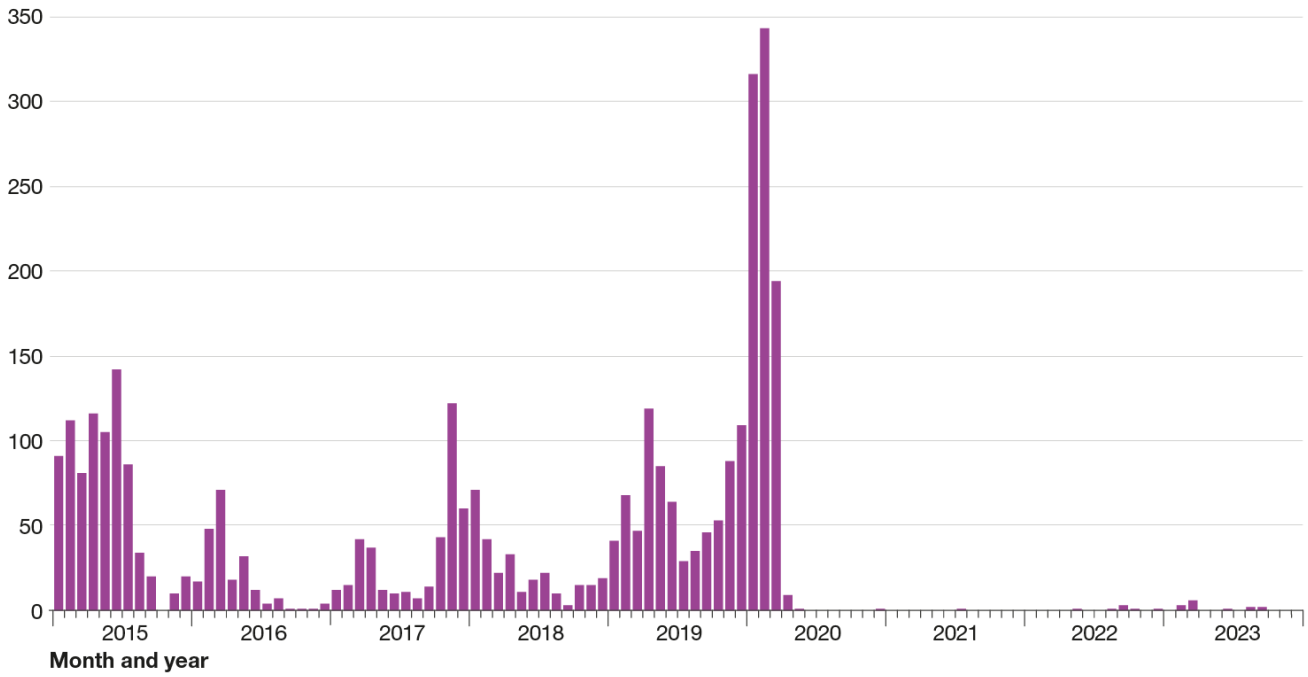


See Appendix 1 for the number and incidence of mumps in Scotland over the last five years.

In 2020, the majority of reported cases occurred in the first three months, as shown in Figure 12. The decrease in reported cases since April 2020 was likely a result of social distancing measures and restrictions implemented in response to the COVID-19 pandemic, which will also have interrupted the transmission of mumps. These measures also reduced attendance to the primary care setting, resulting in reduced opportunity to diagnose cases.

NHS boards experienced clusters of mumps into the first quarter of 2020, occurring mainly in adolescents and young adults. The observed increase in cases in 2019 and early 2020, prior to the implementation of COVID-19 social restriction measures, may have represented poorer initial immune response to the mumps component of the MMR vaccine, waning immunity, or a combination of both within fully and partially vaccinated individuals.

Figure 12: Number of laboratory-confirmed cases of mumps in Scotland by month and year, 2015 to September 2023

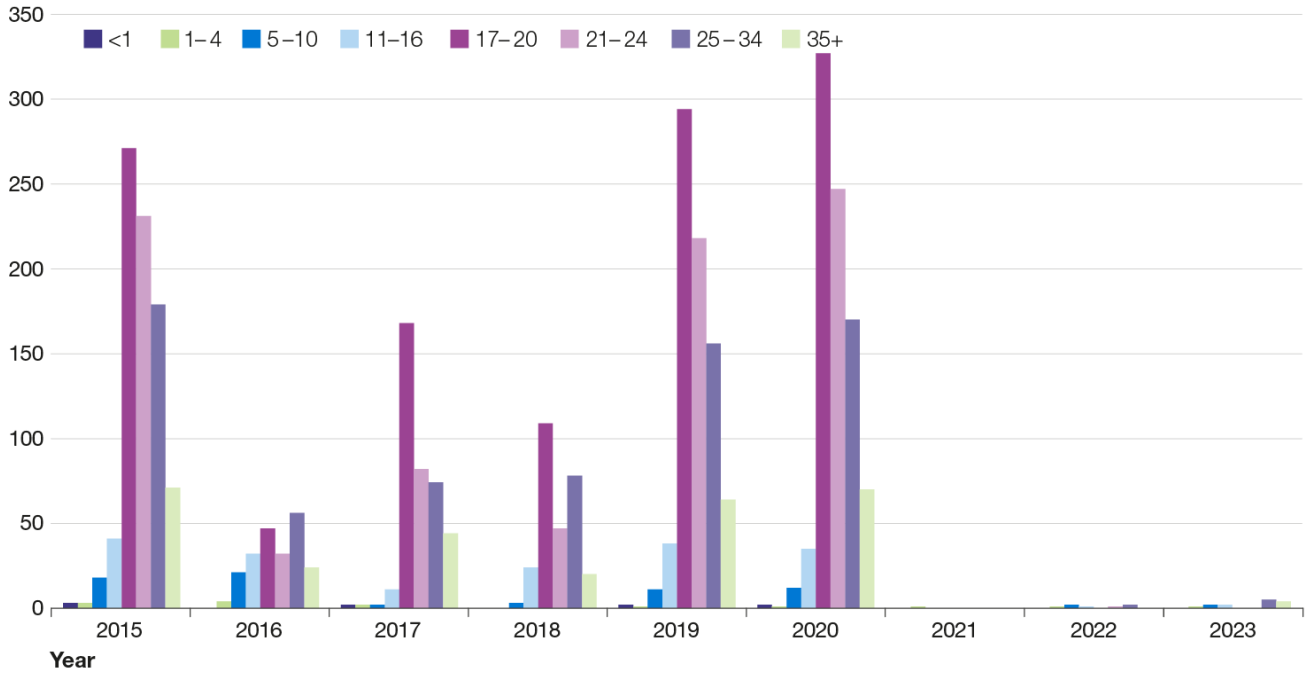


Age distribution of cases

Figure 13 shows that the majority of mumps cases in recent years have been in those aged 17 to 34 years.

Although the vaccination status of cases is not routinely collected, this is consistent with the age groups that are likely to be under-immunised with a mumps-containing vaccine, or for whom there is waning immunity.

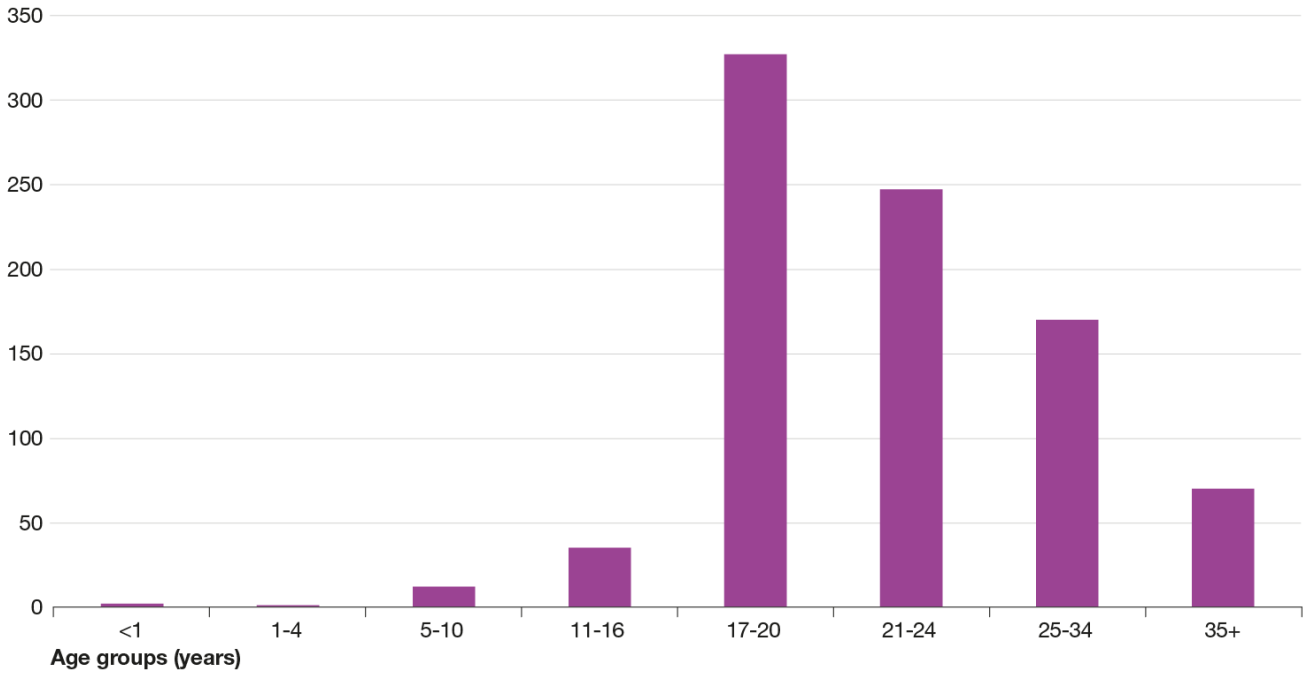
Figure 13: Number of laboratory-confirmed cases of mumps in Scotland by age group and year, 2015 to September 2023



The incidence of mumps by age group in 2020, shown in Figure 14, reflects a higher incidence among individuals aged 17 to 20 years compared to other ages (137 cases per 100,000 population).

This was followed by those aged 21 to 24 years (88 cases per 100,000 population).

Figure 14: Number of laboratory-confirmed cases of mumps by age group, 2020*



*There is insufficient data from 2021, 2022 and 2023 to represent the ages of cases, therefore 2020 data has been presented to reflect the age distribution of cases, which is similar to that seen in previous years.

Vaccination information

More information on vaccines against mumps can be found on the following page:

- MMR vaccine

Vaccine uptake statistics

Vaccine uptake statistics are published in our childhood immunisation statistics quarterly report.

Pertussis

Background information

Pertussis (or whooping cough) is an acute bacterial disease of the respiratory tract, resulting from infection with Bordetella pertussis.

It can affect people of all ages. Unimmunised infants are more likely to develop complications from pertussis infection which can require hospital treatment and, in severe cases, can be fatal. It is often less severe in adolescents and adults, however they may suffer a prolonged cough.

In response to the increase in cases and to protect young infants in the first few weeks of life until starting the routine childhood immunisation programme at eight weeks, a programme was introduced in October 2012 to offer pertussis vaccination to all pregnant women.

Pregnant women are typically vaccinated between gestational weeks 16 and 32 in order to protect newborn babies from disease before they are old enough to receive their first vaccine at 8 weeks. Antibodies that protect against disease, produced by the vaccinated mother, can be transferred across the placenta to protect the baby. Women may still be immunised after week 32 of pregnancy but this may not offer as high a level of passive immunological protection to the baby. Vaccination late in pregnancy may, however, directly protect the mother against disease and thereby reduce the risk of exposure to her infant. As pertussis continues to circulate in Scotland, immunisation of pregnant women and young children is vital.

The immunity that young infants receive from their mother, although very important in the first few weeks of life, offers only short-term protection. Therefore, it is important that infants are vaccinated as part of the routine childhood schedule on time to provide longer-term protection.

For more information on pertussis, visit NHS inform.

Surveillance update for July to September 2023

There were no cases of laboratory-confirmed pertussis in the first quarter of 2023, three cases reported in the second quarter, and 14 cases in quarter three, bringing the total number of cases to the end of September to 17. In 2022 and 2021, there were three and four cases of laboratory-confirmed pertussis reported, respectively.

In 2020, there were 198 laboratory reports of B. pertussis, the majority of which occurred in the first quarter of the year. This reduction is likely to be attributable to social distancing measures implemented to mitigate the transmission of COVID-19.

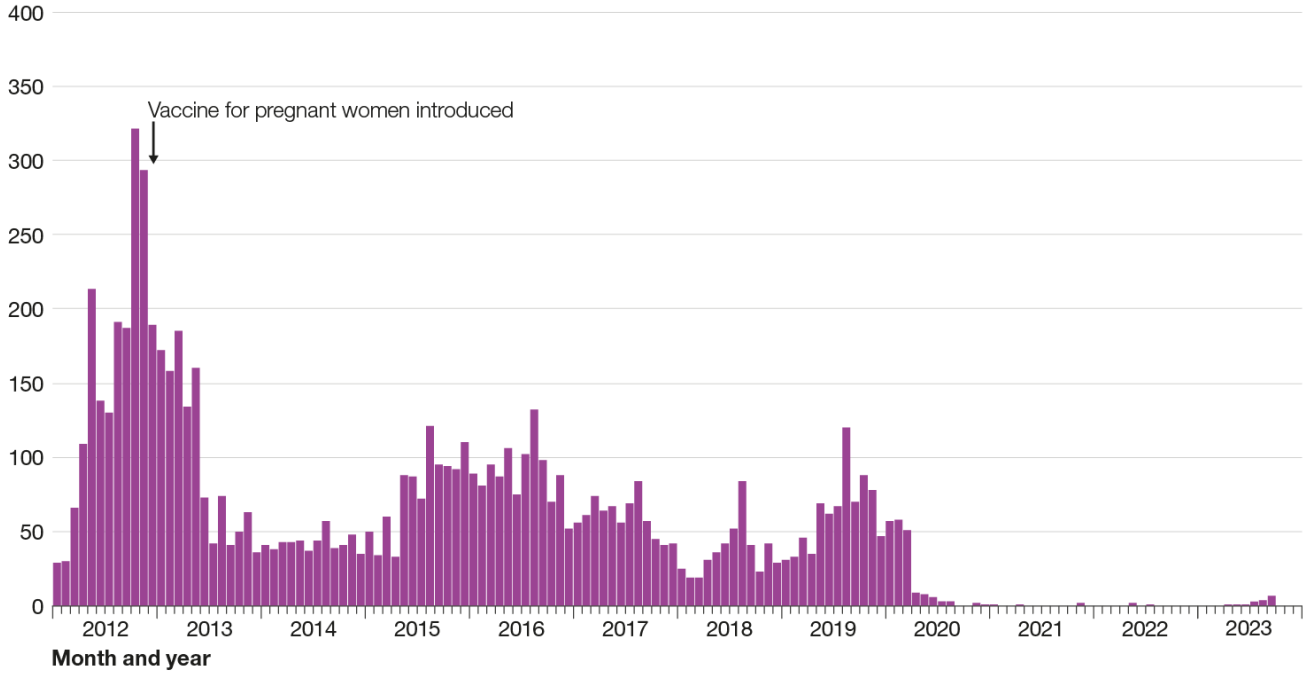
Figure 15 shows the number of positive laboratory reports of B. pertussis in Scotland from 2012 to the end of September 2023.

In 2012 and 2013, an outbreak occurred in Scotland, with 1,896 and 1,188 laboratory reports of pertussis, respectively.

Since then, the number of reports annually has been lower than those years:

- 533 in 2017
- 443 in 2018
- 746 in 2019

Figure 15: Number of laboratory reports of Bordetella pertussis in Scotland by month, 2012 to September 2023



Age breakdown of cases

Figure 16 presents the percentage of cases of pertussis by age group and year from 2012 to the end of September 2023. Case numbers in 2021 and 2022 were low, and age distribution for those years should be interpreted in that context. Although 2023 has seen relatively low case numbers to the end of quarter three, the age distribution of cases appears to be returning to a similar picture to recent pre-COVID pandemic years.

Figure 17 presents the number of laboratory reports for pertussis by age group from January to December of 2020. The graph shows that the 50 to 59 age group accounted for the highest number of cases. However, incidence is consistently highest among children under one year of age as shown in Figure 18. Incidence of cases between 2016 and 2021 show a similar pattern across all age groups, all of which have displayed decreases over this time, except for a peak year in 2019.

Figure 16: Percentage of Bordetella pertussis laboratory reports in Scotland by age group and year, 2012 to September 2023

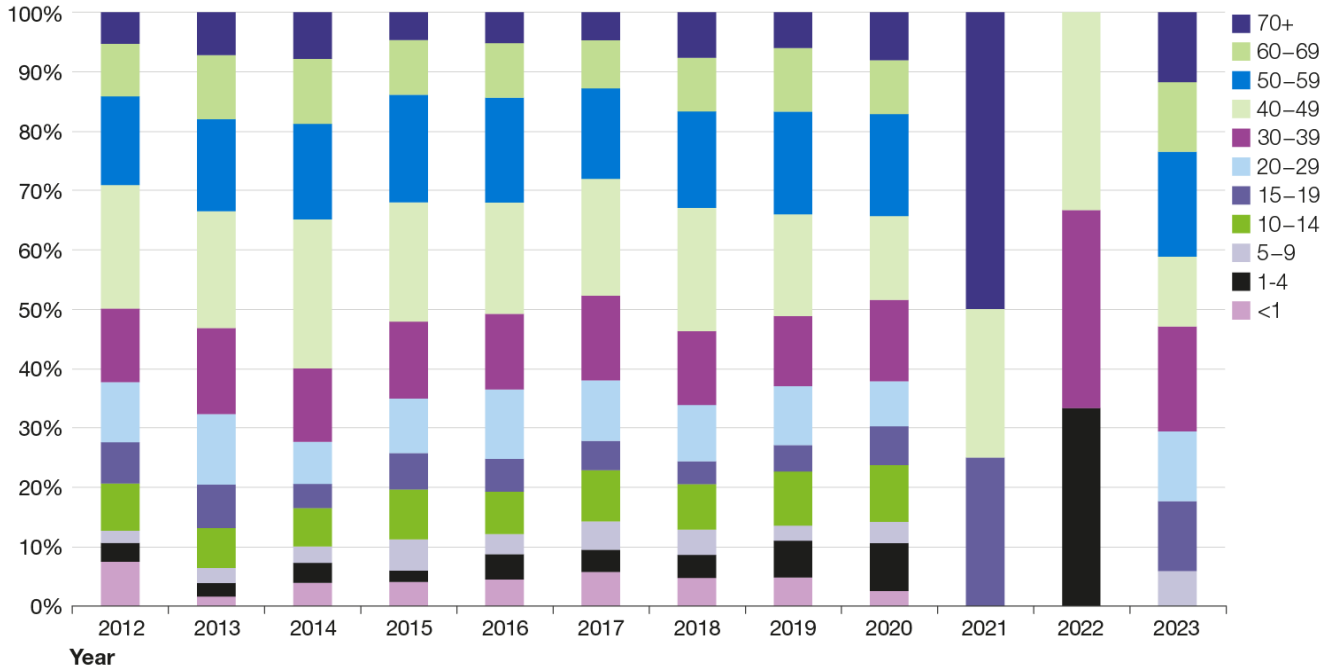
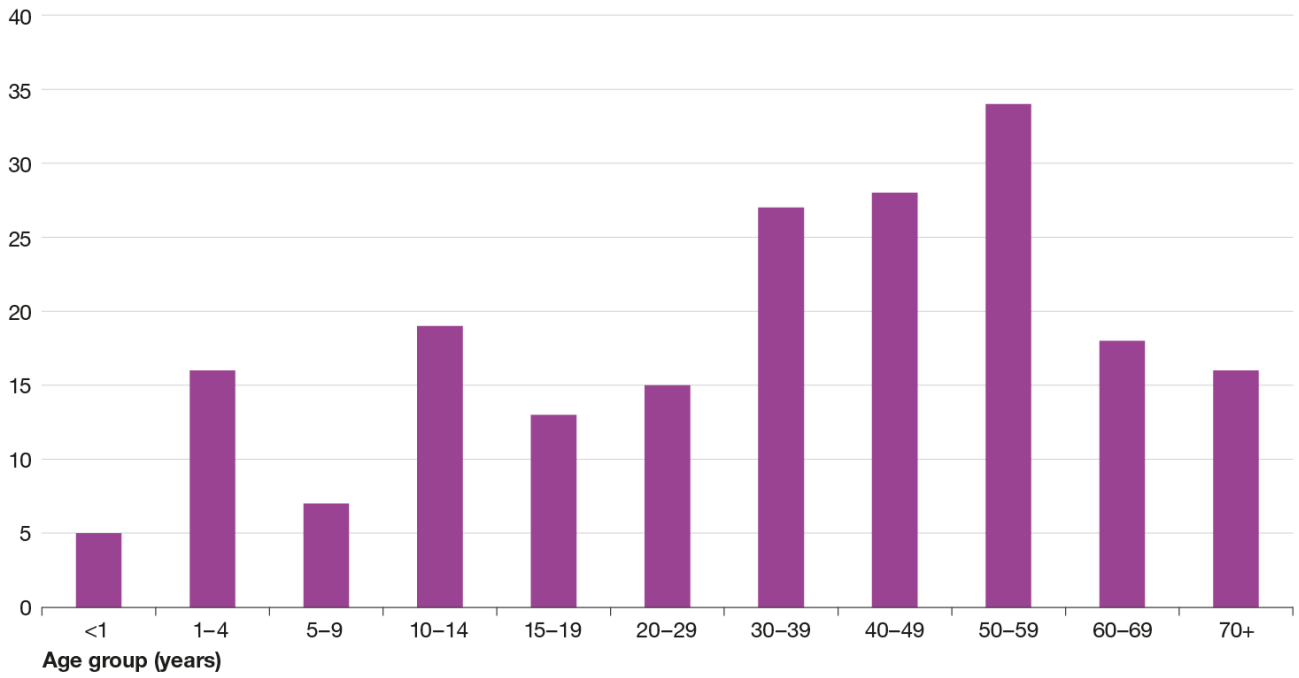
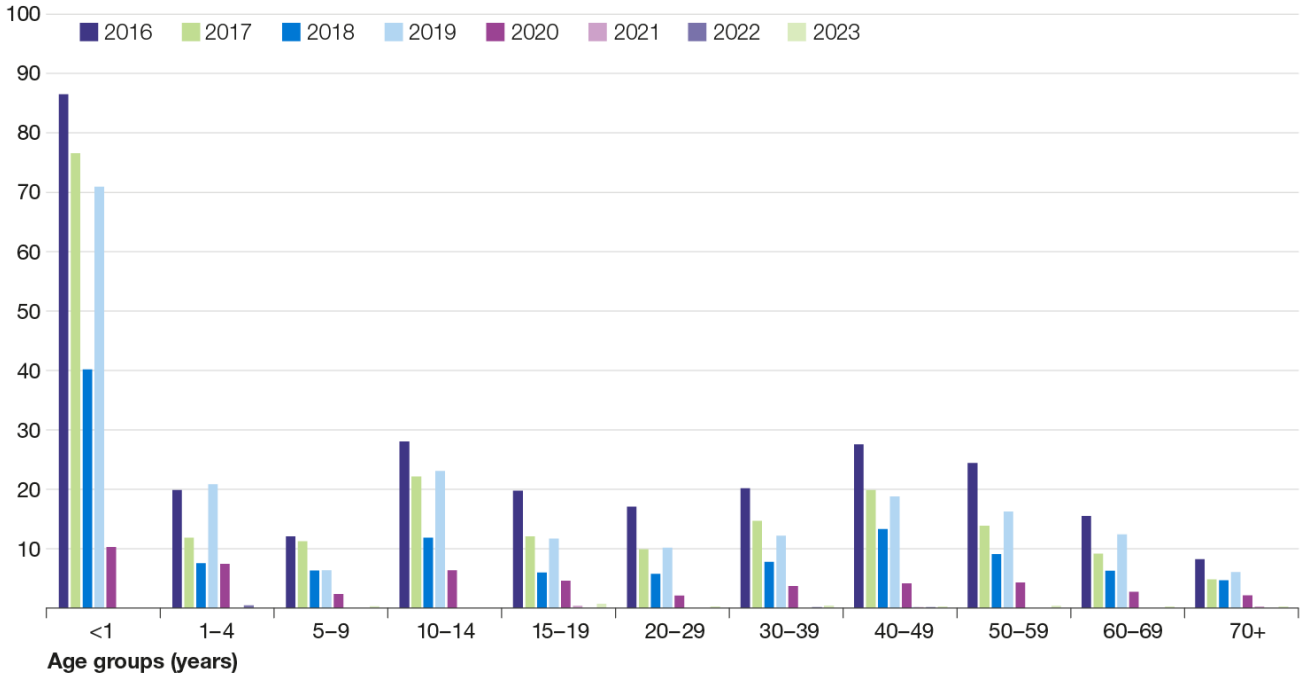


Figure 17: Number of laboratory reports of Bordetella pertussis in Scotland by age group, 2020*



*Data for 2020 is presented due to the low number of cases in 2021 (n=4), 2022 (n=3) and to the end of the third quarter of 2023 (n=17).

Figure 18: Incidence of Bordetella pertussis per 100,000 population in Scotland by age group, 2016 to September 2023



Vaccination information

More information on vaccines against pertussis can be found on the following pages:

- Pertussis (maternal)
- 6-in-one vaccine
- 4-in-one vaccine

Vaccine uptake statistics

Childhood vaccine uptake statistics are published in our childhood immunisation statistics quarterly report.

Invasive pneumococcal disease

Background information

Pneumococcal infections are defined as invasive or non-invasive according to which area of the body is affected. Invasive pneumococcal disease (IPD) is caused by infection of normally sterile sites, for example, blood and cerebrospinal fluid (CSF).

IPD is a major cause of morbidity and mortality, especially amongst:

- the very young
- the elderly
- those with impaired immunity

Non-invasive forms of the infection commonly cause:

- middle ear infection (otitis media)
- worsening of bronchitis
- pneumonia

As with most infectious respiratory diseases, the numbers of cases of pneumococcal infection peak during winter. Up to 50% of people can carry pneumococci in their nose and throat without developing serious infection.

Streptococcus pneumoniae (S. pneumoniae) is the bacterium responsible for causing pneumococcal infection and is characterised by its outer coat, known as capsular polysaccharide. Different capsular types can be distinguished via a process known as serotyping. Over 90 different types of pneumococci have been identified, about a quarter of which are known to cause serious illness.

For further information on pneumococcal disease, visit NHS inform.

IPD surveillance is based on local and reference laboratory reports confirming isolation of Streptococcus pneumoniae from sterile body sites, mainly blood and cerebrospinal fluid (CSF).

In 1999, the Scottish Pneumococcal Invasive Disease Enhanced Reporting (SPIDER) scheme was introduced. The enhanced surveillance scheme is jointly managed by Public Health Scotland and the Scottish Haemophilus, Legionella, Meningococcus and Pneumococcus Reference Laboratory (SHLMPRL).

Data from SPIDER informs understanding of the epidemiology of IPD in Scotland.

Surveillance update July to September 2023

There were 79 cases of IPD reported in the third quarter of 2023, bringing the total for to the end of the third quarter of the year to 321.

This is higher than the number of cases reported for the same period in 2022 (n=233), 2021 (n=181) and 2020 (n=222), but lower than the number of cases reported in 2019 (n=429) as shown in Figure 19.

The lower number of cases of IPD observed since early 2020 is likely due to the impact of social distancing measures and other restrictions implemented in response to the COVID-19 pandemic.

Figure 19: Cumulative number of invasive pneumococcal disease cases reported to SPIDER, 2019 to 2023 (week 39)

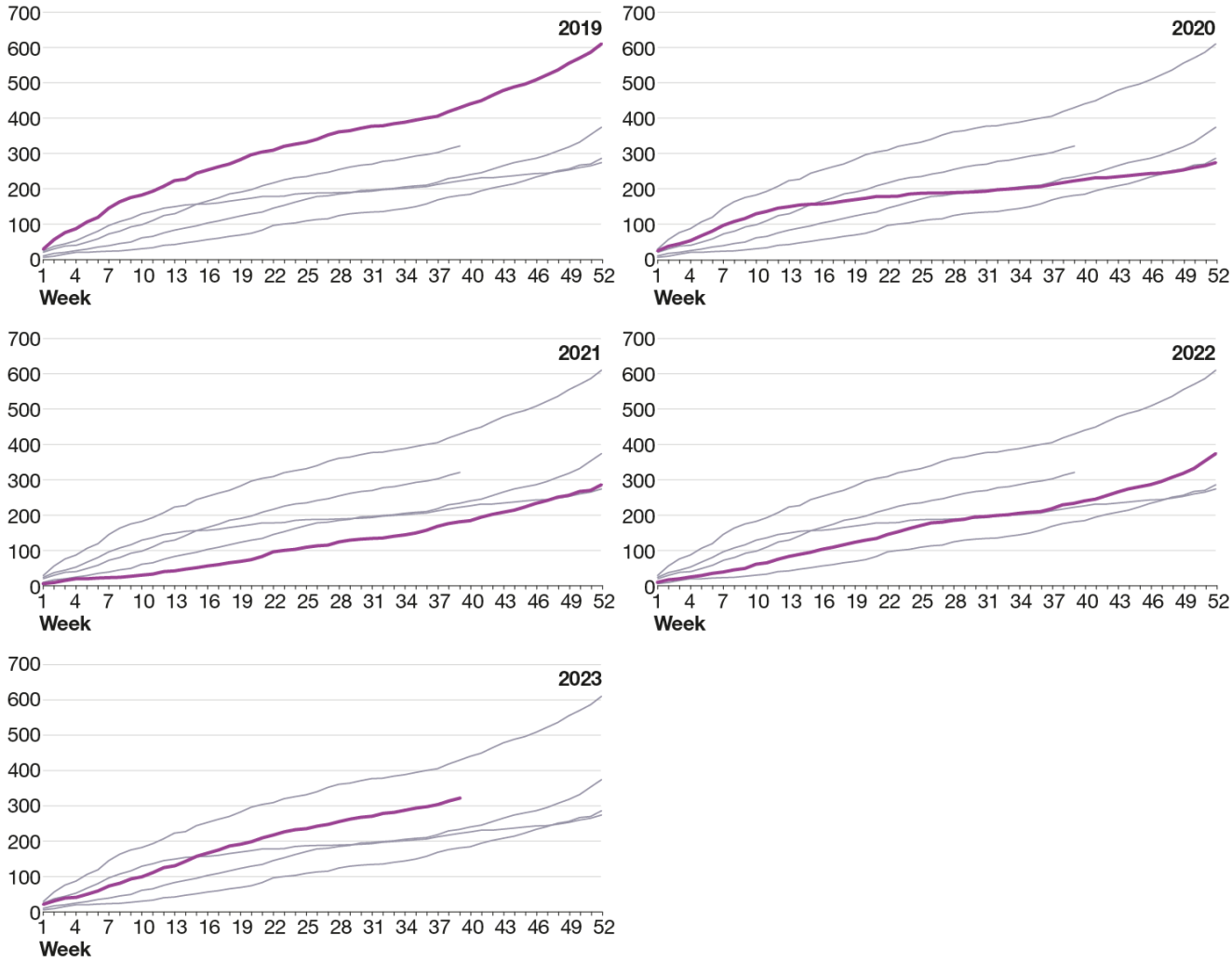
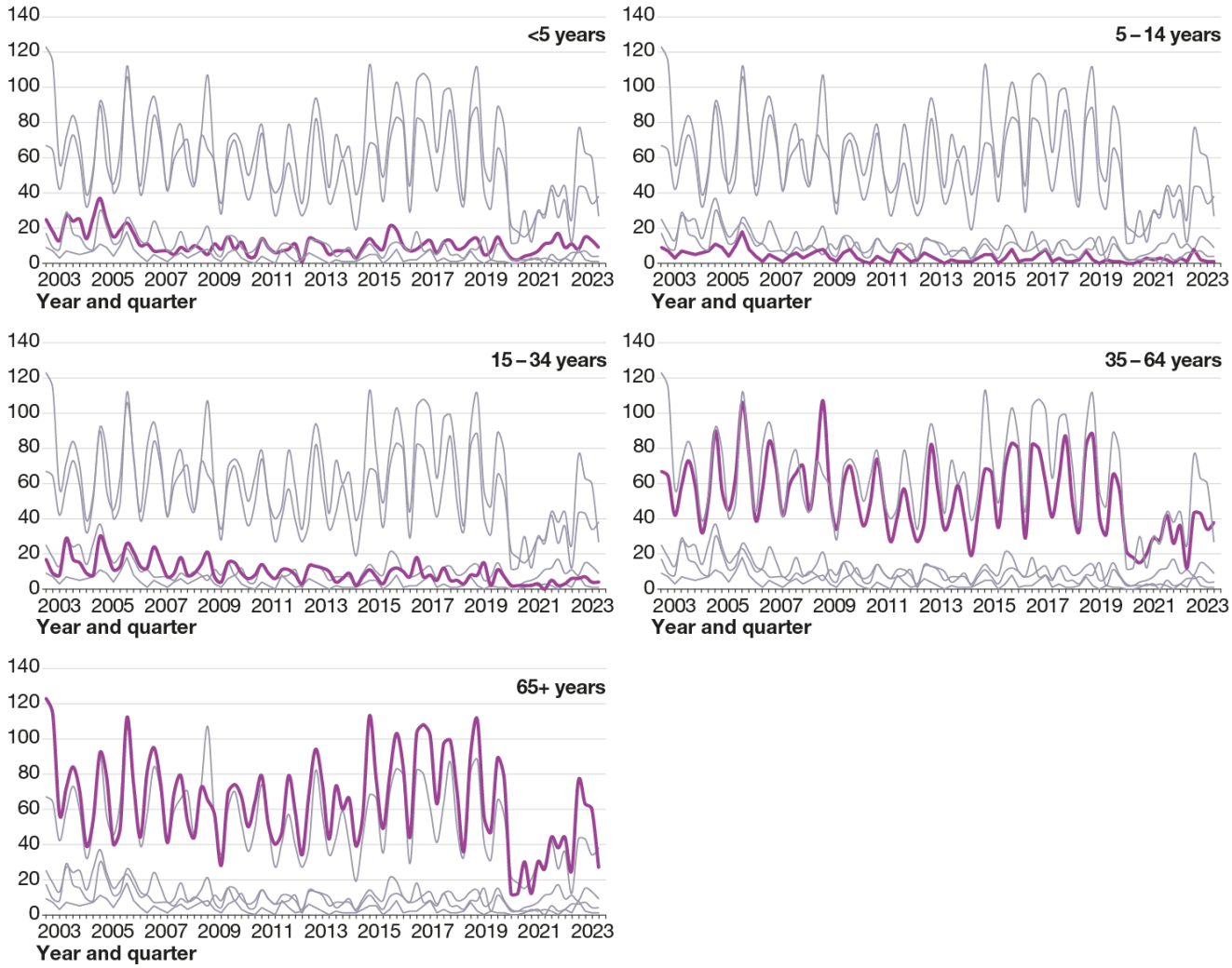


Figure 20 presents data on cases by age group and indicates that the burden of IPD is in adults over 35 years. To the end of the third quarter of 2023:

- 150 cases were aged 65 years or older (46.7%)
- 115 cases were aged 35 to 64 years (35.8%)
- 15 cases were aged 15 to 34 years (4.7%)
- Four cases were aged five to 14 years (1.2%)
- 37 cases were aged under five years (11.5%), of whom seven were infants aged under one year

Figure 20: Cases of IPD reported to SPIDER by quarter and by age group, 2003 to 2023 (week 39)



IPD in children under five years old

Of the 321 IPD cases reported to the end of the third quarter of 2023, 37 were children under five years of age, 34 of whom were old enough to have been eligible for at least a first dose of PCV13 vaccination.

This is the same as the number of cases in children aged under five years for the same period in 2022, but higher than case numbers for the same period in 2021 (n=23), 2020 (n=13) and 2019 (n=26).

Serotypes detected in children aged under five years, to the end of the third quarter, are shown in Table 1.

Table 1: Streptococcus pneumoniae serotypes in paediatric IPD cases reported to SPIDER in 2023 (week 26)

serotype	<=2 mths	3-11 mths	1 yr	2 yrs	3 yrs	4 yrs	Total < 5 years
3	0	1	0	0	0	0	1
3A	0	0	0	0	1	0	1
9N	0	0	0	0	1	0	1
10A	0	0	1	0	0	0	1
10B	0	0	0	0	0	1	1
15C	0	0	0	1	0	0	1
19A	0	0	0	0	2	0	2
19F	0	1	0	1	0	0	2
22F	0	0	0	0	1	0	1
23A	0	0	0	1	0	0	1
23B	0	1	0	0	0	2	3
24F	0	0	1	0	1	0	2
27	0	0	1	0	0	0	1
33F	0	1	1	0	0	0	2
35B	1	0	0	0	0	0	1
NA*	2	0	5	1	4	2	14
Total	3	4	11	4	11	4	37

*Typing results not available

Pneumonia and septicaemia were the most common clinical presentations in children aged under five years old.

Eleven of the 37 children aged under five years who had IPD to the end of the third quarter of 2023 were known to have an underlying condition.

Circulating serotypes of Streptococcus pneumoniae

All IPD isolates and specimens should be sent to the reference laboratory for further typing and antimicrobial sensitivity testing. Typing results were available for 256 of the 321 cases reported to the end of the third quarter of 2023. This accounts for 79.7% of the cases reported.

The three most common serotypes reported were:

- Serotype 3 (41 cases)
- Serotype 8 (37 cases)
- Serotype 22F (25 cases)

A total of 66 cases, or 25.7% of those with available typing results, were caused by serotypes covered by the PCV13 vaccine.

For the most recent information on antimicrobial resistance in Streptococcus pneumoniae, see Scottish One Health Antimicrobial Use and Antimicrobial Resistance in 2022.

Vaccination information

More information on vaccines against pneumococcal disease can be found on the following pages:

- PPV23 pneumococcal vaccine
- PCV13 pneumococcal vaccine

Vaccine uptake statistics

Vaccine uptake statistics for children are published in our childhood immunisation statistics quarterly report.

Poliomyelitis

Background information

Poliomyelitis (polio) is an acute viral illness caused by one of the three serotypes of poliovirus. Most infections cause no symptoms, but in a small number of people can result in a potentially life-threatening infection that can cause temporary or permanent paralysis.

People may become infected with the poliovirus through contact with infected faecal matter or respiratory secretions.

For more information on polio see NHS Inform.

Surveillance

Following the introduction of the vaccine, the number of cases fell rapidly:

- the last UK case of poliomyelitis caused by wild polio virus was in 1984.
- the last imported case of polio in the UK was 1993.

Poliovirus is targeted by the World Health Organization (WHO) for eradication and, due to the efforts of countries worldwide, polio is now eliminated from four of the six WHO regions. Pakistan and Afghanistan are considered the countries with the highest risk, where the virus is endemic. Polio outbreaks do occur in other countries when the disease is spread amongst people who may not be fully vaccinated. More information on those who may be at risk of exposure through travel can be found at our fitfortravel pages.

In early 2022, vaccine-derived poliovirus type 2 (VDPV2) was detected in sewage samples from London sewage works (for details, please visit: Poliovirus detected in sewage from North and East London - GOV.UK (www.gov.uk). These detections suggest some spread between closely linked individuals in areas of London. No associated cases of paralysis or human infections of poliovirus have been reported in the UK. This particular strain of poliovirus has been identified in wastewater elsewhere with cases of poliomyelitis in Israel and the USA. A full list of countries currently reporting circulating VDPV is available from the Polio Global Eradication Initiative (external site, PDF).

Vaccination Information

More information on vaccines against polio can be found on the following pages:

- 6-in-one vaccine
- 4-in-one vaccine
- 3-in-one vaccine

Vaccine uptake statistics

Vaccine uptake statistics for children are published in our childhood immunisation statistics quarterly report.

Rotavirus

Background information

Rotavirus is highly infectious and a leading cause of gastroenteritis in children worldwide. In Scotland, most children will have had at least one rotavirus infection by five years old.

Rotavirus infections in children and adults can last approximately three to eight days and symptoms include:

- severe diarrhoea
- vomiting
- stomach cramps
- mild fever

The combination of symptoms can lead to dehydration, requiring admission to hospital, especially in young infants.

Before the introduction of a national infant rotavirus vaccination programme in 2013, an estimated 55,000 gastroenteritis cases caused by rotavirus occurred in Scotland each year in children less than five years old. Approximately 1,200 of these children were hospitalised (2.2% of cases). Rotavirus reports peaked between February and April. This caused considerable additional pressure on the NHS, particularly in primary care and paediatric healthcare facilities.

In July 2013, Rotarix®, a live attenuated vaccine was introduced into the routine infant vaccination schedule in the UK, with doses given at 8 and 12 weeks.

For further advice on the transmission and prevention of rotavirus, visit NHS inform.

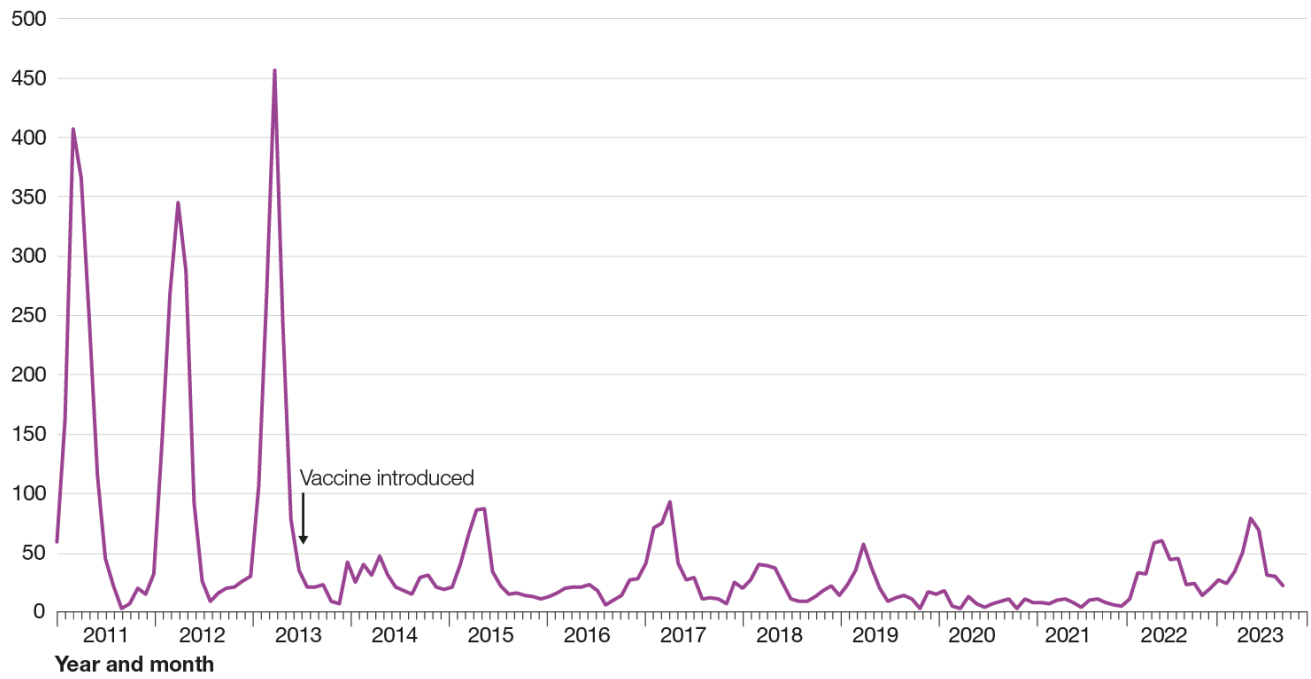
Surveillance update July to September 2023

Figure 21 shows the number of rotavirus laboratory reports in Scotland from 2011 to the end of September 2023. Please note that data differs slightly from previously published data due to a revalidation exercise.

Following the introduction of the immunisation programme, there was a marked reduction in the number of laboratory reports, which clearly demonstrates the impact of the vaccine.

A reduction of laboratory-confirmed rotavirus samples has also been seen in unvaccinated children suggestive of indirect population protection due to the vaccine. See the vaccine-preventable disease summary for the number and incidence of rotavirus laboratory reports in Scotland over the last 5 years.

Figure 21: Laboratory reports of rotavirus in Scotland from 2011 to end of September 2023



Vaccination information

More information on the rotavirus vaccine can be found on the following page:

- rotavirus vaccine

Vaccine uptake statistics

Vaccine uptake statistics are published in our childhood immunisation statistics quarterly report.

Rubella

Background information

Rubella is a rash illness caused by the rubella virus. It's generally a mild illness, but if acquired by women in the first 16 weeks of pregnancy can have devastating effects on the unborn child, leading to Congenital Rubella Syndrome (CRS). The virus can affect all foetal organs and lead to serious birth defects such as learning difficulties, cataracts, deafness, cardiac abnormalities, restriction of intrauterine growth and inflammatory lesions of the brain, liver, lungs and bone marrow

Before the introduction of rubella vaccination, more than 80% of adults had evidence of previous exposure to rubella.

A vaccination programme targeting girls and non-immune women of childbearing age was introduced in the UK in 1970 and reduced the number of congenital rubella syndrome (CRS)-related births and terminations.

In 1988, the Measles, Mumps and Rubella (MMR) vaccine was introduced for both boys and girls and further decreased cases of rubella to near elimination levels (Figure 22).

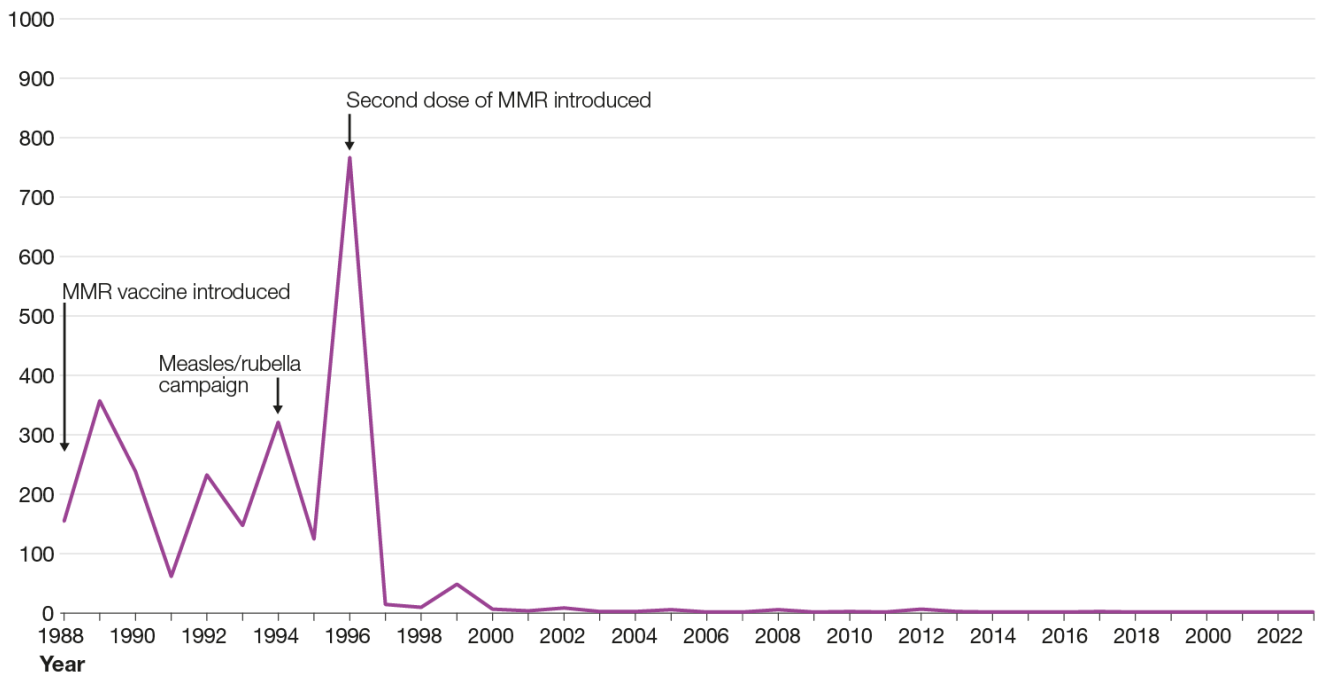
In 2016, the decision was made to end the national policy of screening for rubella susceptibility (external site, PDF) in pregnancy. This followed a review of evidence by the UK National Screening Committee and considering the high levels of uptake of the MMR vaccine.

For more information on rubella see NHS inform.

Surveillance update July to September 2023

No laboratory-confirmed cases of rubella were reported in the third quarter of 2023, with the last reported case of laboratory-confirmed rubella in Scotland reported in 2017.

Figure 22: Number of laboratory-confirmed cases of rubella in Scotland by year, 1988 to end of September 2023



Congenital rubella surveillance

Congenital rubella surveillance can be viewed on the Royal College of Paediatrics and Child Health (RCPCH) website.

Vaccination Information

More information on vaccines against rubella can be found on the following page:

- MMR vaccine

Vaccine uptake statistics

Vaccine uptake statistics are published in our childhood immunisation statistics quarterly report.

Shingles

Background information

Shingles, also known as herpes zoster, is caused by reactivation of latent varicella zoster virus. Varicella zoster is the same virus that causes chickenpox.

Shingles is characterised by a painful skin rash. The main complication from shingles is post-herpetic neuralgia (PHN), a long-lasting neuropathic pain after the rash has disappeared.

PHN can persist for months or years and the risk and severity increases with age. Its effect can be very debilitating.

The Scottish Morbidity Record 01 (SMR01) is a national dataset held by the NHS Information Services Division and provides data on inpatient and day case admissions. It is used to investigate the burden of disease on hospital inpatient and day-case discharges from acute specialties from hospitals in Scotland.

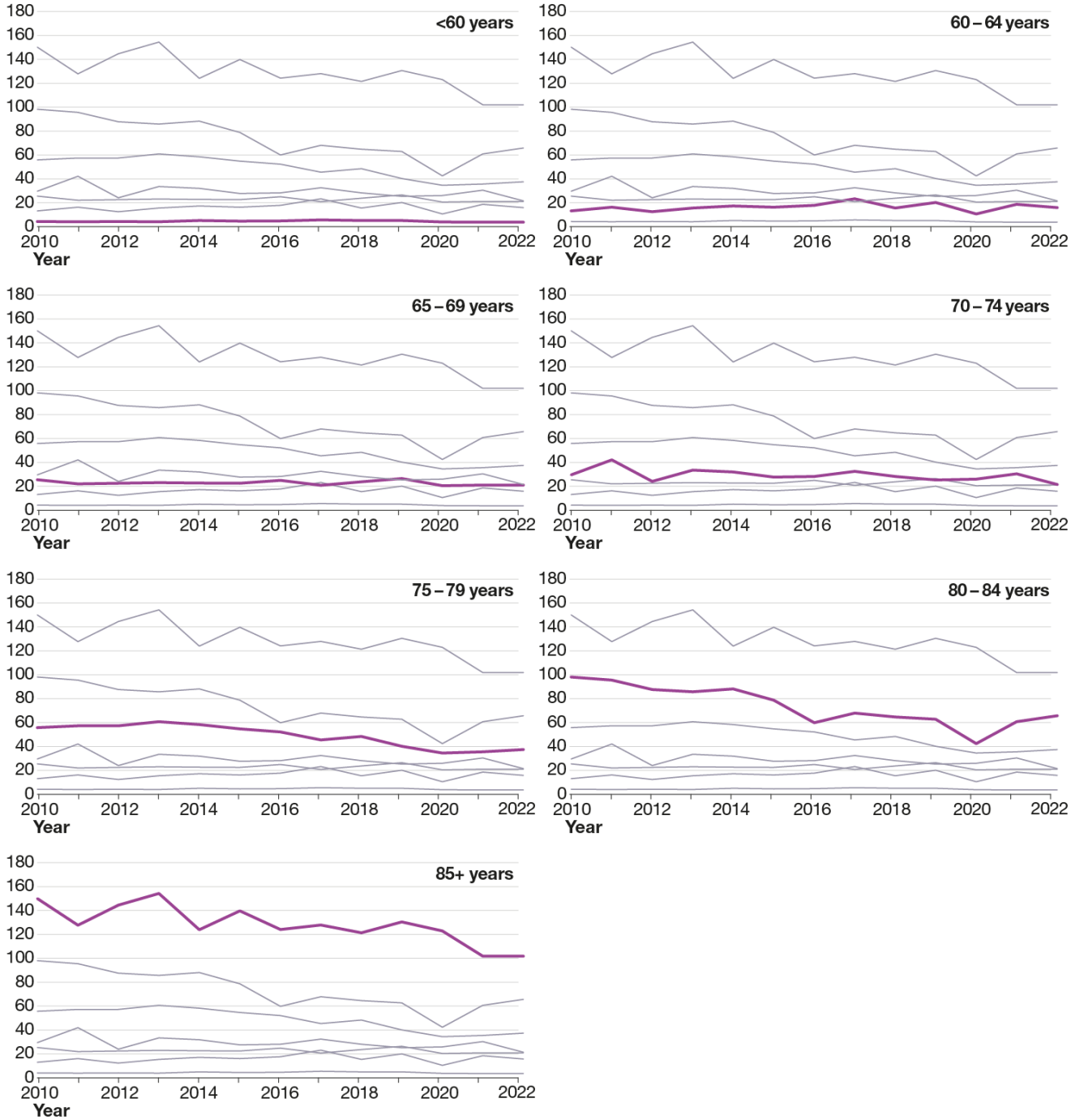
Shingles surveillance data

Shingles is not a notifiable disease, so the number of hospital admissions for shingles and related complications are used to estimate the burden of shingles.

Figure 23 shows the rate of admissions per 100,000 population for shingles and related complications by age group between 2010 and 2022. In 2022, there were 268.6 hospital admissions per 100,000 population for shingles and related complications.

This graph shows that the rate of admissions is higher among the older age groups, which is why older age groups are offered shingles vaccine.

Figure 23: Rate of admissions per 100,000 population for shingles and related complications by age group and year, 2010 to 2022*



*Rates are calculated using an updated methodology, which differs from that previously used to estimate burden of disease. This is therefore not comparable to graphs in previous reports.

Vaccination information

More information on shingles vaccination can be found on the following page:

- shingles immunisation

Vaccine uptake statistics

Tables 2 and 3 present the shingles Zostavax® vaccine coverage by NHS Board among the routine cohort (aged 70 years) and catch-up cohort (those aged between 71 and 79 years) for the most recent season 1 September 2021 to 31 August 2022. Table 4 presents the Scottish annual coverage in the routine cohort, catch up cohort and all eligible age groups from seasons 2015/2016 to 2021/2022. The Vaccine Management Tool is now used for recording shingles vaccination events and work is currently underway within PHS to develop public-facing dashboards for reporting up-to-date vaccine uptake/coverage statistics.

The national coverage in 2021 to 2022 for the routine cohort was 45.12%, an increase from the previous season 2020 to 2021 of 24.48%. The national coverage in 2021 to 2022 in the catch-up cohort was 63.08%, increased from 55.49% in the previous season.

Table 2: Shingles Zostavax® vaccination coverage amongst eligible routine cohort (70 years) by NHS board, September 2021 to August 2022

NHS Board	Number individuals in routine cohort*	Number of individuals in routine cohort vaccinated	Shingles vaccination coverage amongst routine cohort (%)
Ayrshire & Arran	4,503	1,702	37.80
Borders	1,494	665	44.51
Dumfries & Galloway	2,002	1,314	65.63
Fife	3,530	1,616	45.78
Forth Valley	3,375	2,365	70.07
Grampian	5,666	1,112	19.63
Greater Glasgow & Clyde	10,657	6,557	61.53
Highland	4,093	1,414	34.55
Lanarkshire	6,621	1,503	22.70
Lothian	8,175	3,279	40.11
Orkney	280	145	51.79
Shetland	265	158	59.62
Tayside	4,515	2,974	65.87
Western Isles	353	250	70.82
Scotland	55,529	25,054	45.12

References
*The figures in this column are based on the number of individuals registered at a GP practice and may thus be slightly lower than the overall population in this age group.

Table 3: Shingles Zostavax® vaccination coverage amongst eligible routine catch-up cohort (aged 71 to 79 years) by NHS board, September 2021 to August 2022

NHS Board	Number of individuals	Number of individuals vaccinated	Shingles vaccination coverage (%)
Ayrshire & Arran	35,370	20,364	57.57
Borders	11,871	8,019	67.55
Dumfries & Galloway	15,746	9,775	62.08
Fife	27,746	18,574	66.94
Forth Valley	25,279	19,145	75.73
Grampian	41,989	24,563	58.50
Greater Glasgow & Clyde	76,754	47,460	61.83
Highland	30,892	19,362	62.68
Lanarkshire	48,940	26,522	54.19
Lothian	61,570	38,744	62.93
Orkney	2,162	1,585	73.31
Shetland	2,038	1,440	70.66
Tayside	35,393	26,539	74.98
Western Isles	2,659	1,847	69.46
Scotland	**418,409**	**263,939**	**63.08**

References
*The figures in this column are based on the number of individuals registered at a GP practice and may thus be slightly lower than the overall population in this age group.

Table 4: Shingles Zostavax® vaccination coverage by year by routine, catch up and all eligible age groups, all Scotland.

Year	Vaccination coverage in Routine cohort (70 years)	Vaccination coverage in in Catch up cohort (71 to 79 years)	Vaccination coverage in all eligible groups (70 to 79 years)
2015 - 2016	54.41	33.07	35.60
2016 - 2017	46.56	43.64	44.01
2017 - 2018	44.88	50.64	49.75
2018 - 2019	41.88	58.31	56.10
2019 - 2020	40.17	60.66	58.08
2020- 2021	24.48	59.73	55.49
2021- 2022	45.12	63.08	60.98

Tetanus

Background information

Tetanus is a disease resulting from infection with the bacteria Clostridium tetani. These bacteria are common in the environment and are present in soil and the manure of animals. They may cause infection by producing a neurotoxin when they enter the body through a wound, burn, puncture or scratch.

The most common symptoms of infection are lockjaw, muscle spasms, fever, sweating and tachycardia (high heart rate). If not treated, symptoms can get worse over the following hours and days. Tetanus cannot spread from person to person although people who inject drugs (PWID) are at increased risk of infection, through sharing contaminated objects such as needles, and clusters of infection have been previously reported in PWID.

Immunisation against tetanus is the most effective method of prevention and has been part of the childhood immunisation schedule since 1961.

For more information on tetanus see NHS Inform.

Surveillance

No cases of tetanus have been reported in Scotland since 2014. Data on the annual reported cases of tetanus in England from the UKHSA can be found on Tetanus in England: annual reports - GOV.UK (www.gov.uk).

Vaccination information

Find out more information about vaccines against tetanus:

- 6-in-one vaccine
- 4-in-one vaccine
- 3-in-one vaccine

Vaccine uptake statistics

Vaccine uptake statistics for children are published in our childhood immunisation statistics quarterly report.

Vaccine-preventable disease summary

Table 5a: Number of cases of key vaccine-preventable diseases in Scotland 2018 to 2022

Disease	2018	2019	2020	2021	2022
H. Influenzae	82	83	51	51	74
Invasive Pneumococcal disease	621	610	274	286	374
Measles	2	18	0	0	0
Meningococcal disease	74	59	33	17	29
Mumps	281	784	864	1	7
Pertussis	443	746	198	4	3
Rotavirus*	446	272	257	112	102

References
* Please note that rotavirus data differs slightly from previously published data due to a revalidation exercise.

Table 5b: Incidence per 100,000 of key vaccine-preventable diseases in Scotland 2018 to 2022

Disease	2018	2019	2020	2021	2022
H. Influenzae	1.51	1.52	0.93	0.93	1.35
Invasive Pneumococcal disease	11.42	11.17	5.01	5.22	6.82
Measles	0.04	0.33	0.00	0.00	0.00
Meningococcal disease	1.36	1.08	0.6	0.31	0.53
Mumps	5.17	14.35	15.81	0.02	0.13
Pertussis	8.15	13.65	3.62	0.07	0.05
Rotavirus*	8.22	5.00	4.70	2.05	1.86

References
* Please note that rotavirus data differs slightly from previously published data due to a revalidation exercise.

Contact

General enquiries

If you have an enquiry relating to this publication, please email phs.immunisation@phs.scot.

Media enquiries

If you have a media enquiry relating to this publication, please contact the Communications and Engagement team.

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If you require publications or documents in other formats, please email phs.otherformats@phs.scot.

To report any issues with a publication, please email phs.generalpublications@phs.scot.

Further information

Statistical designation

This is Official Statistics publication

It is important that users understand that limitations may apply to the interpretation of this data, further details of which are presented in this report.

All official statistics should comply with the UK Statistics Authority's Code of Practice which promotes the production and dissemination of official statistics that inform decision making.

Visit the UK Statistics Authority UK website to find out more about the Code of Practice (external website).

Find out more about National Statistics on the UK Statistics Authority website (external website).

Early access

Under terms of the "Pre-Release Access to Official Statistics (Scotland) Order 2008", PHS is obliged to publish information on those receiving Pre-Release Access ("Pre-Release Access" refers to statistics in their final form prior to publication). The standard maximum Pre-Release Access is five working days.

Shown below are details of those receiving standard Pre-Release Access.

Standard Pre-Release Access:

- Scottish Government Health Department
- NHS Board Chief Executives
- NHS Board Communication leads

Metadata

The metadata for this document has been split into sections as there are some differences between the diseases.

Diphtheria

Publication title
Immunisation and vaccine-preventable diseases quarterly report.

Description
This release provides information on diphtheria infections in Scotland for 2023

Theme
Infections in Scotland

Topic
Diphtheria

Format
HTML

Data source(s)
ECOSS (Electronic Communication of Surveillance in Scotland).

Date that data are acquired
30 October 2023

Release date
5 December 2023

Frequency
Quarterly

Timeframe of data and timeliness
July to September 2023, approximately 2 months in arrears

Continuity of data
Quarterly as at March, June, September and December.

Data from 1988 to September 2023 is presented.

Revisions statement
Data in the most recent quarterly updates supersedes data reported in previous reports.

Revisions relevant to this publication
This publication has no revisions.

Concepts and definitions
Diphtheria is an acute bacterial infection affecting the upper respiratory tract or the skin, caused by the diphtheria toxin produced by toxigenic strains of Corynebacterium.

The most common symptoms of diphtheria affecting the upper respiratory tract are membranous pharyngitis with fever, lymphadenopathy and upper respiratory tract soft tissue swelling 'bull neck' potentially leading to life-threatening airway obstruction.

Cutaneous diphtheria may cause pus-filled blisters on legs, hands and feet and ulceration of the skin.

In unvaccinated or partially vaccinated individuals, systemic absorption of the toxin can lead to late complications such as cardiac and neurological conditions and sometimes death.

Immunisation against diphtheria is offered to babies and children as part of the routine childhood immunisation schedule.

Relevance and key uses of the statistics
Data are collected as part of mandatory public health surveillance providing data to monitor the epidemiology of Diphtheria and inform public health planning and response.

Statistics are used by PHS for surveillance purposes and published for transparency.

Accuracy
The data are considered accurate.

Data are validated locally by partnerships.

We carry out further validation checks in consultation with NHS boards, as required.

The Code of Practice for Statistics has been followed to ensure a high standard of data value, trustworthiness and quality.

Completeness
All data returned from ECOSS and the enhanced surveillance database are used for analysis

Comparability
Scottish data is regularly compared to UKHSA diphtheria data and information.

Accessibility
It is the policy of PHS to make its websites and products accessible according to our accessibility statement. Graphs and tables have been assessed against PHS accessibility standards.

Accessibility of the report and findings are of continuous consideration throughout the report development.

Coherence and clarity
The report has been produced using the standard PHS publications template and is available as HTML web pages.

Value type and unit of measurement
Number of laboratory-confirmed toxigenic strains of Corynebacterium.

Disclosure
Our protocol on statistical disclosure is followed.

Official Statistics designation
Official Statistics

UK Statistics Authority Assessment
Not assessed.

Last published
5 September 2023

Next published
5 March 2024

Date of first publication
17 March 2020

Help email
phs.immunisation@phs.scot

Date form completed
16 November 2023

Haemophilus influenzae

Publication title
Immunisation and vaccine-preventable diseases quarterly report.

Description
This release provides information on laboratory-confirmed cases of invasive Haemophilus influenzae infections reported in Scotland for the period July to September 2023

Theme
Infections in Scotland

Topic
Haemophilus influenzae

Format
HTML

Data source(s)
ECOSS (Electronic Communication of Surveillance in Scotland).

Enhanced surveillance database for all paediatric (younger than 5 years of age) of any type, and all invasive type b.

Date that data are acquired
30 October 2023

Agreed date to allow quality assurance checks.

Release date
5 December 2023

Frequency
Quarterly

Timeframe of data and timeliness
July to September 2023, approximately 2 months in arrears

Continuity of data
Quarterly as at March, June, September and December.

Data from 1988 to September 2023 is presented.

Revisions statement
Data in the most recent quarterly updates supersedes data reported in previous reports.

Revisions relevant to this publication
This publication has no revisions.

Concepts and definitions
Haemophilus influenzae (H. influenzae) are bacteria commonly carried in the respiratory tract which can cause serious invasive disease, especially in young children.

Invasive disease is usually caused by the encapsulated strains, specifically, six caspular serotypes (a to f) of which type b (Hib) was the most common, until the introduction of the vaccine.

The most common presentations of invasive H. influenzae infection are meningitis, sepicaemia and acute respiratory infections.

Vaccination for Hib is part of the routine childhood immunisations schedule.

Relevance and key uses of the statistics
Data are collected as part of mandatory public health surveillance providing data to monitor the epidemiology of invasive Haemophilus influenzae and inform public health planning and response.

Statistics are used by PHS for surveillance purposes and published for transparency.

Accuracy
The data are considered accurate.

Data are validated locally by partnerships.

We carry out further validation checks in consultation with NHS boards, as required.

Completeness
All data returned from ECOSS and the enhanced surveillance database are used for analysis

Comparability
Scottish data is regularly compared to UKHSA Haemophilus influenzae data and information.

Accessibility
It is the policy of PHS to make its websites and products accessible according to our accessibility statement. Graphs and tables have been assessed against PHS accessibility standards.

Accessibility of the report and findings are of continuous consideration throughout the report development.

Coherence and clarity
The report has been produced using the standard PHS publications template and is available as HTML web pages.

Value type and unit of measurement
Number of new H. Influenzae isolates from sterile sites.

Disclosure
Our protocol on statistical disclosure is followed.

Official Statistics designation
Official Statistics

UK Statistics Authority Assessment
Not assessed.

Last published
5 September 2023

Next published
5 March 2024

Date of first publication
17 March 2020

Help email
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Date form completed
16 November 2023

Measles

Publication title
Immunisation and vaccine-preventable diseases quarterly report.

Description
This release provides information on laboratory-confirmed and epidemiologically linked cases of measles reported in Scotland from July to September 2023

Theme
Infections in Scotland

Topic
Measles infection

Format
HTML

Data source(s)

ECOSS (Electronic Communication of Surveillance in Scotland), Colindale/PHE, Enhanced surveillance database.

Date that data are acquired
30 October 2023

Agreed date to allow quality assurance checks.

Release date
5 December 2023

Frequency
Quarterly

Timeframe of data and timeliness
July to September 2023, approximately 2 months in arrears

Continuity of data
Quarterly as at March, June, September and December.

Data from 1988 to September 2023 is presented.

Revisions statement
Data in the most recent quarterly updates supersedes data reported in previous reports.

Revisions relevant to this publication
This publication has no revisions.

Concepts and definitions
Measles is a rash illness resulting from infection with the measles virus.

It can affect people of all ages but infants less than one year of age and those who are immunocompromised are at increased risk of complications and death.

It's one of the most communicable diseases with one case having the potential to infect another 12 to 18 individuals through airborne transmission and respiratory droplets in susceptible populations.

New cases of measles are identified by laboratory testing based on positive PCR or IgM serology.

MMR is the combined vaccine that protects against measles, mumps and rubella and is the most effective strategy for preventing the transmission of measles.

Relevance and key uses of the statistics
Data are collected as part of mandatory public health surveillance providing data to monitor the epidemiology of invasive Haemophilus influenzae and inform public health planning and response.

Statistics are used by PHS for surveillance purposes and published for transparency.

Accuracy
The data are considered accurate.

Data are validated locally by partnerships.

We carry out further validation checks in consultation with NHS boards, as required.

Completeness
All data returned from ECOSS and the enhanced surveillance database are used for analysis

Comparability
Scottish data is regularly compared to UKHSA measles data and information.

Accessibility
It is the policy of PHS to make its websites and products accessible according to our accessibility statement. Graphs and tables have been assessed against PHS accessibility standards.

Accessibility of the report and findings are of continuous consideration throughout the report development.

Coherence and clarity
The report has been produced using the standard PHS publications template and is available as HTML web pages.

Value type and unit of measurement
Number of new measles infections

Disclosure
Our protocol on statistical disclosure is followed.

Official Statistics designation
Official Statistics

UK Statistics Authority Assessment
Not assessed.

Last published
5 September 2023

Next published
5 March 2024

Date of first publication
17 March 2020

Help email
phs.immunisation@phs.scot

Date form completed
11 November 2023

Meningococcal disease

Publication title
Immunisation and vaccine-preventable diseases quarterly report.

Description
This release provides information on the clinical and laboratory confirmed cases of meningococcal disease reported in Scotland for the period July to September 2023.

Theme
Infections in Scotland

Topic
Meningococcal Disease

Format
HTML

Data source(s)
ECOSS (Electronic Communication of Surveillance in Scotland).

Meningococcal Invasive Disease Augments Surveillance (MIDAS).

Date that data are acquired
30 October 2023

Agreed date to allow quality assurance checks.

Release date
5 December 2023

Frequency
Quarterly

Timeframe of data and timeliness
July to September 2023, approximately 2 months in arrears

Continuity of data

Quarterly as at March, June, September and December.

Data from 1999 to September 2023 is presented.

Revisions statement
Data in the most recent quarterly updates supersedes data reported in previous reports.

Revisions relevant to this publication
This publication has no revisions.

Concepts and definitions
Meningococcal disease occurs as a result of invasive bacterial infection with the organism Neisseria meningitidis.

Meningococcal disease cases overwhelmingly show symptoms of meningitis (inflammation of the meninges) or septicaemia (blood poisoning).

Meningococcal disease is a significant cause of morbidity and mortality in children and young adults.

N. meningitidis is classified according to its outer membrane characteristics via a process known as serogrouping. There are a number of different serogroups, the most common of which in the UK is B followed by W. Cases of serogroup Y, Z and C disease have also been also reported. Currently there are vaccines to protect against certain strains within serogrouups A, B, C, W and Y.

Relevance and key uses of the statistics
Data are collected as part of mandatory public health surveillance providing data to monitor the epidemiology of meningococcal disease and inform public health planning and response.

Statistics are used by PHS for surveillance purposes and published for transparency.

Accuracy
The data are considered accurate.

Data are validated locally by partnerships.

We carry out further validation checks in consultation with NHS boards, as required.

The Code of Practice for Statistics has been followed to ensure a high standard of data value, trustworthiness and quality.

Completeness
All data returned from ECOSS are used for analysis.

Comparability
Scottish data is regularly compared to UKHSA meningococcal disease data and information.

Accessibility
It is the policy of PHS to make its websites and products accessible according to our accessibility statement. Graphs and tables have been assessed against PHS accessibility standards.

Accessibility of the report and findings are of continuous consideration throughout the report development.

Coherence and clarity
The report has been produced using the standard PHS publications template and is available as HTML web pages.

Value type and unit of measurement
Number of new menigococcal infections.

Disclosure
Our protocol on statistical disclosure is followed.

Official Statistics designation
Official Statistics

UK Statistics Authority Assessment
Not assessed.

Last published
5 September 2023

Next published
5 March 2024

Date of first publication
17 March 2020

Help email
phs.immunisation@phs.scot

Date form completed
11 August 2023

Mumps

Publication title
Immunisation and vaccine-preventable diseases quarterly report.

Description
This release provides information on laboratory-confirmed cases of mumps reported in Scotland for the period from July to September 2023.

Theme
Infections in Scotland

Topic
Mumps infection

Format
HTML

Data source(s)
ECOSS (Electronic Communication of Surveillance in Scotland).

Date that data are acquired
30 Octoer 2023

Agreed date to allow quality assurance checks.

Release date
5 December 2023

Frequency
Quarterly

Timeframe of data and timeliness
July to September 2023, approximately 2 months in arrears

Continuity of data
Quarterly as at March, June, September and December.

Data from 1988 to September 2023 is presented.

Revisions statement
Data in the most recent quarterly updates supersedes data reported in previous reports.

Revisions relevant to this publication
This publication has no revisions.

Concepts and definitions
Mumps is a disease resulting from infection by the mumps virus.

The disease is characterised by swelling of one or both cheeks or sides of the jaw, also known as parotitis, along with fever, headache and swollen glands although asymptomatic mumps infection is common, particularly in children.

Mumps is rarely fatal.

New cases of mumps included in the report are identified by laboratory testing based on positive PCR or IgM serology.

It is important to note that mumps may be diagnosed clnically and only laboratory-confirmed cases are included in the report.

Therefore the data presented may represent an underestimate of the true community circulation of mumps

Relevance and key uses of the statistics
Data are collected as part of mandatory public health surveillance providing data to monitor the epidemiology of mumps and inform public health planning and response.

Statistics are used by PHS for surveillance purposes and published for transparency.

Accuracy
The data are considered accurate.

Data are validated locally by partnerships.

We carry out further validation checks in consultation with NHS boards, as required.

The Code of Practice for Statistics has been followed to ensure a high standard of data value, trustworthiness and quality.

Completeness
All data returned from ECOSS are used for analysis.

Comparability
Scottish data is regularly compared to UKHSA mumps data and information.

Accessibility
It is the policy of PHS to make its websites and products accessible according to our accessibility statement. Graphs and tables have been assessed against PHS accessibility standards.

Accessibility of the report and findings are of continuous consideration throughout the report development.

Coherence and clarity
The report has been produced using the standard PHS publications template and is available as HTML web pages.

Value type and unit of measurement
Number of new mumps infections.

Disclosure
Our protocol on statistical disclosure is followed.

Official Statistics designation
Official Statistics

UK Statistics Authority Assessment
Not assessed.

Last published
5 September 2023

Next published
5 March 2024

Date of first publication
17 March 2020

Help email
phs.immunisation@phs.scot

Date form completed
11 November 2023

Pertussis (Whooping cough)

Publication title
Immunisation and vaccine-preventable diseases quarterly report.

Description
This report provides epidemiological information on positive laboratory cases of Bordetella pertussis in Scotland for the period July to September 2023.

Theme
Infections in Scotland

Topic
Whooping cough

Format
HTML

Data source(s)
Electronic Communication of Surveillance in Scotland (ECOSS) for laboratory reports.

General practice IT systems for maternal pertussis vaccination data.

National Records of Scotland for mid-year population estimates (used for incidence calculations).

Date that data are acquired
30 October 2023

Agreed date to allow quality assurance checks.

Release date
5 December 2023

Frequency
Quarterly

Timeframe of data and timeliness
July to September 2023, approximately 2 months in arrears

Continuity of data
Quarterly as at March, June, September and December.

Data from 1988 to September 2023 is presented.

Electronic reporting of Bordetella pertussis lab results began in 2005 and was rolled out incrementally over the following years.

Reporting of maternal pertussis vaccination coverage began in 2012.

Revisions statement
Data in the most recent quarterly updates supersedes data reported in previous reports.

Revisions relevant to this publication
Planned revisions have been made to historical data based on updated laboratory information received through ECOSS.

Concepts and definitions
Whooping cough (or pertussis) is a highly contagious respiratory illness caused by infection with the bacterium Bordetella pertussis.

Pertussis is spread from person to person by coughing and sneezing.

Early symptoms often include a runny nose, fever, and mild cough, which after a few weeks can progress to uncontrolled coughing fits and subsequent vomiting episodes.

Some individuals with pertussis exhibit a characteristic "whoop" sound caused by gasping for breath after coughing fits.

Unimmunised infants are most at risk of severe complications, which include pneumonia, seizures, brain damage, and death.

Vaccination against pertussis is offered to infants at 8, 12, and 16 weeks of age and to children at 3 years and 4 months of age. Vaccination is also offered to all pregnant women between 16 and 32 weeks of gestation.

Relevance and key uses of the statistics
These data are essential for monitoring the epidemiology of pertussis and the uptake of the maternal pertussis vaccine in Scotland in order to inform public health planning and response.

Accuracy
The data are considered accurate.

Data are validated locally by partnerships.

We carry out further validation checks in consultation with NHS boards, as required.

Completeness
Count of pertussis laboratory reports (number).

Incidence of laboratory reports (rate per 100,000 population).
Age breakdown of laboratory reports (percentage).

Comparability
Scottish data is regularly compared to UKHSA pertussis data and information.

Accessibility
It is the policy of PHS to make its websites and products accessible according to our accessibility statement. Graphs and tables have been assessed against PHS accessibility standards.

Accessibility of the report and findings are of continuous consideration throughout the report development.

Coherence and clarity
The report has been produced using the standard PHS publications template and is available as HTML web pages.

Value type and unit of measurement
Count of pertussis laboratory reports (number).

Incidence of laboratory reports (rate per 100,000 population).

Age breakdown of laboratory reports (percentage).

Disclosure
Our protocol on statistical disclosure is followed.

Official Statistics designation
Official Statistics

UK Statistics Authority Assessment
Not assessed.

Last published
5 September 2023

Next published
5 March 2024

Date of first publication
17 March 2020

Help email
phs.immunisation@phs.scot

Date form completed
11 November 2023

Poliomyelitis

Publication title
Immunisation and vaccine-preventable diseases quarterly report.

Description
This release provides information on poliomyelitis infections in Scotland for 2023.

Theme
Infections in Scotland

Topic
Poliomyelitis

Format
HTML

Data source(s)
ECOSS (Electronic Communication of Surveillance in Scotland).

Date that data are acquired
30 October 2023

Agreed date to allow quality assurance checks.

Release date
5 December 2023

Frequency
Quarterly

Timeframe of data and timeliness
July to September 2023, approximately 2 months in arrears

Continuity of data
Quarterly as at March, June, September and December.

Data from 1988 to September 2023 is presented.

Revisions statement
Data in the most recent quarterly updates supersedes data reported in previous reports.

Revisions relevant to this publication
This publication has no revisions.

Concepts and definitions
Poliomyelitis (polio) is an acute viral illness caused by one of the three serotypes of poliovirus.

Most infections cause no symptoms, but in a small number of people can result in a potentially life-threatening infection that can cause temporary or permanent paralysis.

People may become infected with the polio virus through contact with infected faecal matter or respiratory secretions.

Immunisation against polio is offered to babies and children as part of the routine childhood immunisation schedule.

Relevance and key uses of the statistics
Data are collected as part of mandatory public health surveillance providing data to monitor the epidemiology of poliomyelitis and inform public health planning and response.

Statistics are used by PHS for surveillance purposes and published for transparency.

Accuracy
The data are considered accurate.

Data are validated locally by partnerships.

We carry out further validation checks in consultation with NHS boards, as required.

The Code of Practice for Statistics has been followed to ensure a high standard of data value, trustworthiness and quality.

Completeness
All data returned from ECOSS are used for analysis.

Comparability
Scottish data is regularly compared to UKHSA poliomyelitis data and information.

Accessibility
It is the policy of PHS to make its websites and products accessible according to our accessibility statement. Graphs and tables have been assessed against PHS accessibility standards.

Accessibility of the report and findings are of continuous consideration throughout the report development.

Coherence and clarity
The report has been produced using the standard PHS publications template and is available as HTML web pages.

Value type and unit of measurement
Number of laboratory-confirmed poliovirus infections.

Disclosure
Our protocol on statistical disclosure is followed.

Official Statistics designation
Official Statistics

UK Statistics Authority Assessment
Not assessed.

Last published
5 September 2023

Next published
5 March 2024

Date of first publication
17 March 2020

Help email
phs.immunisation@phs.scot

Date form completed
11 November 2023

Pneumococcal disease

Publication title
Immunisation and vaccine-preventable diseases quarterly report.

Description
This release provides information on laboratory-confirmed cases of invasive pneumococcal disease reported in Scotland and vaccination uptake for the period July to September 2023.

Theme
Infections in Scotland

Topic
Pneumococcal disease

Format
HTML

Data source(s)
ECOSS (Electronic Communication of Surveillance in Scotland), Scottish Pneumococcal invasive disease enhanced reporting (SPIDER) for all paediatric cases (<5 years old)

Date that data are acquired
30 October 2023

Agreed date to allow quality assurance checks.

Release date
5 December 2023

Frequency
Quarterly

Timeframe of data and timeliness
July to September 2023, approximately 2 months in arrears

Continuity of data
Quarterly as at March, June, September and December.

Data from 1999 to September 2023 is presented.

Revisions statement
Data in the most recent quarterly updates supersedes data reported in previous reports.

Revisions relevant to this publication
This publication has no revisions.

Concepts and definitions
Streptococcus pneumoniae (S. pneumoniae) is the bacterium responsible for causing pneumococcal infection.

Pneumococcal infections are defined as invasive or non-invasive according to which area of the body is affected.

Invasive pneumococcal disease (IPD) is caused by infection of normally sterile sites, for example, blood and cerebrospinal fluid (CSF). IPD is a major cause of morbidity and mortality in the very young, elderly or immunocompromised individuals. Two pneumococcal vaccines are available that help to protect against pneumococcal disease.

New cases of IPD are identified by laboratory reports confirming isolation of S. pneumoniae from sterile body sites.

Relevance and key uses of the statistics
Data are collected as part of mandatory public health surveillance providing data to monitor the epidemiology of meningococcal disease and inform public health planning and response.

Statistics are used by PHS for surveillance purposes and published for transparency.

Accuracy
The data are considered accurate.

Data are validated locally by partnerships.

We carry out further validation checks in consultation with NHS boards, as required.

The Code of Practice for Statistics has been followed to ensure a high standard of data value, trustworthiness and quality.

Completeness
All data returned from ECOSS systems and the enhanced surveillance database are used for analysis.

Comparability
Scottish data is regularly compared to UKHSA pneumococcal data and information.

Accessibility
It is the policy of PHS to make its websites and products accessible according to our accessibility statement. Graphs and tables have been assessed against PHS accessibility standards.

Accessibility of the report and findings are of continuous consideration throughout the report development.

Coherence and clarity
The report has been produced using the standard PHS publications template and is available as HTML web pages.

Value type and unit of measurement
Number of new S. pnuemoniae isolates from sterile sites.

Disclosure
Our protocol on statistical disclosure is followed.

Official Statistics designation
Official Statistics

UK Statistics Authority Assessment
Not assessed.

Last published
5 September 2023

Next published
5 March 2024

Date of first publication
17 March 2020

Help email
phs.immunisation@phs.scot

Date form completed
11 November 2023

Rotavirus

Publication title
Immunisation and vaccine-preventable diseases quarterly report.

Description
This release provides information on laboratory-confirmed cases of rotavirus to the period September 2023, consultation rate per 100,000 of the population for infants less than one year of age for gastrointestinal illness to the year-end 2018, and on hospital admissions attributable to rotavirus to the end of 2017.

Theme
Infections in Scotland

Topic
Rotavirus

Format
HTML

Data source(s)
Electronic Communication of Surveillance in Scotland (ECOSS) for laboratory reports.

Scottish Morbidity Record (SMR01) for hospital admissions for rotavirus and viral enteritis.

General practice IT systems for vaccination data and GP consultations.

National Records of Scotland for mid-year population estimates (used for rate calculations).

Date that data are acquired
30 October 2023

Agreed date to allow quality assurance checks.

Release date

5 December 2023

Frequency
Quarterly

Timeframe of data and timeliness
July to September 2023, approximately 2 months in arrears

Continuity of data
Quarterly as at March, June, September and December.

Data from 2011 to September 2023 is presented.

Revisions statement
Data in the most recent quarterly updates supersedes data reported in previous reports.

Revisions relevant to this publication
This publication has no revisions.

Concepts and definitions
Rotavirus infections in children and adults can last approximately three to eight days and symptoms include severe diarrhoea, vomiting, stomach cramps, mild fever.

The combination of symptoms can lead to dehydration, requiring admission to hospital, especially in young infants.

Before the introduction of a national infant rotavirus vaccination programme in 2013, an estimated 55,000 gastroenteritis cases caused by rotavirus occurred in Scotland each year in children less than five years old. Approximately 1,200 of these children were hospitalised.

The vaccine provides protection against the most common strains of rotavirus, but not other enteric viruses such as norovirus.

Relevance and key uses of the statistics
Data are collected as part of mandatory public health surveillance providing data to monitor the epidemiology of rotavirus and inform public health planning and response.

Statistics are used by PHS for surveillance purposes and published for transparency.

Accuracy
The data are considered accurate.

Data are validated locally by partnerships.

We carry out further validation checks in consultation with NHS boards, as required.

The Code of Practice for Statistics has been followed to ensure a high standard of data value, trustworthiness and quality.

Completeness
Hospital admission data is analysed once SMR01 completeness reaches at least 95%.

Information on GP consultations and shingles vaccination coverage is normally based on data received for over 95% of general practices.

Comparability
Scottish data is regularly compared to UKHSA rotavirus data and information.

Accessibility
It is the policy of PHS to make its websites and products accessible according to our accessibility statement. Graphs and tables have been assessed against PHS accessibility standards.

Accessibility of the report and findings are of continuous consideration throughout the report development.

Coherence and clarity
The report has been produced using the standard PHS publications template and is available as HTML web pages.

Value type and unit of measurement
Count of laboratory-confirmed rotavirus (number).

Hospital admissions for rotavirus and viral enteritis in children aged less than 5 years (count).

GP consultations for gastrointestinal illness in children less than one years (rate per 100,000 population).

Disclosure
Our protocol on statistical disclosure is followed.

Official Statistics designation
Official Statistics

UK Statistics Authority Assessment
Not assessed.

Last published
5 September 2023

Next published
5 March 2024

Date of first publication
17 March 2020

Help email
phs.immunisation@phs.scot

Date form completed
11 November 2023

Rubella

Publication title
Immunisation and vaccine-preventable diseases quarterly report.

Description
This release provides information on laboratory-confirmed and epidemiologically cases of rubella reported in Scotland for the period July to September 2023.

Theme
Infections in Scotland

Topic
Rubella infection

Format
HTML

Data source(s)
ECOSS (Electronic Communication of Surveillance in Scotland).

Colindale/PHE enhanced surveillance database.

Date that data are acquired
30 October 2023

Agreed date to allow quality assurance checks.

Release date
5 December 2023

Frequency
Quarterly

Timeframe of data and timeliness
July to September 2023, approximately 2 months in arrears

Continuity of data

Quarterly as at March, June, September and December.

Data from 1988 to September 2023 is presented.

Revisions statement
Data in the most recent quarterly updates supersedes data reported in previous reports.

Revisions relevant to this publication
This publication has no revisions.

Concepts and definitions
Rubella is a rash illness caused by the rubella virus and is also known as German measles.

It is generally a mild self-limiting illness, but if acquired by women in the first 16 weeks of pregnancy can have devastating effects on the unborn child inlcuding miscarriage or Congenital Rubella Syndrome (CRS).

New cases of rubella are identified by laboratory testing based on positive PCR or IgM serology.

Relevance and key uses of the statistics
Data are collected as part of mandatory public health surveillance providing data to monitor the epidemiology of rubella and inform public health planning and response.

Statistics are used by PHS for surveillance purposes and published for transparency.

Accuracy
The data are considered accurate.

Data are validated locally by partnerships.

We carry out further validation checks in consultation with NHS boards, as required.

The Code of Practice for Statistics has been followed to ensure a high standard of data value, trustworthiness and quality.

Completeness
All data returned from ECOSS and the enhanced surveillance database are used for analysis.

Comparability
Scottish data is regularly compared to UKHSA rubella data and information.

Accessibility
It is the policy of PHS to make its websites and products accessible according to our accessibility statement. Graphs and tables have been assessed against PHS accessibility standards.

Accessibility of the report and findings are of continuous consideration throughout the report development.

Coherence and clarity
The report has been produced using the standard PHS publications template and is available as HTML web pages.

Value type and unit of measurement
Number of new rubella infections.

Disclosure
Our protocol on statistical disclosure is followed.

Official Statistics designation
Official Statistics

UK Statistics Authority Assessment
Not assessed.

Last published
5 September 2023

Next published
5 March 2024

Date of first publication
17 March 2020

Help email
phs.immunisation@phs.scot

Date form completed
11 November 2023

Shingles

Publication title
Immunisation and vaccine-preventable diseases quarterly report.

Description
This report provides information on hospital admissions for shingles and shingles related complications in Scotland which are proxy measures for shingles disease.

Cumulative coverage estimates of shingles vaccination for the last season are also provided.

Theme
Infections in Scotland

Topic
Herpes zoster infection

Format
HTML

Data source(s)
Scottish Morbidity Record (SMR01) for hospital admissions for shingles and related complications.

National Records of Scotland for mid-year population estimates (used for rate calculations).

Date that data are acquired
30 October 2023

Agreed date to allow quality assurance checks.

Release date
5 December 2023

Frequency
Quarterly

Timeframe of data and timeliness
Hospital admission data from 2010 to 2022.

Shingles uptake data covers the period December 2021 to May 2022.

Continuity of data
A national shingles vaccination programme was introduced in Scotland in September 2013.

Data on hospital admissions due to shingles and related complications are provided from 2010 onwards.

Revisions statement
Data in the most recent quarterly updates supersedes data reported in previous reports.

Revisions relevant to this publication
This publication has no revisions.

Concepts and definitions
Shingles, also known as herpes zoster, is caused by reactivation of latent varicella zoster virus, which is the same virus that causes chickenpox.

Following initial infection, usually in childhood, the virus can lie inactive in the body's nervous system.

Reactivation of the virus can take place later in life, when the immune system has been weakened by factors such as age, stress, illness, or immunosuppresant treatments.

Shingles is characterised by a painful skin rash and the primary complication of this illness is post-herpetic neuralgia, a neuropathic pain which can last for months of years after the rash has disappeared.

The shingles vaccine is offered routinely to those aged 70 years and opportunistically to individuals ages 71 to 79 years who have not previously been vaccinated.

Relevance and key uses of the statistics
Data are collected as part of mandatory public health surveillance providing data to monitor the epidemiology of herpes zoster and inform public health planning and response.

Statistics are used by PHS for surveillance purposes and published for transparency.

Accuracy
The data are considered accurate.

Data are validated locally by partnerships.

We carry out further validation checks in consultation with NHS boards, as required.

The Code of Practice for Statistics has been followed to ensure a high standard of data value, trustworthiness and quality.

Completeness
Hospital admission data is analysed once SMR01 completeness reaches at least 95%.

Comparability
Scottish data is regularly compared to UKHSA shingles data and information.

Accessibility
It is the policy of PHS to make its websites and products accessible according to our accessibility statement. Graphs and tables have been assessed against PHS accessibility standards.

Accessibility of the report and findings are of continuous consideration throughout the report development.

Coherence and clarity
The report has been produced using the standard PHS publications template and is available as HTML web pages.

Value type and unit of measurement
Hospital admissions for shingles and related complications (rate per 100,000 population).

Coverage of shingles vaccination (percentage).

Disclosure
Our protocol on statistical disclosure is followed.

Official Statistics designation
Official Statistics

UK Statistics Authority Assessment
Not assessed.

Last published
5 September 2023

Next published
5 March 2024

Date of first publication
17 March 2020

Help email
phs.immunisation@phs.scot

Date form completed
11 November 2023

Tetanus

Publication title
Immunisation and vaccine-preventable diseases quarterly report.

Description
This release provides information on tetanus infections in Scotland for 2023.

Theme
Infections in Scotland

Topic
Tetanus

Format
HTML

Data source(s)
ECOSS (Electronic Communication of Surveillance in Scotland).

Date that data are acquired
30 October 2023

Agreed date to allow quality assurance checks.

Release date
5 December 2023

Frequency
Quarterly

Timeframe of data and timeliness
July to September 2023, approximately 2 months in arrears

Continuity of data
Quarterly as at March, June, September and December.

Data from 1988 to September 2023 is presented.

Revisions statement
Data in the most recent quarterly updates supersedes data reported in previous reports.

Revisions relevant to this publication
This publication has no revisions.

Concepts and definitions
Tetanus is a disease resulting from infection with the bacteria Clostridium tetani.

These bacteria are common in the environment and are present in soil and the manure of animals.

They may cause infection by producing a neurotoxin when they enter the body through a wound, burn, puncture or scratch.

The most common symptoms of infection are lockjaw, muscle spasms, fever, sweating and tachycardia (high heart rate).

Tetanus cannot spread from person to person although people who inject drugs (PWID) are at increased risk of infection, through sharing contaminated objects such as needles, and clusters of infection have been previously reported in PWID.

Immunisation against tetanus is the most effective method of prevention has been part of the childhood immunisation schedule since 1961.

Relevance and key uses of the statistics
Data are collected as part of mandatory public health surveillance providing data to monitor the epidemiology of poliomyelitis and inform public health planning and response.

Statistics are used by PHS for surveillance purposes and published for transparency.

Accuracy
The data are considered accurate.

Data are validated locally by partnerships.

We carry out further validation checks in consultation with NHS boards, as required.

The Code of Practice for Statistics has been followed to ensure a high standard of data value, trustworthiness and quality.

Completeness
All data returned from ECOSS are used for analysis.

Comparability
Scottish data is regularly compared to UKHSA tetanus data and information.

Accessibility
It is the policy of PHS to make its websites and products accessible according to our accessibility statement. Graphs and tables have been assessed against PHS accessibility standards.

Accessibility of the report and findings are of continuous consideration throughout the report development.

Coherence and clarity
The report has been produced using the standard PHS publications template and is available as HTML web pages.

Value type and unit of measurement
Number of new Clostridium tetani infections.

Disclosure
Our protocol on statistical disclosure is followed.

Official Statistics designation
Official Statistics

UK Statistics Authority Assessment
Not assessed.

Last published
5 September 2023

Next published
5 March 2024

Date of first publication
17 March 2020

Help email
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Date form completed
11 November 2023

Last updated: 21 March 2024

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