

Search

- [Home](#)
- [Living and Working Well](#)
- [Health Protection](#)
- [Health Protection](#)
- [Adult screening programmes](#)
- [Adult vaccinations](#)
- [Blood-borne viruses \(BBV\)](#)
- [Health Care Associated Infection](#)
- [Infectious and communicable diseases](#)
- [NHS Health Checks](#)
- [Sexual Health](#)
- [Termination of Pregnancy](#)

[Home](#) > [Living and Working Well](#) > [Health Protection](#) > Infectious and communicable diseases

Infectious and communicable diseases



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Introduction

Infectious diseases today continue to pose a significant burden to health and society. The increased mobility of people and goods has contributed to the persistent and ever-changing impact of infectious diseases. Although the effect on mortality of infectious diseases is greater in the developing world, infectious diseases in England generate a significant cost financially, socially, and on health and wellbeing. In the UK, infectious diseases have been estimated to account for half of GP consultations for children, and over a third of GP consultations for adults¹.

Public Health England (PHE) leads the surveillance and management of infectious diseases and environmental threats to health through the provision of specialist health protection, epidemiology and microbiology services across England and aims to detect possible outbreaks of disease and epidemics as rapidly as possible. Local Health Protection Teams (HPTs) lead Public Health England's response to all health related incidents and provide specialist support to prevent and reduce the impact of infectious diseases, chemical and radiation hazards and major emergencies.

Health Protection Teams help with:

- local disease surveillance
- maintaining alert systems
- investigating and managing health protection incidents and outbreaks
- implementing and monitoring national action plans for infectious diseases ([Figure 1](#)) at local level

For Blackpool these arrangements are managed by the Cumbria and Lancashire Health Protection Team based in Chorley.

Figure 1: Diseases notifiable to local authority proper officers under the Health Protection (Notification) Regulations 2010

Acute encephalitis	Diphtheria	Malaria	Scarlet fever
Acute infectious hepatitis	Enteric fever (typhoid or paratyphoid fever)	Measles	Smallpox
Acute meningitis	Food poisoning	Meningococcal septicaemia	Tetanus
Acute poliomyelitis	Haemolytic uraemic syndrome (HUS)	Mumps	Tuberculosis
Anthrax	Infectious bloody diarrhoea	Plague	Typhus
Botulism	Invasive group A streptococcal disease	Rabies	Viral haemorrhagic fever
Brucellosis	Legionnaires' disease	Rubella	Whooping cough
Cholera	Leprosy	Severe Acute Respiratory Syndrome (SARS)	Yellow fever

Source: PHE, *Notifiable diseases and causative organisms*

Across England and Wales the main notifiable diseases are food poisoning, measles, mumps, scarlet fever, tuberculosis and whooping cough and accounted for over 85% of all notified diseases in 2014².

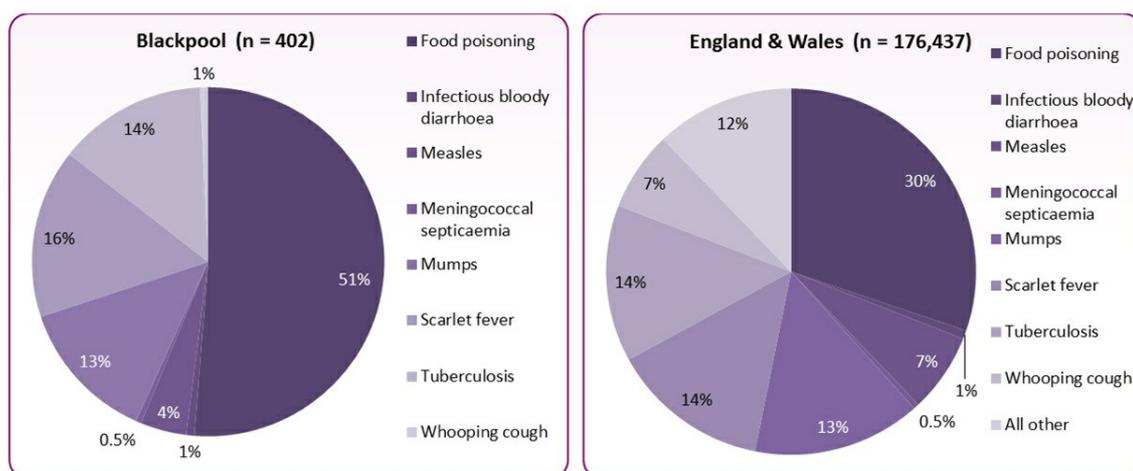
For information relating to vaccinations, immunisations and other non-communicable health threats see [Health](#)

Facts, figures and trends

Data from PHE's Notifiable Diseases Annual Report shows there were **402** notifications of infectious diseases in Blackpool during the three year period 2012-14 (**Figure 2**)

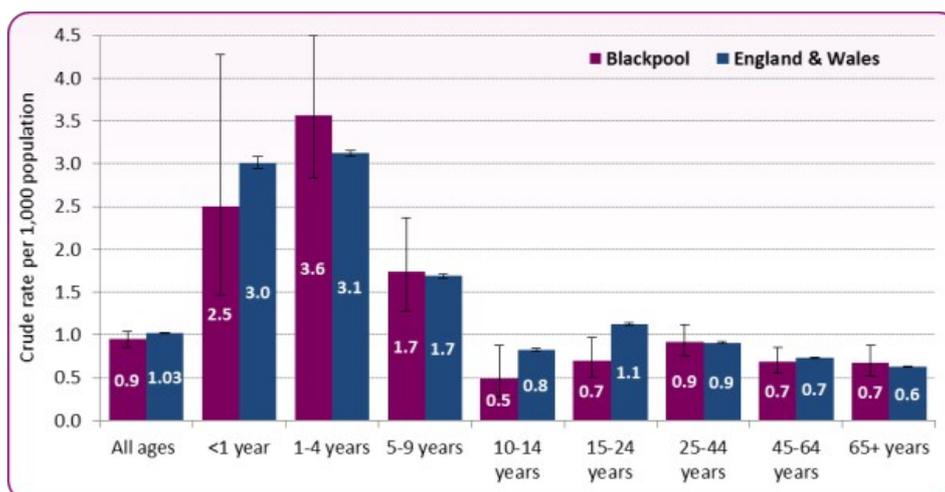
- 206 (51%) of the notifications were for food poisoning
- Food poisoning accounts for just over half of Blackpool's notifications but for only 30% of notifications nationally
- There were 63 (16%) notifications of scarlet fever
- Mumps and measles accounted for 70 notifications, 17% of all infectious disease notified
- Nationally, measles and mumps make up 22% of all notifications
- There were 55 tuberculosis notifications, 14% of all notified diseases
- Blackpool has similar proportions of notifications of meningococcal septicaemia, mumps and tuberculosis to England and Wales averages

Figure 2: Notifications of infectious diseases by disease group: Blackpool and England & Wales, 2012-14



Source: PHE, Notifiable Diseases Annual Report, 2012, 2013, 2014

Figure 3: Notifications of infectious diseases by age group, crude rate per 1,000 population: Blackpool and England & Wales, 2012-14



Source: PHE, Notifiable Diseases Annual Report, 2012, 2013, 2014. ONS mid-year population estimates, 2012, 2013, 2014

The key issues in relation to infectious diseases and/or agents that constituted the highest rates of notifications from Blackpool in 2012-14 included:

- Food poisoning, an illness caused by eating contaminated food. It's not usually serious and most people get better within a few days without treatment. Although we do not have data on the types of food poisonings notified in Blackpool, research from the Food Standards Agency shows campylobacter is the most common foodborne pathogen followed by clostridium perfringens, with norovirus the third most common. Salmonella is the pathogen that causes the most hospital admissions. Poultry meat was the food linked to the most cases of food poisoning³.

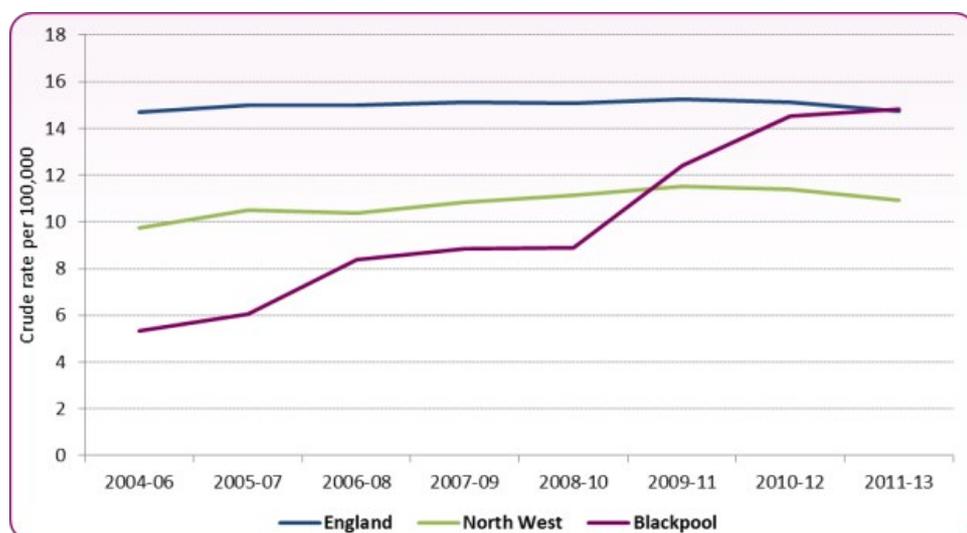
- Scarlet fever is much less common than it used to be but in recent years there have been a number of significant outbreaks. The current national rise in scarlet fever cases is reflected locally with 63 notifications in 2012-14 though the reason for recent increases is unclear. Scarlet fever is a bacterial illness that mainly affects children and causes a distinctive pink-red rash. The illness is caused by *Streptococcus pyogenes* bacteria, also known as group A streptococcus, which are found on the skin and in the throat. Of the 63 notifications in Blackpool, 59 (94%) were in children aged under 10 years old.
- Measles is a viral illness that can lead to serious complications, and is a vaccine preventable disease. Of the 17 cases notified in Blackpool between 2012 and 2014, 13 (76%) were children aged under 5.
- Mumps is also a viral illness which is vaccine preventable. Mumps is now more common, particularly in young adults who were not fully vaccinated against mumps in childhood and who have not been exposed to naturally occurring illness. Across Blackpool there were 53 notifications of mumps between 2012 and 2014, 25% (13) were in children aged under 10 years though there were 11 (21%) notifications in each of the age groups 15-24 and 25-44.
- Tuberculosis accounted for 55 infectious disease notifications, 14% of all Blackpool's notifications in 2012 to 2014. Almost three quarters of people were aged 25 and over with a third (18 notifications) of them in the 25-44 year old age group.
- Infectious bloody diarrhoea, meningococcal septicaemia and whooping cough accounted for only 2% (8) of notifications in Blackpool in 2012-14 compared to 8% nationally. Whooping cough makes up 7% of notifications in England and Wales but only 1% in Blackpool.
- Children aged under 5 years have the highest rate of notifications out of all age groups followed by children aged 5-9 years (Figure 3). Scarlet fever, food poisoning and measles are the main diseases notified for these age groups.

Tuberculosis (TB)

Tuberculosis is a bacterial infection spread through inhaling tiny droplets from the coughs or sneezes of an infected person. It mainly affects the lungs. However, it can affect any part of the body, including the glands, bones, and nervous system. TB that affects the lungs is the most contagious type, but it usually only spreads after prolonged exposure to someone with the illness. For example, it often spreads within a family who live in the same house. TB has re-emerged as a serious public health problem in the UK over the last two decades, with TB incidence rising above the European average.

- Across Blackpool the incidence of TB notifications has been rising over the last ten years and is now comparable with the England average rate (Figure 4). In the three year period 2011-13 there were 63 notifications, a rate of 14.8 per 100,000 population.

Figure 4: Trend in incidence of TB notifications, Blackpool compared to England and the North West



Source: PHE, TB Strategy Monitoring Indicators

Timely and fully completed treatment for TB is key to saving lives and preventing long-term ill health, as well as reducing the number of new infections and development of drug resistance. Dropping out of treatment before it is completed can contribute to drug-resistant TB, and preventing the development of drug resistant TB is particularly important as it has more severe health consequences and is considerably more difficult to treat.

- In 2012, the percentage of drug sensitive TB cases completing treatment for TB within 12 months in Blackpool was 90% (18 cases) compared to 83% nationally.

Measles and mumps

Measles is a highly infectious viral illness that can be very unpleasant and can sometimes lead to serious complications. However, it's now uncommon in the UK because of the effectiveness of the MMR vaccination. Mumps is a contagious viral infection that used to be common in children before the introduction of the MMR vaccine.

Figure 5: Number of notifications of measles and mumps in England & Wales, the North West and Blackpool

	Measles				Mumps			
	2011	2012	2013	2014	2011	2012	2013	2014
England & Wales	2,355	4,211	6,193	1,850	6,888	7,530	10,095	8,338
North West	203	1,491	1,228	296	864	1,226	1,384	869
Blackpool	5	7	5	5	12	24	20	9

Source: PHE, Measles notifications, by age group, region and sex, Mumps notifications, by age group, region and sex

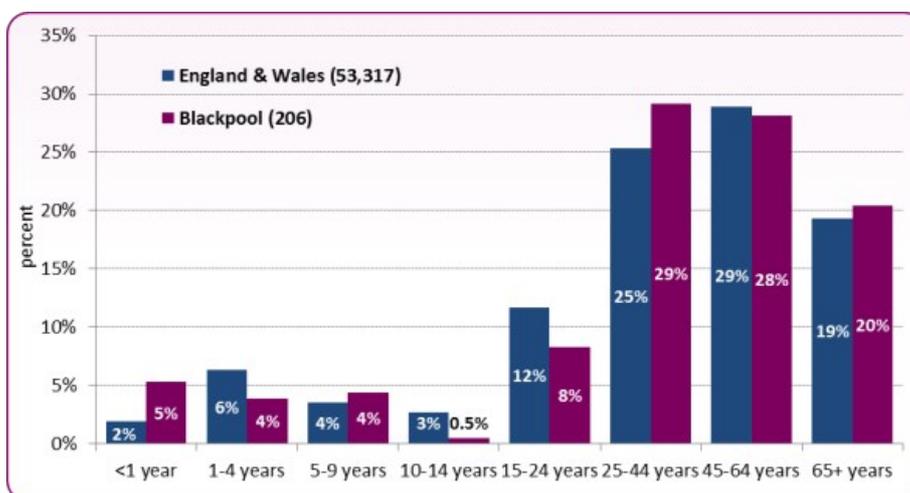
The success of the MMR vaccine means that cases of measles are uncommon in the UK. However, the number of cases has risen in recent years and there have been some high-profile outbreaks. For example, between November 2012 and July 2013 there was a measles outbreak in and around Swansea, during which more than 1,200 cases were reported. It is thought that the rise in the number of cases of measles is largely due to parents not getting their child vaccinated with the MMR vaccine, probably due to inaccurate research linking MMR to autism.

Mumps cases nationally continue to be identified predominantly in young adults between 16 and 30 years of age with over 40% of all cases in the first half of 2014 having reported receiving at least one dose of MMR vaccination in childhood, suggesting that some waning immunity may be contributing to transmission⁴. In Blackpool, in 2012-14 over 40% of mumps cases were in people aged 15-44.

Food poisoning/gastroenteritis

Food poisoning is an illness caused by eating contaminated food. It's not usually serious and most people get better within a few days without treatment. In most cases of food poisoning, the food is contaminated by bacteria, such as salmonella or Escherichia coli (E. coli), or a virus, such as the norovirus. Food poisoning is one of the most common causes of gastroenteritis in adults. The most common cause of gastroenteritis in children is a virus called the rotavirus. This virus is passed out in the stools (faeces) of someone with the infection. It can be transferred to food, objects and surfaces if the infected person doesn't wash their hands after going to the toilet.

Figure 6: Proportion of food poisoning notifications by age group, Blackpool and England & Wales, 2012-14



Source: PHE, Notifiable Diseases Annual Report, 2012, 2013, 2014.

- Of the 206 food poisoning notifications in Blackpool in 2012-14, over three quarters (78%) were adults aged over 25 years.

- Children aged under 5 years accounted for less than 10% of food poisoning notifications.

Risk factors

The key demographic change to impact on the incidence of communicable diseases is travel and migration. Not only can this affect the incidence of diseases such as TB and hepatitis B but may increase the risk of pandemic infections. In addition, vaccination programmes are different in different countries and children entering the country may not have completed the UK immunisation schedule.

Prevention

Many infections are easily preventable by healthcare partners but require vigilance to prevent infections carried by food, water, infected objects, excreta, bodily fluids and droplets. Essential practices for preventing infection encompassing all the determinants of health include:

- handwashing which hugely reduces infection spread in every setting, especially in clinical situations and after contact with animals and soil.
- breastfeeding maximises infant immunity to infections, including gastroenteritis.
- good nutrition improves immune function.
- adequate hydration helps prevent urinary tract infections in elderly.
- appropriate vaccinations ([See childhood and adult immunisation](#)).
- adequate housing with sufficient space prevents spread of infections, for example TB.
- good thermal insulation and adequate heating prevent respiratory infections and excess winter deaths.
- early diagnosis, treatment, and isolation when necessary and rapid referral prevent infections spreading.
- education, monitoring and regulation to maintain vigilance on these essential actions to prevent infection.

Infection control must be a priority. Without infection control all other activity to promote health and wellbeing can be swiftly undermined when an outbreak occurs and large numbers of people are affected. Ongoing vigilance is required as antibiotic resistance increases (for example the global epidemic of multi-drug resistant TB, currently prevalent in London) reducing the armoury of drugs available for control. The aim should be targeted prevention using infection control frameworks including the screen, treat and immunisation roles of occupational health for TB, measles, Hepatitis C, and healthcare acquired infections (HCAI).

National and local guidance

'Notification of infectious diseases' is the term used to refer to the statutory duties for reporting notifiable diseases in the [Public Health \(Control of Disease\) Act 1984](#) and the [Health Protection \(Notification\) Regulations 2010](#).

TB has been identified as a priority, and PHE and NHS England believe that concerted action, supported by national expertise, can significantly reduce the suffering and harm caused by the disease, The [Collaborative TB Strategy for England 2015-2020](#) outlines how they intend to organise and resource services to tackle TB.

Current NICE guidelines (CG117) [Tuberculosis: Clinical diagnosis and management of tuberculosis, and measures for its prevention and control](#) published in March 2011 are currently being updated with an anticipated publication date of December 2015.

NICE guidelines (PH37) [Tuberculosis - Hard to reach Groups](#) aims to improve the way tuberculosis among hard-to-reach groups is identified and managed. It is for commissioners and providers of TB services and other statutory and voluntary organisations that work with hard-to-reach groups

[National Measles Guidelines](#) from PHE on how to manage cases of suspected measles includes what patient details to take; who to notify and assessing risk of disease spreading in close contacts.

[Mumps guidance, data and analysis](#) provides information on symptoms, diagnosis, management, surveillance and epidemiology of mumps.

[Blackpool Council Infection Control Policy](#)  (609 KB)

[1] Brownlie J. et al. Foresight. Infectious Diseases: preparing for the future, Future Threats. Office of Science and Innovation, London (2006)

[2] Source: PHE, [Notifiable diseases annual report](#), 2014

[3] Food Standards Agency [food poisoning figures](#) provides a picture of food poisoning in the UK, June 2014

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