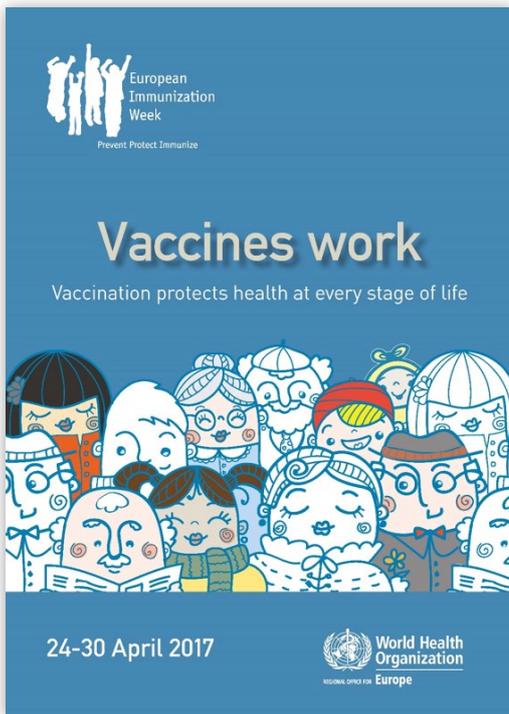




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## Vaccines for life



**The European Vaccine Action Plan (EVAP) is a roadmap towards a future in which everyone lives free of the burden of vaccine-preventable diseases.**

While progress toward this vision is clear, including in the effort to eliminate measles and rubella from the European region, many challenges remain. Coverage with childhood immunizations has not reached optimal levels across all populations and is even declining in some countries. Adolescents and adults are often not aware that they also need vaccines to

protect themselves and those around them from potentially dangerous and preventable diseases. Gaps in coverage have led to avoidable disease outbreaks in the European region affecting people of all ages. The objective of European Immunization Week 2017 is to increase awareness of the importance of immunization throughout life and thereby help build and sustain herd immunity in all communities throughout the region.

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## Early advocate for inoculation

Smallpox is an acute contagious disease caused by the variola virus, a member of the orthopoxvirus family. It was one of the world's most devastating diseases known to humanity. In 1722 Lady Mary Wortley Montague wrote a letter to her friend in support of engrafting (a form of variolation). Her brother had died from smallpox and she had survived the disease but it had affected her looks greatly and she wrote letters describing her loss. She was pilloried for her loss of looks as well as for writing her letters, having been long described as a very beautiful woman at court by the media at that time.

Later in life she travelled to the Ottoman Empire as wife to the British ambassador to Turkey. She had witnessed the process of engrafting as she described it and wrote to her friends about the process. Live virus in the pus was taken from smallpox blisters using a lancet or needle and this was delivered subcutaneously to the susceptible person, usually by scratching the skin.

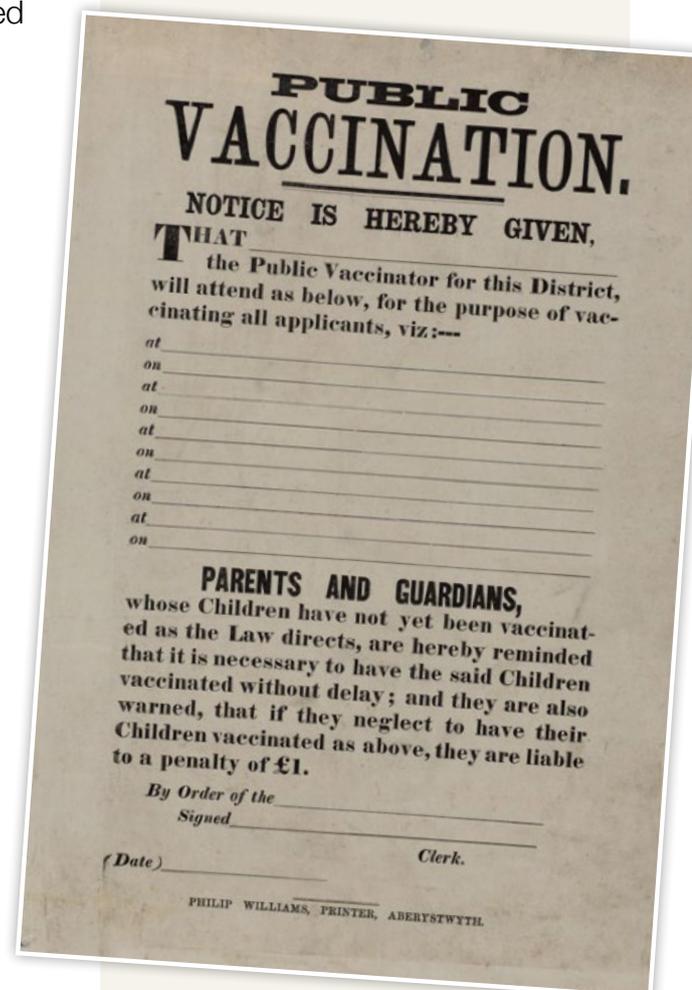
Impressed by the success of the process she persuaded a Dr Maitland to inoculate her 5 year old son at the Embassy. In April 1721 (294 years ago) a small pox epidemic struck England and Lady Mary persuaded Maitland once again to inoculate her daughter.

Despite the controversy about the process, she remained a stalwart supporter of engrafting and managed to persuade Princess Caroline to have her two children successfully inoculated. In August of that year, seven prisoners at Newgate prison were offered variolation instead of execution, they all survived and then went on to be released.

It would take a further 200 years before the modern heat stable freeze dried vaccine to be produced. The last known natural case was in Somalia in 1977. It was declared eradicated in 1980 following a global immunization campaign led by the World Health Organization.

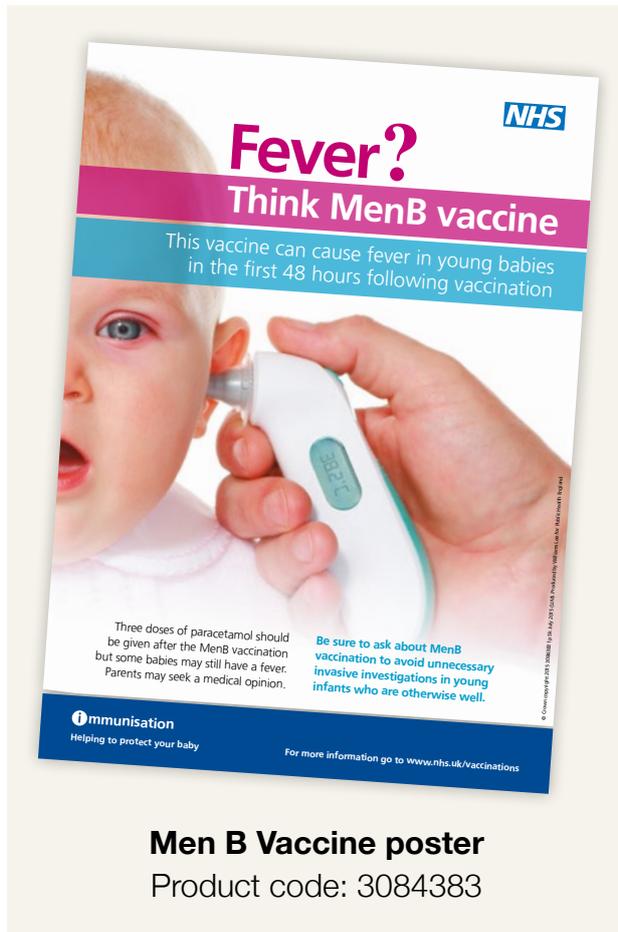


**Grundy, Isobel.Montagu,  
Lady Mary Wortley Oxford  
Dictionary of National  
Biography, Oxford University  
Press, 2004.**



**How we used to  
encourage uptake**

## MenB vaccine – success!



**Men B Vaccine poster**  
Product code: 3084383

In September 2015, the UK was the first country to introduce the meningococcal B vaccine, Bexsero, into the national infant routine immunisation programme.

Despite concerns about high rates of fever and the need to offer prophylactic paracetamol with the infant vaccinations, the programme rapidly achieved very high vaccine coverage. Within 10 months, the number of MenB cases in vaccine eligible infants had nearly halved, with vaccine effectiveness estimated to be 94% against the 88% of MenB strains that are expected to be covered by the vaccine.

This trend has continued into the second year of the

programme, and we are already seeing significant reductions in cases among 1 year-olds who became eligible for the 12 month booster since 01 May 2016. So far, more than a million doses of the vaccine have been administered and there are no safety concerns.

The programme has been so successful because of the high vaccine coverage achieved and maintained across the UK making our national immunisation programme one of the most envied in the world.

This programme was implemented in record time and the agility of our immunisation workforce has been complemented repeatedly by teams from all over the world.

## Measles – unfinished business

James and the Giant Peach was Roald Dahl's first and best loved first novel for children [Fig.1]. The book is dedicated to his two eldest daughters, Olivia and Tessa and was first published in 1961 marking the beginning of his prolific career as a children's author. Olivia caught measles when she was 7 years old and died from measles encephalitis in 1962. The first measles containing vaccine became available in the UK in 1968. The BFG is dedicated to Olivia's memory. [Fig. 2]

In 1986 Roald Dahl wrote poignantly about Olivia's illness and death from measles urging parents to take up the vaccine and protect their children from this terrible but preventable disease. Vaccine coverage at the time was still relatively low and large measles outbreaks continued to occur annually resulting in about 20 deaths from measles each year [Fig.3]



Fig. 1 James and the Giant peach poster

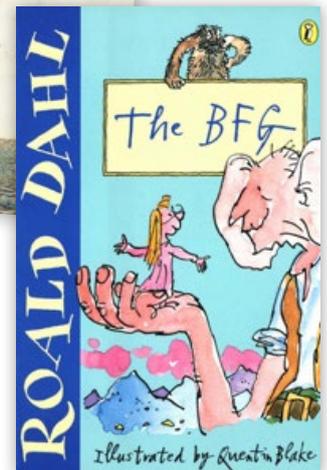


Fig. 2 The BFG

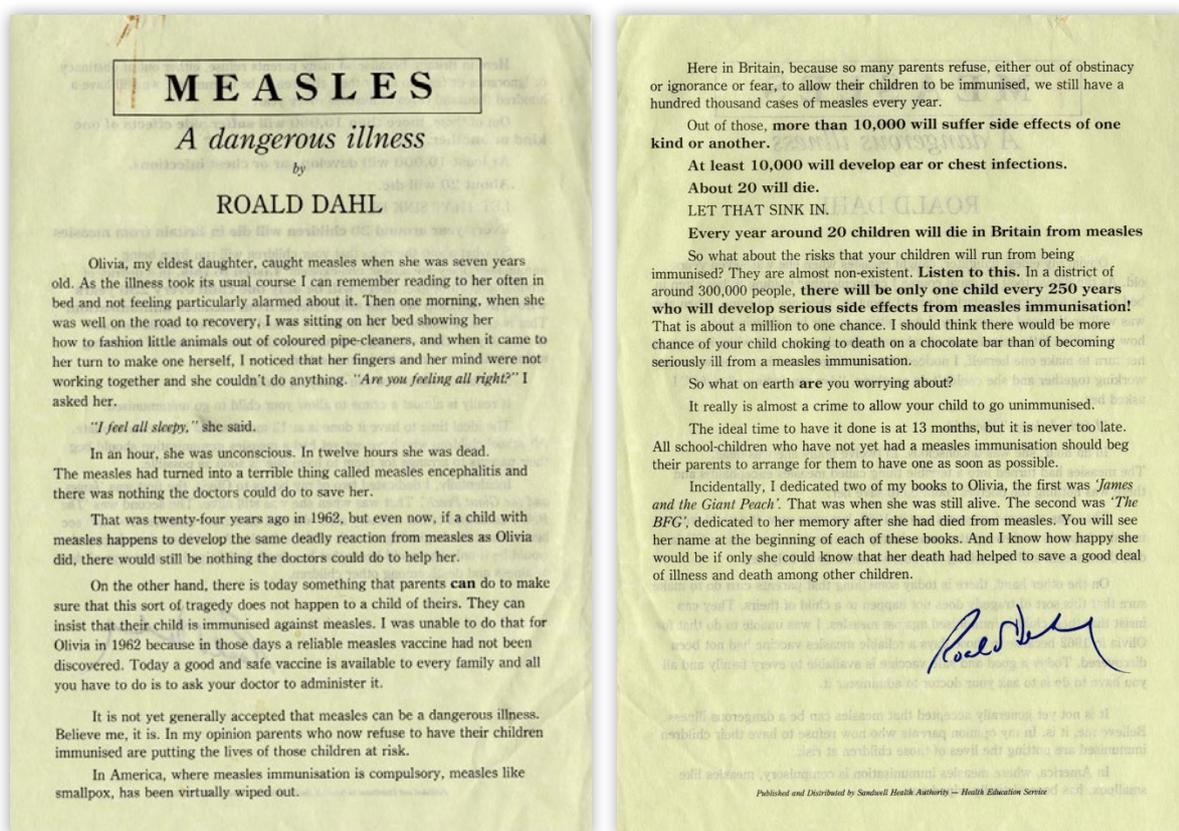


Fig. 3 Roald Dahl letter © Roald Dahl Nominee Limited

It is important to recognise how far we have come since then. The MMR vaccine was introduced in 1988 for all children at 13-15 months of age and within a couple of years coverage improved to above 90%. Endemic measles transmission was interrupted in 1996, however in order to achieve elimination a second MMR dose was added to the routine programme in 1996 at pre-school age.

The now discredited claims linking measles to autism were published with peak media coverage in 2002. This resulted in a drop in MMR coverage, with the cohorts born in the early 2000s worst affected. Multiple large outbreaks followed and by 2006 measles had become re-established.

The 2004 capital catch-up campaign and the 2008 and 2013 national catch-up campaigns aimed to bring unvaccinated or partially-vaccinated children up to date with MMR and were successful at addressing some of the gaps in coverage. MMR first dose coverage at 5 years reached the 95% WHO elimination target for the first time in 2016 and we thank all immunisers who work tirelessly to chase up all children to make sure they are protected.

MMR coverage at 24 months peaked at 93% in 2013 but has fallen slightly year on year since and this is an important reminder that we must continue to strengthen the routine programme to maintain the gains achieved in the last decade.

As part of strengthening the routine programme we continually revise and develop our publications including leaflets and posters and rely on immunisers in all settings to display and distribute these materials to aid raising awareness.

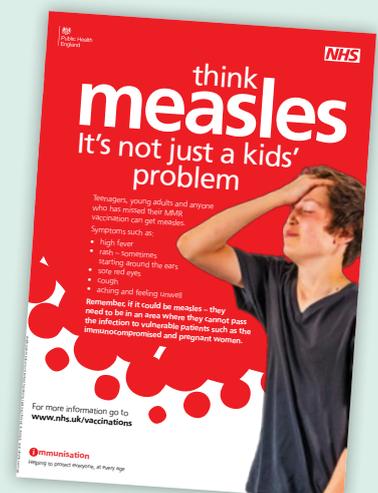
We know that when a disease becomes less common, not only does it seem less harmful and hard to recognise but the population can perceive it as less of a threat. All of which can be barriers to uptake and be factors in outbreaks.

We are now closer than ever to eliminating measles in the UK and globally. The Americas have shown that this can be done by achieving WHO elimination status in 2016. However there is still a lot of hard work to be done to reach this goal. Measles is highly infectious and vaccine coverage of at least 95% needs to be achieved and maintained for the routine childhood programme but also in adolescents and young adult cohorts in order to prevent outbreaks occurring.



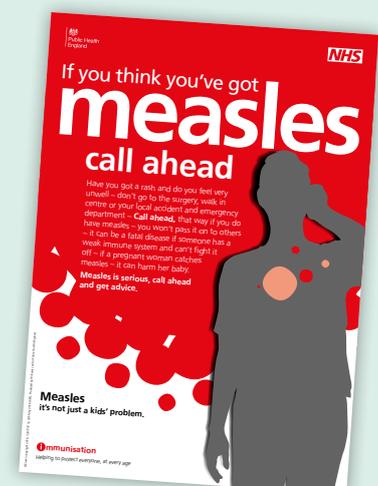
### Think measles leaflet

Product code: 3205760



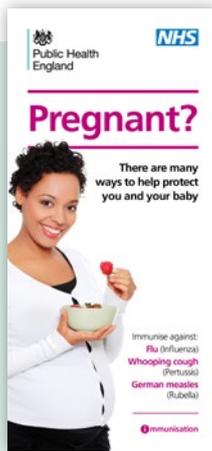
### Think measles poster

Product code: 3205852



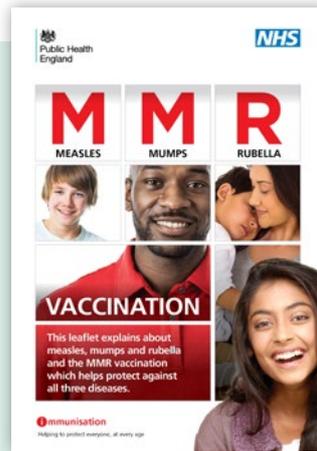
### Call ahead measles poster

Product code:3207737



### Pregnancy leaflet

Product code: 2903655



### MMR leaflet

Product code: 3219250



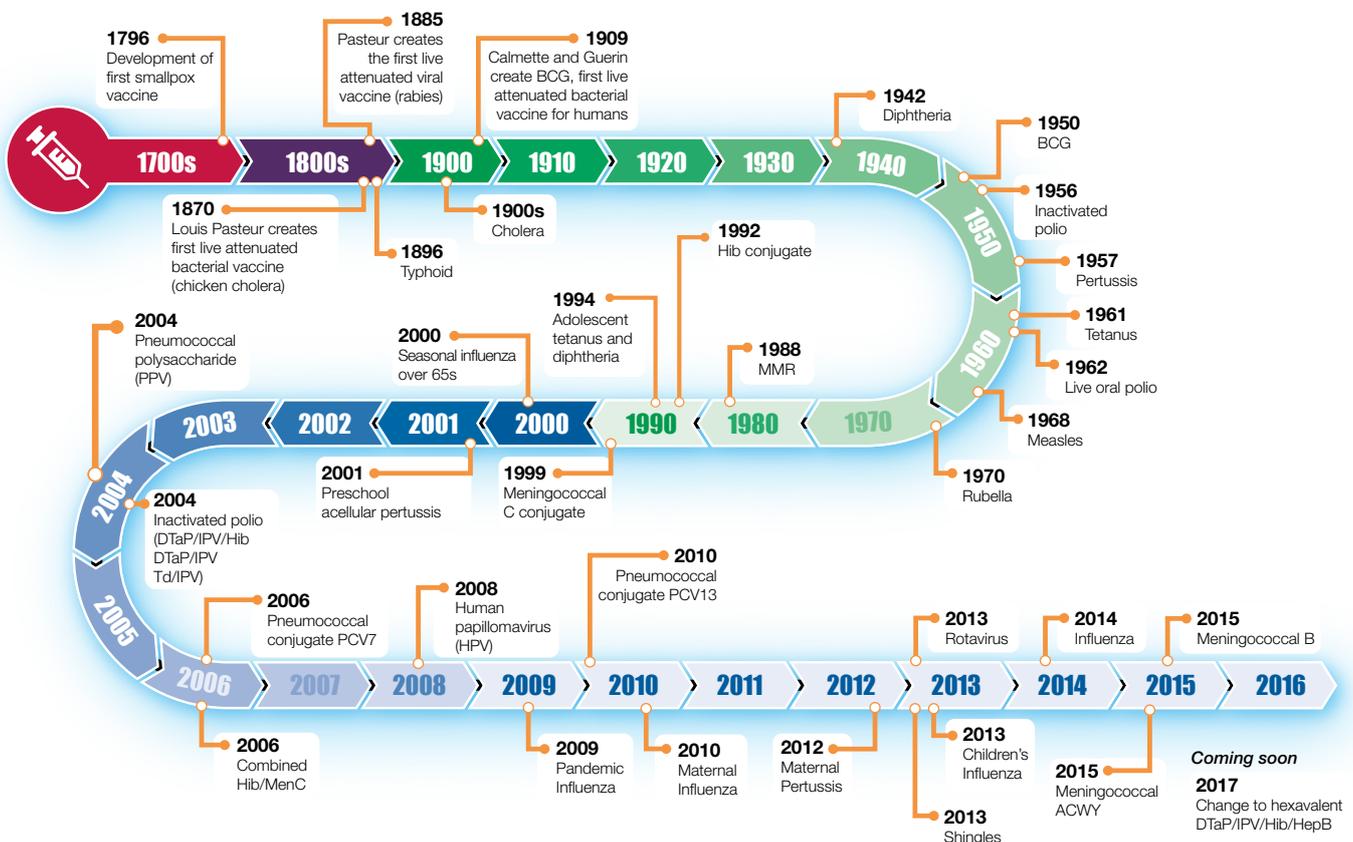
### Measles EIW poster

Product code: 2900430

Public Health England has established a Measles and Rubella Elimination Group (MAREG) to oversee all aspects of the preparation of a UK Measles and Rubella Elimination Strategy which will be published in 2017. The purpose of the strategy is to re-focus efforts to achieve and maintain elimination goals and renew commitment from stakeholders across the UK.

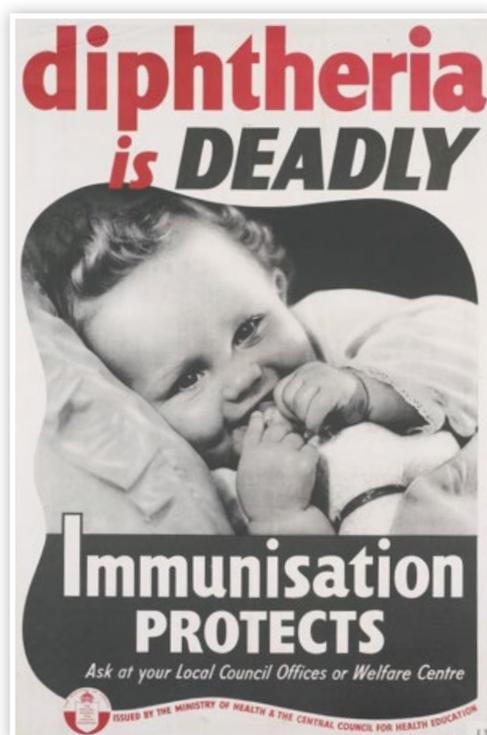
Together we can make measles and rubella diseases of the past.

## Historical vaccine development and introduction of routine vaccine programmes in the UK



Subscribe to Vaccine Update [here](#). Order immunisation publications [here](#).  
For vaccine ordering and supply enquiries, email: [vaccinesupply@phe.gov.uk](mailto:vaccinesupply@phe.gov.uk)

## Diphtheria is deadly but vaccine preventable



Before mass immunisation against diphtheria was introduced in the UK in 1942, there were on average 60,000 cases each year with 4,000 deaths. However, sustained high vaccine coverage has meant that only a small number of generally milder cases are identified each year mostly in partially vaccinated individuals. Currently coverage at 2 years is 96% and above 83% for the pre-school and school leaver booster doses. Despite the success of the diphtheria vaccination programme, fatalities can still occur in unvaccinated individuals and the last child death from diphtheria in the UK was in 2008.

The rarity of the disease does mean that most clinicians in the UK will not have encountered a case before and therefore may miss the clinical diagnosis. Diphtheria is caused by toxigenic strains of *Corynebacterium diphtheriae* or *C. ulcerans* and presents with respiratory and /or cutaneous (skin) symptoms.

Respiratory diphtheria with the classical pseudomembrane of the pharynx is seldom seen in the UK and cases are more likely to resemble streptococcal pharyngitis, particularly in people who have been vaccinated. In England in the two years 2015-16 there was one mild respiratory case caused by toxigenic *C. diphtheriae* and a severe respiratory case caused by toxigenic *C. ulcerans*. This second case was associated with contact with a dog that had the same organism isolated.

Cutaneous infections caused by *C. diphtheriae* are usually associated with travel to countries where diphtheria is still endemic and patients presenting with cutaneous lesions who have recently travelled should be risk assessed for suspected diphtheria as detailed in the revised guidelines for the public health control and management of diphtheria (published in March 2015, see [weblink 1](#)). In 2015-16 there were seven imported cutaneous infections due to toxigenic *C. diphtheriae*. In contrast, cutaneous infections caused by *C. ulcerans* are generally linked to contact with companion animals and there were two such cases in 2015/16.

New laboratory testing methods available at local laboratories are thought to have contributed to the increased number of potentially toxigenic corynebacteria isolates identified from both skin/wound and respiratory samples. Confirmation of toxigenicity is undertaken by the PHE Respiratory and Vaccine Preventable Vaccine Bacteria Reference Unit. From January 2016 to March 2017 eight toxigenic isolates have been identified (six *C. diphtheriae* and two *C. ulcerans*).

These cases highlight the importance of considering suspected diphtheria particularly amongst patients presenting with cutaneous lesions who have recently travelled to an endemic area and are under vaccinated. Health professionals are reminded to wear appropriate personal protective equipment (PPE) when dealing with any suspected diphtheria case and to notify any suspected case promptly to their local PHE Health Protection Team (see [weblink 2](#)).

## Good news on Flu Vaccine uptake rates



Flu vaccination remains the best way to help protect against this unpredictable virus. Morbidity and mortality attributed to flu is a major cause of harm to individuals, especially vulnerable people. The national flu immunisation programme aims to provide direct protection to these individuals, such as older people, pregnant women, and those with certain underlying medical conditions. Since 2013 the programme has started to be extended to children to provide both individual protection to the children themselves and reduce transmission across all age groups.

In the second year of the roll-out to school-aged children nationally, the provisional uptake rates showed an increase on the previous year with 57.6% in year 1, 55.3% in year 2, and 53.3% in year 3 vaccinated. This provides a firm foundation for future growth and is a testament to the hard work of local healthcare teams, and the engagement and support provided by schools. Although not as high as those in the school based programme, uptake rates for 2, 3 and 4 year olds offered vaccine in general practice were also higher than the previous year.

Reaching these pre-school cohorts continues to be extremely important, not only for their own protection and to prevent the spread of flu, but also to introduce flu vaccination as part of routine healthcare for children every autumn.



### Child flu leaflet

Product code:2015056

For frontline healthcare workers, 2016/17 was a year of significant achievement with preliminary data showing a marked increase in flu vaccine uptake with 63.4% vaccinated. This is the highest uptake rate achieved and is nearly 13% points higher than last year. As well as helping to protect staff, it will have also helped to protect their patients, many of whom are particularly vulnerable to the devastating effects of flu.

Pregnant women and those in clinical risk groups are at higher risk of morbidity and mortality from flu. For some the increased risk of death is more than 40 times higher than someone without an underlying health condition. Vaccination rates were higher than the previous year, although remain some way from the long-term ambition of 75%, or the interim target of 55% in 2017/18, at 48.7% for at risk groups and 44.8% for pregnant women.

## Our national immunisation programmes

Vaccines are complex biological medicines, manufacturing a single batch can often take many months. Delivering an immunisation programme is also complex and is so much more than just the physical act of administering an injection, a spray into the nostrils or drops into the mouth. In the UK we enjoy one of the most comprehensive immunisation programmes in the world, with protection throughout the life course starting before birth, continuing into childhood, adolescence, adulthood and old age.

Vaccines are one of the few medicines that are routinely offered to people when they are well. This makes understanding the vaccine preventable disease, its prevalence, along with the risks and benefits of the vaccines important elements of the immunisers knowledge. Such knowledge is key to the success of our national immunisation programmes.

Approximately 21 million doses of vaccines are administered as part of NHS care in England each year, over 8 million of these to children aged 0-5 years old. The routine childhood immunisation programme is complex, with protection against 13 different diseases being offered from the age of 8 weeks up to two years.

Nurses, health visitors, midwives, general practitioners, healthcare assistants, pharmacists, paramedics and paediatricians are at the forefront of our national immunisation programmes. It is testament to their skills, knowledge and professionalism that we achieve such consistently high uptake in our immunisation programmes, which protect not only individual vaccine recipients, but also, through herd immunity, wider society.

## Teenagers of 2017 school leaving age now eligible for MenACWY vaccination



From April 2017, all those aged 17 and 18 years old (born between 01/09/1998-31/08/1999), most of whom will be leaving school in summer 2017, became eligible for MenACWY vaccination and will be invited by their GP for vaccination as set out in the 2017/18 GMS contract changes – see [weblink 3](#).

It is important that all of this cohort, not only school leavers and those going on to higher education, have the opportunity to be vaccinated.

MenW cases have continued to increase overall in the current 2016/17 epidemiological year in all age groups other than infants and 15-19 year old

teenagers. Around a third of cases in 15-19 year olds have been fatal whilst there have been no deaths in infants.

Early data from the first cohort vaccinated under the MenACWY catch-up programme (who left school in 2015) found that there were 69% fewer MenW cases than predicted by trend analysis in the first year after the start of the programme (Campbell et al EID 2017, see [weblink 4](#)). There have been no cases in MenACWY vaccinated teenagers eligible under the programme.

## Geoff Dent

Geoff Dent, one of our long-term team members retired this month. Many of you will have had contact with Geoff over the last few years and we wanted to celebrate the fact that he has been working in health for over 40 years and in immunisation for the last nine. His contribution to the programme has been huge and he will be sorely missed in our team. We wish him a long and happy retirement.



We have come a very long way since the Chinese described blowing powdered smallpox scabs into noses and the safety and impact of immunisation now benefits whole populations. Infectious diseases are often now just a distant memory.

The objective of the European vaccine action plan is to have:

**A European Region free of vaccine-preventable diseases, where all countries provide equitable access to high-quality, safe, affordable vaccines and immunization services throughout the life course.**

We are now able to protect our children against so many infectious diseases that the fear caused by the disease has sometimes evolved into a fear of the vaccine. As we celebrate the success of immunisation during EIW we need to ensure that we are all fully informed about the value of immunisation and are ready and able to advise all those who come to us about the benefits that vaccines bring. All our evidence shows that the public trust nurses and doctors when it comes to immunisation. We need to make sure that we continue to offer this unique protection to the public throughout their lives.

We should all remember and celebrate the overall message for EIW.

**Vaccines work.**

Vaccination protects health at every stage of life.

## Web links

- web link 1     <https://www.gov.uk/government/publications/diphtheria-public-health-control-and-management-in-england-and-wales>
- web link 2     <https://www.gov.uk/health-protection-team>
- web link 3     <http://www.nhsemployers.org/~media/Employers/Documents/Primary%20care%20contracts/GMS/2017%2018%20Technical%20requirements%20for%20GMS%20contract%20changes.pdf>
- web link 4     [https://wwwnc.cdc.gov/eid/article/23/7/17-0236\\_article](https://wwwnc.cdc.gov/eid/article/23/7/17-0236_article)