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Briefing Note

Serial number: 2024/017 **Date 17/06/2024**

Event	**Recent increase in cases of Bordetella pertussis (whooping cough)**
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Instructions for Cascade
This briefing note should be cascaded as follows:

- **Devolved Administrations** to cascade to Medical Directors and other DA teams as appropriate to their local arrangements
- **UKHSA Private Office Groups** to cascade within Groups
- **Regional Deputy Directors** to cascade to Directors of Public Health
- **UKHSA microbiologists** to cascade to non-UKHSA labs (NHS labs and private)
- **UKHSA microbiologists** to cascade to NHS Trust infection leads
- **NHS Primary Care leads** to cascade to GP surgeries and other primary care providers nationally
- **NHS labs/NHS infection leads/NHS microbiologists/NHS infectious disease specialists** to cascade to clinicians within Emergency Departments; Paediatrics; Infectious Diseases; Infection Prevention and Control; Occupational Health; Obstetrics.

Summary:

Following the declaration of a national (standard) incident for pertussis on May 13th in England, this briefing note updates Briefing Note 2024/009 (March 2024). It summarises current epidemiology, trends in vaccine coverage, and updates to national public health guidance during periods of heightened transmission. In addition, updated advice on the eligibility for occupational vaccination for healthcare workers is included.

Background and interpretation:

National pertussis epidemiology

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Pertussis case numbers in England continue to rise across all regions in 2024. Provisionally, 555 cases were laboratory-confirmed in January, 920 cases in February, 1,430 cases in March and 1,888 in April 2024. Of the 4,793 laboratory-confirmed cases reported in 2024 to end April, around half (2,452 cases, 51.2%) were in individuals aged 15 years or older, and 26.3% were in children aged between 10 and 14 years (1,260 cases). Importantly, incidence in highest in infants under the age of 3 months, with 181 laboratory-confirmed cases identified between January and April 2024. This is of particular concern since these infants are at greatest risk of severe disease and are too young to benefit from complete vaccination.

From January to April 2024, 8 deaths were reported in infants who developed pertussis in England. Since the introduction of pertussis vaccination in pregnancy, from 2013 to the end of April 2024, there have been 29 deaths in total among infants with confirmed pertussis who were all too young to be fully protected by infant vaccination. Of the 29 infants that died, 23 had mothers who were not vaccinated at any point in pregnancy.

The next monthly update to data on confirmed pertussis cases is scheduled for publication in July 2024.

Vaccination coverage

Pertussis vaccination for **pregnant women** was introduced nationally in 2012 to confer protection for neonates before being eligible for routine childhood vaccines. Vaccination in pregnancy is highly effective[1], and recent estimates indicate an effectiveness of approximately 92% against death from pertussis in infants under 3 months of age. However, current maternal vaccine uptake (as of December 2023) in England was just 59.3% (36.8% in London), down 15.7 percentage points from the programme peak in the same quarter in 2016/17.

Pertussis vaccination is included in the **routine national childhood immunisation schedule**, with three doses administered (together with diphtheria, tetanus, polio, *Haemophilus influenzae* type b and hepatitis B in a combined vaccination) at 8-, 12- and 16- weeks of age, and one dose (together with diphtheria, tetanus and polio) as a pre-school booster. Current coverage (as of Dec 2023) in England is 91.7% at 1-year, and 84.1% for the pre-school booster by age 5, but with significant variation across the country, with lower uptake in inner-city areas. These figures represent a gradual decline in uptake, in keeping with other vaccine programmes, over the past decade (94.7% at 1-year, and 89.2% for the pre-school booster in March 2013).

Key Actions:

Revision of national guidance on pertussis

National guidance on the public health management of pertussis during periods of heightened transmission has been further revised to provide updated advice in the context of the current increase in case numbers. Key changes to public health recommendations for case and contact management for pertussis include:

- Antibiotic therapy can be considered for clinical indications **within 14 days of onset of cough** in a case (from the previously recommended 21 days). However, where the case has a household or other close contact who falls into priority group 1 (see section 2.2.3 of the national guidance for definitions) for public health action, antibiotic therapy is recommended for all cases within 21 days of onset of cough.

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- Close contacts of confirmed, suspected or epidemiologically-linked pertussis cases who are in priority groups will be eligible for chemoprophylaxis **for a maximum of 14 days after onset of cough in the case**, rather than the previously recommended 21 days. This change takes account of evidence suggesting limited effectiveness of chemoprophylaxis in contacts at longer time durations from point of exposure.
- Amendments have been to recommendations regarding **antibiotic prescribing in pregnancy**. For both treatment and chemoprophylaxis, clinicians are advised that they may consider prescribing products within the macrolide class – erythromycin, azithromycin and clarithromycin, in that order (where ordering is based on experience of prescribing in pregnancy rather than on evidence of greater risk of adverse effects).
- Where cases and outbreaks occur in settings where it is unlikely that those exposed will be members of a priority group (e.g. school settings), investigation and active intervention are not now routinely recommended.

Changes to the NICE Clinical Knowledge Summary (CKS) on whooping cough, to clarify approaches to, and requirements for, testing for case confirmation and surveillance purposes have been published online and further updates to align with revisions to national guidance are planned. This also applies to public facing advice on the NHS site.

Supporting health professionals
UKHSA continues to liaise with professional networks and Royal Colleges to raise awareness of this changing pertussis epidemiology and the importance of maternal vaccination. A stakeholder webinar providing further updates, links to guidance, and an opportunity for questions was delivered by UKHSA in March 2024. The webinar can be viewed here.

Implications & Recommendations for UKHSA Regions

Health Protection Teams are directed to the updated national guidance.

Implications & Recommendations for UKHSA sites and services

Regional UKHSA laboratories should continue to expect increasing numbers of samples for diagnostic primary testing of suspected pertussis by PCR (and, where appropriate, culture or serology) testing. Where supply challenges are noted (e.g. for reagents, testing kits etc), colleagues are asked to advise UKHSA Regional Laboratories Operations teams of these so that supporting action can be taken as appropriate.

In addition, **colleagues in all laboratories (UKHSA and NHS)** are asked to ensure that, where available, all *B. pertussis* isolates from testing for cases are sent to the Respiratory and Vaccine Preventable Bacteria Reference Unit (RVPBRU) at the earliest opportunity, especially for cases that are severe, or result in death. As described in the National guidelines, PCR testing is available from Regional UKHSA laboratories. Serology testing can be referred to the national reference laboratory if required.

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Implications & Recommendations for the NHS

Increasing rates of pertussis will place additional burden on the NHS, especially primary care providers. Clinical colleagues are reminded that pertussis can affect people of all ages and while it can be a very unpleasant illness for older vaccinated adolescents and adults, infants who are too young to be fully protected through vaccination are at greatest risk of serious complications or, rarely, death. A large majority of infants who development symptoms of pertussis will require hospitalisation.

Front-line clinicians are:

- encouraged to continue promptly identifying and treating suspected cases of pertussis as this will help reduce the spread of infection. Pertussis can present atypically but classical symptoms are outlined in a NICE Clinical Knowledge Summary; additional information on case definitions is in UKHSA guidance
- reminded that pertussis is a notifiable disease, and should be reported where suspected to your local Health Protection Team. Testing requirements vary by age and duration of symptoms at presentation; advice on testing for pertussis in primary care is available. This includes oral fluid antibody testing that is available for 2–16-year-olds – although this is for public health surveillance rather than diagnostic purposes. Colleagues are advised to consult the above advice and the NICE Clinical Knowledge Summary for advice on testing for suspected pertussis cases. However, testing (and particularly oral fluid testing), while vital for public health surveillance purposes, is unlikely to deliver results in a timeframe short enough to facilitate timely clinical management.
- asked to note updated advice on case management and exclusion, and recommendations for contacts of cases, in revised national guidance. Further advice for those with pertussis is available from the NHS and from UKHSA.
- asked to note national guidance on antibiotic prescribing for pertussis, including updated advice on duration of antibiotic therapy for cases, and recommendations regarding prophylaxis for contacts. A Medicines Supply Notification was issued by DHSC and NHSE on 12th June relating to the availability of erythromycin 250mg tablets, although interruption to supply for this antimicrobial is anticipated to be short-term. UKHSA guidance outlines alternatives within the macrolide class in the event that the first-choice antimicrobial is not available or contra-indicated.
- strongly encouraged to promote uptake of maternal vaccinations, including pertussis. Women in pregnancy will typically be offered a pertussis-containing vaccination between 20 and 32 weeks' gestation but can receive it as early as week 16. They should be vaccinated in each pregnancy. General Practices remain the core providers for this vaccination programme. Resources for healthcare staff and to support communication around vaccines with pregnant women are available.
- encouraged to help bolster uptake through the routine programme if working in primary care settings. Vaccination against pertussis through the routine programme is offered at 8, 12 and 16 weeks of age with a booster offered preschool, in primary care settings. This offers direct protection to infants and children against severe outcomes from pertussis.

NHS Occupational Health Departments are asked to note updated advice regarding occupational vaccination of healthcare workers. Eligibility for occupational vaccination has now been extended to include healthcare workers in both Groups 1 and 2 who have

not received a pertussis-containing vaccine in the last 5 years, but with an expectation that particular priority will be given to ensuring comprehensive uptake of boosters among healthcare workers in group 1 where they have not previously received them. Of note, eligible HCWs should be given a single booster dose. There are currently no recommendations for additional booster doses for healthcare workers.

Implications and recommendations for Local Authorities

Local Authority colleagues should be aware of the current increase in pertussis activity and potential for outbreaks in nurseries and other childcare settings. Guidance on the management of outbreaks in these settings, primarily for use by Health Protection Teams, is available.

Sources of information and further reading

A suite of materials have been produced by UKHSA to support colleagues in various sectors in promptly recognizing pertussis and supporting public health action – collated here.

Specific products of note include:

Data and statistics

a) Latest pertussis epidemiology from UKHSA
b) Childhood vaccination coverage statistics (England)
c) Pertussis immunisation in pregnancy: vaccine coverage (England)

Public health guidance

d) Pertussis: guidance on management of cases during periods of high activity
e) Pertussis: occupational vaccination of healthcare workers

Public facing guidance

f) NHS advice – whooping cough
g) Information for individuals who have whooping cough

Communications resources

h) UKHSA comms toolkit on maternal pertussis vaccination: Maternal vaccination programme - Google Drive

References

1. G Amirthalingam, H Campbell, S Ribeiro, J Stowe, E Tessier, D Litt, NK Fry, N Andrews; Optimization of Timing of Maternal Pertussis Immunization From 6 Years of Postimplementation Surveillance Data in England; *Clinical Infectious Diseases*, Volume 76, Issue 3, 1 February 2023, Pages e1129–e1139