UK Health Security Agency

Measles: update for Primary Care

UKHSA Immunisation and Vaccine Preventable Disease Division - 2023

Introduction

- overview, importance
- prevention, MECC and Occupational Health
- MMR vaccine
- measles clinical presentation and complications
- risk assessment of cases and contacts
- key actions
- resources

Overview - current situation

- there has been a rise in measles cases in England in 2023
- globally, activity has been increasing since 2022, with large outbreaks underway in South Asia and Africa
- during the COVID-19 pandemic vaccine uptake rates fell globally
- coverage for MMR in UK has fallen to the lowest level in a decade:
  - 1st dose uptake in 2 year olds 89%, 2nd dose in 5 year olds 85.5%
  - to achieve and maintain measles elimination (and prevent outbreaks) we need 95% uptake with 2 doses of the MMR vaccine by the time children turn 5 years
- in Feb 2022, WHO Europe called for urgent action in all countries to catch-up children and adults who missed MMR vaccine doses, in order to prevent a resurgence of measles
- achieving 95% uptake with 2 MMR doses by age 5 years is an NHS Long-Term Plan (LTP) commitment and high priority within NHS England

Primary Care settings

- the following slides provide information on measles and the Measles Mumps and Rubella (MMR) vaccine for primary care.
- primary care services including general practice, community pharmacy, dental, and optometry (eye health) services provide the first point of contact in the healthcare system, acting as the ‘front door’ of the NHS.
- staff should have an awareness of:
  - the signs and symptoms of measles in order to place patient in appropriate location, and prevent onward transmission
  - the need to promptly inform the Health Protection Team of suspected cases to conduct a risk assessment for cases and contacts
  - importance of checking MMR status and offering vaccination (or signpost to an appropriate service)

Importance for Primary Care

Measles cases are most likely to contact primary care first, therefore staff need to be able to:

- identify suspected cases and notify the Health Protection Team (HPT) promptly
- take appropriate action to stop onward transmission without delay and protect vulnerable contacts

Primary care also provides the setting to:

- raise awareness about the importance of the Measles Mumps and Rubella (MMR) vaccine
- identify unvaccinated children and adults
- offer vaccination to prevent spread in the community

To protect themselves, and prevent transmission of measles in health care settings patient facing **staff should have documented evidence of 2 doses of the MMR vaccine or have positive antibody tests for measles and rubella**, according to national guidance.

Prevention

- signs should be placed in reception/waiting areas advising patients with any rash illness to report to reception/counter staff.
- receptionists / counter staff should know that any patients with fever and rash are potentially infectious and should be directed to a telephone triage in the first instance.
- if in-person review is needed:
  - Make sure reception / counter staff are aware to place patient in appropriate location on arrival
  - And if clinically acceptable, should attend at end of day to minimise risk of transmission
- if you need to refer a suspected measles case to A&E/hospital inform hospital staff ahead of time, so that the case can be isolated on arrival.

MECC and occupational health

Make Every Contact Count (MECC) - check immunisation history of every patient, especially for children, new registrations, new migrants, refugees and asylum seekers.

Offer/recommend vaccine if unvaccinated:

- children should receive 2 doses of MMR vaccine routinely at age 12 months and 3 years and 4 months
- older children and adults who are unvaccinated or partially vaccinated should also be offered vaccination. There is no upper age limit – 2 doses should be given at least 4 weeks apart. It is safe to receive an extra MMR dose
- individuals born before 1970 are likely to have had natural infection with measles, mumps and rubella and are unlikely to be susceptible. MMR vaccine should be offered to such individuals on request or if they are considered to be at high risk of exposure.

Staff involved in direct patient care (including reception staff / anyone who has contact with patients) should have documented evidence of 2 doses of the MMR vaccine or have positive antibody tests for measles and rubella, in keeping with national guidance. This is important to protect themselves, their families and prevent transmission of measles in health care settings.

MMR vaccine

- there are 2 MMR vaccines currently available for use in the NHS: Priorix and MMRVaxPro
- both vaccines contain **live**, modified strains of measles, mumps and rubella viruses therefore they are **contraindicated** in pregnancy and in immunosuppressed individuals - see full detail here.
- MMRVaxPRO contains gelatine of porcine origin as a stabiliser
- practices who serve communities who prefer porcine gelatine free products should order Priorix preferentially via Immform
- MMR vaccines do not contain thiomersal or any preservatives
- vaccine effectiveness of a single dose of MMR vaccine is around 95%. A second dose protects those who do not respond to the first - protection then increases to well above 95%

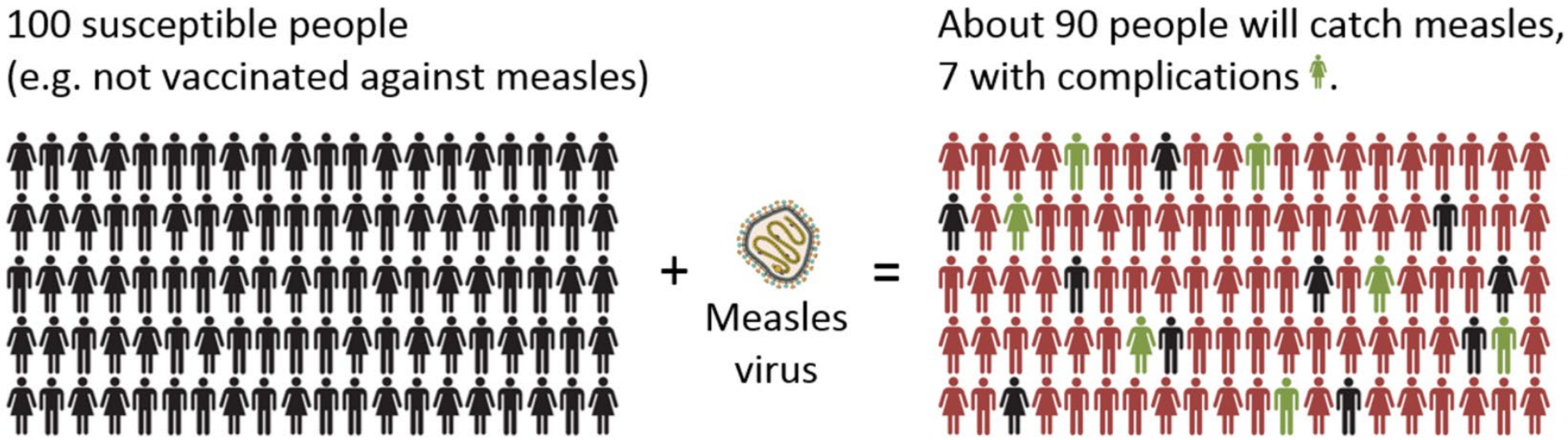
UK schedule:

Dose 1 at 1 year of age
Dose 2 at 3 years and 4 months

Infants from 6 months of age may be offered MMR vaccine (see Measles Green Book Chapter) as i) post exposure prophylaxis for measles or ii) if they are travelling to a measles endemic area where there is a current outbreak

Infants in their first year of life may not respond sufficiently to all components of the vaccine so doses given under 12 months of age should be discounted and repeated

Measles: key facts



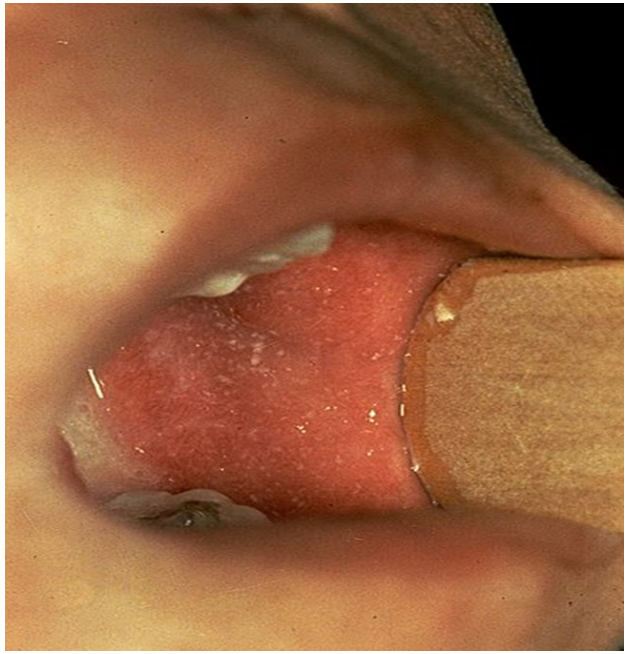
- measles is caused by a virus that spreads very easily. One case of measles can infect 9 out of 10 of unvaccinated close contacts
- transmitted through the respiratory route (airborne or droplet spread) or by direct contact with the nasal or throat secretions of infected persons
- incubation period: 10 to 12 days from exposure to onset of symptoms, but can vary from 7 to 21 days
- infectious period: 4 days before onset of rash to 4 days after onset of rash

Clinical presentation: prodromal phase

- 2 to 4 days **before** the rash appears:
  - high fever
  - cough
  - coryza (runny nose)
  - **conjunctivitis (pink eye)**
- fever typically increases, to peak around rash onset

Clinical presentation: Koplik spots

- Koplik spots are small white/bluish spots inside cheeks/back of the lips
- they are characteristic of the prodromal phase
- they may appear 1 to 4 days before the rash, but usually disappear on day 2 of the rash - so may not be present when case presents



Clinical presentation: rash

- usually starts on the face (behind ears, on hairline)
- spreads to trunk and rest of the body and can become generalised
- red/brown spots
- flat, with sometimes small raised bumps on top (maculopapular)
- spots increase over 2 to 3 days; rash gradually expands
- can join together to form blotchy patches, particularly on face and trunk
- usually not itchy and no blisters
- generally lasts for 3 to 7 days
- more difficult to spot on dark skin

Clinical presentation-rash

Cases are infectious from 4 days before onset of rash to 4 days afterwards

Differential Diagnosis and risk assessment

Several other common rash illnesses have similar presentations and can be considered as part of the differential diagnosis eg chickenpox, rubella, roseola, parvovirus infection, hand, foot and mouth disease, scarlet fever.

In addition to the clinical presentation it is important to also consider **factors that increase the likelihood of a measles diagnosis**:

- age: typical clinical presentation in a teenager or adult more likely to be measles
- unvaccinated or partially vaccinated
- contact with a confirmed or suspected case
- recent travel to a measles endemic country or area
- measles known to be circulating in local area
- member of community with sub-optimal vaccine uptake
- attended mass gatherings (e.g. festivals)

Differential Diagnosis

Roseola; pinkish-red spots, patches or bumps, starts on chest, stomach and back, then spreads to face, neck and arms, not usually itchy, may be harder to see on brown or black skin

Scarlet fever; red blotches that turn into fine pink-red rash, feels like sandpaper; looks like sunburn, may be itchy, maybe harder to see on brown or black skin but can feel it

Rubella (German measles); spotty rash starts on face or behind ears, spreads to neck and body, maybe slightly itchy

Parvo virus 19 (Erythema infectiosum, fifth disease); bright red ‘slapped cheek’ rash- more common in children, then light pink rash may appear on chest, stomach, arms and legs, can be itchy, may be harder to see on brown and black skin

Chicken pox; rash turns into itchy blisters that crust over

Hand, foot and mouth; raised rash, spots on hands and feet, sometimes thighs and bottom, can look pink, red, or darker than surrounding skin, depending on skin tone, can turn into grey lighter blisters, can be painful

Complications of measles

- otitis media (7 to 9% of cases)
- diarrhoea (8%)
- pneumonia (1 to 6%)
- convulsions (0.5%)
- encephalitis (1 to 4 per 1,000 to 2,000 cases)
- subacute sclerosing pan-encephalitis (SSPE) (in <2 year olds 1 in 8,000 cases)
- in pregnancy can lead to miscarriage, stillbirth, premature birth or low birth weight

Risk assessment of cases

- check:
  - vaccination status
  - recent exposure to someone with rash/illness
  - recent travel
  - is this person a healthcare worker (HCW)
  - any contacts who are immunocompromised or vulnerable (aged under 1, pregnant) / HCW
  - face to face contact of any length or more than 15 minutes in a small, confined area is considered as exposure and will require follow up
- report all suspected cases urgently via phone to your local Health Protection Team (HPT)
  - contact details can be found here https://www.gov.uk/health-protection-team
  - the HPT will conduct a risk assessment, arrange oral fluid testing – routine or urgent - and advise on public health action for immunocompromised or vulnerable contacts (aged under 1, pregnant, unvaccinated)
- suspected measles cases should only be referred to hospital if clinically indicated – see relevant CKS advice here: https://cks.nice.org.uk/topics/measles/management/management/#admission-referral
- where admission is planned, contact the local hospital regarding appropriate isolation before admission.
- **exclude suspected cases from nursery/educational setting/work until 4 days after onset of rash**
- for further information see National Measles Guidance

Risk assessment of contacts

- if the patient was not isolated and exposed other patients in the waiting room, the HPT staff will help you with a risk assessment and advise on actions
- the most vulnerable groups who may require immunoglobulin are:
  - infants
  - pregnant women
  - Immunosuppressed individuals
- if indicated, HNIG / IVIG should be given as soon as possible, ideally within 72 hours and up to 6 days after exposure
- for further information see: Measles Post-exposure Prophylaxis guidance: https://www.gov.uk/government/publications/measles-post-exposure-prophylaxis
- any **health care worker** who is not immune (i.e. does not have evidence of 2 doses of MMR or laboratory confirmation of measles immunity (IgG for measles)) will require **exclusion** from work from days 5 to 21 post exposure

Infection prevention and control: key actions

Standard Infection Control Precautions (SICPs) must be used by all healthcare workers at all times and in all settings. Comprehensive guidance and advice, including PPE, is available in the National Infection Prevention & Control Manual (NIPCM)

Staff involved in direct patient care (including anyone who has contact with patients e.g. porters, domestics, reception staff) should have documented evidence of 2 doses of the MMR vaccine or have positive antibody tests for measles, in keeping with national guidance

Transmission Based Precautions (TBPs) NHS England » Chapter 2: Transmission based precautions (TBPs) must be followed in addition to SICPs when caring for a laboratory-confirmed or suspected case of measles while they are considered to be infectious. More information can be found in appendix 11a of the NIPCM.

Measles is transmitted through the respiratory route (airborne or droplet spread) or by direct contact with the nasal or throat secretions of infected persons

Following suspected/confirmed patient vacation of the care area, allow sufficient time for clearance of infectious particles Refer to (HTM) 03-01 Specialised ventilation for healthcare buildings before cleaning/ decontaminating using either:

- a combined detergent/disinfectant solution at a dilution of 1,000 parts per million available chlorine (ppm available chlorine (av.cl.)); or
- a general-purpose neutral detergent in warm water followed by a solution of 1,000ppm av.cl).
- a locally approved detergent and disinfectant.

Rooms/areas must be cleaned from highest to lowest points and from least to most contaminated points ensuring local policies are followed at all times.

Key actions

- cohort / isolate patients presenting with a rash and a fever (especially if unvaccinated) on arrival to:
  - stop onward transmission without delay
  - protect vulnerable contacts
- report suspected cases urgently by phone to your local HPT
- Make Every Contact Count (MECC) - check immunisation status of every patient, especially for children, new registrations, new migrants, refugees and asylum seekers and catch-up those who are not up to date
- staff involved in direct patient care should have documented evidence of 2 doses of the MMR vaccine or have positive antibody tests for measles and rubella, in keeping with national guidance

Resources:

1. UKHSA National Measles guidance (including post-exposure prophylaxis): https://www.gov.uk/government/publications/national-measles-guidelines
2. Viral Rash in pregnancy guidance: https://www.gov.uk/government/publications/viral-rash-in-pregnancy
3. Measles Poster for health professionals: Measles: guidance, data and analysis - GOV.UK (www.gov.uk) (found under clinical management subheading)
4. MMR training slide set for immunisers: https://www.gov.uk/government/collections/measles-guidance-data-and-analysis#vaccination (found under the vaccination subheading)
5. Measles Green Book Chapter: https://www.gov.uk/government/publications/measles-the-green-book-chapter-21
6. NICE Clinical Knowledge Summary – Management of measles: https://cks.nice.org.uk/topics/measles/management/management/#admission-referral
7. NHS Infection Prevention and Control Manual: https://www.england.nhs.uk/publication/national-infection-prevention-and-control/
8. Immunisation of healthcare and laboratory staff: the green book, chapter 12: https://www.gov.uk/government/publications/immunisation-of-healthcare-and-laboratory-staff-the-green-book-chapter-12
9. Health and Social Care Act 2008: code of practice on the prevention and control of infections: https://www.gov.uk/government/publications/the-health-and-social-care-act-2008-code-of-practice-on-the-prevention-and-control-of-infections-and-related-guidance

Resources:

10. UK Measles and Rubella Elimination Strategy, UKHSA (formerly PHE), published January 2019: https://www.gov.uk/government/publications/measles-and-rubella-elimination-uk-strategy
11. MMR for all leaflet – routine programme: https://www.gov.uk/government/publications/mmr-for-all-general-leaflet
12. Measles: Protect yourself, protect others' leaflet: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/689712/Measles_adults_DL_Leaflet_03_.pdf
13. UKHSA Blog: What do I need to know about the MMR vaccine: https://ukhsa.blog.gov.uk/2022/02/01/what-do-i-need-to-know-about-the-mmr-vaccine/
14. Health Protection in children and young people settings including education: https://www.gov.uk/government/publications/health-protection-in-schools-and-other-childcare-facilities
15. Measles outbreaks poster and leaflets: https://www.gov.uk/government/publications/measles-outbreak
16. NICE guidelines on Vaccine Uptake in the General Population: https://www.nice.org.uk/guidance/ng218
17. Complete routine schedule for UK available translated into 23 community languageshttps://www.gov.uk/government/publications/the-complete-routine-immunisation-schedule