NHS
Bath and North East Somerset, Swindon and Wiltshire
Integrated Care Board

Measles: Preparedness and Management

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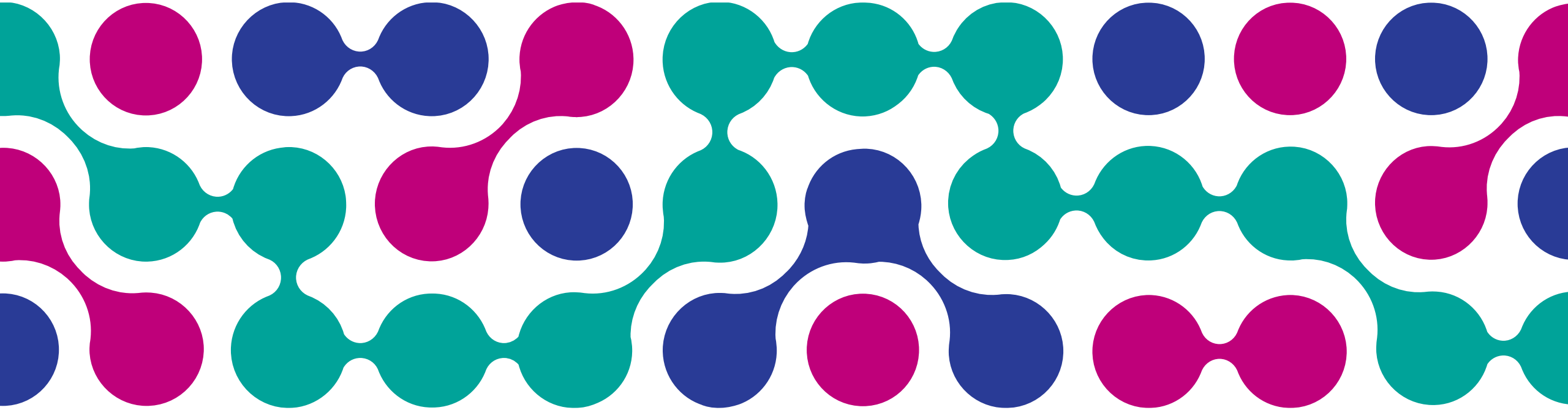

Housekeeping

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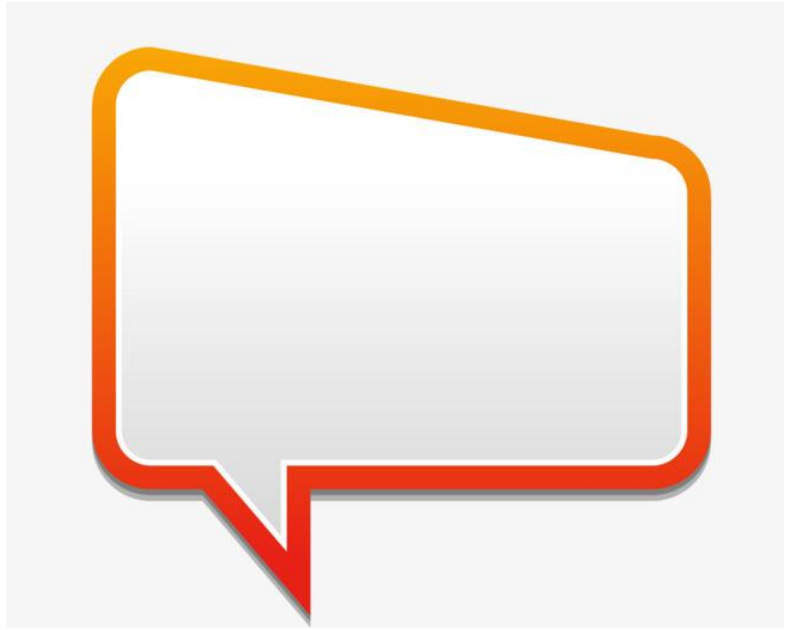

Aims and Objectives

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- Increase knowledge of recognition and management of measles in primary care
- Support primary care to implement robust IP&C measures to minimize transmission of measles

Agenda

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- Measles overview and current situation
- What is measles and how is it spread
- Who is at risk of measles
- Signs and symptoms of measles
- Prevention- MMR and MECC
- Triage and identifying suspected cases
- Risk assessment of suspected cases
- Isolation
- PPE
- Notify health protection team
- Risk assessment of contacts
- Staff and occupational health considerations
- Q&A

Measles overview and current situation

- There has been a rise in measles cases across England throughout 2023, and this contnoues into early 2024
- 19th January 2024 UKHSA declared a national incident following an outbreak of measles in the Midlands
- Globally, measles 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 and MMR coverage across the UK has been falling for a number of years. In 2018 the UK lost it's measles eradication status.
- 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 February 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
- BSW ICS MMR uptake rate and incidence:

Measles overview and current situation

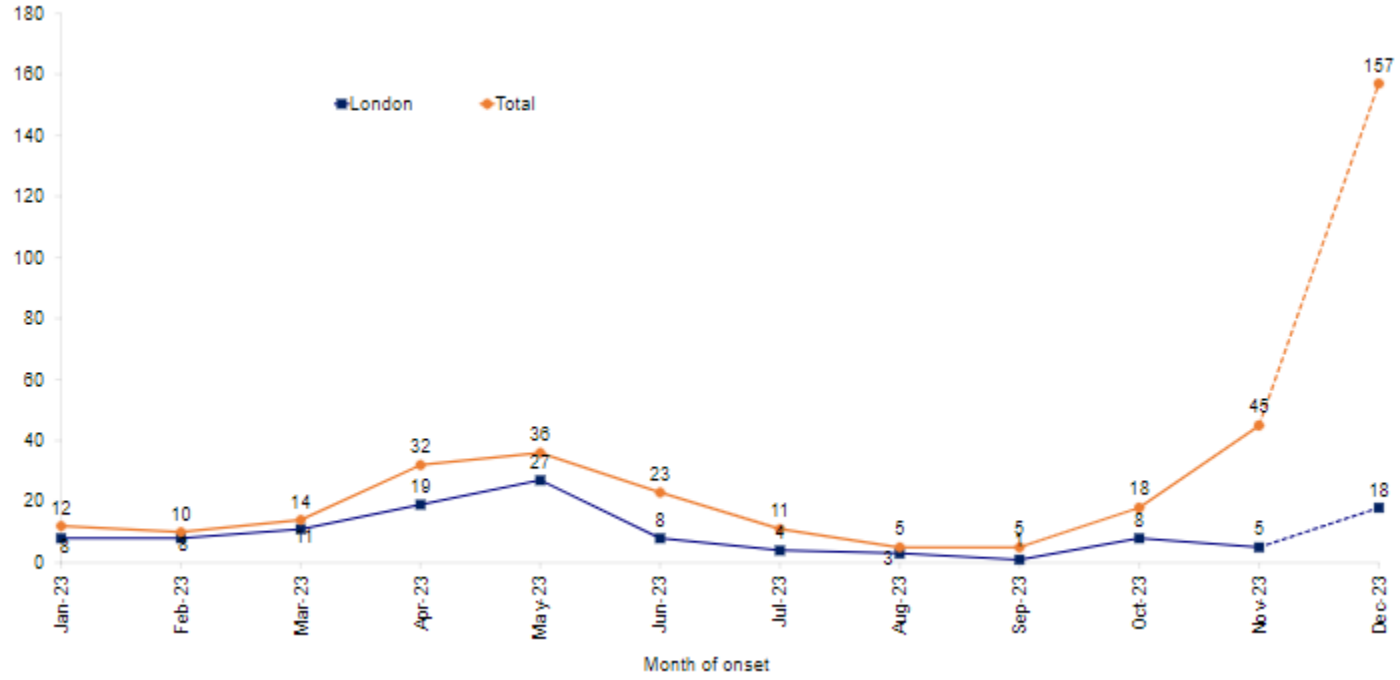


Table 1. Laboratory confirmed cases of measles by age group and region in England: January 2023 to December 2023 [note 3]

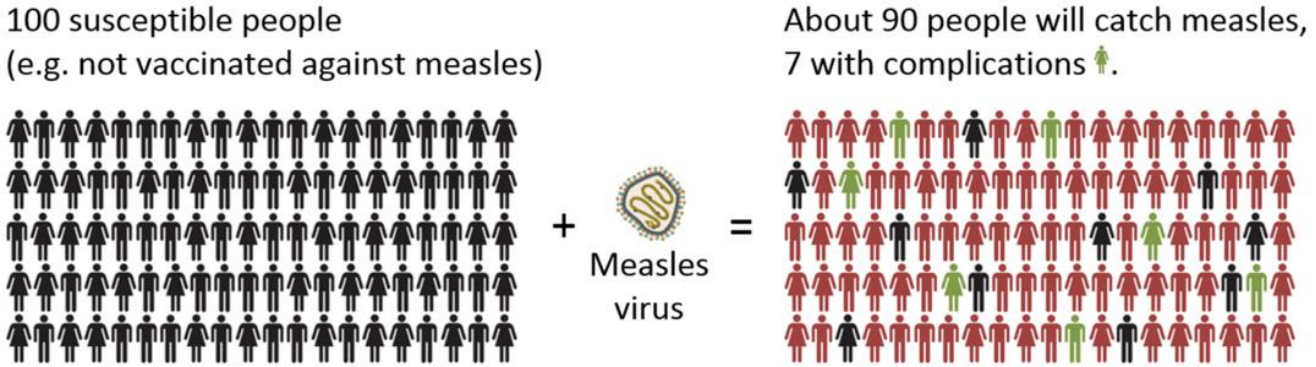
Age group	East Midlands	East of England	London	North East	North West	South East	South West	West Midlands
less than 1 year	1	0	17	0	0	2	1	20
1 to 4 years	1	3	28	1	7	5	4	40
5 to 10 years	0	1	32	1	1	2	0	47
11 to 14 years	2	1	7	0	1	0	1	21
15 to 19 years	2	0	10	0	0	1	3	9
20 to 24 years	2	0	2	0	0	1	2	2
25 to 29 years	0	1	10	0	0	1	1	7
30 to 34 years	0	0	4	0	0	0	0	5
35 years and older	0	2	12	1	1	2	1	9
Total	8	8	122	3	10	14	13	160

What is measles and how is it spread

- Measles is a highly infectious, notifiable, vaccine-preventable, acute viral disease.
- One case of measles can infect 9 out of 10 of unvaccinated close contacts
- Measles is transmitted via airborne respiratory particles or direct contact with nasal/throat secretions of infected individuals.
- It has an incubation period ranging between 7 to 21 days (mean: 10 to 12 days) and individuals are typically infectious from 4 days before and up to 4 full days after rash onset.

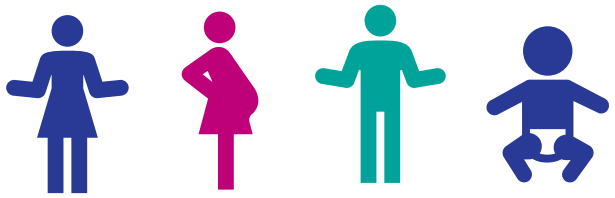
What are the complications of measles?

- Pneumonia or bronchitis
- Convulsions
- Diarrhoea
- Meningitis or encephalitis,
- Immune thrombocytopenic purpura (ITP)
- Late-onset subacute sclerosing panencephalitis (SSPE)



Who is at risk of measles

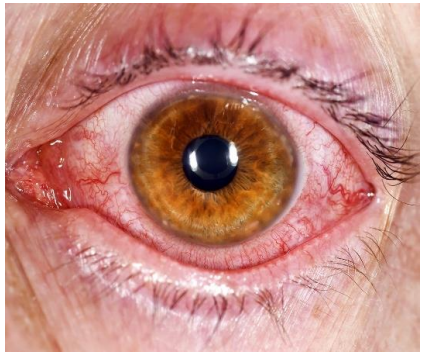
Vulnerable groups include:	
	Unvaccinated individuals
	Children aged under 1
	Pregnant women
	immunocompromised patients
	chronically ill



Signs and symptoms of measles

prodromal phase

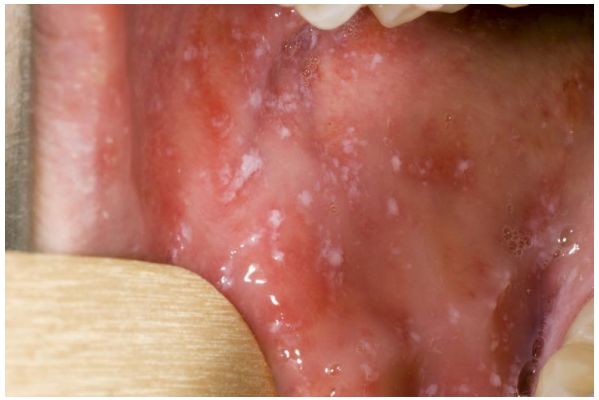
- 2 to 4 days **before** the rash appears:
  - high fever
  - cough
  - coryza (runny nose)
  - **conjunctivitis (pink eye)**
- fever typically increases, to peak around rash onset

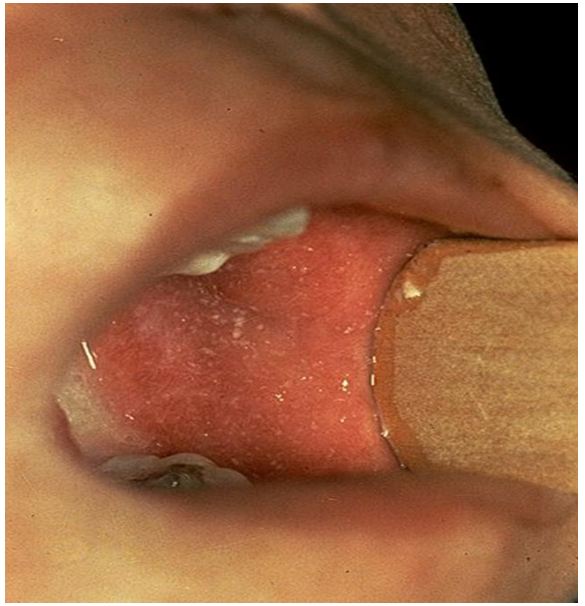


Cases are infectious from 4 days before onset of rash to 4 days afterwards

Kolpik 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

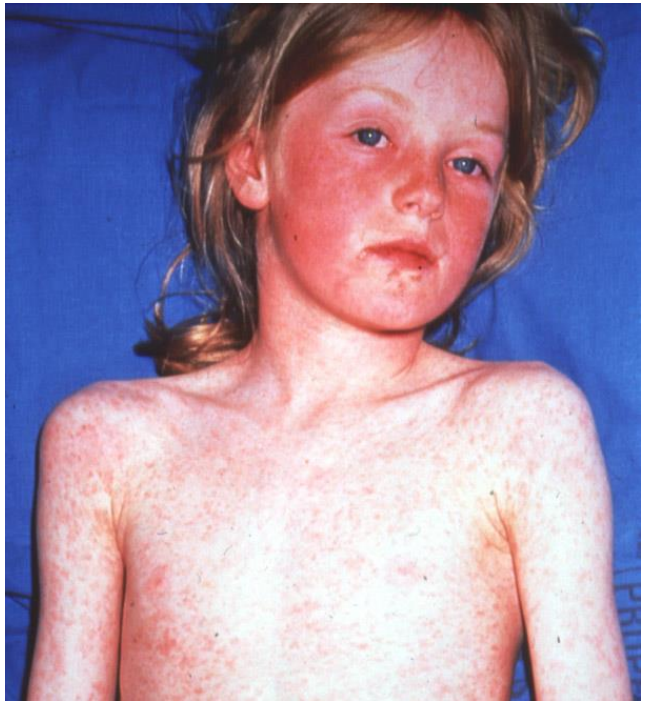




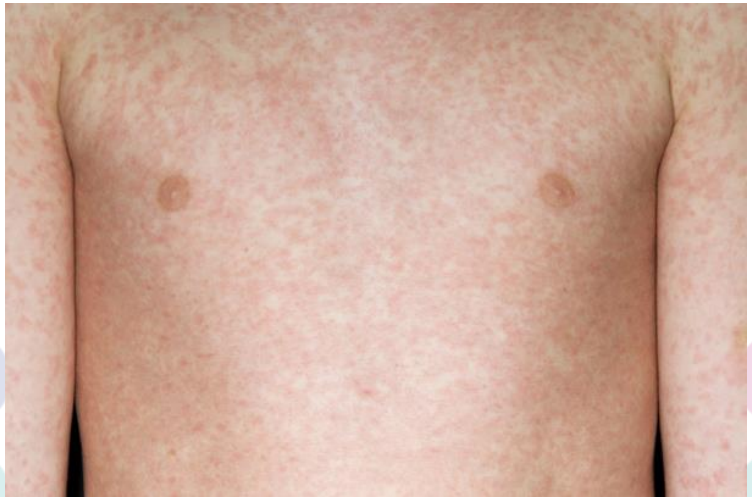
Signs and symptoms of measles

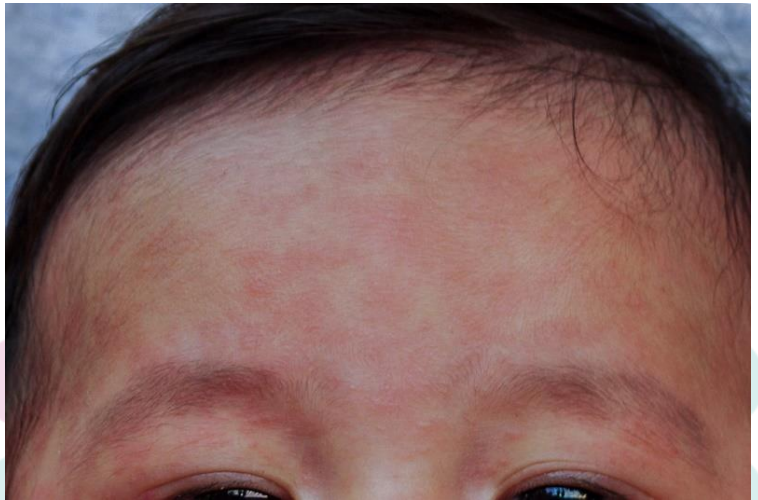
Rash

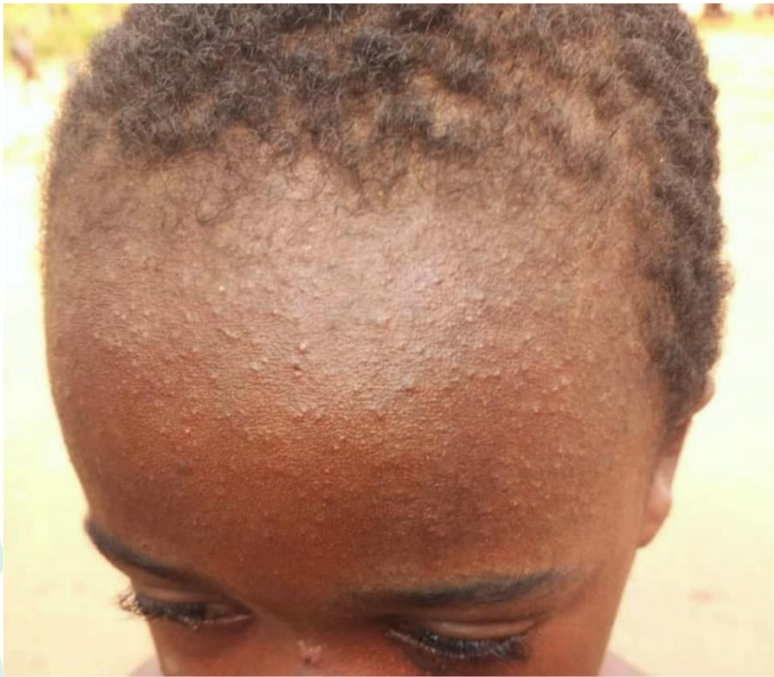
- usually starts on the face (behind ears, on hairline)
- spreads to trunk and rest of the body and can become generalised
- red/brown spots
- flat, with sometimes small raised bumps on top (maculopapular)
- spots increase over 2 to 3 days; rash gradually expands
- can join together to form blotchy patches, 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



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







Prevention- MMR and MECC

- Immunisation provides the best protection against measles
  - 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
  - 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%, sometimes up to 98%
- 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

Prevention- MMR and MECC

- **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.

Triage and identifying suspected cases

- Robust triage is an essential part of minimising the exposure risk, of potentially infectious patients.
- All staff undertaking a reception and triage role should be trained and fully aware of the questions to be asked when talking to patients requesting an appointment, especially those who report:
    - Fever
    - Coryza or cough
    - Conjunctivitis
    - Rash
- Please remember that some symptoms are experienced before the rash appears but are still infectious.
- Ensure staff who triage patients are aware of process to follow if presented with a suspected/confirmed contact
- Ensure staff who triage can check the immunisation status of patients

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

Risk assessment of suspected cases

In addition to clinical presentation consider the other factors that increase likelihood of measles diagnosis:

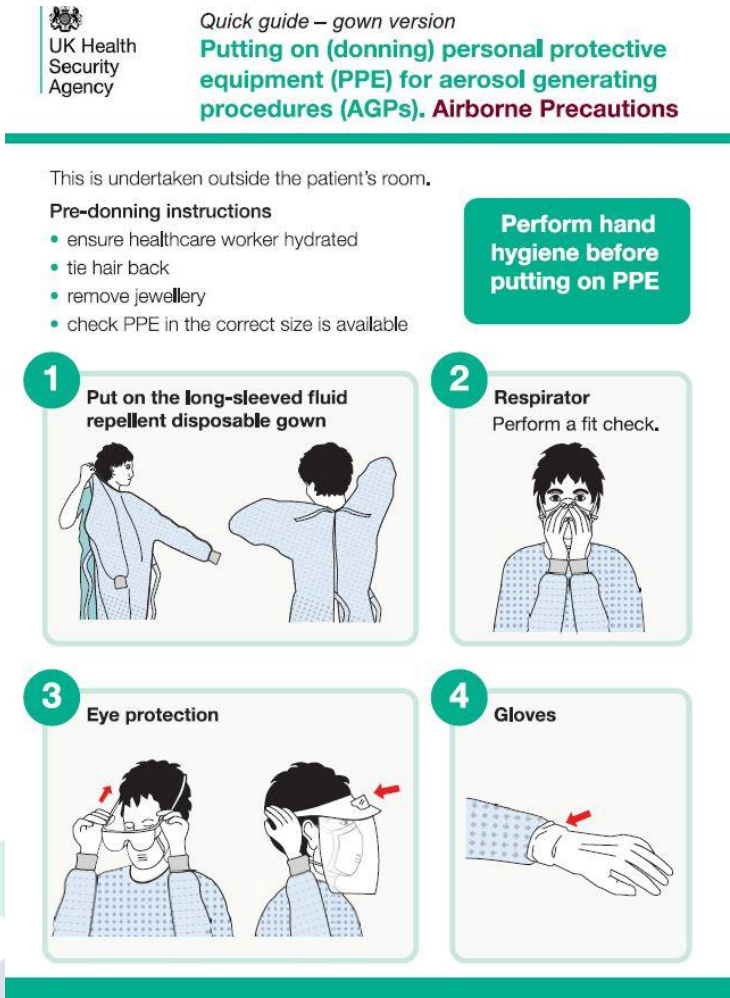
- age: typical clinical presentation in a teenager or adult more likely to be measles
- unvaccinated or partially vaccinated
- contact with a confirmed or suspected case
- recent travel to a measles endemic country or area
- Recent travel to area of UK with increased incidence
- measles known to be circulating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

Isolation

- If remote consultation is not possible, or, if following telephone triage the patient is advised to attend your primary care setting:
- Use a separate entry area
- Use an uncluttered consulting room with a window that can be used as this allows for minimal transmission within your practice and for the area to be ventilated
- Following the consultation allow sufficient time for clearance of infectious particles
- All surfaces cleaned following the visit with 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.
- Dispose of waste into clinical waste stream and manage in line with waste guidance
- If your practice has air conditioning and the air is re-circulated you should also turn this off during the visit, again to reduce risk.
- If patient is at home and you are undertaking phone consultation advise patient to:
    - Remain isolated at home until 4 days after onset of rash
    - That they will be contacted and followed up by UKHSA/HPT
    - Provide advice on symptom management and safety netting
- If transfer from a primary care facility to hospital is required, ambulance services should be informed of the infectious status of the patient and receiving hospital teams MUST be made aware. Patient confidentiality must be maintained

PPE

- IP&C standard precautions must be applied at all times by all staff.
- Transmission based Precautions (TBPs) are required when managing a suspected or confirmed measles case.
- Airborne transmission based precautions are required for management of suspected or confirmed measles.
- PPE required for confirmed or suspected cases is:
  - FFP3 mask or respirator, that the individual has been fitted for.
  - Apron
  - Gloves
  - Eye protection
- Fit testing should be completed for staff who may be required to assess or care for suspected or confirmed cases.
- Please ensure all staff are aware of Chapters 1 and 2 of the National Infection Prevention Control Manual as they should all follow the principle regarding Standard Infection control precautions and transmission-based precautions.
- Please ensure all staff undertaking any procedure should assess any likely exposure.



Notify health protection team

Suspect Measles

Please call your local health protection team urgently so they can undertake a prompt risk assessment of contacts, to identify vulnerable contacts. UKHSA Southwest Health Protection Team 0300 303 8162. Complete notification form and send to swhpt@ukhsa.gov. uk

Notifiable diseases: form for registered medical practitioners - GOV.UK (www.gov.uk)

Measles cases are most likely to contact primary care first including general practice, community pharmacy, dental, and optometry (eye health) services

Receptionists / counter staff should know that any patients with fever and rash are potentially infectious
A patient reporting fever AND rash AND one of coryza OR cough OR conjunctivitis

Triage

- Unvaccinated or partially vaccinated with MMR
- Recent travel to area where measles is circulating
- Contact with confirmed or suspected case of measles

If an in-person review is needed, reception staff should be alerted. The person should be directed straight to a consultation room on arrival

Assessment Focus:
Severe disease (Oxygen sats/PEWS/NEWS2/GCS)
Risk factors – immunocompromised, <12 mths, pregnancy
(ask re patient and household contacts)

Think Measles
Prodrome 2-4 days
fever, coryza, cough, conjunctivitis
Rash spreads from face to rest of body
Differential Diagnosis:
Other viral exanthems
Group A Streptococcus
Kawasaki Disease
Complications:
Pneumonia, Otitis media
Diarrhoea
Rare – encephalitis
Secondary bacterial infections

Discharge Home
Exclude from nursery, educational setting, or work until full 4 days after onset of rash.
Advice re red flags/when to seek medical attention. Details passed to HPT.
Health professionals must inform local health protection teams of suspected cases. Urgently by telephone Find your local health protection team in England - GOV.UK (www.gov.uk) to facilitate prompt risk assessment and public health action for vulnerable contacts

Referral to secondary care:
When referring a suspected measles case to A&E/hospital, inform hospital staff beforehand so that the person can be appropriately signposted to mitigate against onward transmission
Inform local HPT of the suspected case
Find your local health protection team in England - GOV.UK (www.gov.uk)
Urgently by telephone to facilitate prompt risk assessment and public health action for vulnerable contacts

HPT will follow up patient about oral Fluid sample for PCR/IgG & IgM
https://www.gov.uk/government/publications/measles-mumps-and-rubella-mmr-letter-for-parents-and-form-for-oral-fluid-swab

Make Every Contact Count
Check the immunisation history of every patient, especially for children, new registrations, new migrants, refugees, and asylum seekers: offer vaccination to prevent the spread in the community. For further information see National Measles Guidance and the National Infection Prevention & Control Manual

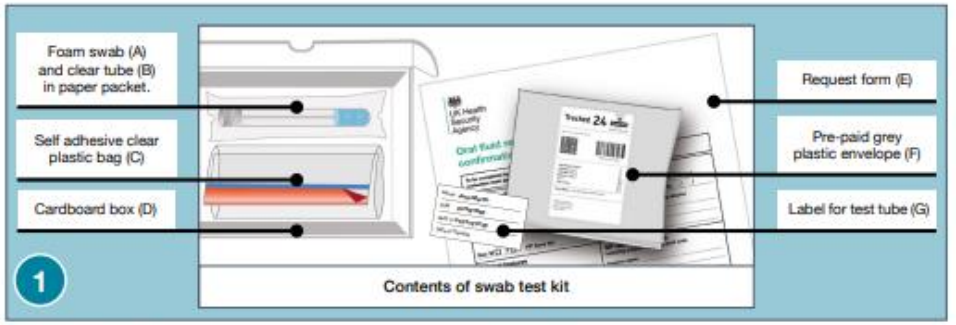
Testing for measles

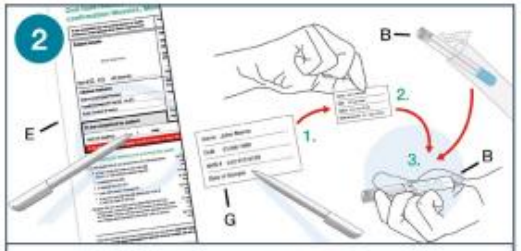
- Regardless of any other testing performed all cases must have an oral fluid (OF) sample taken and sent to the virus reference department (VRD) in Colindale
- OF can be tested for IgM, IgG and measles RNA and can therefore:
    1. Reliably exclude measles diagnosis, as well as confirm it.
    2. Indicate whether the case is primary or breakthrough measles (reinfection).
    3. Genotype confirmed cases.
- In the absence of an oral fluid sample, serum and a mouth swab should be sent to VRD instead.
- Kits for collecting routine surveillance oral fluid samples are available through the local HPT.
- It is important that the sample is collected according to the instructions.
- The swab needs to be rubbed along the gum line for 2 minutes. If young children chew on the swab whilst the sample is being collected it should not compromise the sample collection.
- Sputum samples are not suitable for testing.
- A mouth swab should be collected by rubbing the swab along the gum line and then over the tongue

UK Health Security Agency

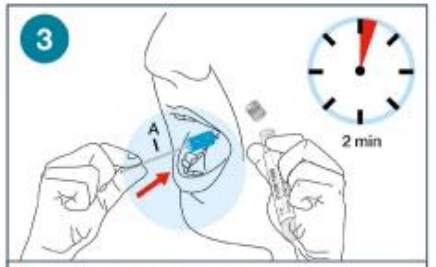
How to take an oral fluid swab

video guide 'How to take an oral fluid swab – for all the family' here: bit.ly/OFKit

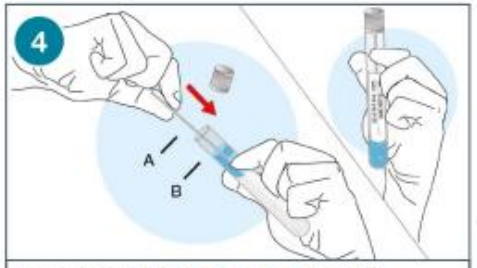




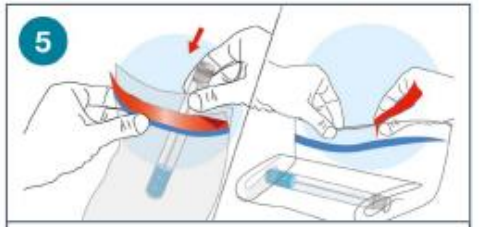
Write the date of sample on the label (G) and on the request form (E). Stick the label to the clear tube (B)



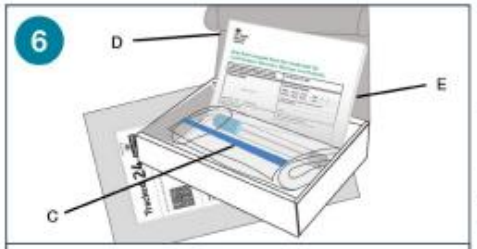
Swab the gum line for 2 minutes



Replace foam swab in clear tube and replace lid (B)



Place clear tube (B) into self adhesive clear bag (C). Push air out of bag. Remove red strip from top fold down corner and stick down. Now wash your hands.



Place form (E) with clear bag containing the sample (C) into cardboard box (D)

Place cardboard box (D) into pre-paid grey plastic envelope (F) and seal. Post pre-paid grey plastic envelope (F) in your local Royal Mail post box.

Risk assessment of contacts

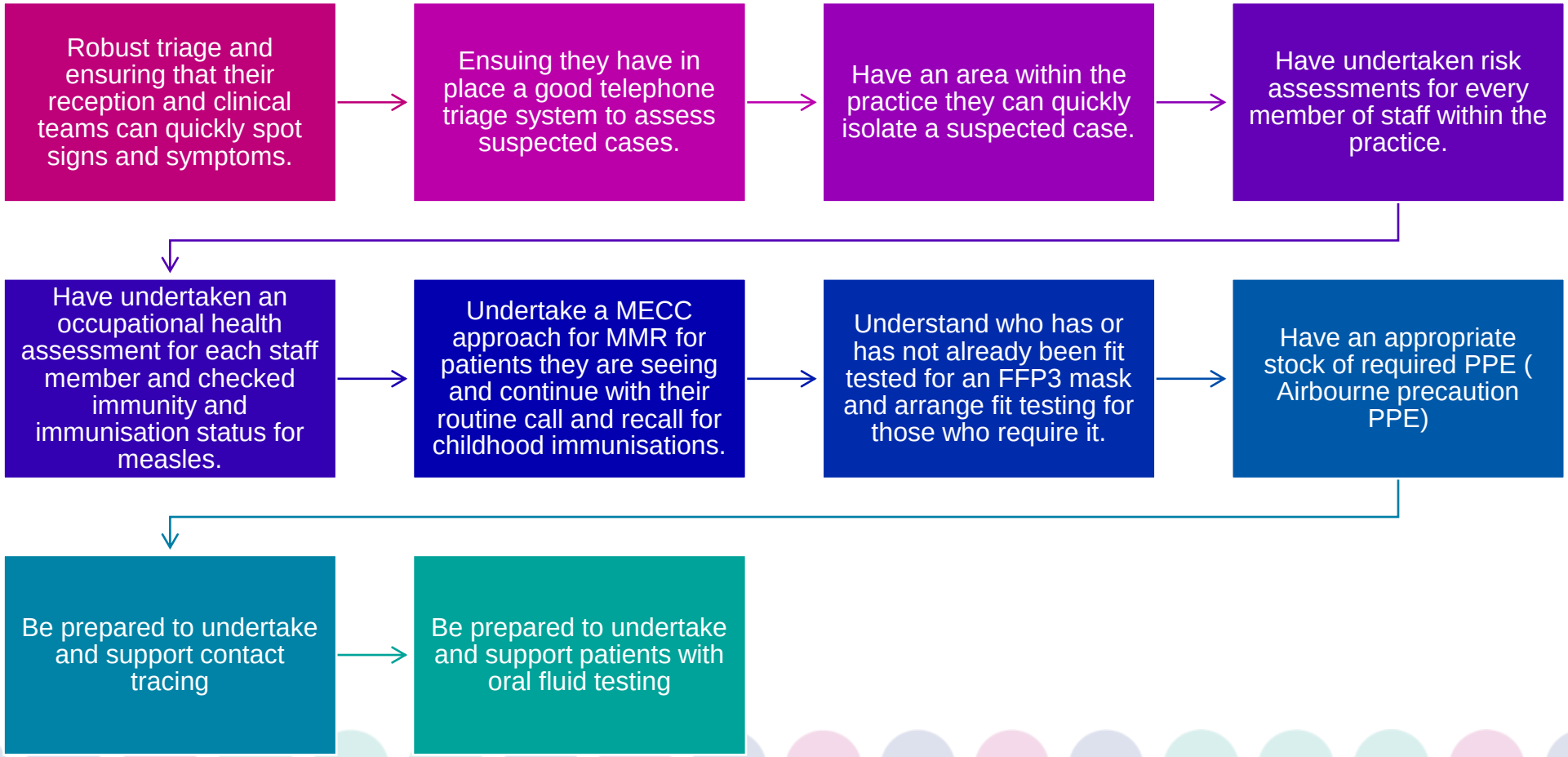
- If the patient was not isolated and exposed other patients in the waiting room, the HPT and ICB IPC team staff can support you with a risk assessment and advise on actions
- The most vulnerable groups who may require immunoglobulin are:
    - infants
    - pregnant women
    - Immunosuppressed individuals
- If indicated, HNIG / IVIG should be given as soon as possible, ideally within 72 hours and up to 6 days after exposure
- Please be aware that Health care workers who are exposed to a confirmed or suspected case of measles and do not have satisfactory evidence of protection (2 documented doses of measles containing vaccine or measles IgG positive) should be excluded from work from the 5th day after their first exposure to 21 days after the final exposure.
- For further information see: Measles Post-exposure Prophylaxis guidance: https://www.gov.uk/government/publications/measles-post-exposure-prophylaxis

Staff and occupational health considerations

- Ensure you have completed your assessment of all staff vaccination status with regards to MMR (see resources below).
- Any Staff identified that do not have documented evidence to be advised to have MMR X2 via their own GP.
- Please be aware that Health care workers who are exposed to a confirmed or suspected case of measles and do not have satisfactory evidence of protection (2 documented doses of measles containing vaccine or measles IgG positive) should be excluded from work from the 5th day after their first exposure to 21 days after the final exposure.
- See Section 2.6 for Occupational Health measures.

NHS England » Guidance for risk assessment and infection prevention and control measures for measles in healthcare settings

10 tips for tackling measles



Questions and Answers

Contact

BSW ICB IP&C Team
Bswicb.ipc@nhs.net

Resources

- National Manual for Infection Prevention and Control
  NHS England » National infection prevention and control
- Practical steps towards completing a local risk assessment for measles in healthcare settings
  https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.england.nhs.uk%2Fwp-content%2Fuploads%2F2024%2F01%2FPRN01102-appendix-1.docx&wdOrigin=BROWSELINK
- Guidance for risk assessment and infection prevention and control measures for measle sin healthcare settings
  https://www.england.nhs.uk/long-read/guidance-for-risk-assessment-and-infection-prevention-and-control-measures-for-measles-in-healthcare-settings/
- UKHSA National Measles guidelines
  https://assets.publishing.service.gov.uk/media/65a7a806867cd800135ae9bb/national-measles-guidelines-january-2024.pdf
- Health Technical Memorandum 03-01 Specialised ventilation for healthcare premises Part A: The concept, design, specification, installation and acceptance testing of healthcare ventilation systems

  Health Technical Memorandum 03-01 Part A (england.nhs.uk)
- Taking an oral fluid sample

  MMR oral fluid testing instructions for health protection teams - GOV.UK (www.gov.uk)

Resources

- How to report Notifiable disease and causative organisms: how to report
  Notifiable diseases and causative organisms: how to report - GOV.UK (www.gov.uk)
- Notifiable diseases: from for registered medical practitioners
  Notifiable diseases: form for registered medical practitioners - GOV.UK (www.gov.uk)
- Information on measles for health professionals
  Information on measles for health professionals - GOV.UK (www.gov.uk)
- Think measles!
  Think Measles! Vaccination rates have fallen, and cases of measles are increasing in England (publishing.service.gov.uk)
- Dr. Colin Campbell video
  Measles: how infectious is it compared to other illnesses? (youtube.com)
- Healthier together measles information
- https://www.what0-18.nhs.uk/parentscarers/worried-your-child-unwell/measles-new
- Measles: the green book chapter 21
  Measles: the green book, chapter 21 - GOV.UK (www.gov.uk)