

CLINICAL MANAGEMENT OF MEASLES

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MEASLES

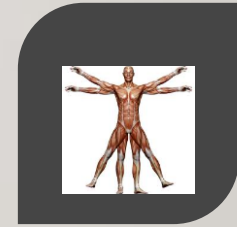
- FIRST DESCRIBED IN 1657



SINGLE-STRANDED,
ENVELOPED RNA
VIRUS



PARAMYXOVIRIDAE
FAMILY

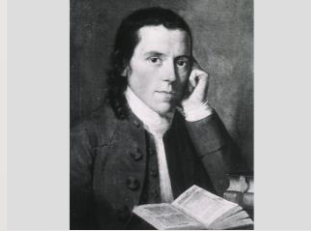


HUMANS ARE THE
ONLY NATURAL
HOSTS

HISTORY OF MEASLES



Measles appeared
in Boston in **1657**



Waterhouse
brings vaccination
in **1800**



Attenuated
Measles Vaccine
developed in
1962

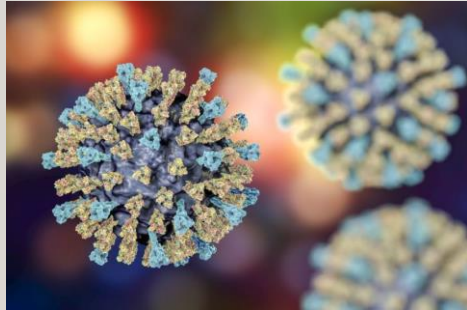


Rubella: The
“German
Measles” in **1740**

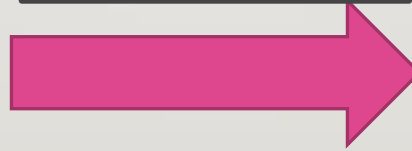
Measles-
specific
antibodies
identified **1916**

MEASLES – TRANSMISSION

- Incubation period:

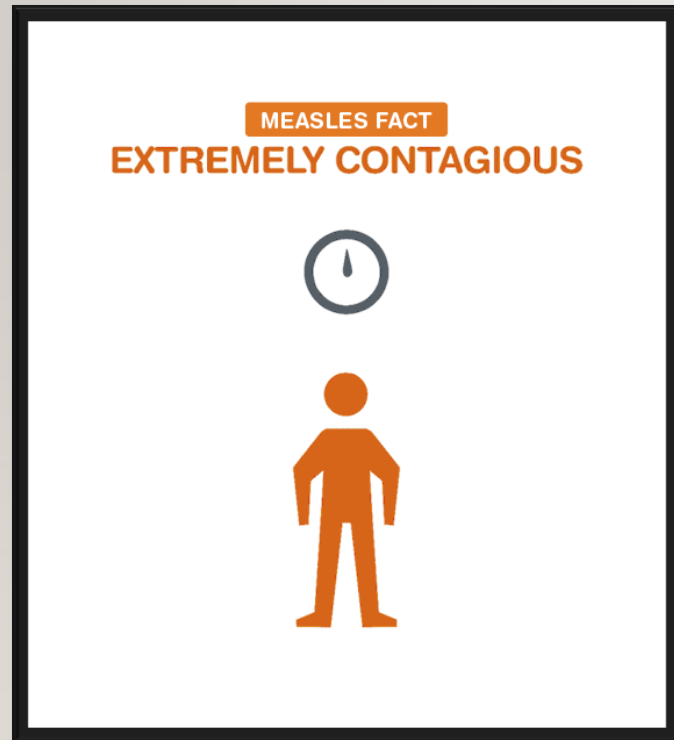


7-18 days, can be up to 21 days



- Person to person contact as well as airborne spread
- **Highly contagious:** the attack rate in a susceptible individual exposed to measles is **90%**

MEASLES- TRANSMISSION



- Infectious droplets from respiratory secretions of a patient with measles can remain airborne for up to **two hours** [*Paediatrics. 1985;75(4):676*]
- Large outbreak can occur in areas of crowding such as
 - Schools
 - Densely populated communities
 - Airports

MEASLES – PERIOD OF CONTAGIOUSNESS



For immunocompromised patients, the period of contagiousness can last for the whole duration of illness

CASE PRESENTATION I



- M/41, born in South Africa
- Work in airport
- Doubt in vaccination history
- Fever, headache and diarrhea
- Cough, sneezing, conjunctivitis
- Generalized rash D4-5 onset of fever
 - Trunk-> Lower limbs -> Back
 - Involving face

PROGRESS

- ALT 283↑
- Plt 100↓WCC 3.4↓Lymphocyte 0.7
- Atypical lymphocyte 3%
- CRP 65↑ ESR 8
- Throat swab measles virus RNA RT-PCR +ve
- Measles IgM +ve (D4 onset of rash)

- Discharged on D8 onset of rash
- Notified NDORS x measles
- FU with LFT monitoring

CASE PRESENTATION 2



M/23

Born in Hong Kong, vaccination up to date

Work in Airport

Admitted for fever + rash on same day

Associated cough, runny nose and sore throat

Low grade fever 37.4C on admission

Scattered maculopapular rash over face and trunk

Blood: atypical lymphocytes+ WCC 3.2

NPS, throat swab **measles PCR+ve**

Discharged on D5 onset of rash

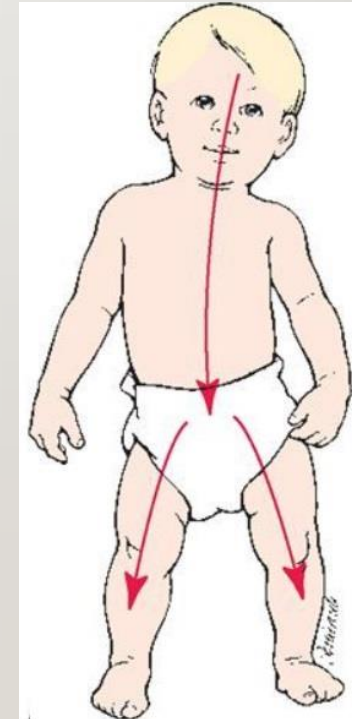
CLINICAL PRESENTATIONS OF MEASLES

- Prodrome
 - Lasts for 2-4 days
 - Fever, malaise, anorexia
 - Conjunctivitis, coryza and cough (3'C's)
 - Temp as high as 40C can occur
 - Typically intensify a few days before the exanthem (rash) appears
 - Koplik spots may be present 48 hours before onset of rash



CLINICAL PRESENTATIONS- RASH

- Exanthem
 - Arises 2-4 days after onset of fever
 - An erythematous, maculopapular, blanching rash
 - Classically begins on the face and spreads cephalocaudally and centrifugally
 - Involve the neck, upper trunk, lower trunk and extremities



LABORATORY FINDINGS IN MEASLES PATIENTS

- Thrombocytopenia, leukopenia
- CXR: may demonstrate interstitial pneumonitis


RECOVERY

- Clinically improvement typically occurs within **48 hours** of appearance of rash
- The skin rash darkens to a brownish color, then fade, followed by desquamation in more severely involved areas.
- Skin rash usually lasts 6-7 days
- Cough may persist for 1-2 weeks after measles


COMPLICATIONS OF MEASLES

- People at **high risk** for complications:
 - Infants and children aged <5 years
 - Pregnant women without evidence of immunity
 - People with compromised immune systems, such as from leukemia and HIV infection


Measles Can Be Serious




About 1 out of 4 people who get measles will be hospitalized.



1 out of every 1,000 people with measles will develop brain swelling due to infection (encephalitis), which may lead to brain damage.



1 or 2 out of 1,000 people with measles will die, even with the best care.



CHP CASE DEFINITION OF MEASLES

- **Confirmed case**
 - A case that is laboratory confirmed; OR
 - A clinical compatible case that is epidemiologically linked to a confirmed case
- Probable case
 - A case that meets the clinical description AND has no or non-contributory serologic or virologic testing AND is not epidemiologically linked to a confirmed case
- Measles is a **statutory notifiable** disease

DIAGNOSTIC CRITERIA OF MEASLES

Clinical criteria	Laboratory criteria
<p>All of the following:</p> <ol style="list-style-type: none">1. A generalized rash lasting ≥ 3 days2. A temperature $\geq 38.3^{\circ}\text{C}$ and3. Cough, coryza or conjunctivitis	<p>Any one of the following:</p> <ol style="list-style-type: none">1. Positive serologic test for measles IgM antibody2. \geqFour-fold increase in measles antibody titre3. Isolation of measles virus from a clinical specimen4. PCR positive for measles virus in clinical specimen

MANAGEMENT

- Supportive
 - Antipyretics, fluids and treatment of bacterial superinfections, such as bacterial pneumonia and otitis
- No specific antiviral therapy approved for treatment of measles
- Use of vitamin A in children
- **Ribavirin**
 - Experts favor the use for **measles pneumonia** in patients <12 months, patients >12 months with pneumonia requiring ventilatory support, and patients with severe immunosuppression
 - 15-20mg/kg per day oral in two divided doses
 - Data on clinical use of ribavirin are extremely limited

INFECTION CONTROL MEASURES OF PATIENTS



- All suspected, probable and confirmed cases should be put under **standard and airborne** precautions for a minimum of **4 days** after the rash onset
- Only confirmed cases can be cohorted together in a negative pressure room or cubicle
- Stable and uncomplicated cases could be discharged
 - Be aware of patients from institution or with non-immune high risk household member

SUSCEPTIBLE CONTACTS- DEFINITION

Significant contact

- Face-to-face contact of any length or staying in the same room for ≥ 15 minutes
- For immunocompromised patients, any duration of contact is significant

Susceptible if they do NOT fulfill any:

- Children with documented evidence of age appropriate vaccination of measles virus containing vaccine according to HK Childhood Immunization Programme
- Documented serologic evidence of immunity
- Natural measles infection as documented by physician
- Infants (except preterm < 28 weeks) born to immune mothers are protected by maternal antibody. Protection can be up to 6 months.
- Persons born before 1967

POST EXPOSURE PROPHYLAXIS (PEP)

MMR vaccine

- Should be administered within 72 hours after exposure

Immunoglobulin (IG)

- Within 6 days post exposure
 - C/I for MMR vaccine
 - Infants
- Side effects: mild in general, hypersensitivity, injection site reaction, headache

POST EXPOSURE PROPHYLAXIS AGAINST MEASLES

Status	Age	Prophylaxis		
		Indication	Active Immunization MMR (For those within 72 hrs of exposure)	Passive Immunization IG (within 6 days of exposure)
Immunocompetent	0 to \leq 6 months	1. Mother is non-immune 2. Mother is the infected person 3. Prematurity: born before transplacental transfer of maternal antibody in 3 rd trimester	X	✓
	> 6 to \leq 12 months	All	✓ (A)	✓ (B) *
	> 12 months	Non-immune and unsure immune status	✓	✓ (C) *
Immunocompromised (Appendix 1)		All	X	✓
Pregnant women		All	X	✓

HA guideline on measles.

SUMMARY

- Measles is a highly contagious viral illness
- Person to person transmission as well as airborne
- Classical presentation includes incubation, prodrome, exanthem and recovery
- All suspected, probable and confirmed cases should be put under **standard and airborne** precautions for a minimum of **4 days** after the rash onset
- Supportive management. Decision on use of vitamin A in children or ribavirin in measles pneumonia should be individualized



THANK YOU!

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