

Measles/Rubeola Information Sheet - Updated August 2012

Organism	<ul style="list-style-type: none"> • Measles virus, paramyxovirus, genus <i>Morbillivirus</i>, single-stranded RNA, 1 serotype • 100-200nm in diameter, rapidly inactivated by heat, light, acidic pH, ether, and trypsin
Route of Infection	<ul style="list-style-type: none"> • Respiratory airborne spread by breathing, coughing, or sneezing • Direct contact with nasal or throat secretions of infected people • Fomite spread, virus can live on infected surfaces for up to 2 hours
Communicability	<ul style="list-style-type: none"> • Highly communicable; >90% secondary attack rates among susceptible persons • Communicability period: 4 days before to 4 days after rash onset
Pathogenesis	<ul style="list-style-type: none"> • Respiratory transmission of virus; Replication in nasopharynx and regional lymph nodes • Primary viremia 2-3 days after exposure • Secondary viremia 5-7 days after exposure with spread to tissues
Epidemiology	<ul style="list-style-type: none"> • Humans only reservoir; Temporal pattern of disease: Peak in late winter-spring • Sporadic in US due to overseas travel; Worldwide: 20 mill cases & 164,000 deaths yearly
Prevention and Control of Outbreaks	<ul style="list-style-type: none"> • 2 doses of MMR, live virus vaccine, MMRV for one of doses (in children 12mo-12yrs) • 2%-5% do not respond to first dose; most will respond to second dose • Adults: college students, international travelers, healthcare providers at increased risk • Measles may be severe in those with HIV infection • Herd (community) immunity is important to stop community transmission
Treatment	<ul style="list-style-type: none"> • Treatment is supportive, WHO recommends vitamin A for all children infected
Vaccine/Immunity	<ul style="list-style-type: none"> • Lifelong immunity after 2 doses of vaccine, 95% vaccine efficacy • ACIP: MMR first dose on or after first birthday; Second dose before school entry • ACIP: MMRV for children 12 months-12 years only as first dose or second dose • 95%-98% of those born <1957 are immune due to epidemic measles in US • Vaccination prior to 1968 may not be adequate evidence of immunity due to many receiving ineffective killed measles vaccine from 1963-1967 • Immunity following natural infection is long lasting but may wane over time • Most infants protected by maternal antibodies, however measles is more severe in children < 12 months of age • All healthcare workers should have evidence of immunity to measles
Incubation Period	10-12 days (range of 7 to 18 days), from exposure to rash onset average is 14 days
Symptoms -Prodrome lasts 2-4 days -Rash starts 2-4 days after prodrome	<ul style="list-style-type: none"> • <i>Prodrome</i>: Fever (increases stepwise, peaking at 103-105°F) • <i>Prodrome</i>: Cough, coryza (runny nose), or conjunctivitis • <i>Prodrome</i>: Koplik spots (1-2 days before or after rash onset) • Erythematous maculopapular rash, lasts 5-6 days (begins on face & head, then proceeds downward to hands and feet, becomes confluent, fades in order of appearance) • Anorexia, diarrhea (especially in infants), generalized lymphadenopathy • Complications: ear infections, pneumonia, encephalitis, seizures, SSPE, or death (more common in children < 5 years old and adults > 20 years old)
Differential Diagnosis	Kawasaki, Roseola, Rubella (German measles), Scarlet Fever, Fifth Disease, Enterovirus
Laboratory test (sample collection)	<ul style="list-style-type: none"> • Collect serum in serum separator tube for serologic assay, IgG and IgM, within 3-28 days after rash onset. Serum collected <72 hours after rash onset will require an additional IgM specimen due to the potential of false-negative results • If within 10 days of rash onset, collect urine AND nasal wash (or throat swab) for PCR and culture identification at CDC • Store specimens at 4°C until transport • Contact local health department for coordination of testing
Prophylactic Regimen	<ul style="list-style-type: none"> • Live measles MMR vaccine may prevent disease if given ≤ 72 hours of exposure • MMR vaccine recommended for persons without evidence of measles immunity • MMR recommended for non-immune > 72 hours if attendee/working in high-risk setting • Pregnant women, immunosuppressed, severe allergic reaction to vaccine component (eggs), those with acute illness, should not receive measles vaccine--Refer to CDC Pink Book for more information • MMR vaccine is preferable to use of IG; Immune globulin (IG) may prevent/modify disease if given ≤ 6 days of exposure; IG is not recommended to control measles outbreaks; indicated for household and high risk contacts
Please report cases of measles to your local health department	CDPHE: 303.692.2700, After hours: 303.370.9395