Measles
Prevention of secondary cases

How often does measles occur in South Africa?	Occasional sporadic cases and intermittent outbreaks in South Africa. Most cases in children <5 years; the majority of these occur in children <1 year.
How is measles transmitted?	Measles is transmitted from person to person through: ▪ inhalation of airborne micro-droplet respiratory secretions (from the nose or throat) from infectious patients ▪ direct contact with large-droplet respiratory secretions (from the nose or throat) from infectious patients ▪ less commonly, by indirect contact: through contact with articles freshly soiled by nose or throat secretions of infectious patients
What is the incubation period of measles?	Average 10-14 days (range 7-18 days).
When are persons with measles infectious?	Patients are infectious from one day before the onset of prodromal symptoms (usually about 4 days before the rash appears) until four days after the rash appears.
Who is susceptible to measles?	All those not previously infected or vaccinated are susceptible to measles. Vaccine-induced immunity wanes over time, so adults who were vaccinated as children may also be susceptible. Acquired immunity after infection is long-lasting.
What control measures should be implemented after measles cases are diagnosed?	
a. Index case	Patients admitted to hospital must be isolated on admission. Standard precautions, contact precautions (wearing gloves and plastic aprons etc) and droplet precautions (wearing a surgical face mask) to be practiced in the pre-hospital setting for patients with suspected measles.
b. Contacts	a. Identify contacts. Close contacts include the following persons exposed to the index case during the infectious period (4 days before rash appears until 4 days after rash appeared) • Those having close contact with the index case in a household-type setting. This includes those living and/or sleeping in the same household; those such as scholars/students etc who sleep in the same dormitory/flat etc; and kissing/sexual contacts of the index case. • Childminders or persons who have looked after the index case • Healthcare workers Additionally, there may be other at-risk contacts whose risk of disease will depend on the duration of contact and their immunisation status. Examples of such contacts would include: • Friends, relatives, and caregivers who regularly visit the home • School/pre-school class contacts • Those who share the same room at work b. Assess all contacts for immunity to measles. Persons with previous history of laboratory-confirmed measles infection, or laboratory evidence of immunity should be considered immune. c. In line with the current South African Department of Health recommendations, all contacts who do not have laboratory evidence of

	previous measles or measles immunity should be offered post-exposure prophylaxis. This may take the form of measles vaccine or normal human immunoglobulin as follows:	
What post-exposure prophylaxis should be given to which contacts?		
Contact group	Post-exposure prophylaxis	Comments
1. Healthy persons aged ≥6 months with no contra-indications to receiving measles-containing vaccine	Measles-containing vaccine (measles vaccine OR MMR vaccine) ideally within three days of exposure.	• Measles-containing vaccine (measles vaccine OR MMR vaccine) given to infants <9 months does NOT replace the scheduled 9 month measles dose. • There are no ill effects from vaccinating those that may already be immune to measles (or mumps or rubella), be it from previous vaccination or natural infection, with measles-containing vaccine (measles vaccine OR MMR vaccine) so it is safe to administer regardless. • Measles-containing vaccine is most effective at preventing measles infection in contacts if given within three days of exposure. However, consider giving measles-containing vaccine even if exposure occurred more than three days previously, since it is a good opportunity to boost immunity and will not exacerbate symptoms if the person is already incubating measles infection.
2. Those with contra-indications to receiving measles-containing vaccine: a. Congenital immunodeficiency disorders b. Leukaemia, lymphoma or other malignancies of the bone marrow or lymphatic system c. Persons receiving systemic immunosuppressive therapy, including corticosteroids at doses of ≥2 mg/kg body weight or ≥20 mg/day of prednisone/equivalent for ≥2 weeks. d. Confirmed anaphylactic reaction to a previous dose of a measles-containing vaccine e. Confirmed anaphylactic reaction to neomycin or gelatine	Consider normal human immunoglobulin (dosage: 0.5 mL/kg body weight (maximum dose = 15 mL) given I.M.) if it can be administered within six days of exposure, to persons listed in in the next column: • Infants <6 months whose mothers are non-immune • Severely immunocompromised patient including a) Severe primary immunodeficiency; b) Bone marrow transplant until at least 12 months after completing immunosuppressive treatment; c) Patients on treatment for acute lymphocytic leukaemia until at least 6 months after completing immunosuppressive chemotherapy	There is currently no accepted minimum level of measles antibody required in normal human immunoglobulin, and levels of measles-neutralising antibodies have declined in recent years. The efficacy of currently available normal human immunoglobulin in preventing/modifying measles in exposed persons is therefore not known, and may be poor.
3. Pregnant women	There is no evidence that measles vaccine causes harm to the pregnant	Measles infection in pregnancy is associated with high risk of maternal morbidity, fetal loss, prematurity and perinatal infection.

	women or her fetus, but it remains a theoretical risk. MMR vaccine is contra-indicated in pregnancy and should not be given. Consider normal human immunoglobulin for pregnant women without evidence of measles immunity, if risk of measles infection is high, provided it can be given within 6 days of exposure. Dosage: 0.5 mL/kg body weight (maximum dose = 15 mL) given I.M.	There is currently no accepted minimum level of measles antibody required in normal human immunoglobulin, and levels of measles-neutralising antibodies have declined in recent years. The efficacy of currently available normal human immunoglobulin in reventing/modifying measles in exposed persons is therefore not known, and may be poor.
4. HIV-infected children and adults	Measles vaccine or MMR can be given to the following groups within three days of exposure: • HIV-infected children ≥6 months and <5 years with CD4 percentage >15% • HIV-infected persons >5 years with CD4 count ≥200 µL <u>Consider giving measles vaccine or MMR</u> within three days of exposure, to HIV-infected children ≥6 months and <5 years with CD4 percentage <15% and HIV-infected persons >5 years with CD4 count <200 µL if risk of measles infection is high.Consider normal human immunoglobulin (dosage: 0.5 mL/kg body weight (maximum dose = 15 mL) given I.M.)within six days of exposure for: • HIV-infected children <6 months of age • HIV-infected children ≥6 months and <5 years with CD4 percentage <15% • HIV-infected persons >5 years with CD4 count <200 µL	Measles vaccine and MMR may cause vaccine-related measles disease in HIV-infected persons with severe immunosuppression. However, vaccination for such individuals must be considered given the high risk of severe measles disease following measles infection in this group. There is currently no accepted minimum level of measles antibody required in normal human immunoglobulin, and levels of measles-neutralising antibodies have declined in recent years. The efficacy of currently available normal human immunoglobulin in preventing/modifying measles in exposed persons is therefore not known, and may be poor.
Immediate environment	Routine cleaning and disinfection.	
Exclusion	Children and adults with measles must be excluded from school/work, medical offices, emergency rooms or public places for 4 days after the rash appears.	
Comments	Measles (both clinically suspected and laboratory-confirmed) is notifiable in South Africa.	