

SEROPREVALENCE OF RUBELLA IN NEPAL

**A
DISSERTATION
SUBMITTED TO THE CENTRAL DEPARTMENT OF MICROBIOLOGY
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OF THE DEGREE OF MASTER OF SCIENCE IN MICROBIOLOGY
(MEDICAL)**

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ABSTRACT

Rubella is a viral illness caused by Rubella virus of genus Rubivirus, family Togaviridae. The disease is characterized with mild fever and maculopapular rash. Such rashes are often termed clinically as measles. The public health importance of rubella relates to the teratogenic effects when rubella infection is acquired in early months of pregnancy. This study was designed to estimate seroprevalence of rubella in Nepalese population based at NPHL, on the serum samples received through WHO-IPD-DOHS collaborative vaccine preventable disease surveillance program. All the testing was carried out using standard protocol.

During 2006, serum samples of 213 suspected rubella/measles cases (fever with rash) collected from different parts of the country were tested. The anti-Rubella IgM positivity was found to be 49.3%. The suspected rubella cases were higher in male (55.14% of total) but the positive cases were found higher in female (52.38% of total positive). Out of total positive cases, the highest positive cases (46.67%) were from the age group 5-10 years followed by 28.57% from age group below 5 years, 17.17% from 10-15 years and 7.62% from > 15. Rubella positive cases were noted from 16 districts with the highest positive cases from Bhaktapur (14, 13.33%) followed by Rauthat (10, 9.52%), Bara (8, 7.62%) and Dadeldhura (8, 7.62%). The highest suspected cases were reported from CDR (131 cases) with 58 positive cases (55.24% of total positive). The rubella cases were highest in spring season (61, 58.1%) followed by winter season (31, 29.52%). The Rubella cases were highest in March (30/61 cases) followed by February (18/28 cases), April (18/24 cases), January (13/26 cases) and May (13/27 cases). Out of total positive cases, 92 cases (87.62%) were clustered in the first five months of the year. No positive cases were observed during July, August, October and December. The above figures and facts from the present study suggest that our country is in potential risk for rubella. So, there is an urgent need to introduce rubella containing vaccine in country immunization program.

Key words: rubella, serum, immunization

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LIST OF ABBREVIATIONS

A	Adenine
C	Cytosine
CAR	Congenitally Acquired Rubella
CDC	Centre for Disease Control and Prevention
CDR	Central Development Region
CMI	Cell Mediated Immunity
CFR	Case Fatality Rate
CNS	Central Nervous System
COV	Cut-off Value
CRS	Congenital Rubella Syndrome
CSF	Cerebro Spinal Fluid
DNA	Deoxyribo Nucleic Acid
DoHS	Department of health Service
EDCD	Epidemiology and disease control unit
EDR	Eastern Development Region
EIA	Enzyme Immuno Assay
ELISA	Enzyme Linked Immunosorbent Assay
FWDR	Far-western Development Region
G	Guanine
HI	Haemagglutination inhibition
IF	Immuno Fluorescence
IFA	Indirect Fluorescent antibody
IFAT	Indirect Fluorescent Antibody Technique
Ig	Immunoglobulin
IgA	Immunoglobulin A
IgG	Immunoglobulin G
IgM	Immunoglobulin M
IPD	Immunization Preventable disease

MHC	Major Histocompatibility Complex
MMR	Mumps Measles Rubella
MNC	Mean Negative Control
MPC	Mean Positive Control
MWDR	Mid-western Development Region
NPHL	National Public Health Laboratory
NSP	Non-structural Protein
OD	Optical Density
ORF	Open Reading Frame
PCR	Polymerase Chain Reaction
PHA	Passive Hemagglutination
QNS	Quantity not sufficient
RNA	Ribo Nucleic Acid
RT-PCR	Reverse Transcriptase-Polymerase Chain Reaction
SMO	Surveillance Medical Officer
U	Uracil
UK	United Kingdom
USA	United States of America
UV	Ultra Violet
WDR	Western Development Region
WHO	World Health Organization