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## Laboratory capacity building of molecular genotyping technology for surveillance improvement of measles and rubella in the country of Georgia

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Georgia has adopted the European Regional goal for measles and rubella elimination by 2020. A concurrent measles and rubella outbreak in Georgia in 2004-2005 resulted in over 7,000 reported cases of each. The most recent outbreak of measles occurred in 2013-2014– in total 7872 and 3188 cases respectively, including 2 lethal cases in 2013. The WHO accredited laboratory for serology diagnostic of Measles and Rubella are functioning at NCDC Lugar Center. The numbers of oral fluid samples are yearly sent to WHO reference laboratories for genotyping. Implementation of molecular typing techniques at Lugar center will allow fulfilling the gaps for timely tracking of the source of infection and establish epidemiological links among cases and outbreaks. Training of molecular technicians was provided by CDC Atlanta, MMRH Laboratory scientists. A total 17 oral fluid samples were collected from measles and rubella suspected cases in 2016. Laboratory work was carried out in a BSL2+ facility at Lugar Center. Real-time RT-PCR assays for the detection of measles and rubella virus (MeV/RuV) were performed with controls of N gene RNA and human RNase P mRNA –a cellular reference gene, using the ABI 7500 real-time thermocycler. Among the 17 samples analyzed, 2 were found positive for MeV. The sequencing by Sanger method of the partial nucleoprotein gene was performed on 1 RT-PCR positive sample. Sequence was identified from BLAST searches against the NCBI nucleotide database chosen, based on high similarity score ( $E \leq 0.0$ ). Genetic distances were estimated using the MEGA v7 software. The BLAST analysis showed a high coverage and absolute similarity with MeV genotype D8 strain MVs/DongThap. This newly implemented testing methodology will strengthen public health system in the country with timely detection and response of MeV/RuV outbreaks; the capacity will assist for the final case classification and investigation of chains of transmission.

### Biography

Nazibrola Chitadze is the Head of WHO accredited Serology (measles, rubella and rotavirus groups) Laboratory of Department of Virology, Molecular Epidemiology and Genome Research at R G Lugar Center for Public Health Research, National Center for Disease Control and Public Health (NCDC&PH). She is graduated from Preventive Medicine Faculty of Tbilisi State University in 2001 and South Caucasus Field Epidemiology and Laboratory Training Program (SCFELTP), US-CDC and NCDC and PH in 2011. Since 2002, she works at NCDC and PH. Her current research interests include assessment and evaluation of cell mediated and humoral immunity developed in humans in response to *Bacillus anthracis* and tularemia infection. In 2016, she was awarded for her special contribution to the field of public health care.

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