



## Assessment of Immune Status Against Measles, Mumps, and Rubella in Young Kuwaitis: MMR Vaccine Efficacy

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### Abstract

Seroprevalence studies on measles, mumps and rubella IgG antibodies after the implementation of measles-mumps-rubella (MMR) vaccine are lacking in Kuwait. This research is an age-stratified serological study to assess the herd immunity to measles, mumps and rubella among the young Kuwaiti population to evaluate the effectiveness of the MMR vaccine. IgG antibody titers to mumps, measles, and rubella were determined with commercial immune-assay in serum samples of 1000 Kuwaitis aged 5-20 years. The highest level of seropositivity was to measles (94.6%), which was significantly higher in females than in males. The highest seronegativity was for mumps (29%). The percentage of the young Kuwaiti population who were serologically positive for all the component of the MMR vaccine was 47%, and 2% of the individuals were without any protective antibodies to measles, mumps and rubella. Females aged 5-10 years were best protected to rubella; however, seronegativity in 8.2% of 11-20-year-old females makes them vulnerable to rubella virus infection and congenital complications during pregnancy. The study provided insight into the effect of the MMR vaccine on seroprevalence of antibodies against measles, mumps and rubella in Kuwait, which will contribute to the global knowledge base of vaccine coverage and help to inform elimination strategies. The findings strengthen the need for a third dose of MMR vaccine and catch-up campaigns for the young Kuwaiti population to increase vaccination coverage and prevent waning immunity, especially among those who received only one dose of the vaccine during childhood.



### Biography:

Nada M. Madi is Assistant Professor in the Department of Microbiology, Faculty of Medicine at Kuwait University where she has been a faculty member since January 2015. She

completed her PhD and MSc. at Faculty of Medicine, Kuwait University and her undergraduate study at Faculty of Science, Kuwait University. Her research interest lies in the area of developing advanced techniques in viral diagnostics such as metagenomics approach for the detection of viruses causing different diseases such as respiratory tract infections and gastroenteritis.



### Speaker Publications:

1. Mohammad, Hawraa & Madi, Nada & Al-Nakib, Widad. (2020). Analysis of viral diversity in stool samples from infants and children with acute gastroenteritis in Kuwait using Metagenomics approach. *Virology Journal*. 17. 10.1186/s12985-020-1287-5.
2. Madi, Nada & Al-Adwani, Anfal. (2020). Human bocavirus (HBoV) in Kuwait: molecular epidemiology and clinical outcome of the virus among patients with respiratory diseases. *Journal of Medical Microbiology*. 69. 10.1099/jmm.0.001219.
3. Madi, Nada & Altawalah, Haya & Alfouzan, Wadha & Al-Nakib, Widad & Al-Roumi, Ebtihal & Jeragh, Ahlam. (2020). Assessment of Immune Status Against Measles, Mumps, and Rubella in Young Kuwaitis: MMR Vaccine Efficacy. *Journal of Medical Virology*. 92. 10.1002/jmv.25665.
4. Adel, Hawraa & Madi, Nada & Al-Nakib, Widad. (2019). 1777. Metagenomic Approach for the Detection of Viruses in Stool Samples from Infants and Children with Acute Gastroenteritis in Kuwait. *Open Forum Infectious Diseases*. 6. S654-S655. 10.1093/ofid/ofz360.1640.

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