

Vaccine Hesitancy and Resistance Following COVID-19 Vaccinations: Measles and Rubella Outbreak in Jordan

Mohammad Al-Jafari^{1,2*}, Jaber H. Jaradat¹

Dear Editor,

Measles, a highly contagious and potentially fatal childhood infection, claims the lives of over 100,000 children globally, with severe complications such as pneumonia and central nervous system disturbances and diseases(1). Although milder, rubella can cause significant health issues, especially if contracted by pregnant women, leading to congenital rubella syndrome and associated complications, such as cardiac issues, deafness, and cataracts(2).

In Jordan, vaccination programs have effectively reduced measles and rubella cases(3). However, challenges have recently emerged. Unexpectedly, there was an outbreak of rubella and measles cases in Jordan, accompanied by a rise in hesitancy and resistance to accepting the vaccines. A decline in vaccine acceptance by the general population was observed following the COVID-19 pandemic. School students are Jordan's primary target for measles and rubella (MR) vaccines. A cross-sectional study revealed that 43% exhibited resistance, 43% demonstrated hesitancy, and a mere 14% acceptance rate among parents(3).

Children receive the monovalent measles vaccine at nine months and the trivalent measles, mumps, and rubella (MMR) vaccine at 12 and 18 months of age, providing immunity against measles, mumps, and rubella(4). The introduction of the MMR vaccine effectively prevents these infections, as proven by the dramatic decline in cases in the 1960s (3,5). However, outbreaks still emerge over time owing to suboptimal vaccination coverage(3).

The trivalent MMR vaccine contains three live-attenuated viruses: measles, mumps, and rubella. It is indicated for children aged 12 months and older and can be given to children older than six months when traveling. These live attenuated viruses mimic natural infections, provoking cell-mediated and humoral immunity(5).

However, with the wide use of the MMR vaccine, it is contraindicated in children and adults with previous allergic reactions after a dose, in pregnant women or women expected to become pregnant soon, and in immunodeficient people with either primary acquired immunodeficiency, malignant neoplasms like leukemia and lymphoma, or patients on immunosuppressive therapy(5).

¹ Faculty of Medicine, Mutah University, Al-Karak, Jordan

² General Surgery Department, Al-Bashir Hospital, Amman, Jordan

Financial support/ funding source: None-
Conflict of interest: No conflict of interest.

Corresponding Author:
Mohammad Al-Jafari
Faculty of Medicine, Mutah University,
Al-Karak, Jordan

Email: mhmmalajafari@gmail.com

This decline in vaccination confidence poses a serious threat to the public health. Therefore, urgent and immediate efforts are needed to address this issue comprehensively. Rebuilding trust through accurate information dissemination, community engagement, and targeted awareness campaigns is crucial. Children and communities can be protected from preventable diseases by reinforcing the importance of vaccines and dispelling myths.

It is imperative for healthcare authorities and all sectors of society to work together, ensuring that credible information reaches every corner, dispelling doubts, and encouraging vaccine uptake. This collaborative approach is the best defense against the resurgence of these dangerous infections in our society.

In conclusion, the decline in vaccine confidence in Jordan requires immediate and comprehensive action. Beyond the historical success of vaccination programs, unexpected outbreaks, and hesitancy rates emphasize the need for urgent action. Therefore, efforts to rebuild trust, disseminate accurate information, and engage communities are crucial. Collaboration between healthcare authorities and society is the cornerstone of successfully dispelling doubts and ensuring vaccine uptake. We can only safeguard our children and communities through these concerted efforts and prevent the resurgence of preventable diseases.

AUTHORS' CONTRIBUTION

Mohammad Al-Jafari: Conceptualization, Project administration, Investigation, Writing - Review & Editing, and Supervision. Jaber H. Jaradat: investigation, Writing - Original Draft, and Writing - Review & Editing.

ACKNOWLEDGMENT

The authors wish to thank The Mutah Research and Audit Society (MRAS) for their supervision and mentoring of the project.

REFERENCES

- 1 Rota PA, Moss WJ, Takeda M, de Swart RL, Thompson KM, Goodson JL. Measles. *Nat Rev Dis Primers*. 2016 Jul 14;2:16049.
 - 2 Camejo Leonor M, Mendez MD. Rubella. *StatPearls*. Treasure Island (FL): StatPearls Publishing; 2023.
 - 3 Barakat M, Abdaljaleel M, Atawneh N, Alkhazaleh R, Aburumman D, Hamed E, et al. Pervasive Parental Hesitancy and Resistance towards Measles Rubella Vaccination in Jordan. *Vaccines (Basel)*. 2023 Oct 31;11(11):1672.
 - 4 Vaccination schedule for Jordan [Internet]. [cited 2023 Nov 10]. Available from: <https://immunizationdata.who.int/pages/schedule-by-country/jor.html>
 - 5 Mahmood R, Gerriets V, Tadi P. Rubella Vaccine. *StatPearls*. Treasure Island (FL): StatPearls Publishing; 2023.
-