

# The mystery of plummeting cases of measles during COVID-19 pandemic in Pakistan: Hidden impact of collateral damage

Dear Editor,

The war against the Coronavirus disease-2019 (COVID-19) is merely a year and a half old; however, it has jostled healthcare systems and disrupted practices that health authorities have been trying to build for decades. Routine immunization against communicable diseases is one such practice that has been affected to the core by the surging pandemic. Accordingly, around 117 million children from 37 countries are at risk of not receiving measles vaccines alone,<sup>1</sup> as collateral damage due to the shift of national priority towards handling the current pandemic. Besides, measles immunization campaigns have either been disrupted or delayed in over 24 countries<sup>1</sup> and put off in another 41 countries,<sup>2</sup> which is expected to leave millions of children unarmed during this already challenging period. Through this editorial, the authors sought to compare the current measles cases with pre-covid time and explore the possible reasons for the observed decrease in measles case counts in Pakistan.

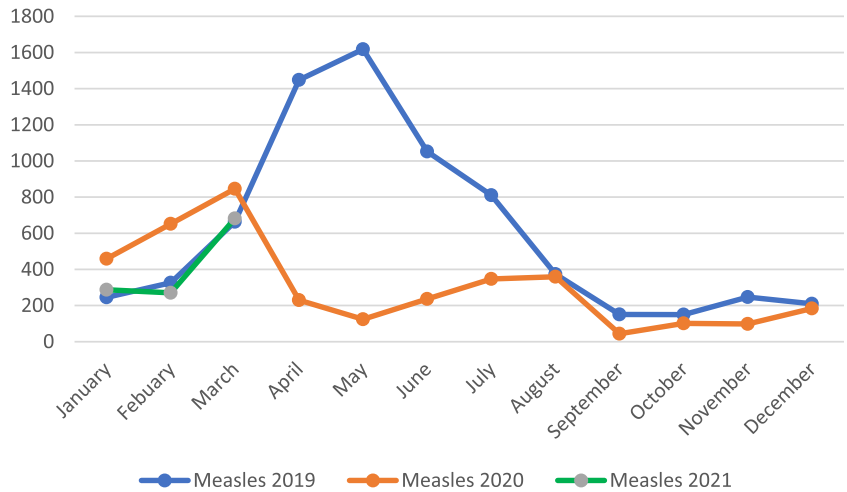
Before the COVID-19 pandemic, the world was facing a surge in measles cases, which claimed 207 500 lives in 2019,<sup>3</sup> the highest number of deaths since 1996.<sup>3</sup> The World Health Organization (WHO) recognizes failure to timely vaccinate children with two doses of measles vaccine as the primary driver of the increased incidence and mortality rate.<sup>3</sup> Despite the availability of a safe and effective vaccine, measles in Pakistan remains a significant cause of morbidity and mortality, especially in the younger population.<sup>4</sup> In Pakistan, measles cases have shown a downward trajectory since the onset of the COVID-19 pandemic, where 6781 cases were reported in 2019 with a drastic fall of 1986 cases in 2020.<sup>5,6</sup> With a similar sporadic trend, as of March 31, 2021, 1239 confirmed cases have been reported in 2021. The Sub-regional Reference Measles Surveillance Laboratory and the National Institute of Health (NIH)-Islamabad have reported 3253 measles cases during January and August 2020, which are in stark contrast to 6536 cases reported during the same period in 2019. During the initial quarter of the year, the cases were higher than reported in 2019 (January–459), (February–652), and (March–846) compared to case counts in 2019 (January–245), (February–326), and (March–663), respectively.<sup>7</sup>

Since the arrival of the COVID-19 pandemic, a downward trend in measles cases is observed in Pakistan. The COVID-19 pandemic peak observed between April to August 2020 notices a marked decrease in measles cases with 230, 124, 236, 347, 359 cases, respectively, compared to cases from the same time period in 2019

(1448, 1618, 1052, 810, and 374 cases). Interestingly, the highest number of COVID-19 cases in 2020 were reported during the same time period (April–August) in Pakistan (14 778, 55 643, 141 010, 65 676, and 17 003 cases). From September to December 2020, the downward trajectory trend in measles cases has continued with 44, 101, 98, and 184 cases, respectively, compared to cases in 2019 during the same time period (i.e., 151, 150, 247, and 210 cases). Similarly, from January to April 2021, there is a markable decrease in measles cases compared to the same time period in 2020. However, a whopping increase of 151 cases was reported from March 21–27, 2021 alone. A point to ascertain is that vaccination to achieve herd immunity may not be responsible for this downfall of Pakistan's measles cases because for that measles vaccination coverage has to reach 95%.<sup>3</sup> The WHO states that to prevent an outbreak, immunization rates must reach a coverage of 95%,<sup>3</sup> which in Pakistan has fallen short to approximately 66% by 2018<sup>8</sup> and was declined further in 2020<sup>9</sup> as well as 2021.<sup>9</sup> This decrease might be due to the surge in COVID-19 cases which has shifted the attention of health authorities leading to lack of its immunization strategy to avoid this collateral damage. Another possible consideration for such a decrease in measles cases might be the social distancing, personal hygiene, and lockdown measures being implemented during the pandemic. Since measles is also a respiratory disease and the similar preventive measures apply to COVID-19 may partially responsible for such decline in measles cases. However, Pakistan is a limited-resourced country, and the sweeping pandemic has burdened the country's already over-stretched healthcare infrastructure, which has led the authorities to divert all its scarce resources in controlling and preventing COVID-19. This attention shift has been responsible for shunting disease surveillance programs that may consequently be responsible for a decline in the number of measles cases that may or may not represent the actual situation. Another plausible explanation would be that more people switched to home remedies to combat diseases due to the panic caused by COVID-19, where people might avoid reaching out to hospitals and healthcare facilities altogether. Consequently, this may partially be responsible for the under-reporting of measles cases, translating to a decline in the country's cases (Figure 1).

The decline in transmission of airborne diseases has been reported due to the precautionary measures from COVID-19.<sup>10</sup> In Taiwan, the decline in lung infections was up to 50%,<sup>10</sup> while in a study conducted

**FIGURE 1** Month-wise case counts of Measles in 2019, 2020, and 2021 in Pakistan





in Guangzhou city, China, there has been a dramatic decline in reported cases of measles, rubella and varicella.<sup>11</sup> In contrast to respiratory viruses, another virus with a different vector for its transmission, that is, mosquitoes, is dengue, which has had mixed results. There are countries in a subcontinent, such as Pakistan, where the reported cases are above the national average, while other countries like Sri Lanka and Bhutan have cases reported below the national average.<sup>12</sup> The lesson to take away from this is that under-reporting can be counter-productive; where the precautionary measures are as good as the continuity of actions by the government and the public.

In a nutshell, the current pandemic will have a long-lasting impact on measles outbreaks in Pakistan; however, the exact magnitude of the effect remains unclear. The past Ebola epidemic of 2014–2015 taught that preventable diseases surge uncontrollably and cause more deaths than the epidemic causing disease itself whenever the healthcare systems are overwhelmed. The upheaval of ebola caused a severe panic, however, the resulting deaths from Tuberculosis, Polio, Dengue, and Malaria far outnumbered the deaths caused by Ebola itself. Such may not be the case in the unprecedented scenario of COVID-19. However, once the pandemic subsides, we don't want a vast measles crisis to cripple the already debilitated healthcare infrastructure further. The government has to reinstate vaccination campaigns to overcome gaps in coverage of outbreaks and reinstate surveillance centers to understand the effect of the COVID-19 pandemic on measles epidemiology in Pakistan. Last, the health authorities must devise and implement ways to control preventable diseases once lockdown measures are lifted.

#### CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

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