

# Mortality and Morbidity of Measles from 21 March 2021 to 20 March 2022 in Mirwais Regional Hospital Pediatric Department Kandahar Afghanistan

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## ABSTRACT

**Background: Objectives:** To study the demographic profile and mortality and morbidity of measles, as well as the outcome of the measles in children who were admitted to pediatric department of Mirwais regional Hospital, Kandahar Afghanistan from the 2021 to 2022.

**Methodology:** This cross-sectional study was conducted in Mirwais Regional hospital pediatric ward Kandahar Afghanistan. The diagnosis of measles based on clinical features, The data of all the patients of measles who were from 1 month to 15 years, and were admitted from measles in MRH in pediatric ward from 21 March 2021 to 20 March 2022, compiled and analyzed from the Medical Records of each case at Hospital. Information obtained from the medical record from each patient file and was coded and entered into computer software. After that, the data were analyzed with SPSS version 22.0.

**Results:** Total 16792 patients were admitted during the study period and among them 1865 were confirmed as measles. Average Rate of measles was found as 11.1% among hospitalized children. There were 1050 (56.30%) male patients and 815 (43.7%) female patients with a male female ratio of 1.28:1. Among the measles patients age of onset was <6 months in 38(2%), 6–12 months in 633(33.94%), 13–60 months in 1028 (55.12%) and 61–120 months 137 (7.34%) and 29 (1.55%) above in 120 months. The majority of the measles children were in the age group between one year up to 5 years old. Prevalence of measles during was 11.1% in 2021 to 2022, which has clearly high incidence in 2022 and with lower incidence of measles cases in 2021. Case fatality among measles diagnosed children was 118 (6.32%) in (2021 to 2022) which shows cleared increase in 2022. We also found in our study more cases were in spring and winter season N = (621-579), from (2021 to 2022).

**Conclusion:** The prevalence and case fatality of measles was higher from one year to 5 years of age. Although boys were more affected by measles than girls, Majority of measles cases developed in rural than urban areas in 2021.

**Keywords:** Immunization, Measles, Prevalence, Mortality.

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## INTRODUCTION

Measles is a febrile sickness that can be very dangerous and even fatal. In many parts of the world, the mortality rate is around 5%. Measles is caused by the Paramyxoviridae virus (genus Morbilli virus), which is one of the most contagious viruses known to man. This high incidence of infectivity and ease of viral propagation has serious implications for the community, especially for primary care offices and emergency rooms, as well as schools and day care facilities where children congregate.<sup>1</sup> Viruses can be disseminated by a variety of routes, including direct contact with infected secretions, contact with contaminated fomites, and inhalation of virus-laden droplets in the air. Aerosolized virus particles remain persistent for extended periods of time, and a non-immune individual can become infected simply by walking into a room where a person who has recently had measles has been. The measles virus is so contagious that it is believed that 90% of non-immune people who are exposed to it will get sick (CDC, 2013). The measles virus is highly infectious and is spread through coughing aerosols or direct contact with contaminated respiratory secretions. On fomites such as handles, tabletops, and linen stained with infectious fluids, the measles virus can persist for up to two

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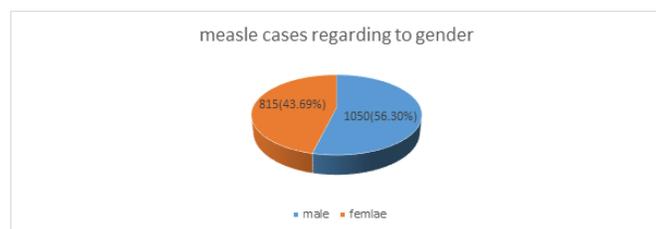
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hours. Before clinical signs show, an infected person releases infectious particles and is contagious for four days before and after the rash appears.<sup>1</sup> However, it is one of the top causes of child mortality, accounting for 158000 deaths worldwide in 2011.<sup>2</sup> The sickness begins with a prodromal phase of fever, cough, and coryza after a two-weeks incubation period. A broad maculopapular skin rash emerges a few days later, sometimes in conjunction with conjunctivitis.<sup>3</sup> The measles virus killed millions of people around the world before the

vaccination was developed.<sup>6</sup> Measles vaccination is the only way to lower the disease's incidence and fatality. Because 15% of vaccinated children do not establish immunity after the first immunization dose, the WHO recommends two rounds of vaccination with a flexible schedule. Between 2000 and 2016, the number of cases of measles fell by 84 percent, from 40 to 6 per million.<sup>4</sup> Measles in children is linked to grave consequences and a higher risk of death, necessitating vaccines as soon as feasible. Live attenuated vaccines are safe, immunogenic, and efficacious in industrialized countries. However, because of the early loss of maternal antibodies in infants in underdeveloped countries, the measles vaccine should be given to children as early as 9 months of age.<sup>5</sup> The treatment is supportive, with fever, dehydration, and other discomforts and problems being monitored and managed. Photophobia can be relieved by keeping the patient away from bright lights. Co-infections such as otitis media and pneumonia should be treated according to current recommendations. Low vitamin A levels have been linked to an increased risk of complications and fatality from measles. The CDC advises vitamin A treatment for all children with acute measles, regardless of where they live, based on World Health Organization standards. Vitamin A should be given once a day parenterally or orally for two days at age-appropriate doses (50,000 IU for infants 6 months old, 100,000 IU for infants 6 to 12 months old, and 200,000 IU for children 12 months old). For children with clinical signs and symptoms of vitamin A deficiency, a third age-specific dose is advised 2 to 4 weeks later.<sup>6</sup>

## METHODS

This was a one year hospital based, retrospective, record based study which was done on 1month to 15 years children patients who was clinically diagnosed of measles children in pediatric department Mirwais regional Hospital, Kandahar (Afghanistan), 21 march 2021 to 20 March 2022. The study was included children irrespective of gender and race with a clinical diagnosis of measles. The diagnosis of measles was entirely clinical. This is a referral hospital for children, which is run by the Government. And ICRC the hospital serve to the people of Kandahar and the neighboring province as well referred from different provinces of Afghanistan. The consultation, the ward charges and the drugs are provided free of cost. A consent was obtained from the hospital chairman and ethical committee the data were collected



**Table/ Fig-1:** Pie diagram of respondents according to gender (n=1865)

and were entering to previous prepared questionnaire to the start of the study.

## Study Subject

The study included all the children from 1month to 15 years, who were clinically diagnosed to be suffering from measles. Details of demographic data were obtained from the medical records and they were entered in a questionnaire before their analysis.

## Statistical Analysis

The statistical analysis was performed by using the SPSS version 22.0 the percentages were calculated for the various parameters which were under study.

## Inclusion Criteria

Involved patients between one-month to 15-years of age having features of measles. The diagnosis of measles was based on clinical.

## Exclusion Criteria

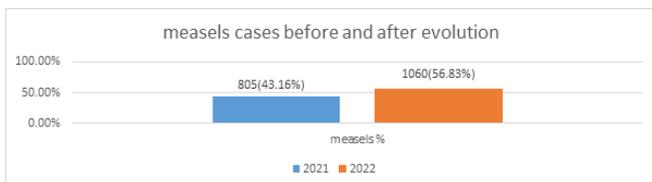
Children below one-month of age and more than 15-years. And post measles patient with more than one weak.

## RESULTS

Total 16792 patients were admitted during the study period and among them 1865 were confirmed as measles. Average Rate of measles was found as 11.1% among hospitalized children. There were 1050 (56.30%) male patients and 815 (43.69%) female patients with a male female ratio of 1.28:1 (Table 1 and Figure 1). Regarding to patients age 38(2%), were <6 months old, 633(33.94%) 6-12 months old, 1028(55.12%) 13-60 months old, 137 (7.34%) 61-120 months old and 29(1.55%) 120 months old. Cases which show as that majority of the measles children were in the age group from one year to 5 years old. (Table 2 and Figure 2). Prevalence of measles during first six months of mention year was less than remained 6 months. Which was little difference in incidence of measles in (2021 to 2022). (Table 3 and Figure 3) case fatality among measles diagnosed children was 118(6.32%) in 2021 to 2022 (Table 4 and Figure 4)]. Regarding to the residency more than half measles suffered children (N=894(47.93%), were from rural area of Kandahar that show measles cases admission were high in both number and percentage, and the remaining cases (N = 796(42.68 %) Were resident of

**Table/Fig-2:** Table represents the respondents according to age of onset of measles

Cases regarding to age	2021 to 2022
Less than 6 months	38(2%)
6 months -1year	633(33.94%)
1-5 Years	1028(55.12%)
5-10 Years	137(7.34%)
More than 10 years	29(1.55%)
Total	1865(100%)



[Table/Fig-3]: Bar diagram represents the respondents according to year wise onset of measles cases

Table/Fig-4: Case fatality of measles

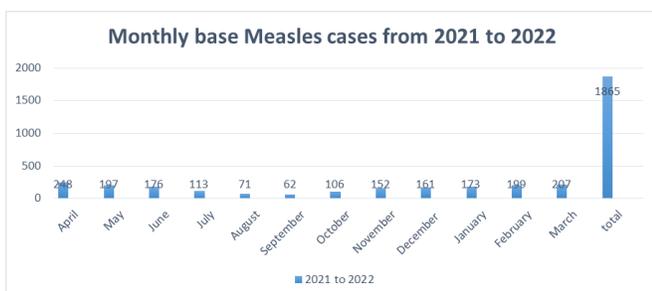
Total cases	Fatality	One year
1865(100%)	118(6.32%)	(2021 to 2022)

Table/Fig-5: Table represents the respondents according residency.

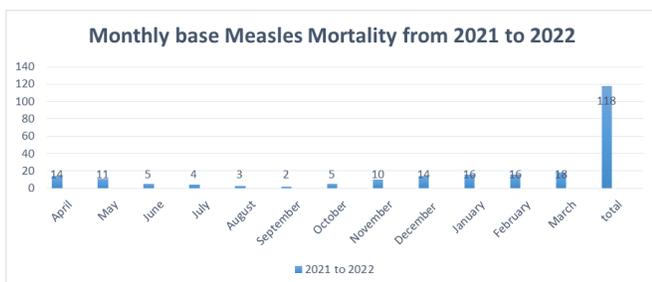
Residency	2021 to 2022
Kandahar city	796(42.68%)
Kandahar districts	894(47.93%)
Neighbor provinces	175(9.83%)
Total	1865(100%)

Table/Fig-6: Table represents the respondents according season and their mortality and LAMA patients' number.

Season of the year	2021 to 2022 cases	Dead	LAMA
Spring	621	30	10
Summer	246	9	8
Fall	419	29	16
Winter	579	50	24
Total	1865(100%)	118(6.32%)	58(3.10%)



Table/Fig-7: Bar diagram represents the respondents according monthly base cases



[Table/Fig-8]: Bar diagram represents the respondents according monthly base mortality number

urban which were less than rural cases in both number and percentage. As we know, Kandahar Mirwais hospital is Regional hospital patients with measles were also admitted

from neighbor provinces 195(9.83%) regarding to above mention year (Table and Figure 5). We also found in our study more cases were in spring and winter season N = (621-579), 2021 to 2022 (Table 6 and Figure 6]. In this study we showed number of measles cases and mortality in monthly base to know soon (Tables 7 and 8, Figures 7 and 8]

## DISCUSSION

In our study, Among the measles patients age of onset was <6 months in 38(2%) and most cases of measles i.e., 1661(89.06%) were reported in the age group of 6 months-60 months. Which has same result with occurrence of Measles among Children Admitted in Tertiary Care Hospital Bangladesh Dhaka of measles more in the age group 6months to 60 months as compared to age group below 6month and more than five years of age.<sup>7</sup> In this study, male preponderance is observed. There were 1050 (56.30%) male patients and 815 (43.7%) female patients with a male female ratio of 1.28:1 Same results have been reported in tertiary care hospital Pakistan and southeast Iran among vaccinated school children.<sup>8,9</sup> This might be due to preferential treatment given to male child in family in our society. More cases were admitted during the first quarter N=621, 2021 (spring season) respectively (months of April, May and June) and also quarter 4(winter season) (January, February and March) N= 579, 2022 respectively. In winter and spring which rainy and cold season respectively. Which is same result with WHO 2008 data also reported peak occurrence of measles in the rainy season in cold climates. There was similar trend in our study as per seasonal distribution.<sup>10</sup> Overall mortality in our study was 118 (6.32%) due to measles. Impact of COVID pandemic on incidence of measles in all Afghanistan especially in Kandahar from 2021 to 2022.

There was also another finding in (2021 to 2022) measles patient were more N=894(47.93%) form Kandahar district and less N=796(42.68%) from Kandahar city area which was differed during (2021 to 2022) cases and the reason was changing of regime in rural area and many people were able to come to hospital from rural area to the city of Kandahar during 2020. This study finding also shows increasing cases of measles during 2022 both form rural and urban area the main cause was COVID 19 pandemic, in changing of regime and there was not any specific measles vaccination in both rural and urban area of Kandahar in 2021.

## CONCLUSIONS

The prevalence of measles was high in one to 5years of age. Respiratory diseases (measles) still constitute some significant burden to children there in Afghanistan especially in Kandahar. Attention should be paid to respiratory diseases in children to reduce the morbidity in the population. A broad study in the community on the epidemiological factors and clear immunization regard history linked with morbidity and mortality should be undertaken in order to determine the prevalence and plan interventions on management of the diseases.

## LIMITATION

This was a hospital based study and does not represent the true prevalence of measles and its different aspect of measles in the entire population.

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