

Prevalence and Trend of Measles from 21 March 2018 to 20 March 2021 in Pediatric Department Mirwais Regional Hospital Kandahar Afghanistan

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ABSTRACT

Background: Objectives: To study the demographic profile and trend 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 21/3/ 2018 to 20/3/ 2021. **Methodology:** This retrospective case record hospital based study was conducted in Mirwais Regional hospital pediatric ward Kandahar Afghanistan The diagnosis of measles according to clinical signs and symptoms, The data of all the patients of measles who were from more than 1months to 15 years, who were admitted from measles in MRH in pediatric ward from 21 march 2018 to 20 March 2021, compiled and analyzed from the Medical Records of each case at Hospital. Information obtained from the clinical record was coded and entered into computer software. After that, we analyzed the data with SPSS version 22. 0. **Results:** The number of admitted patients were 44617 and the number of patients witch were diagnosed with measles are 3796, from 44617 hospitalized patients 8.5% were diagnosed with measles. 2045 (53.87%) were male and 1755 (46.12%) were female. Female and male Ration was 1.16:1. Among the measles patients age of onset was <6 months in 56(1.47%), 6-12 months in 1087(28.63%), 13-60 months in 2196(57.85%) and 61-120 months 388 (10.22%) and above in 120months 69(1.81%) cases which show as that majority of the measles children were in the age group between one year up to 5years old. Prevalence of measles during these three years were different and showed different percentage in 2018, 2019 and 2020 7.68%, 5.31% and 12.49% respectively. Which clearly high incidence in 2020 and with lower incidence of measles cases in 2019. case fatality among measles diagnosed children was 62(5.68%) in 2018, 35(4.3%) in 2019 and 97 (5.12%) in 2020 which show cleared declining in 2019 and approximately same in both 2018 and 2020. we also fined in our study more cases were in spring and winter season N=(541-147), N=(75-306) and N=(271-818) during 2018, 2019 and 2020 respectively.

Conclusion: The prevalence and case fatality of measles was higher in form one year to 5year of age. Although boys were more affected from measles than girls, Majority of measles cases developed in urban area than rural in 2020 than 2018 and 2019.

Keywords: Measles, trend, mortality, morbidity .

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1. Introduction

Measles is an illness having fever and is also known to be very fatal the rate of its mortality is 5% among many areas of the world. The Paramyxoviridae virus (genus Morbillivirus) is the cause of measles and among the known viruses it is the most contagious, it can spread through direct contact with infected secretions and other objects it can also be taken from airborne droplets of infected person. The viral particles can remain in the air and someone who doesn't have immunity can get the virus from a room by just entering the room where infected person has lived.

According to CDC Non immune people with percentage of 90 can be ill after exposing to virus. Infectivity rate is very high the virus can also spread very easy thus places where children stay together such as schools, emergency rooms and day care units are

concerned to be virus spread areas. The virus can live up to 120 minutes on objects such as spoons, door handles and linen soiled which are infected. The infected person can spread virus before clinical symptoms and the spread of virus from an infected person is 4 days before rash and 5 days after rash appears. (1) Measles is known as the leading cause of child mortality in 2011 158000 deaths were recorded globally (2). Virus can be spread from droplets which are produced during cough sneezing of infected person it can also spread through direct contact to infected objects.

The incubation period is 14 days after Incubation period prodromal phase starts in which the patient has fever cough and coryza, few days later patient is seen with generalized maculopapular rash on his/her body. Most of patients are also having conjunctivitis (3). Measles was responsible for millions of deaths worldwide before measles vaccine was introduced. (6) WHO recommends two times vaccination with flexible timing which is the only way to reduce incidence and deaths of disease the first dose of vaccine has 15% of immunity failure. From 2000-2016 the cases decreased 84% from 40 million to 6 million (4). The vaccine should be done as soon as possible because measles has serious complications and high risk of mortality at early age. Live attenuated vaccines (are alive but with low pathogen virulence) are safe and effective in developed countries. In developing countries it should be done from 9 months because infants lose their immunity which they took from their mother at early age (5).

Treatment includes reducing fever look for dehydration and solving other problems and discomforts. Patients who suffer from photophobia must be kept from brightness. Otitis media and pneumonia must be treating as guideline. CDC recommends vitamin A supplementation to all acute measles and vitamin A deficiency causes complication and high rate deaths. The dosage of vitamin A is 2 days (50000 IU for children <6 months, 100000 IU for children from 6-12 months, and 200000 IU for children ≥12 months) and those patients who have clinical signs of vitamin A deficiency should also get 3rd dose of vitamin A after 2-4 weeks according to their age. (6)

2. Methods

This was a three years hospital based retrospective record based study which was done on more than 1 month to 15 years children patients who had clinical diagnosed of measles children in pediatric department Mirwais regional Hospital, Kandahar (Afghanistan), 21 March 2018 to 20 March 2021. 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. The hospital has 600 beds which include different department. A consent was obtained from the hospital chairman and ethical committee and also verbally and the data were collected and were entering to previous prepared questioner to the start of the study.

Study Subjects the study included all the children from more than 1 months 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.

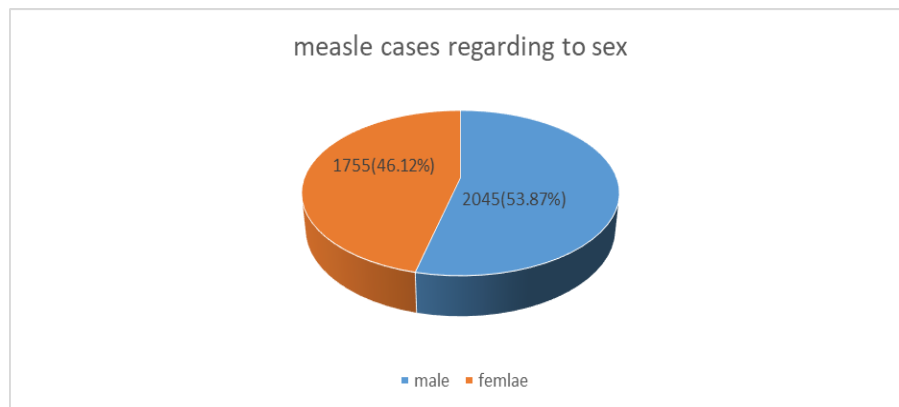
Statistical analysis: The statistical analysis was done via SPSS version 22.0 the percentages were calculated for the various parameters which were under study.

Inclusion criteria: involved patients between more than one-months to 15-year of age having features of measles. The diagnosis of measles was based on clinic Exclusion criteria: Children under 1 month of age and more than 15-years. And post measles patient with more than one week.

3. Results

Total Admission of patients were 44617 among them 8.5% (3796) were diagnosed with measles Average Rate of measles was found as 8.5% among hospitalized children. There were 2045 (53.87%) male patients and 1755 (46.12%) female patients with a male female ratio of 1.16:1. [Table/Fig-1] Among the measles patients age of onset was <6 months in 56(1.47%), 6-12 months in 1087(28.63%), 13-60 months in 2196(57.85%) and 61-120 months 388 (10.22%) and above in 120 months 69(1.81%) cases which show as that majority of the measles children were in the age group between one year up to 5 years old. [Table/Fig-2]. Prevalence of measles during these three years were different and showed different percentage in 2018, 2019 and 2020 7.68%, 5.31 and 12.49% respectively. Which clearly high incidence in 2020 and with lower incidence of measles cases in 2019. [Table/Fig-3] case fatality among measles diagnosed children was 62(5.68%) in 2018, 35(4.3%) in 2019 and 97 (5.12%) in 2020 which show cleared declining in 2019 and approximately same in both 2018 and 2020. [Table/Fig-4]. Regarding to the residency more than half measles suffered children (2018N=571(52.33%), 2019N=425(52.27%) and 2020 N= 918(48.52%)) were from districts of Kandahar that show from 2018 measles cases admission were high in both number and percentage, and the remaining cases (2018 N=464(42.52%), in 2019 N=

352(43.29%) and 2020N= 890(47%))Were resident of Kandahar city which show increasing in both number and percentage from 2018 to end of 2020. As we know Kandahar Mirwais hospital is Regional hospital patients with measles were also admitted from neighbor provinces 5.13%, 4.42%and 4.43% respectively regarding to above mention year. [Table/Fig-5].we also fined in our study more cases were in spring and winter season N= (541-147), N= (75-306) and N= (271-818) during 2018, 2019 and 2020 respectively [Table/Fig-6]. In this study we showed number of measles cases and mortality in monthly base to know soon. [Table/Fig-7, 8].

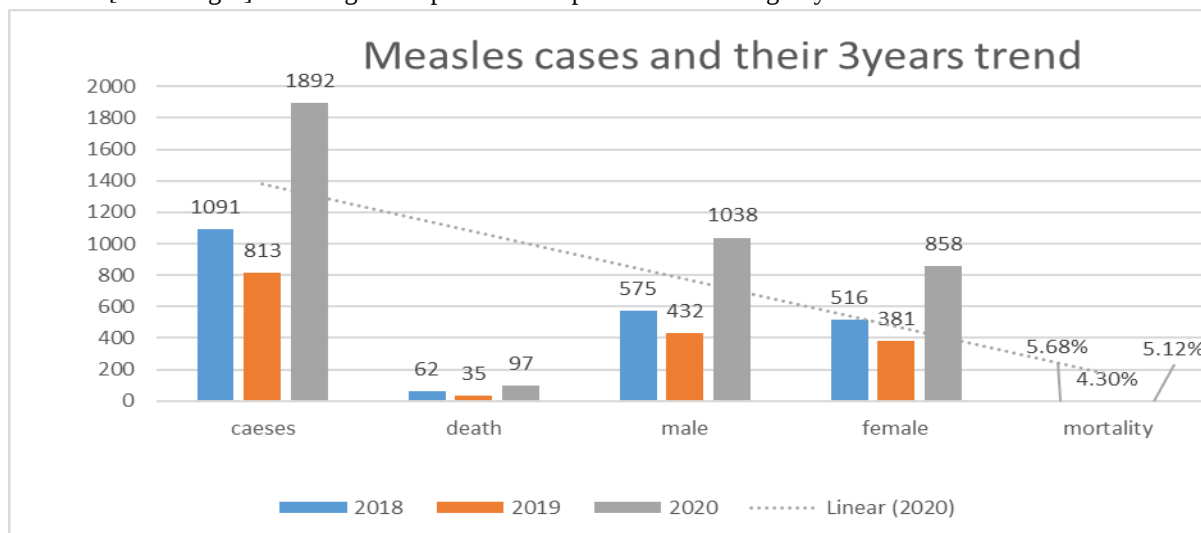


[Table/ Fig-1]: Pie diagram of shows according to sex (n=3796)

cases regarding to age	2018	2019	2020
less than 6months	20(1.83%)	16(1.96%)	20(1%)
6months -1year	267(24.47%)	276(33.94%)	544(27.75%)
1-5years	656(60.12%)	452(55.59%)	1088(57.50%)
5-10years	110(10%)	63(7.74%)	215(11.36%)
more than 10years	38(3.48%)	6(0.73%)	25(1.32%)
Total	1091(100%)	813(100%)	1892(100%)

[Table/Fig-2]: table explains the respondents according to age of onset of measles

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

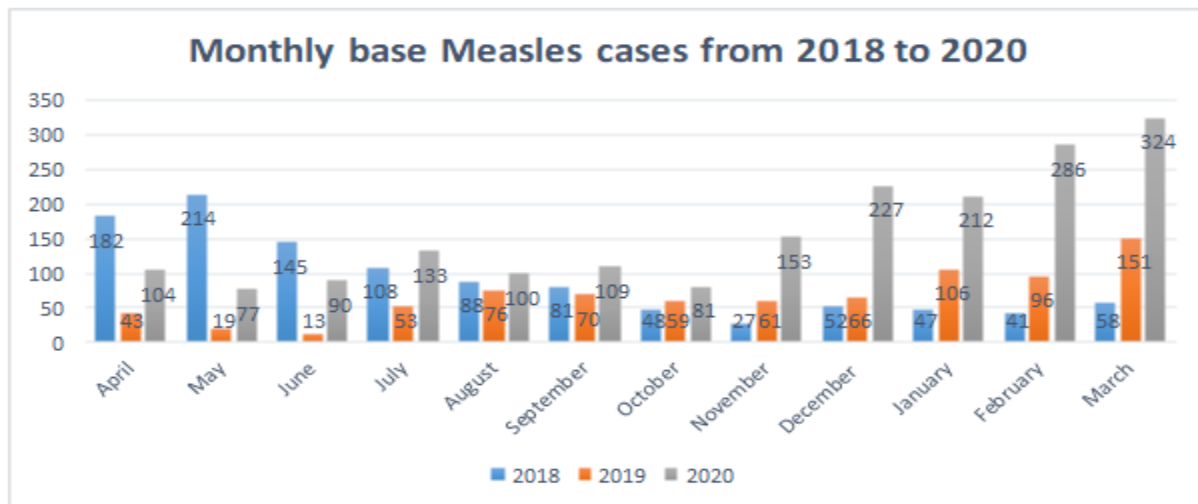


[Table/Fig-4]: Bar diagram describes the respondents according to year, death, gender and mortality of measles cases.

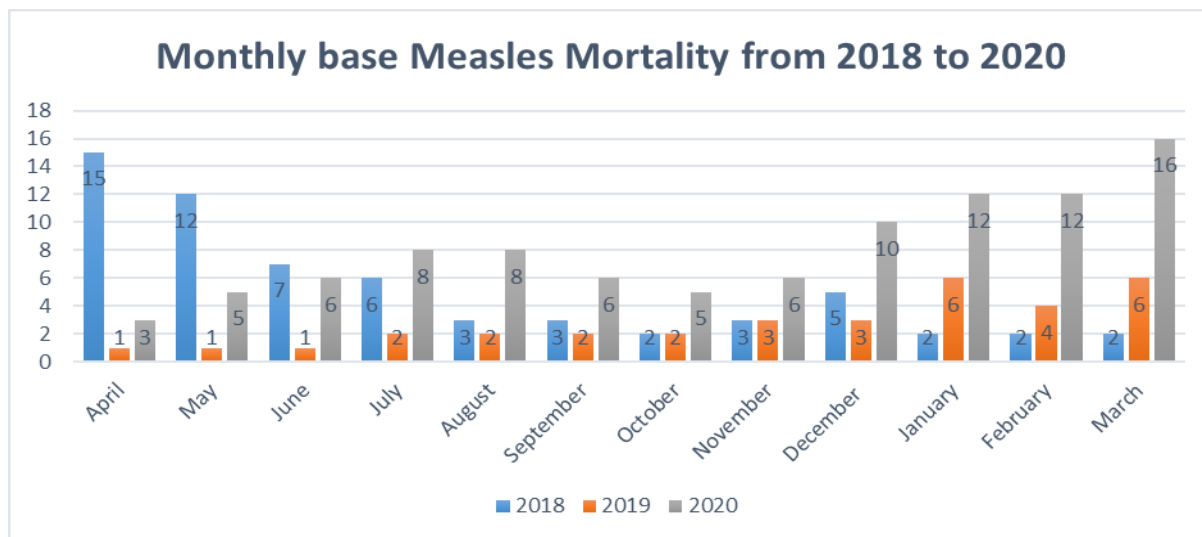
Residency	2018	2019	2020
Kandahar city	464(42.52%)	352(43.29%)	890(47%)
Kandahar districts	571(52.33%)	425(52.27%)	918(48.52%)
neighbor provinces	56(5.13%)	36(4.42%)	84(4.43%)
total	1091(100%)	813(100%)	1892(100%)

[Table/Fig-5]: table shows the respondents according residency.

season of the year	2018 cases	dead	2019 cases	dead	2020 cases	Dead
spring	541	34	75	5	271	14
summer	277	12	199	6	342	22
fall	126	10	233	8	461	21
winter	147	6	306	16	818	40
total	1091	62	813	35	1892	97



[Table/Fig-6]: table explains the respondents according season and their mortality number.



[Table/Fig-7]: Bar diagram shows the respondents regarding monthly base mortality rate.

4. Discussion

In our study, Among the measles patients age of onset was <6 months in 56(1.47%) and most cases of measles i.e., 3283 (86.48%) 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 year of age (7) In this study male preponderance is seen. There were 2045 (53.87%) male patients and 1755 (46.12%) female patients with a male female ratio of 1.16:1 Same results have been reported in tertiary care hospital Pakistan and southeast Iran among vaccinated school children (8, 9). 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=541, N=75 and N=271 during 2018, 2019 and 2020 (spring season) respectively (months of April, May and June) and also quarter 4(winter season) (January, February and March) N=147, N=306 and N=818 during 2018, 2019 and 2020 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. (10). Overall mortality in our study was 192 (5.05%) due to measles. Impact of COVID pandemic on incidence of measles in all Afghanistan specially in Kandahar in 2019 average cases for each month was $67.75 \pm SD (37.65)$ and average cases for each month in 2020 was $158 \pm SD (84.24)$ $P=0.003$ which show that in 2020 there was no any specific measles vaccine campaign all focus was especially on COVID 19.

There was also another finding in 2020 measles patient were more N=890(47%) from Kandahar city and less N=918(48.52%) from district area which was differed from 2018 and 2019 cases and the reason was war and insecurity in rural area and many people were immigrated from rural area to the city of Kandahar during 2020. This study finding also show increasing cases of measles during 2020 both from rural and urban area the main cause was COVID 19 pandemic, in security and there was not any specific measles vaccination in both rural and urban area of Kandahar from 2017.

5. Conclusions

The prevalence of measles was high in one year to 5 year of age. Respiratory diseases (measles) still constitute some significant burden to children there in Afghanistan especially in Kandahar. Paying attention to respiratory disease is necessary to reduce the morbidity of measles among children. A comprehensive study in the community on the epidemiological factors and clear immunization regard history associated with morbidity and mortality should be undertaken in order to determine the prevalence and plan interventions on management of the diseases.

6. 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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