

## EVALUATION OF COVID-19 PANDEMIC IN AZAD JAMMU AND KASHMIR PAKISTAN

Qaesar Nazeer, Tahir Sardar\*, Syed Fawad Mashhadi\*

WHO AJK Muzaffarabad Pakistan, \*Army Medical College/National University of Medical Sciences (NUMS) Rawalpindi Pakistan

### ABSTRACT

**Objective:** To examine mitigation measures in Azad, Jammu and Kashmir and compare their effectiveness to rest of Pakistan.

**Study Design:** Prospective observational study.

**Place and Duration of Study:** Province of Azad, Jammu and Kashmir, from Mar to Aug 2020.

**Methodology:** This study was conducted by Provincial Disease Surveillance Department of World Health Organization at Azad, Jammu and Kashmir Muzaffarabad after getting approval from Health Department. Data were collected from different hospitals of Azad Jammu and Kashmir as per a specially designed proforma.

**Results:** No significant variation from national averages was observed, adapting mitigation measures and lockdown were success in decreasing epidemic curve.

**Conclusion:** The easing of the lockdown policy resulted in widespread outbreak in the province and non-compliance with infection control best practices by members of the community, similar to rest of Pakistan.

**Keywords:** Mitigation measures, Public health, Risk communication.

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### INTRODUCTION

COVID-19 is a novel respiratory virus which critically affected multi-organ systems in infected individuals<sup>1,2</sup>. The current pandemic has infected millions of people with worldwide mortality of over one million<sup>3</sup>. Pakistan, a higher middle-income country has also been impacted with COVID-19, having endured a relatively lesser mortality of over six thousand, a testament to successful mitigation measures<sup>4,5</sup>. Azad Jammu & Kashmir, having also been affected by the disease, prevailed successfully due to timely mitigation response, which effectively controlled the spread of the virus in the general populace of the province, allowing AJK to emerge as an exemplar among provinces with respect to aggressive mitigation policies<sup>6</sup>.

On March 23, 2020 Government of AJ & K, Ministry of Law and Justice upon direction from Mr. President and Prime Minister promulgated and imposed the AJK Epidemic Disease Act of

1958 declaring COVID-19 as disease of Public Emergency in the wake of an emergent situation resulting from the outbreak of the Corona virus pandemic (COVID-19). As a public health intervention to control the spread of the disease within the community, and to flatten the curve of disease spread, the entire country was put under a nation-wide lockdown, which was initiated on 1 April until 9 May, and later extended twice. Upon its end, the lockdown was eased across the country in phases, and it greatly contributed towards flattening the epidemiological curve<sup>5,7</sup>.

### METHODOLOGY

This prospective observational study was conducted by Provincial Disease Surveillance Department of World Health Organization at Azad, Jammu and Kashmir Muzaffarabad from February to August 2020 after getting approval from Health Department. Data were collected from different hospitals of Azad Jammu and Kashmir as per a specially designed proforma. The data were entered into SPSS and descriptive analysis was carried out to get insights into the trends of the pandemic.

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**Correspondence:** Dr Tahir Sardar, Vice Principal, Army Medical College Rawalpindi Pakistan

Received: 28 Nov 2020; revised received: 08 Dec 2020; accepted: 09 Dec 2020

**RESULTS**

The results showed the data as of August 10, 2020. Till date, 2150 confirmed cases were reported in AJK. The map on AJK COVID-19 scenario shows the most and least affected areas of AJK. The darker areas in the map shows the higher concentration of the COVID-19 confirm cases (fig-1). The most cases were reported in district Muzaffarabad (694), Mirpur (488), Bhimber

lower most place during the peak time. During this time period, highest number of confirmed patients reported was 83 on July 14<sup>th</sup> 2020. The total positivity rate for AJK is 7% up till August 10<sup>th</sup> 2020 with 2.79% Case Fatality ratio and 89.07% Cases Recovery ratio. It is pertinent to mentioned here that, at the point where the lines leave the box, it is evident that there is a sharp decline in the red line with a sharp increase in

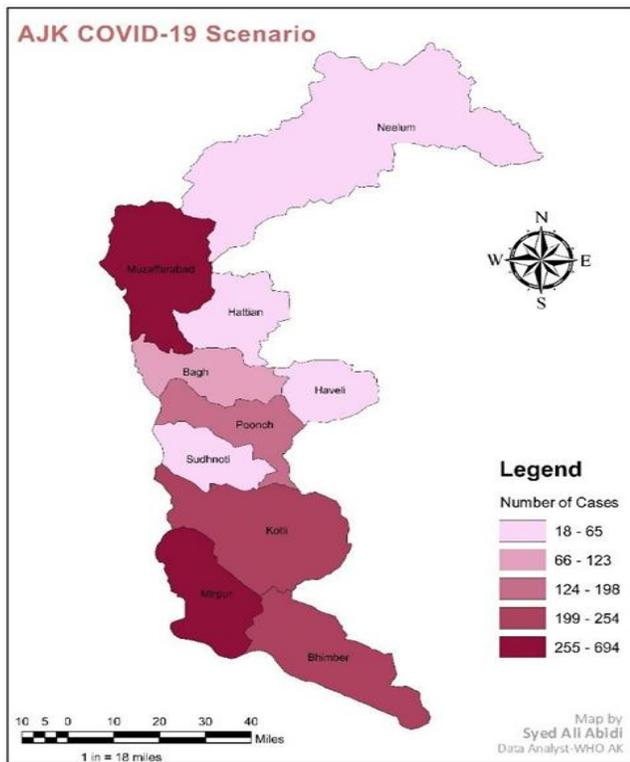


Figure-1: Azad Jammu & Kashmir; COVID-19 scenario - as of Aug 10, 2020.

(254) and Kotli (245) whereas; district Bagh, Sudhnoti, Neelum, Jhelum Valley (Hattian), and Haveli have reported least cases i.e. 123, 65, 33, 32, 65, 18 respectively. Fig-2 shows the total number of admitted, died and recovered patients out of 2150 cases in AJK.

From 16<sup>th</sup> May the outbreak started in AJK and there was an obvious rise in the number of cases in AJK, as it happens in the outer world. The outbreak reaches to its peak in the second week of July. In peak time the cases increased, deaths were higher than recoveries. As seen in the box below, the green line for recovery is in the

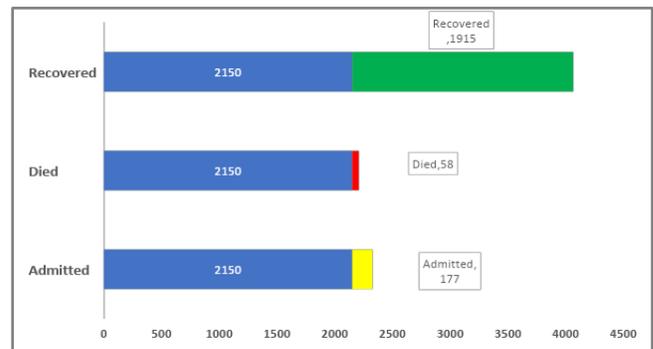


Figure-2: COVID-19 Azad Jammu & Kashmir; scenario at a glance.

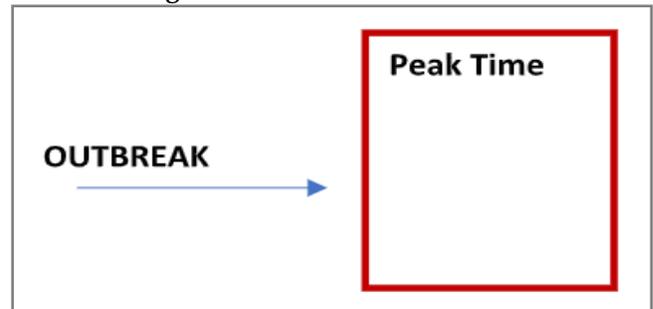


Figure-3: Azad Jammu & Kashmir; COVID-19 EPI curve.

the green line. This change started in the third week of July i.e. 29<sup>th</sup> epidemiological week and is sustained till to date (10<sup>th</sup> August, 2020) with an increase in the number of recovered patients (fig-3).

**DISCUSSION**

On March 18<sup>th</sup> 2020, the first case of the COVID-19 was identified in District Mirpur, who had a travel history from Iran. In two months' time the confirmed cases were reported to be 150 on 18<sup>th</sup> May 2020. Up till 31<sup>st</sup> July 2020, the total confirmed cases were 2086. Out of these, 1850 were recovered and 54 were dead. Till date 10<sup>th</sup> August 2020, the total confirmed cases in AJ & K

are 2150, out of which 59 are dead and around 2000 people have been recovered so far. The state of AJ & K was put under full-scale lockdown effective from 21<sup>st</sup> February until 16<sup>th</sup> May 2020. During this time there were only 43 COVID-19 confirmed cases reported. The lockdown was lifted on business community pressure in last week of Ramadan as in the other parts of the country, which contributed significantly in the COVID-19 spread<sup>8</sup>. As illustrated in fig-1, since outbreak in AJK, the first hundred cases were reported in 56 days, the period of full lock down. On easing of lockdown, cases were more than doubled in 27 days and then in only 18 days the AJ & K reached 1138 cases, at which point the lockdown was intermittent in nature<sup>9</sup>. With the start of the policy of smart lockdown, the authorities were successful in controlling community spread; however the lifting of complete lockdown was a decision which lead to wide-spread in outbreak in community because of no infection control prevention measures adopted aggressively by the members of the community<sup>10</sup>.

In consequence of this accelerated increase in the cases across Pakistan, the WHO country office Pakistan wrote a letter to the Government of Pakistan, recommending imposition of the further lockdown. AJ & K was the only region to comply with the WHO recommendations<sup>9</sup>.

AJ & K outbreak began on March 18<sup>th</sup> 2020, when the first case of the COVID-19 was identified in District Mirpur, who had a travel history from Iran. In two months' time the confirmed cases were reported to be 150 on 18<sup>th</sup> May 2020. Up till 31<sup>st</sup> July 2020 the total confirmed cases were 2086. Out of these, 1850 recovered and 54 died. Till 10<sup>th</sup> August 2020, the total confirmed cases in AJ & K are 2150, out of which 59 died and more than 2000 people have recovered so far.

From 16<sup>th</sup> May 2020, a community outbreak started in AJK and there was an obvious rise in the number of cases, comparable to the rest of the world. The outbreak reached its peak in the second week of July. In peak time the cases increased, deaths were higher than recoveries.

On May 15<sup>th</sup>, 2020 the first death was reported in District Muzaffarabad. The patient was 85 years old with common COVID-19 symptoms i.e. Fever, Cough, Shortness of Breath. During this time-period, highest number of confirmed patients reported was 83 on July 14<sup>th</sup> 2020. The total positivity rate for AJK is 7% up till August 10, 2020 with 2.79% Case Fatality ratio and 89.07% Cases Recovery ratio. It is pertinent to mention here that a change started in the third week of July i.e. 29<sup>th</sup> epidemiological week and is sustained till to date with an increase in the number of recovered patients.

In AJK, the total number of deaths is 54 persons as of 10 Aug 2020. Muzaffarabad, Bagh and Poonch have relatively higher number of mortality when compared to rest of the districts. The highest number of index and contact cases was reported in district Muzaffarabad, then in Mirpur, then in Kotli, whereas the in Jhelum Valley and Neelum more contact cases have been traced compared to index cases. The median stay of patient at hospital is 14 days and 7 days for patient at home isolation, who are also asymptomatic<sup>11</sup>.

In AJK, the spread of virus is mostly through household contacts. Due to rapid response of the country towards pandemic, policies adopted to control the disease were implemented fairly early on. In AJK transmission due to mass gathering is very limited as only 11 contacts were reported under this category. However, at individual level, if citizens had shown more responsible behavior, the transmission through household member could have been effectively controlled in a systematic manner<sup>12</sup>. Admittedly, while it is hard to train each individual to fight against the disease, with the help of social, print and electronic media the administration was successful in promoting awareness against the epidemic. The case doubling time in AJK for first 100 cases is 56 days, which reduced to 20 days to next 300 cases and further reduced to 6-4 days in doubling cases 300 to 6000 to 8000 and so on up to 2100 cases. The most affected health care professionals are Doctors, Paramedical staff and lab workers. Among

them the virus spread is happened in workplace and health setting exposure with most reported as contact cases<sup>13</sup>.

The provincial health services of AJK comprises of a 3-tiered health service delivery system: primary, secondary and tertiary health services<sup>14</sup>. As per the geographic distribution and administrative organization, the health services in AJK are grouped under provincial and district levels. At the provincial level, the Provincial Health Department is responsible for the management of tertiary healthcare services consisting of major tertiary hospitals, medical colleges and paramedical training schools. These institutions are mainly established in urban localities. The district health department comprises primary and secondary healthcare facilities and federal or provincial vertical health programs. The primary healthcare facilities in the rural areas are: Basic Health Units (BHU), Rural Health Centers (RHC), Maternal and Child Health Centers and First Aid Posts (FAP).

AJK has 47 RHCs and 228 BHUs. The BHU is located in a union council (the lowest administrative unit in a district) and provides basic curative and preventive services to a population of 10,000 to 15,000. It also serves as the administrative arm for implementation of the national vertical preventive health programs.

The RHC is established at intermediate level between a union council and a tehsil. This 8-20 bedded unit provides basic curative, basic surgical and dental services to a population of 50,000 to 75,000.

The Secondary Healthcare Services comprise of Tehsil Head Quarters (THQH) hospitals and District Health Quarters (DHQH) hospitals at the tehsil and district levels respectively. Located in the tehsil headquarters' city, THQH is the largest secondary care hospital in a tehsil. The number of THQH hospitals in a district depends upon the number of tehsils. It is also considered a First Level Referral facility for the BHUs and RHCs in their respective tehsil. In comparison to THQH, a District Headquarters hospitals is located at the

district headquarter city. It is the largest secondary care hospital in a district<sup>15,16</sup>.

Since first positive reported case on March 18<sup>th</sup>, 2020, the first dedicated lab for testing COVID-19 cases was established on 27<sup>th</sup> March 2020 in AJK. Within a week, second and third lab had been established on 2<sup>nd</sup> April and 10<sup>th</sup> April 2020 respectively. Till date, DHQ Mirpur has conducted higher number of test compared to rest of the labs. DHQ Mirpur operates for three division i.e. Mirpur, Bhimber and Kotli. These are the districts of relatively higher population. Abbas Institute of Medical Sciences (AIMS) Muzaffarabad has conducted more than ten thousand tests and operates for three districts namely, Muzaffarabad, Jhelum Valley and Neelum. CMH Rawalakot operates for Poonch division, which includes Bagh, Rawalakot, Sudhnoti and Haveli district.

The first COVID-19 isolation hospital was inaugurated on 2<sup>nd</sup> April 2020 at Muzaffarabad Officers Club Bank Road with total number of 50 beds. A second hospital was established in the new building of PM house at Jalalabad with total number of 50 beds.

AJK presently has 58 quarantine center with 385 health care workers and professional human resource dedicated to these quarantine centers. The quantity and quality of the health workforce are positively associated with various health service outcomes<sup>17</sup>. As Pakistan is listed among 'Low-density-high-mortality' countries, the overall density of the health care workforce is well below the threshold level of 2.5 workers per 1,000 population<sup>12,18</sup>. As of 2019, there are 3705 doctors working in AJ&K so the doctor to population ratio in AJK (one doctor for every 3893 person) is much higher than the national average (one doctor per 1038 persons)<sup>19</sup>.

The governance structure of health department can be similarly divided into three tiers: provincial, district and sub-district level. At the provincial level, under the political leadership of the Health Minister, health department is headed by the Secretary Health. While reporting to the Secretary Health, the Director General Health

Services (DGHS) is responsible for overseeing the implementation of health care services across AJK. He is supported by provincial managers of vertical health programs including EPI, LHW Program and MNCH Program.

At the district level, a District Health Officer (DHO) is responsible for the management of health care services through an extensive network of primary and secondary, health facilities. In addition, s/he also supervises the implementation of vertical health programs.

AJK Health Department COVID-19 Control Room is nerve center to synergize and articulate unified national efforts against COVID-19 and to implement the decisions of Provincial Coordination Committee on COVID-19. The control room is one window operation to collate, analyze and process the information based on digital input and human intelligence across all 10 districts of AJ & K and outside with dedicated representatives and control centers at district levels<sup>14</sup>.

Guidelines provided by AJK Health Department COVID-19 Control Room after deliberate discussion and data analysis and in line with NCOC and NIH for coping with pandemic in the State of AJ&K. With the regular situational analysis based on the data from AJ&K COVID-19 Control Room as well as NCOC Islamabad, the lock down strategy was revised as per the need assessments for reverting back to normal<sup>20</sup>.

## RECOMMENDATIONS

1. On the basis of the data analysis and experience of the authors, the study has the following recommendations:
  - i. Sustaining the same level of engagement of all decision makers.
  - ii. Surge of testing capacity with time to time targeted testing of people.
  - iii. Strengthening of district based Rapid Response Units (RRUs) for enhanced and accurate contact tracking and tracing.
  - iv. Deployment of Integrated Disease Surveillance Response Unit with proper HR and

TORs for early case detection.

2. Repeated time to time refresher trainings to all health care workers for;
  - i. Infection Prevention Control.
  - ii. Clinical Management as per latest guidelines.
3. Risk Communication and Community Engagement (RCCE) Management Plan including;
  - i. Dissemination of basic practices for infection control.
  - ii. For organizations and employees.
  - iii. RCCE package for Health Care Facilities.
  - iv. Limiting stigma.
  - v. Preparation enhancement with applied surge capacity for expected second wave.
4. Research and development engagement in AJ&K for;
  - i. Vaccine Trials.
  - ii. Clinical Management Trials for effective cases management.

## CONCLUSION

On the basis of the stats presented in the previous sections, we concluded that most exposed and affected age group falls between 25-50 years, the working population age group with most affected gender being Male. Most reported Case type were Contact case with most reported Contact Channel being a household contact such as sons and daughters and extended families from cousins effecting the nucleus of the family being females and consequently, workplace colleagues. Most virus transmitted due to AJK residents travel within AJK because of non-social distancing behavior. Here it is again pertinent to mention that the spread in community was due to Household Contact (non-social behavior) and females were the prospective receptors in such settings. The easing of the lockdown policy resulted in widespread outbreak in the State due to pressure from the business community and non-compliance with infection control best practices by members of the community.

## CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

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