

Epidemiologic character of COVID-19 in Kazakhstan: A preliminary report

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ABSTRACT

OBJECTIVE: Coronavirus Disease 2019 (COVID-19), named the etiological agent of Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) has recently emerged in Wuhan City, Hubei Province, China, in December 2019. Kazakhstan's border proximity to China has led to preventive measures in the country since January. This study aims to evaluate the epidemiological characters of the first recorded cases in Kazakhstan.

METHODS: Here, we reviewed the preparedness of the infection control and prevention procedures in Kazakhstan and evaluated the epidemiological characters of confirmed cases in Kazakhstan. The data for COVID-19 cases recorded from March 13 to April 6, 2020, were obtained from the Sanitary Epidemiological Service. Age, gender and their living place were recorded. The severity of infection, geographical distribution, gender and age group of cases were analyzed.

RESULTS: Four phases of preventive measures used in respiratory infections have been implemented in Kazakhstan since January 6, 2020. The first case was recorded on March 13. During the period of March 13 and April 06, 629 cases with COVID-19 were recorded in Kazakhstan. Of these, 45 patients recovered, six had resulted in death; 535 (85%) of cases were mild and/or asymptomatic, 72 (11.5%) - moderate, 22 (3.5%) - severe. Of these, 7.5% of the cases were registered as children and course was mild.

CONCLUSION: The cases are increasing in Kazakhstan as seen in other countries. Currently, the strict implication of respiratory infection control measurement in public and health care services are still very important.

Keywords: COVID-19; epidemiology; Kazakhstan.

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Coronavirus disease 2019 (COVID-19) is an emerging and new described disease. The first outbreak has been observed in Wuhan City, Hubei Province, China, in December 2019. After then, the disease spread all of China and other countries in a short time. It is assumed that the disease was originated from the wild see animal food market in Wuhan city. The etiological agent was isolated as a new coronavirus, named as severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) [1]. The outbreak spread rapidly from

a single city in China to the entire country within 30 days. Since then, the disease has escalated rapidly and also spread to other countries. The World Health Organization (WHO) has declared a public health emergency in worldwide on 30 January 2020. Following this, a formal declaration was made as the disease in a pandemic level on 11 March 2020 [2]. The disease has also been confirmed as COVID-19 (a shortened version of coronavirus disease 2019) and the etiological agent was named as SARS-CoV-2 [3].

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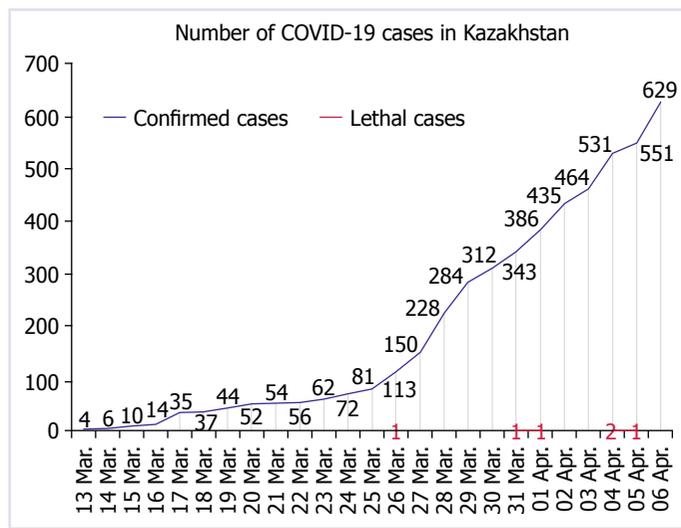


FIGURE 1. The total number of COVID-19 cases in Kazakhstan between 13 March and 6 April.

The present study aims to revive the infection control studies for COVID-19 and to evaluate the epidemiological characters of confirmed first reported cases in Kazakhstan.

MATERIALS AND METHODS

This study was carried out retrospectively in Kazakhstan. Kazakhstan is located in Central Asia, and it shares its border with Kyrgyzstan, China, Russia, Uzbekistan, and Turkmenistan. The population of Kazakhstan is approximately 18 million. The authors reviewed the preparedness of the infection control and prevention procedures, implications which are used for COVID-19 in Kazakhstan by the initiation of the outbreak in China.

The data for COVID-19 cases recorded from March 13 to April 6, 2020 were also obtained from the Sanitary Epidemiological Service. Age, gender and their living place were recorded. The severity of infection, geographical distribution, gender and age group of cases were analyzed.

The diagnosis of suspected cases with COVID-19 is confirmed using PCR (polymerase chain reaction). The test is carried out in a reference to the laboratory for especially dangerous pathogens (Almaty, Nur Sultan).

The Ethics Committee approval was not applicable in this study because the study was a retrospective data analysis, did not include clinical data.

Descriptive statistical analysis was used for this study. Case record according to age group and gender was depicted in the table, and percentage was assessed.

RESULTS

Kazakhstan's border proximity to China has led to preventive measures in the country since January. Four phases of these measures have been implemented in the country since January 6, 2020. The first phase included the strengthening of sanitary and epidemiological control at the border, training, medical monitoring of people who arrived from China, sanitary instructive work among the population. The second phase began on January 31. It included the strengthening of sanitary and epidemiological control, the establishment of laboratory diagnosis of COVID-19, approval of clinical protocol and anti-epidemic measures algorithm. The third phase began on February 20. Methodology for ranking of countries into categories was developed and introduced. The rank of countries depended on the spread of coronavirus infection (number of cases of COVID-19, the incidence rate, infection growth rate, and others). From March 1, 2020, the fourth phase of preventive measures was introduced. Monitoring of arriving people was used. It depended on the country of arrival and varied according to the epidemic situation.

The first cases of coronavirus infection in the country were detected on March 13 in Alma-Ata and Nur Sultan (Fig. 1). These were imported cases from Germany and Italy. On March 16, a state of emergency was introduced in Kazakhstan. All schools were closed and student education was transferred online. From March 19, quarantine was introduced in Nur Sultan and Almaty. From March 20, confirmed cases of COVID-2019 began to be registered in other regions of the country (Fig. 2). On March 26, the first two patients were discharged in Nur-Sultan and Alma-Ata, on the same day, the first death from a coronavirus in Nur-Sultan (64-year-old woman) was confirmed. Since March 30, quarantine has been introduced in other cities of the country. Express testing has been carried out from 06.04.20.

On April 06.2020, 629 confirmed cases with COVID-19 were recorded in Kazakhstan. Of these, 45 patients recovered, six were resulted in death. As clinical severity, 535 (85%) cases were mild and/or asymptomatic, 72 (11.5%) were moderate, 22 (3.5%) were severe. Of the total cases, 47 (7.5%) patients were children and the clinical course was mild. One hundred twenty (19.9%) healthcare workers were infected with SARS-CoV-2, 67 (55.8%) of them involved assistance to people with suspected and confirmed cases.

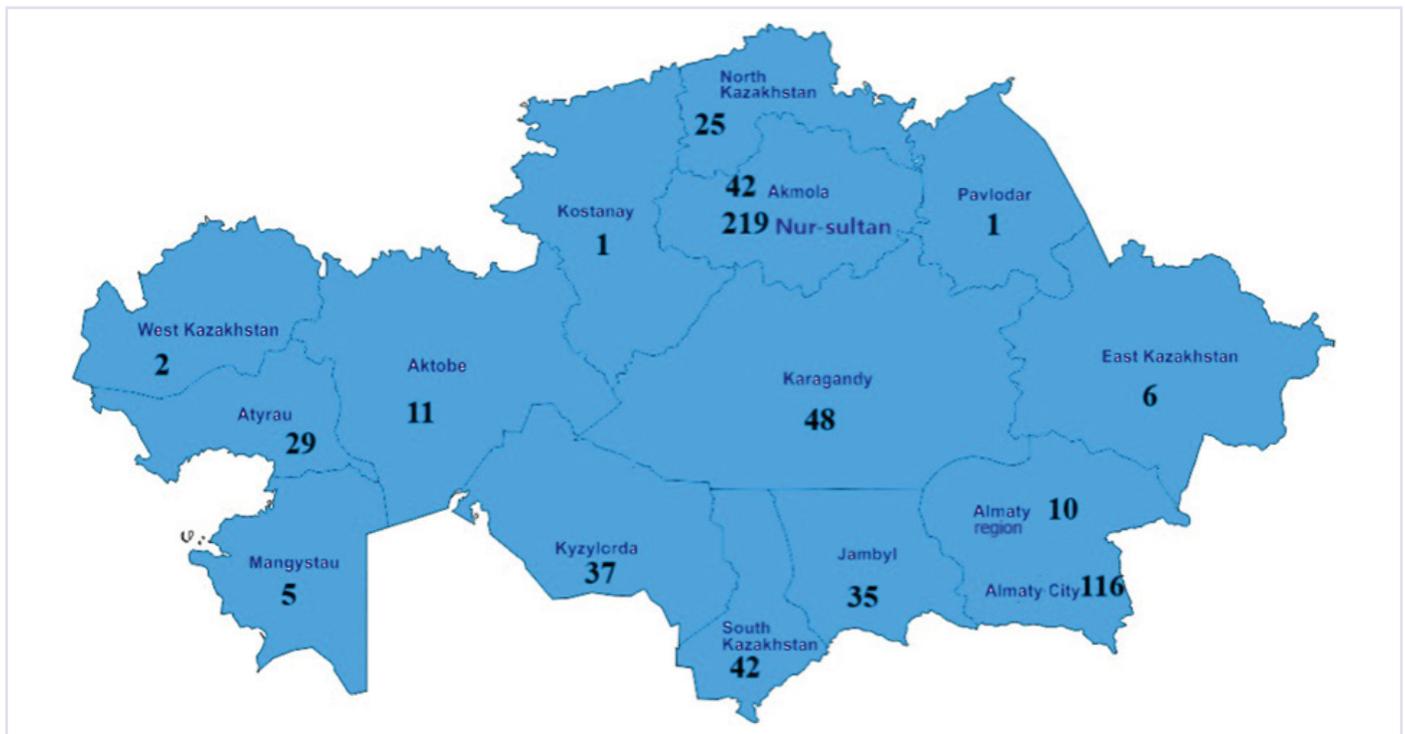


FIGURE 2. Geographical distribution of the 629 cases with COVID-19 in Kazakhstan by the date of 06.04.2020.

DISCUSSION

Currently, the world is living a pandemic with a total case of 1347892 and 74808 deaths worldwide. Although there is no specific therapy for COVID-19, a limited number of drugs are suggested to suspected or confirmed cases, including chloroquine, hydroxychloroquine with azithromycin, lopinavir and ritonavir, oseltamivir, remdesivir, favipiravir. For the prevention and control of the infection in public, it seems that well application of infection control measurements, including hand hygiene, general contact measurements, respiratory protection measurements are very important [4]. At the beginning of the outbreak, quarantine and isolation procedures have been used very strictly in the entire world. Many countries evacuated their people living in risky areas or outbreak seen cities in China by airplane. Exposed people have been isolated in restricted areas in their countries for 14 days. Some countries closed their borders. Many cruise ships carrying suspected infected tourists were quarantined in the harbor for 14 days as an example implicated in Italy, the USA and Japan. During the outbreak period, international travel was banned and international flights were suspended or stopped. This kind of measurement was used very dynamical [5]. Another issue was to delay or reduce the infection transmission.

Thus, many countries implemented as mandator keep social distance as 1–1.5 meter and ordered stay at home. Many public infection control measurements have become applicated widespread in society, such as compliance to hand hygiene, mask using in public places, such as in market or metro, school and university closures and crowded working places closures, travel restrictions, encourage remote working system, city lockdowns in some countries. It is believed that a strict application of social distance, stay at home, travel ban, quarantine if required, isolation, surgical mask use in public places and compliance to hand hygiene may reduce the transmission and delay the infection spread. The timing and duration of these measures appear to be critical [6–8].

As seen in this study, the first 173 COVID-19 cases were analyzed. By gender, women prevailed (64.2%). According to the age, 50.3% were patients between 20 to 40-year-old 34.1% - from 40 to 60, 10.4% - from 60 to 80, 5.2% - 0–20 year -old (Table 1). The data showed that 86% of patients showed a mild course of the disease, moderate severity - 11.2%, severe course - 2.8% (250 cases). According to dates of the Chinese Center for Disease Control and Prevention, the majority of confirmed cases (87%) were aged between 30 to 79 years, 1% was aged nine years or younger, 1% was aged 10 to 19 years, and

TABLE 1. Distribution of the 173 cases with COVID-19 in Kazakhstan according to gender and age

Age (yr)	Female	Male	Total		Death (629 cases)	
			n	%	n	%
0–5	3		3	1.7		
10–15	2	1	3	1.7		
15–20	1	2	3	1.7		
20–25	17	8	25	14.5		
25–30	13	8	21	12.1		
30–35	16	11	27	15.6		
35–40	10	4	14	8.1		
40–45	14	8	22	12.7		
45–50	8	7	15	8.7		
50–55	11		11	6.4	1	0.16
55–60	5	6	11	6.4	1	0.16
60–65	6	3	9	5.2	3	0.47
65–70	4	3	7	4.0		
70–75	1		1	0.6	1	0.16
75–80		1	1	0.6		
Total	111	62	173	100	6	0.95

3% were aged 80 years or older. The rate of male to female was nearly equal. As recorded in the recent literature, nearly 4% of the cases are seen in healthcare workers [2]. In this study, 19.9% of the cases were health care workers (HCWs). This finding shows that strict application of respiratory prevention measurements is very important for the prevention of infection transmission from patients to HCWs. In the US, it is reported that patients over 65-year-old accounted for 31% of all the cases, 45% of hospitalizations, 53% of intensive care unit admissions, and 80% of deaths. The highest incidence of severe outcomes in patients was recorded over the age of 85 [9]. Infections may also be seen in childhood age groups but less common than the adult age groups. All recorded pediatric cases have been infected within the family or have a history of close contact with an infected patient [10, 11]. In a case series of 2143 pediatric patients in China, the median age of children was seven years, and 56.6% of cases were in boys although this gender difference was not considered significant [12]. In this report, 47 (7.5%) patients were childhood group and clinical course was mild.

In conclusion, the cases are increasing in Kazakhstan as seen other countries. Currently, strict implication of respiratory infection control measurement in public and health care services are still very important.

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