

PANDEMIC OF NEW CORONAVIRUS INFECTION SARS-COV-2 IN AFGHANISTAN DURING FEBRUARY-AUGUST 2020

¹Said R.R., ²Molokanova Y.P., ²Saprykin V.P.

¹*Shaikh Zayed University, Khost, e-mail: Rahmatullahabid100@gmail.com;*

²*Moscow State Regional University, Moscow, e-mail: yup.molokanova@mgou.ru, v_p_s@mail.ru*

Sources of official information on pandemic of new coronavirus infection SARS-CoV-2 in Afghanistan during the period of February-August 2020 have been analyzed. Dynamic of incidence rate, death rate, and rate of recovery from this disease among population has been studied. The cause of SARS-CoV-2 pandemic in Afghanistan is considered to be mass return of labour immigrants from Iran where this pathology was registered in the first half of February. The peak of disease rate among population of Afghanistan with new coronavirus infection, as well as rate of recovery, was registered in June 2020. The highest death rate was observed in June-July 2020. In July rate of disease with COVID-19 among population decreased sharply. In August a trend towards exiting the unfavourable epidemic situation emerged. Social-economic consequences of COVID-19 epidemic in Afghanistan have been analyzed. During the studied period income level as well as life quality among population decreased dramatically. More than 55% of population crossed the poverty line. The article studied measures, taken by the government of the country in order to prevent widespread of the disease and provide assistance to victims of it. Introduction of quarantine, self-isolation measures, limitation of external and internal mobility of population, requirements towards means of individual protection of breath organs and hands, preservation of social distance in certain degree limited mass incidence of population with COVID-19. Gradual removal of anti-epidemic restrictions was determined by a decrease in disease rate among population during the period of July-August 2020.

Keywords: COVID-19, SAR-Cov-2, disease rate, new coronavirus infection, death rate, rate of recovery, epidemy, pandemic

New pandemic of COVID-19, a potentially lethal virus diseases with intense contamination, emerged in China and spread rapidly over 213 countries [1]. Inadequate evaluation of risks, related to the emergency situation and globalization of the problem, defined by an increased adaptation of the virus to all environments, has lead to a significant damage, including high death rate among population of different countries. First cases of COVID-19 were officially registered in November 2019 in Hubei province. Totally nine cases of infection with this new coronavirus infection were registered in China in November [2].

Nevertheless, Worldwide organization of healthcare was informed of the first case of infection of human with new coronavirus infection only on December 31 2019. Breakout of atypical pneumonia, caused by virus SARS-CoV-2, began in Chinese city of Uhan, probably due to transition of virus from an animal (bat) to human [3; 4]. The virus spread rapidly through air and, as was revealed later, contact. High contingency of the pathogen, lack of immunity against it among the population lead to a rapid infection of a critical number of people and transition from sporadic incidence to pandemic. Heavy flow of disease, lack of medication not only against the given pathogen, but also against symptomatic treatment of patients, became the cause of high death rate from new coronavirus infection SARS-CoV-2.

As per March 7 2020, more than three quarters of COVID-19 cases took place in China. By March 14 2020 the situation changed dramatically, and positive cases equaled between Chi-

na and outside of it [5]. After March 14 2020, number of breakouts of COVID-19 became the fastest-growing trend in the world. Since April 5 2020 the number of infection cases in the rest of the world has been approximately 14 times bigger than in China [5].

Afghanistan was also among countries that suffered from pandemic of new coronavirus infection SARS-CoV-2.

Objective of research

Systematization and analysis of official sources of information during the period of February – August 2020 will enable us to track the dynamics of COVID-19 pandemic in Afghanistan, evaluate and formulate forecasts.

Materials and methods of research

The studied sources of official information that reflect dynamic of disease rate, death rate, and rate of recovery among the population. Systematized information on anti-epidemic measures, introduced in the country, and results of their implementation, obtained from official sources.

Research results and discussion

The first case of COVID-19 infection in Afghanistan was officially announced in February 24 2020 (fig. 1). The infected person returned to Herat from Iran, where breakthrough of COVID-19 was announced on February 19. By this date number of the infected exceeded 77000 people in China, 2592 patients died, and more than 24000 recovered. Outside of China, according to WHO, number of the infected reached 1769, 17 people died [6].

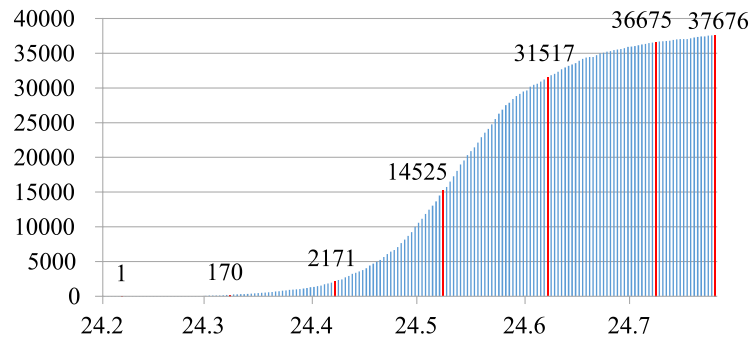


Fig. 1. Absolute rate of disease among population of Afghanistan with new coronavirus infection COVID-19 in February-August 2020

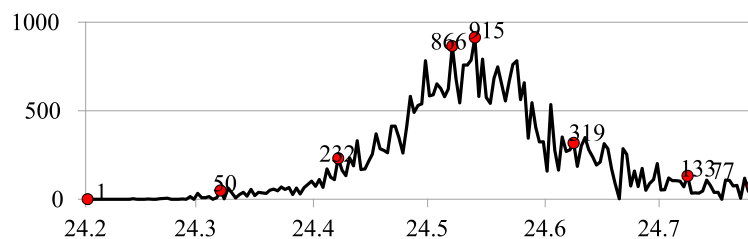


Fig. 2. Dynamics of daily disease rate among population of Afghanistan with new coronavirus infection COVID-19 in February-August 2020

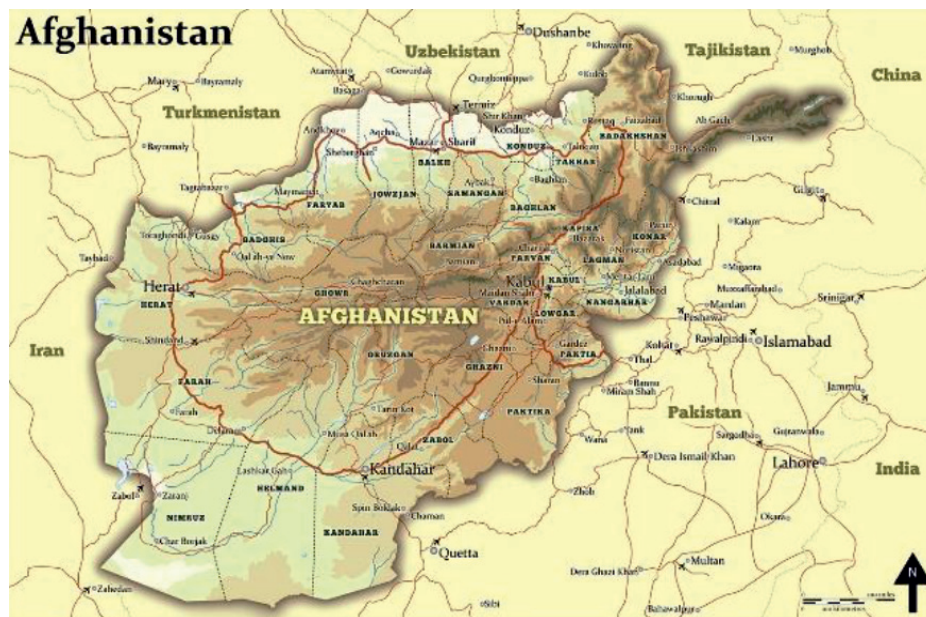


Fig. 3. Map of Afghanistan [9]

By March 7 Ministry of healthcare of Afghanistan announced three new cases of infection with new coronavirus infection in the same province of Herat (fig. 2). By this date, according to official data of WHO, 80600 people were infected at the territory of continental China, 3070 died, and more that 55400 people recovered. Outside of People's republic of China 335 people died [7].

Political, economic, and geographic features of Afghanistan define specific nature of spread of new coronavirus epidemic in this country. Particularly, the city where the first patient with COVID-19 was registered – Herat, is the centre of a border province where four large transport arteries cross, they connect provinces of Afghanistan and lead to Iran and Turkmenistan (fig. 3) [8].

All of the infected in province of Herat were isolated for treatment, and minister of healthcare of Afghanistan announced state of emergency in the province itself [6]. According to resolution of the government of Afghanistan a programme, designed to prevent widespread of SARS-CoV-2, was implemented at checkpoints in airports and border crossings, especially in Western provinces of the country – Herat, Nimruz, and Farah that border Iran (the source of coronavirus infection in Afghanistan) [10]. By February 26 2020 a plant, producing medical masks started operating in the province of Herat [11]. Regardless of the taken measures, the disease spread across the country.

As soon as March 10 2020 the first case of SARS-CoV-2 infection was registered outside of Herat province, in the province of Samangan. Moreover, as well as other infected, this citizen of Afghanistan returned from Iran [12].

Growth in disease rate of new coronavirus infection all over the world caused mass return of labour immigrants to their home countries. During one month, from early March to early

April, no less than 150000 Afghans returned from Iran. At least 1000 people crossed the border in Herat province daily. As a result, by the beginning of April rate of disease among population of Herat province increased up to more than 200 cases [13].

In February COVID-19 was officially registered only among one patient (fig. 1, 2). However, in March overall disease rate of new coronavirus infection in Afghanistan equaled 170 people (fig. 1). Daily rate of incidence with COVID-19 varied from 0 to 50 during March (fig. 2). In March first cases of death, caused by new coronavirus infections were registered (fig. 4). Death rate of COVID-19 from March 24 to 31 equaled 4 case. In April this index reached 64 cases. Everyday lethal outcomes varied from 0 to 7 patients in April (fig. 5).

The first cases of recovery, as well as the first lethal outcomes, were registered in March. Absolute number of patients, that recovered from COVID-19 in March equaled 5 people (fig. 6). Daily cases of recovery varied from 0 to 3 patients over the period from March 16 to 31 (fig. 7).

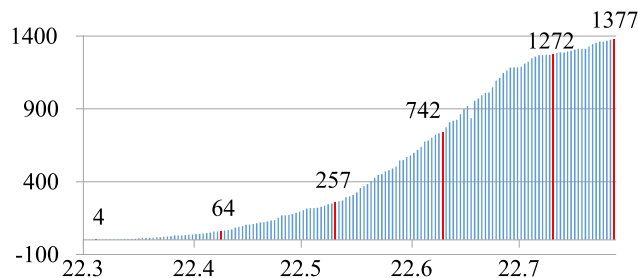


Fig. 4. Absolute rate of death among population of Afghanistan from new coronavirus infection in March-August 2020

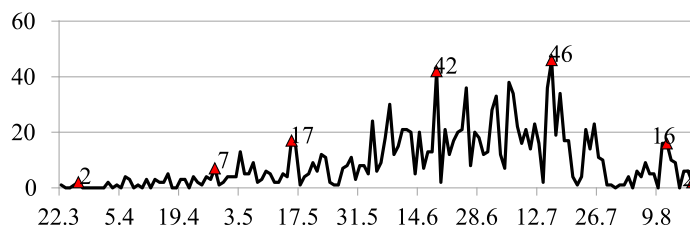


Fig. 5. Dynamics of daily lethal cases of new coronavirus infection in Afghanistan in March-August 2020

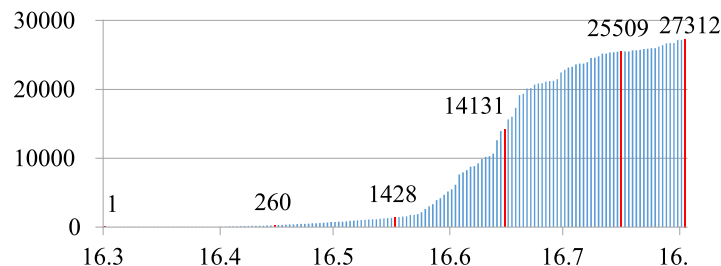


Fig. 6. Absolute number of patients, that recovered from new coronavirus infection in Afghanistan in March-August 2020

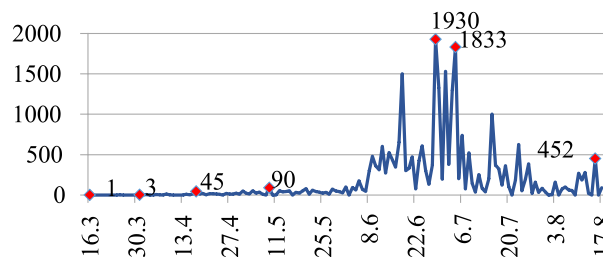


Fig. 7. Dynamic of daily cases of recovery from new coronavirus infection in Afghanistan in March-August 2020

According to official sources, by April 6 2020 absolute number of people with new coronavirus infection in Afghanistan reached 423 cases, 11 people died from it, 18 recovered [14]. The highest number of cases of coronavirus infection by April 6 was registered in provinces Heart – 259, Kabul – 71, and Kandahar – 21 cases [15]. These cities are the biggest populated areas of the country [16]. Besides, international airports operate in the capital of Afghanistan – Kabul and in the city of Kandahar. One of the main internal airports of the country is located in Heart – the biggest trade hub of the country (fig. 3) [17]. Regardless of the strict requirements of the country government towards limiting mobility and contacts among the population, these requirements have been violated systematically, and it caused growth in disease rate not only in large cities, but also in less populated areas. A large part of the country's population crossed the line of poverty due to loss of job and impossibility to travel for work to other countries or even within Afghanistan [18]. It explains systematic violations of self-isolation regime and neglect of means of individual protection of breath organs on behalf of the country's population.

In April – on 19.04.2020 – total number of cases of infection with new coronavirus infection in Afghanistan exceeded 1000 people (1031 case, according to the official data). A problem of insufficient supply of protection means among medical workers was announced, and, therefore, growth in disease rate among medics was registered. By April 19 110 medical workers were infected with SARS-CoV-2, of them four died to this pathogen [19].

By the end of April number of confirmed cases of infection with new coronavirus infection exceeded 2000, formed of 2171 positive tests (fig. 1). Total number of recovered patients by the equaled 260 people end of April (fig. 6), number of victims to SARS-CoV-2 reached 64 (fig. 4). In Afghan-Japanese hospital of Kabul a protocol of undertaking testing for COVID-19 was finally estab-

lished [20]. Daily rate of disease with new coronavirus infection among the population varied from 8 to 232 cases in April (fig. 2). Daily lethal cases were within range from 0 to 7 during the same period (fig. 5). Daily cases of recovery from COVID-19 varied from 0 to 45 in April 2020 (fig. 7).

In May 2020 rate of infection with new coronavirus infection among population of Afghanistan continued to grow. During the period 19.04 to 01.05 incidence rate among medical workers grew from 110 to 249 cases. Regime of self-isolation was prolonged. By May 7 ministry of education started an educational website for remote education of pupils [21]. By this date total number of people, infected with SARS-CoV-2 in Afghanistan reached 3563 cases, number of recovered patients equaled 467, and lethal cases counted 106 [22]. In May realization of programme, designed to release Taliban members from detention spaces, continued. It was undertaken within complex of measures, directed towards preparing for peace negotiations, as well restraining pandemic of coronavirus. As a result, by May 8 2020 933 followers of "Taliban" movement were released [23]. This measure hardly improved internal political and economic situation in the country. Insufficient provision of population with food and medicine, including humanitarian supplies, lead to disturbance in some provinces of the country. An urge to manage social tension on behalf of the authorities lead to a decision to soften self-isolation measures in certain cities. Thus, regardless of high indexes of disease rate in the city of Mazari Sharif (capital of the province of Balkh), commission of fighting coronavirus in Balkh province made a decision to gradually remove measures of self-isolation starting from 10.05.2020.

At the same time, during the previous day 43 new cases of infection were registered in Balkh, and 300 confirmed cases of infection with COVID-19 totally [24]. Totally by May 11 number of confirmed cases of infection in Afghanistan reached 4963 cases, of

them 610 patients recovered from the infection, 127 people died to this pathogen [25]. Relaxation of self-isolation measures in Kabul was announced on May 22 2020. By this date total number of infection cases in the country reached 9216 people. Besides, the greatest number new cases of infection were registered daily, in comparison to other cities of the country. Violations of self-isolation measures and neglect of means of protecting breath organs and skin, mass immigration into the Capital for celebration of religious holiday Eid al-Adha, as well as not preserving the recommended social distance contributed to a steep growth in disease rate. Nevertheless, in order to avoid mass disturbance due to unemployment, sharp decrease in income and life quality among the population, the government decided to relax quarantine measures in the capital [26].

By the end of May Ministry of healthcare announced crisis situation with medication provision [27], after which change of minister of healthcare happened [28]. By May 31 2020 total number of new coronavirus infection cases in Afghanistan reached 15205 people (fig. 1), of which 1428 recovered (fig. 6), 257 died to this pathogen (fig. 4) [29]. Daily cases of infection with COVID-19 among population of Afghanistan varied from 134 to 866 people (fig. 2). On average this index equaled $420,258 \pm 38,022$ patients per day (table). It is on average by 352 cases more than in April. Such spike in disease rate testifies for a significant widespread of disease among population of Afghanistan. Daily lethal outcomes varied from 1 to 17 in May (fig. 5). Daily cases of recovery in may were between 0 and 90 (fig. 7).

Consequences of inopportune relaxation of quarantine did not take long. As soon as in early June International Recovery Committee announced that Afghanistan had faced a humanitarian catastrophe, as number of infection cases grew by 684% in May [30]. New cases of infection grew up to 787 per day, and total number of the infected reached 18054. This number includes 570 medical workers, infected with SARS-CoV-2 only in province of Herat [31]. This fact, as well as lack of medication, means of protection, increase in workload, and delays in salary payments lead to a mass leave of medical personnel from hospital "Covid-1" in Herat [32]. Infection of 70 mass media workers was reported in the same period [33]. Among 270 people who died during the whole period of COVID-19 pandemic were high-ranking authorities who, as reported by official sources, neglected recommendations on preventing infection [34].

As a result, in the beginning of June the government made a decision to reform health-care sector [28] and also close trading routes with neighboring countries [35]. Nevertheless, limiting trans-border mobility and trading relations with other countries was partially removed in the third decade of June due to a critical situation in the country's economy [4]. By the end of June international flights were re-established after being paused in March [36], road border crossings between Afghanistan and Pakistan were opened, as well as trading routes to India [37]. Absolute number of people, infected with new coronavirus infection in Afghanistan reached 31517 by June 30 (fig. 1). Daily disease rate in this month varied from 159 to 915 cases (fig. 2, table). In June peak of new coronavirus infection disease rate among the population was registered. Average rate of incidence equaled $543,733 \pm 38,022$ per day (table). Index of overall death rate from COVID-19 reached 742 by the end of June (fig. 4). Daily lethal outcomes varied from 2 to 42 in June (fig. 5). Total number of patients that recovered from new coronavirus infection reached 14131 by June 30. From 0 to 1936 patients recovered daily (fig. 7). The greatest number of recovered patients was registered in June. On average this index equaled $426,767 \pm 80,220$ people per day, that is by 392 patients more than in May (table).

Gradual relaxation of limitations, related to pandemic of SARS-CoV-2, continued in July. First of all, it referred to international trade relations and export to neighboring states [37;38]. Relaxation of quarantine measures became possible at the foundation of data, stipulating a significant drop in cases of infection among population of Afghanistan and neighboring countries with new coronavirus infection. In July daily number of COVID-19 infection cases varied from 4 to 348 (fig. 5). Daily death rate in July was within range from 0 to 46 cases (fig. 5). The biggest total number of deaths, caused by new coronavirus infection among population of Afghanistan during the whole period of pandemic observation was registered in July (table). Daily cases of recovery from new coronavirus infection varied from 0 to 1833 in July (fig. 7). On average this index equaled $367,032 \pm 82,837$ patients per day, which reflects an overall positive dynamics of overcoming crisis situation, at the background of a sharp decrease in incidence rate ($166,387 \pm 17,232$ infection cases per day on average) (table). Total number of cases of infection with COVID-19 among population of Afghanistan reached 36675 by July 31 (fig. 1). Of them, by July 31 25509 patients

recovered (fig. 6), 1272 people died to this pathogen (fig. 4).

Total number of the infected in Afghanistan reached 36710 people by August 2, number of patients that recovered – 25509, 1284 people died to this pathogen [39]. Nevertheless, infection of citizens with COVID-19 continues in August. Relaxation of quarantine measures served as a false signal of an end to pandemic. Thus, for example, 32000 delegates of Loya jirga, the great council, ignored recommendations on preventing infection with new coronavirus infection (protective masks, gloves, social distance), and it caused a wave of resentment on behalf of the state healthcare authorities [40]. A steep increase was registered in number of applications for medical assistance with symptoms of COVID-19 after celebration of Eid al-Adha, and majority of hospital attendants were young people of working age [41]. By August 17 2020 total number of infection cases reached 37676, number of patients that recovered was 27312, 1377 people died to this pathogen [42]. During the studied period of August daily disease rate with new coronavirus infection varied from 0 to 119 (fig. 2). On average $61 \pm 8,775$ people were infected daily (table). This index is lower than average rate of disease in April, so a positive trend towards overcoming epidemic of COVID-19 in Afghanistan can be stated. Number of daily lethal outcomes, caused by the pathogen varied from 0 to 16 (fig. 5), on average it equaled $5,824 \pm 1,179$ people per day (table). Average index of daily deaths during the period from August 1 to 17 2020 was lower than in April, but higher than in May. However, at the background of a significant decrease in disease rate among population in August, we can outline a positive trend towards the end of epidemic. Number of patients, who recovered from new coronavirus infection was within range from 0 to 452 during the period from August 1 to

17 2020 (fig. 7), $102 \pm 31,235$ per day on average (table), this index exceeds April values significantly, to which situation in August 2020 came close (fig. 8).

Nevertheless, disappointing results and troubling forecasts were announced in report of acting minister of healthcare of Afghanistan on August 5 2020. According to it, 10 million Afghans were infected with new coronavirus infection during the whole period of pandemic. It forms about 31,5% of the country population. Of these cases 37% live in cities. The part of infected women equaled 32%, men – 29%, and the major part – 39% – is formed by children!

Regardless of the limited possibilities to undertake testing for infection with SARS-CoV-19 among population, almost 43% of samples result positively. Besides, according to official report “US Watchdog”, released on August 1, we can conclude: “pandemic of coronavirus pushes millions of Afghans into poverty, suppressing basic system of healthcare in the country and causing lack of provision, while there is not enough medical equipment to treat all patients with diagnosis of virus disease in the country”. According to this source, Afghanistan is on its way to humanitarian catastrophe, as the virus continues to spread, the country has entered recession, and economy can shrink by 3-10% in 2020. About one third of 32,2 million of the country’s population is either in crisis or in emergency condition due to lack of provision and means to exist. As experts state, 8 million more citizens can find themselves beyond the line of poverty, which will take level of poverty in the country from 55 to 80% [43]. A concern arises regarding the fragile achievements in educational sector in Afghanistan. Afghan government has reasonably prolonged shutdown of schools until, at least, September 2020 [43], however it announced opening the country’s universities from August 15 2020 [41].

Aggregates of daily data on COVID-19 in Afghanistan (March-August 2020)

Month	Days accounted	Daily disease rate*, people/day		Daily death rate, people/day		Daily recovery rate, people/day	
		limits	average index	limits	average index	limits	average index
March	31*	0-51	$0,129 \pm 2,208$	0-2	total 4 deaths from 22.03 to 31.03	0-3	total 5 from 16.03 to 31.03
April	30	8-232	$66,633 \pm 8,645$	0-7	$2 \pm 9,633$	0-45	$8,5 \pm 1,778$
May	31	134-866	$420,258 \pm 36,039$	1-17	$6,129 \pm 0,763$	0-90	$34,452 \pm ,245$
June	30	159- 915	$543,733 \pm 38,022$	2-42	$16,3 \pm 1,653$	0-1930	$426,767 \pm 80,22$
July	31	4-348	$166,387 \pm 17,232$	0-46	$16,967 \pm 2,281$	0-1833	$367,032 \pm 82,837$
August	17	0-119	$61 \pm 8,775$	0-16	$5,824 \pm 1,179$	0-452	$102 \pm 31,235$

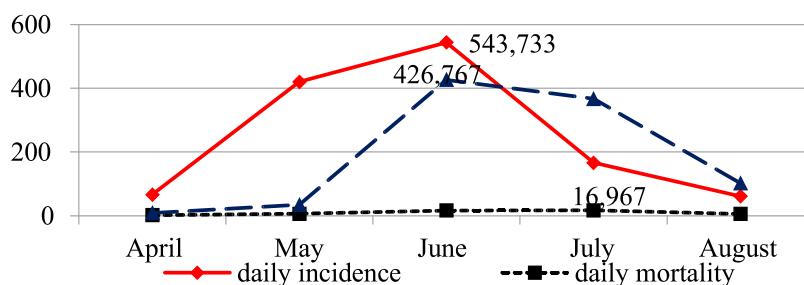


Fig. 8. Dynamic of average daily indexes on COVID-19 in Afghanistan during the period April – August 2020

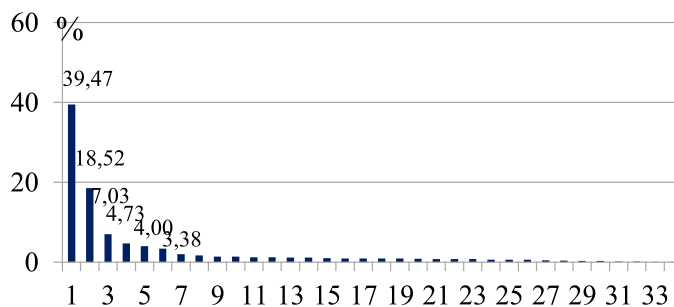


Fig. 9. Share of citizens, infected with COVID-19 in all provinces of Afghanistan during the analyzed period of 2020 (% of the whole amount) [44]: 1 – Kabul; 2 – Herat; 3 – Balkh; 4 – Nangarhar; 5 – Kandahar; 6 – Paktia; 7 – Tahar; 8 – Baglan; 9 – Samangan; 10 – Badghis; 11 – Ghazni; 12 – Laghman; 13 – Logar; 14 – Kunar; 15 – Farah; 16 – Nimruz; 17 – Parwan; 18 – Wardak; 19 – Jowzjan; 20 – Kunduz; 21 – Panjshir; 22 – Faryab; 23 – Khost; 24 – Sar-e Pol; 25 – Paktika; 26 – Bamyan; 27 – Ghor; 28 – Kapisa; 29 – Helmand; 30 – Badakhshan; 31 – Zabul; 32 – Daykundi; 33 – Nuristan; 34 – Oruzgan

During the whole studied period rate of disease was unstable throughout different provinces of Afghanistan [44]. The most severe epidemic situation formed in provinces Kabul, Herat, Balkh, Nangarhar, Kandahar, Paktia (fig. 9).

It can be explained by a significant number of citizens and high population density in provinces Kabul, Herat, Balkh, Nangarhar, Kandahar [16]. Crossing of land and air roads in such large cities as Kabul, Kandahar, Mazari-Sharif (Balkh province), where international airports operate; Herat, Jalalabad (Nangarhar province), in which internal air transportation works [17]. Circle automobile road of the country also plays an important role (fig. 3). Starting in Kabul, it stretches to the North through the tunnel at Salang passage to Khulm, then turns to the West to Mazari-Sharif (Balkh province), after it goes to Maymana and Heart, then it is directed to South-East to Kandahar, and after that turns to North-East to Kabul. The main roads of the country are connected via transport network of Pakistan through Khyber pass and Khojak tunnel. From Heart a highway leads to Iran [45]. Masses of labour immigrants flew through these provinces, they returned to Afghanistan from other countries. Low transportation accessibility to other provinces of the country, and also

specific nature of area relief, as well as timely measures, taken by the government to limit mobility inside the country provided for a relatively low rate of disease among population of other provinces of Afghanistan with new coronavirus infection.

Different steps, aimed to control widespread of COVID-19 were taken in the world. Even with its limited resources, Afghanistan took strict measures, such as creation of specialized hospitals, testing laboratories, quarantine institutions, informational campaign on fighting widespread of coronavirus.

Government of Afghanistan takes all possible measures, aimed to establish protection of population against COVID-19. From the first day, when the first case of disease with new coronavirus infection was confirmed in Herat province, all emergency measures have been used to establish life safety in the region. Along with measures of fighting the infection, government of Afghanistan developed a strategy of mitigating consequences of COVID-19. For example, early diagnostics of the disease, contact tracking, revelation of contact with infection risk, social distance, quarantine, and isolation were implemented to prevent widespread of COVID-19 [44].

Many hospitals worked by scenario of emergency epidemic situation in order to save lives of the infected and fight the deadly outbreak of COVID-19 in the country. Specific provincial and regional hospitals were certified to accept and attend to contact and infected patients. Such hospitals were quipped with quality isolation chambers. Each institute and hospital estimate demand for expendable materials and their accessibility (equipment, means of individual protection, laboratory diagnostics), including determination of supply sources and accessibility, as well as other equipment [44].

Isolation should be distinguished from quarantine, and it represents separation of patients or infected individuals from other citizens in order to prevent widespread of infection or contamination. Regretfully, facilitation of hospitals, designed to isolate citizens, infected with COVID-19, was widely violated in provinces [44].

Ministry of healthcare of Afghanistan took a line of measures on preventing widespread of COVID-19 among the population.

1. Information on anti-epidemic measures, implemented in Afghanistan:

- Total number of laboratories, taking tests for COVID-19, amounts 11. Of them five are located in Kabul (National laboratory of social healthcare, National veterinarian laboratory, Afghan-Japanese hospital, Military hospital, and FMIC), and Herat, Kandahar, Nangarhar, Balkh, Paktia, Kunduz have one laboratory each.

- A new hospital with capacity of 100 beds, designated for COVID-19 was opened in Herat.

- The first plant of producing medical masks began its operation in Kabul.

- Online-application, designed to accumulate information on indexes of COVID-19 epidemic in Afghanistan, has been developed.

- A new ICU (*Intensive care unit*) was created in Afghan-Japanese hospital in Kabul.

- Darulaman palace (300 beds) and campuses of Kabul and Polytechnic university were transformed into isolators in the city of Kabul [44].

2. Requirements towards entering and exiting the country:

- All foreign airlines of the international airport of Kabul (*Emirates, Fly Dubai, Turkish Airlines, Air India*) and *Kam Air* temporarily put on hold international flights during the outbreak of epidemic.

- Government of Afghanistan has reopened its border with Iran that was closed for a short period for all air and land transport,

only after a decrease in indexes of disease rate and rate of death among population due to COVID-19.

- Points of trans-border mobility were opened with maintenance of all measures of anti-epidemic safety only after a decrease in indexes of disease rate and rate of death among population due to COVID-19.

3. Information on quarantine:

People who arrived from other countries and have not symptoms of COVID-19, are recommended to maintain quarantine at home during 14 days. In case of suspicious symptoms they are advised to contact Ministry of social healthcare and apply for medical assistance.

It is recommended to maintain social distance of at least 1 meter in the streets and social places, avoid close contacts. Home isolation is recommended as the best line of behavior.

4. Testing and treatment:

- Provincial hospitals have established protocols for sorting and evaluating patients under diagnostic.

- Isolators for treatment of patients with COVID-19 have been established in Herat (80 beds) and Kabul (100 beds) [44].

- 5. Recommendations on measures, aimed to prevent widespread of coronavirus infection in Afghanistan

In order to improve the current and future situation in Afghanistan in order to fight COVID-19 it is recommended to:

1. Maintain quarantine status in major cities of Afghanistan.

2. Acquire additional medical equipment and instruments for preventing, diagnosing, and treating this disease.

3. Increase personnel of healthcare workers and improve their qualification.

4. Inform people via mass media, including television, radio, Internet, and printed media.

5. Сохранение статуса карантина в крупных городах Афганистана.

6. Create centers for diagnostics and treatment of infectious diseases across the country.

7. Implement social distancing and additional limitations on mobility of population.

8. Intensify revelation and isolation of patients.

9. Provide financial assistance to vulnerable and lower-income groups of population.

Regardless of the fact that Afghanistan face numerous difficulties in prevention, diagnostics, and treatment of new coronavirus infection, realization of these measures will allow the country to improve protection of its population from repeating outbreaks of COVID-19.

Conclusion

To conclude this work, we should state that the following information is available. The new viral disease – COVID-19 – passes quickly from an infected person to healthy by air, through direct contact or fluids. Virus of corona does not penetrate human organism through normal skin, but can be absorbed through mucous membranes of nose, mouth, and eyes [46].

Incidence rate is high among older population groups, but disease rate and rate of death decreases among younger social groups. Incidence rate and rate of lethal outcome is higher among men than women. Disease rate is also higher among freelancers, the unemployed, and pensioners. Number of citizens that died to this pathogen is higher among older groups of population than among young people [46].

During the analyzed period a growth in disease rate with COVID-19 and rate of death to this pathogen among population of Afghanistan from March to June. In July and August a decrease in indexes of incidence rate and rate of death from SARS-CoV-2 has been registered, as well as growth in number of patients that recover from this disease, which began in June.

The observed trend towards improvement of the situation gives us hope for exiting the long crisis epidemic situation. Nevertheless, it is early to make forecasts. Currently it is important to continue realization of measures, aimed to protect non-infected population and provide qualified assistance to the infected. Work on improving level of sanitary treatment and hygiene in provinces of the country should be continued, as well as improvement in quality of medical service and protection of medical workers [47]. Neglecting measures of anti-epidemic prevention can nullify the achieved positive results and become a cause of new wave of COVID-19.

References

1. Timeline of the 2020 coronavirus pandemic in Afghanistan [Digital source] // wikipedia.ru [web-site]. URL: https://en.wikipedia.org/wiki/Timeline_of_the_COVID-19_pandemic_in_Afghanistan (request date 29.05.2020).
2. Mass media learned of revelation of the first patient, infected with coronavirus in PRC in November [Digital source] // News of the day in Russia and the world – RBK [web-site]. URL: <https://www.rbc.ru/society/13/03/2020/5e6b077f9a79476b66d88321> (request date 11.08.2020).
3. The first case of coronavirus in China – how the disease developed [Digital source] // coronawiki.ru [web-site]. URL: <https://coronawiki.ru/o-zabolevanii/pervyj-sluchaj-koronavirusa-v-kitae/> (request date 10.08.2020).
4. COVID-19 Information [Digital source] // U.S. Embassy in Afghanistan [web-site]. URL: <https://tolonews.com/health/570-doctors-health-workers-infected-covid-19-herat> (request date 17.08.2020).
5. COVID-19: What we know so far about the 2019 novel coronavirus Afghanistan [Digital source] // UChicago Medicine [web-site]. URL: <https://www.uchicagomedicine.org/forefront/prevention-and-screening-articles/wuhan-coronavirus> (request date 15.04.2020).
6. The first case of infection with coronavirus is revealed in Afghanistan [Digital source] // RIA-Novosti [web-site]. URL: <https://ria.ru/20200224/1565134783.html> (request date 01.08.2020).
7. Number of people, infected with COVID-19, grew up to four in Afghanistan [Digital source] // Trend (news agency) [web-site]. URL: <https://www.trend.az/world/other/3203564.html> (request date 02.08.2020).
8. Herat [Digital source] // wikipedia.ru [web-site]. URL: [https://ru.wikipedia.org/wiki/Гера́т_\(город\)](https://ru.wikipedia.org/wiki/Гера́т_(город)) (request date 02.07.2020).
9. Islamic republic Afghanistan [Digital source] // behance.net [web-site]. URL: [https://www.behance.net/gallery/36632419/BOOK-Conducting-Counter-Insurgency-\(10-maps\)](https://www.behance.net/gallery/36632419/BOOK-Conducting-Counter-Insurgency-(10-maps)) (request date 02.07.2020).
10. Afghanistan confirms 1st case of coronavirus [Digital source] // World, Health, Asia – Pacific [web-site]. URL: <https://www.aa.com.tr/en/asia-pacific/afghanistan-confirms-1st-case-of-coronavirus/1743012> (request date 10.08.2020).
11. Rapid Mask-Production Begins in Herat Factory [Digital source] // TOLO news [web-site]. URL: <https://tolonews.com/business/rapid-mask-production-begins-herat-factory> (request date 10.08.2020).
12. 5 Positive Coronavirus Cases Reported in Afghanistan [Digital source] // TOLO news [web-site]. URL: <https://tolonews.com/afghanistan/5-positive-coronavirus-cases-reported-afghanistan> (request date 10.08.2020).
13. Coronavirus: Herat emerges as Afghanistan's epicenter [Digital source] // Al Jazeera [web-site]. URL: <https://www.aljazeera.com/news/2020/03/coronavirus-herat-emerges-afghanistan-epicentre-200325032420910.html> (request date 10.08.2020).
14. In Afghanistan number of people, infected with coronavirus reached 423 [Digital source] // World, Health, Asia – Pacific [web-site]. URL: <https://www.aa.com.tr/ru/мир/число-больных-коронавирусом-в-афганистане-достигло-423/1795290> (request date 10.08.2020).
15. 56 New COVID-19 Cases in Afghanistan, Total 423 [Digital source] // TOLO news [web-site]. URL: <https://tolonews.com/health/56-new-covid-19-cases-afghanistan-total-423> (request date 10.08.2020).
16. Afghanistan [Digital source] // wikipedia.ru [web-site]. URL: <https://ru.wikipedia.org/wiki/Афганистан> (request date 02.07.2020).
17. List of airports of Afghanistan [Digital source] // wikipedia.ru [web-site]. URL: https://ru.wikipedia.org/wiki/Список_аэропортов_Афганистана (request date 02.07.2020).
18. Lockdown Hits Thousands of Vulnerable Families in Balkh [Digital source] // TOLO news [web-site]. URL: <https://tolonews.com/afghanistan/lockdown-hits-thousands-vulnerable-families-balkh> (request date 10.08.2020).
19. 35 New COVID-19 Confirmed Cases in Afghanistan, Total 1,031 [Digital source] // TOLO news [web-site]. URL: <https://tolonews.com/index.php/health/30%2%A0new-covid-19-confirmed-cases-afghanistan-total-1026> (request date 10.08.2020).
20. 232 New Coronavirus Cases Reported in Afghanistan, Total 2,171 [Digital source] // TOLO news [web-site]. URL: <https://tolonews.com/health/232-new-coronavirus-cases-reported-afghanistan-total-2171> (request date 10.08.2020).
21. Ministry of Education launches distance learning website [Digital source] // ariananews.af [web-site]. URL: <https://ariananews.af/ministry-of-education-launches-distance-learning-website/> (request date 10.08.2020).
22. Coronavirus cases in Afghanistan hike to 3,563 [Digital source] // ariananews.af [web-site]. URL: <https://ariananews.af>

- af/coronavirus-cases-in-afghanistan-hike-to-3563/ (request date 10.08.2020).
23. Total 933 Taliban prisoners released to date [Digital source] // ariananews.af [web-site]. URL: <https://ariananews.af/total-933-taliban-prisoners-released-to-date/> (request date 10.08.2020).
24. Balkh conditionally lifts movement restrictions amid COVID19 outbreak [Digital source] // ariananews.af [web-site]. URL: <https://ariananews.af/balkh-conditionally-lifts-movement-restrictions-amid-covid19-outbreak/> (request date 10.08.2020).
25. 4,963 Confirmed COVID-19 Cases in Afghanistan [Digital source] // TOLO news [web-site]. URL: <https://tolonews.com/health/4963-confirmed-covid-19-cases-afghanistan> (request date 10.08.2020).
26. Kabul Lockdown Eases Amid Warnings on Crisis [Digital source] // TOLO news [web-site]. URL: <https://tolonews.com/afghanistan/kabul-lockdown-eases-amid-warnings-crisis> (request date 10.08.2020).
27. 580 New Coronavirus Cases Reported in Afghanistan [Digital source] // TOLO news [web-site]. URL: <https://tolonews.com/health/580-new-coronavirus-cases-reported-afghanistan> (request date 10.08.2020).
28. New Acting Health Minister Introduced, Pledges Reforms [Digital source] // TOLO news [web-site]. URL: <https://tolonews.com/health/new-acting-health-minister-introduced-pledges-reforms> (request date 10.08.2020).
29. 545 New COVID-19 Cases Reported in Afghanistan [Digital source] // TOLO news [web-site]. URL: <https://tolonews.com/health/545-new-%C2%A0covid-19-cases-reported-afghanistan> (request date 10.08.2020).
30. Afghanistan Faces COVID-19 'Humanitarian Disaster': IRC [Digital source] // TOLO news [web-site]. URL: <https://tolonews.com/health/afghanistan-faces-covid-19-'humanitarian-disaster'-irc> (request date 10.08.2020).
31. 570 Doctors, Health Workers Infected with COVID-19 in Herat [Digital source] // TOLO news [web-site]. URL: <https://tolonews.com/health/570-doctors-health-workers-infected-covid-19-herat> (request date 10.08.2020).
32. 13 Doctors Resign from COVID-19 Hospital in Herat [Digital source] // TOLO news [web-site]. URL: <https://tolonews.com/health/13-doctors-resign-covid-19-hospital-herat> (request date 15.08.2020).
33. Afghan Media Struggle to Survive the Pandemic [Digital source] // Read The Diplomat, Know The Asia-Pacific [web-site]. URL: <https://thediplomat.com/2020/07/afghan-media-struggle-to-survive-the-pandemic/> (request date 15.08.2020).
34. Officials die of Coronavirus as cases reach 17267 – Afghanistan [Digital source] // ariananews.af [web-site]. URL: <https://ariananews.af/officials-die-of-coronavirus-as-cases-reach-17267-afghanistan/> (request date 15.08.2020).
35. COVID-19 impacts; Afghanistan's exports on hold [Digital source] // ariananews.af [web-site]. URL: <https://ariananews.af/covid-19-impacts-afghanistans-exports-on-hold/> (request date 17.08.2020).
36. Afghanistan resumes international flights amid COVID-19 [Digital source] // The nation [web-site]. URL: <https://nation.com.pk/24-Jun-2020/afghanistan-resumes-international-flights-amid-covid-19> (request date 17.08.2020).
37. China Welcomes Afghanistan-Pakistan Trade Resumption [Digital source] // TOLO news [web-site]. URL: <https://tolonews.com/business/china-welcomes-afghanistan-pakistan-trade-resumption> (request date 15.08.2020).
38. Afghan Goods Enter India Through Wagah Border [Digital source] // TOLO news [web-site]. URL: <https://tolonews.com/business/afghan-goods-enter-india-through-wagah-border> (request date 17.08.2020).
39. COVID-19 Latest: One of 19 Test Positive in Afghanistan [Digital source] // TOLO news [web-site]. URL: <https://tolonews.com/health/covid-19-latest-one-19-test-positive-afghanistan> (request date 17.08.2020).
40. Jirga Delegates Asked to Follow Health Advice [Digital source] // TOLO news [web-site]. URL: <https://tolonews.com/health/jirga-delegates-asked-follow-health-advice> (request date 17.08.2020).
41. COVID Cases Rise after Eid, Many Youth Infected: Doctors [Digital source] // TOLO news [web-site]. URL: <https://tolonews.com/health/covid-cases-rise-after-eid-many-youth-infected-doctors> (request date 17.08.2020).
42. 77 New Covid-19 Cases Reported in Afghanistan [Digital source] // TOLO news [web-site]. URL: <https://tolonews.com/index.php/health/77-new-covid-19-cases-reported-afghanistan> (request date 17.08.2020).
43. '10M' COVID-19 Cases in Afghanistan: Health Ministry [Digital source] // TOLO news [web-site]. URL: <https://tolonews.com/health/10m-covid-19-cases-afghanistan-health-ministry> (request date 17.08.2020).
44. Confirmed Cases, Deaths, and Recovered in Afghanistan [Digital source] // COVID-19 MoPH. [web-site]. URL: <https://moph.gov.af/> (request date 29.06.2020).
45. Economy of Afghanistan [Digital source] // wikipedia.ru [web-site]. URL: https://ru.wikipedia.org/wiki/Экономика_Афганистана (request date 10.08.2020).
46. COVID-19: What we know so far about the 2019 novel coronavirus [Digital source] // U Chicago Medicine. [web-site]. URL: <https://www.uchicagomedicine.org/forefront/prevention-and-screening-articles/wuhan-coronavirus> (request date 15.04.2020).
47. Said R.R., Molokanova Y.P. Disease rate among population of Afghanistan at the example of small children as an ecological and social problem // Ecology and health of human [Digital source]; collection of materials to All-Russian scientific-practical conference with international participation, devoted to professor Y.D. Zhilov (Moscow, February 28-29 2020), Moscow, Informational-Editorial Bureau of Moscow State Regional University, 2020, p. 39-46.