



MINISTRY OF INTERNALLY DISPLACED
PERSONS FROM THE OCCUPIED
TERRITORIES, LABOUR, HEALTH AND
SOCIAL AFFAIRS OF GEORGIA

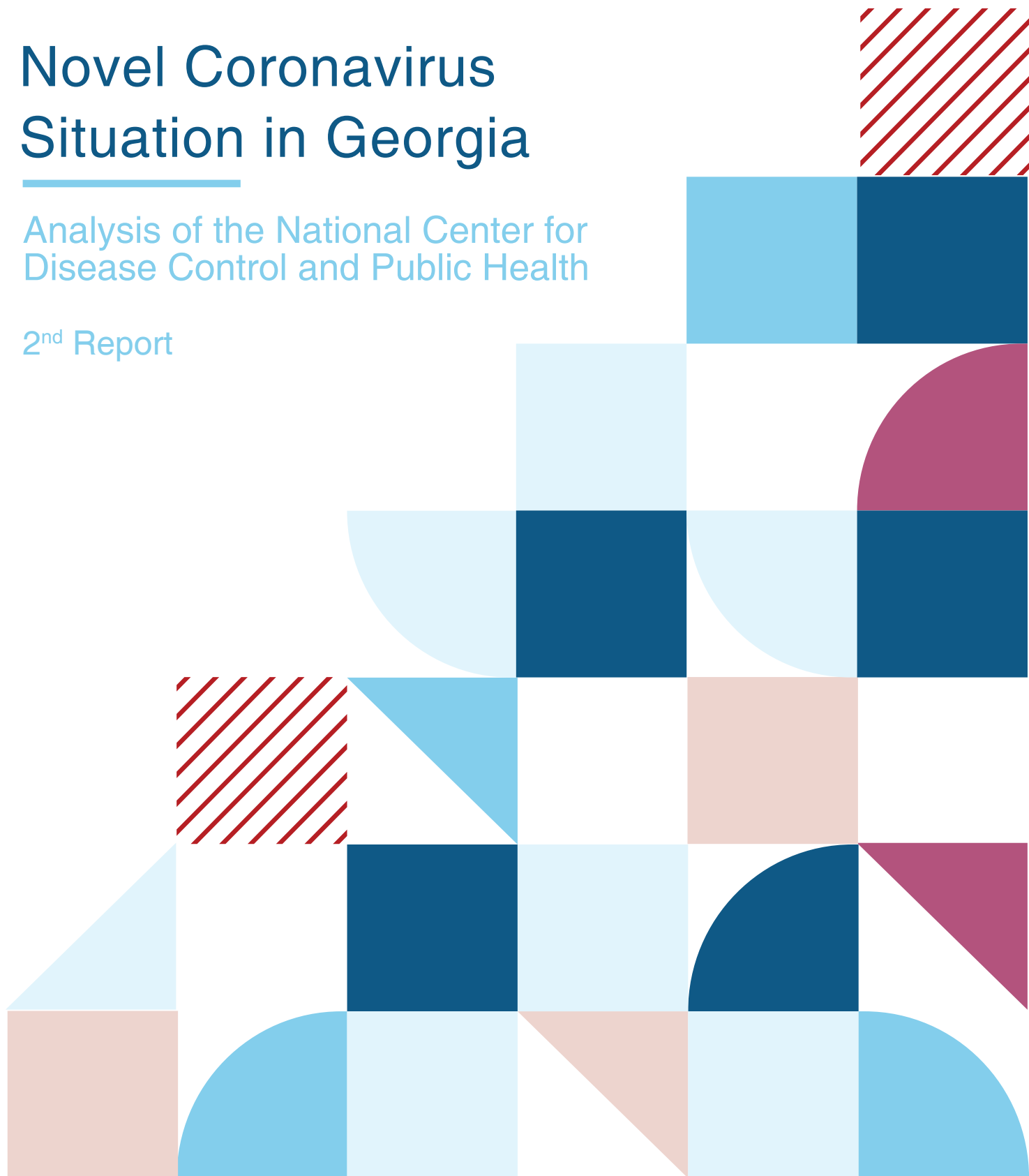


GEORGIAN NATIONAL CENTER FOR DISEASE
CONTROL AND PUBLIC HEALTH

Novel Coronavirus Situation in Georgia

Analysis of the National Center for
Disease Control and Public Health

2nd Report



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I. Introduction

Coronavirus 2, same as SARS-CoV-2, associated with the Severe Acute Respiratory Syndrome, initially referred to as 2019-nCoV and later officially named as COVID-19 by the World Health Organization (WHO), emerged in Wuhan (Hubei Province, China), in December 2019, and later spread quite rapidly beyond the borders of China. The WHO declared the public health emergency of international concern on January 30, 2020, and a pandemic on March 11. 7 935 698 persons were infected in 215 countries all over the world, more than 3 790 104 got recovered and 433 930 died¹. This is the third zoonotic coronavirus outbreak of the 21st century, when the human-to-human transmission of the infection occurred and caused a global health challenge. The intense of spread of infection is particularly characterized in the United States, Brazil, Russia, India, the United Kingdom, Spain, Italy, Peru, Iran and Germany, while China, the initial source of pandemic, moved out from its previous position onto the nineteenth on the list of the most affected countries. Although, COVID-19 is characterized by a high frequency of transmission, the identified cases differ with their severity from asymptomatic to fatal. Various factors, including age, gender, and concomitant chronic diseases, are considered to be associated with a negative outcome.

The National Center for Disease Control and Public Health (NCDC) has been playing an important role in Georgia's response^{2,3} against COVID-19. The part of the NCDC responsibilities involve preparedness and response measures. These include real-time epidemiological surveillance, management of laboratory diagnostics, and supervision of compliance with standards, epidemiological surveillance of identified and suspected cases, tracing, isolation recommendations, and monitoring.

This document represents the second edition of analysis⁴ about the epidemiological situation and measures taken against spread of the novel coronavirus in Georgia. This type of analysis will be regularly updated.

¹ As of 15.06.2020 <https://coronavirus.jhu.edu/map.html>

² Actual COVID-19 situation report in Georgia for publishing day is presented in the form of annex 1

³ Information on activities implemented against COVID-19 in Georgia is presented in the form of annex 2

⁴ All presented information in the current version is dates as 11.06.2020, if not noted

II. General Overview

Testing

Testing with PCR⁵ method to detect COVID-19 in Georgia began on January 30, 2020. The number of tests conducted in the country from January 30 to June 11 was 75 374, including 71 149 of primary ones. .

For PCR testing, nasopharyngeal smear, or sputum, bronchoalveolar fluid or respiratory biopsy material are taken, however, the other materials such as feces and / or blood and / or urine / or corpse tissue (from lung) with special indications can also be used for this type of testing.



The PCR method is regarded as the gold standard in the COVID-19 diagnostics. Its advantages are high sensitivity and specificity, which minimize the risk of false-positive (as well as false-negative) results. However, a single negative PCR result does not rule out COVID-19, especially if the nasopharyngeal smear is taken at the early stage of the disease. It can be used in conditions of high-tech laboratory space and highly qualified staff.

Pursuant to the orders of the Minister of Internally Displaced Persons from the Occupied Territories, Labor, Health and Social Affairs of Georgia, subject to testing⁶ are cases according to the standard definition, contacts of confirmed cases, patients and medical personnel of respective medical facilities meeting specific criteria, any patient with pneumonia or fever (who have symptoms of respiratory disease or the treating physician makes a decision on testing), emergency medical personnel and disaster brigade staff, beneficiaries and personnel of special nocturnal care facilities for the elderly and disabled, all persons who have been diagnosed with early-stage tuberculosis, persons placed in quarantine spaces and in self-isolation 24 hours prior to expiry of the period, staff of quarantine spaces, customs officers and border police, personnel of inpatient frontlines, ICU, the NCDC epidemiologists and staff of COVID-19 PCR Laboratory. Currently a new Governmental Resolution is drafted according to which the list of risk groups subject to testing will expand gradually.

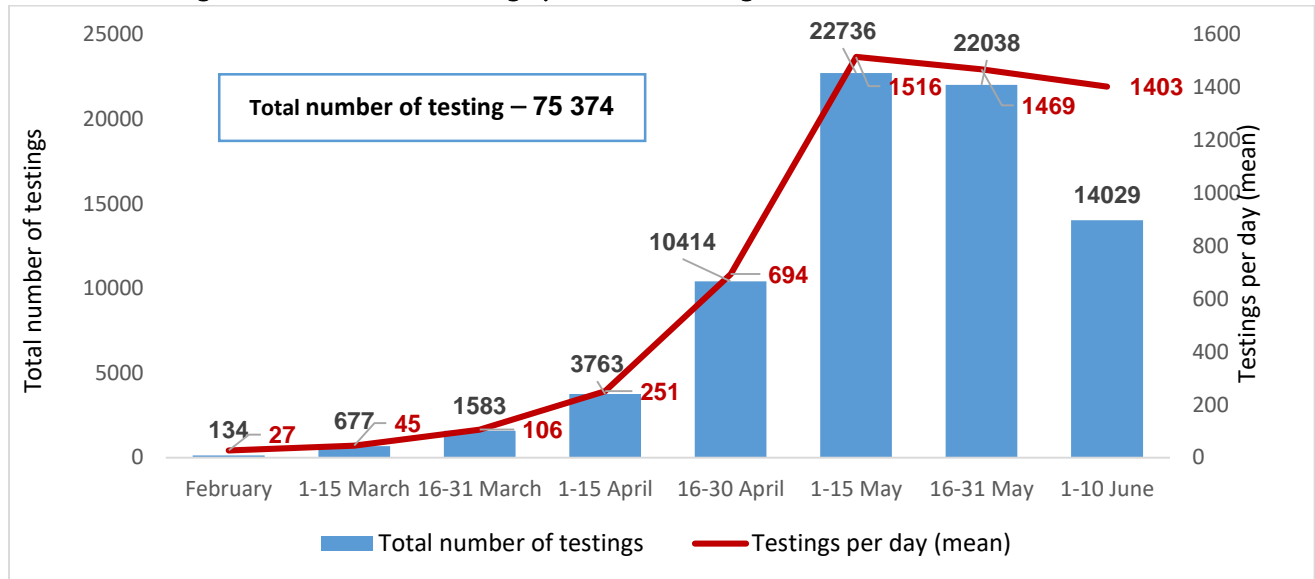


All COVID-19 cases in Georgia were confirmed by PCR testing.

⁵ Real time reverse transcription polymerase chain reaction / RT – PCR

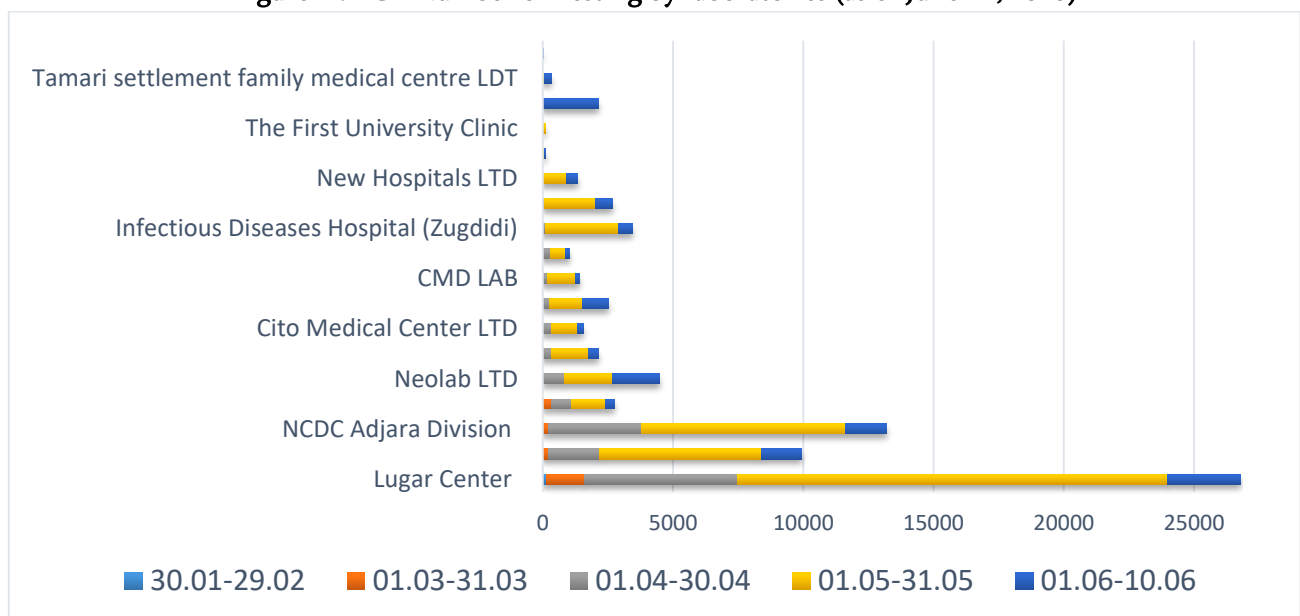
⁶ <https://www.ncdc.ge/Pages/User/News.aspx?ID=d6eba28f-4851-4d1d-a184-2a85992c7109>

Figure 1. COVID - 19 testing dynamics in Georgia (as of June 11, 2020), PCR Test



PCR testing during the period from January 30 to March 1, 2020, was carried out only by the Lugar Laboratory of the National Center for Disease Control and Public Health. Starting from March 1st, the other laboratories got gradually involved in the testing process.

Figure 2. PCR Number of Testing by laboratories (as of June 11, 2020)



As of June 11, the share of tests conducted by the NCDC laboratories was 66%.

Table 1. Number of PCR tests by laboratories (as of June 11, 2020)

	Number of Tests	%
Lugar Laboratory	26 769	35.5
NCDC Imereti Division	9 954	13.2
NCDC Adjara Division	12 876	17.1
JSC Infectious Diseases, AIDS and Clinical Immunology Research Center (IDH)	2 729	3.6
Neolab LTD	4 493	6.0
Salikh Abashidze Infectious Diseases, AIDS and Tuberculosis Regional Center (Batumi IDH)	2 125	2.8
“Cito” Medical Center LTD	1 536	2.0
JSC Mega - Lab	2 509	3.3
Molecular Diagnostics Center LTD (CMD LAB)	1 416	1.9
Kutaisi Zonal Diagnostics Laboratory of the Ministry of Environment and Agriculture	1 040	1.4
Infectious Diseases Hospital (Zugdidi)	3 425	4.5
Aversi Clinic	2 656	3.5
New Hospitals LTD	1 323	1.8
JSC National Center for Tuberculosis and Lung Disease	114	0.2
LEPL First University Clinic of the Tbilisi State Medical University	97	0.1
Med Diagnostics LTD	1 985	2.6
“Tamarisi Family Medical Center ” LTD	11	0.0
Oncology Research Center	316	0.4
Total Number of Conducted Tests	75 374	100%

To ensure accessibility of comprehensive information on COVID-19 testing, the National Center for Disease Control developed an electronic module for laboratory research, which collects and continuously improves data about COVID -19 testing. Information for the module is supplied by inpatient and outpatient service providers that either take test material, or conduct rapid testing or laboratory research; municipal / city public healthcare agencies; relevant bodies of the National Center for Disease Control; Lugar Laboratory or labs of the other medical facilities.

In addition to PCR testing, the country is conducting serological studies - rapid simple tests in certain groups based on antigens and antibodies, however, the cases are confirmed only by PCR testing.

Figure 3. Dynamics of antibody - based rapid testing (as of June 11, 2020)

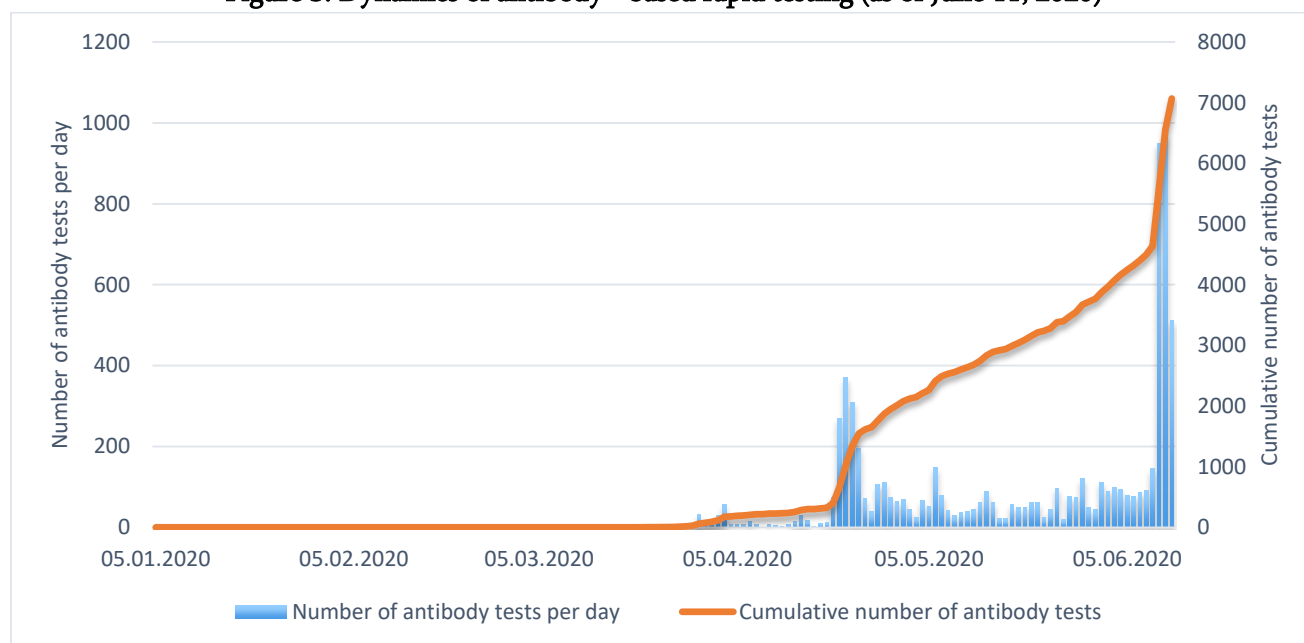


Figure 4. Number of antibody – based rapid testing by laboratories (as of June 11, 2020)

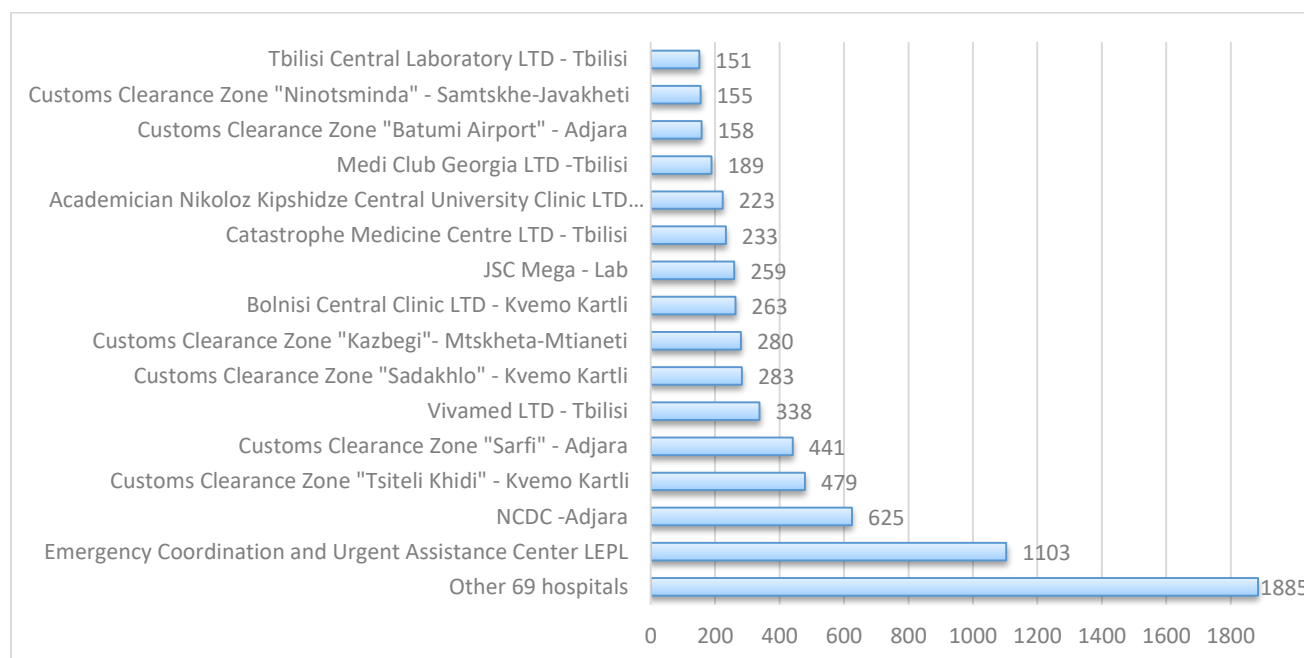


Figure 5. Dynamic of antigen – based rapid testing (as of June 11, 2020)

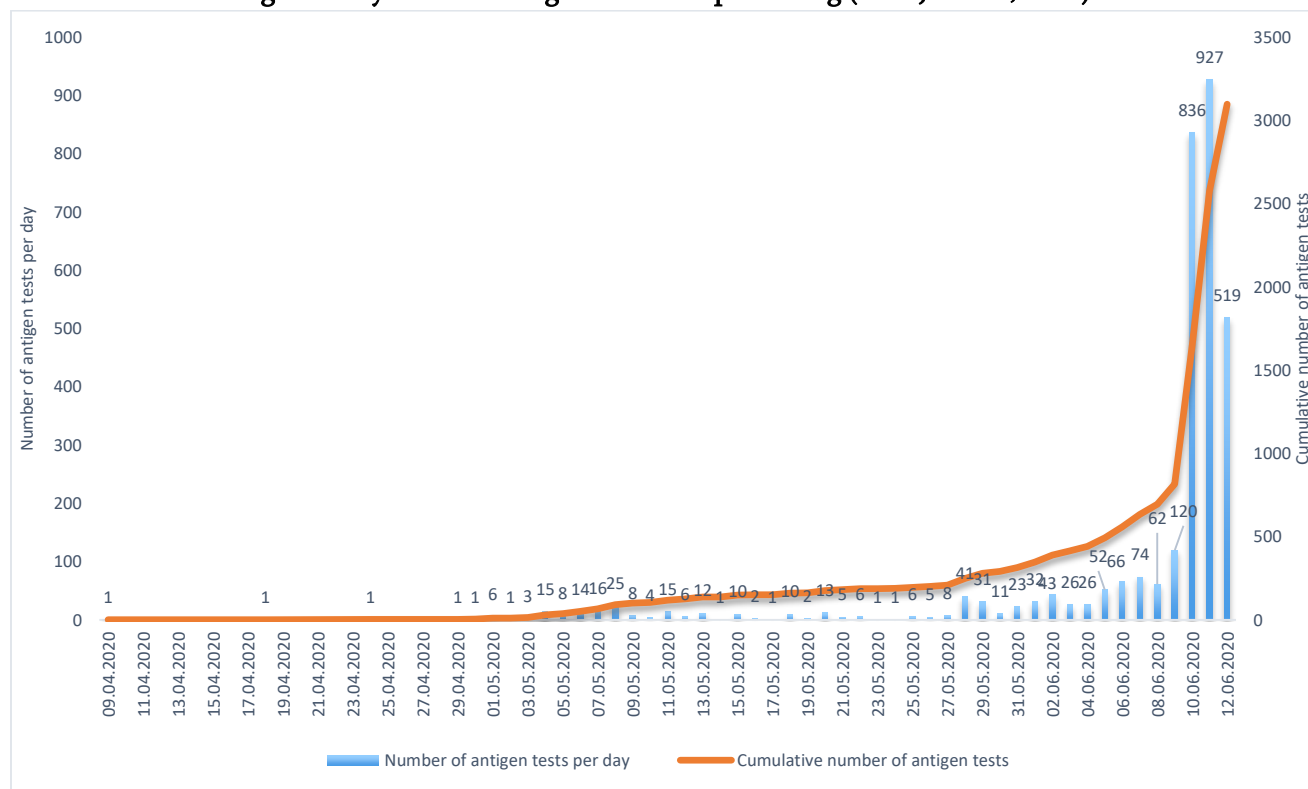
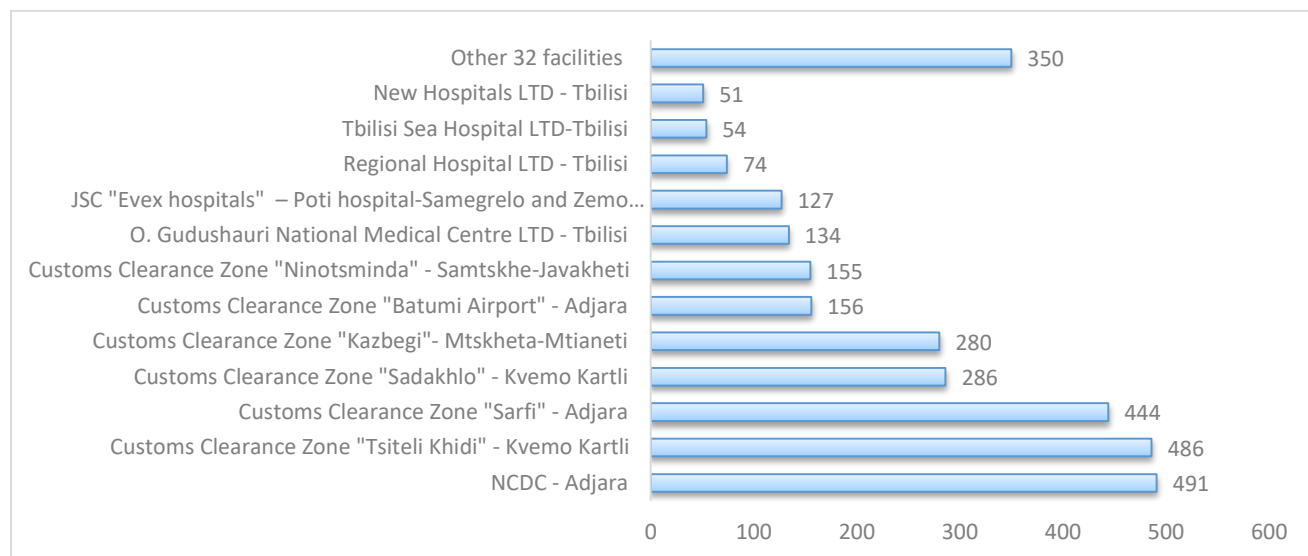


Figure 6. Number of antigen – based rapid testing by laboratories (as of June 11, 2020)



Target Groups Testing

A total of 64,424 PCR tests were conducted in Georgia from January 30 through June 10, 2020, including assays of unique 54,947 (85.3%) persons.

Majority of tested cases - 25,700, including 22,275 unique individuals (almost 40%), represented beneficiaries of fever or COVID clinics and quarantine spaces.

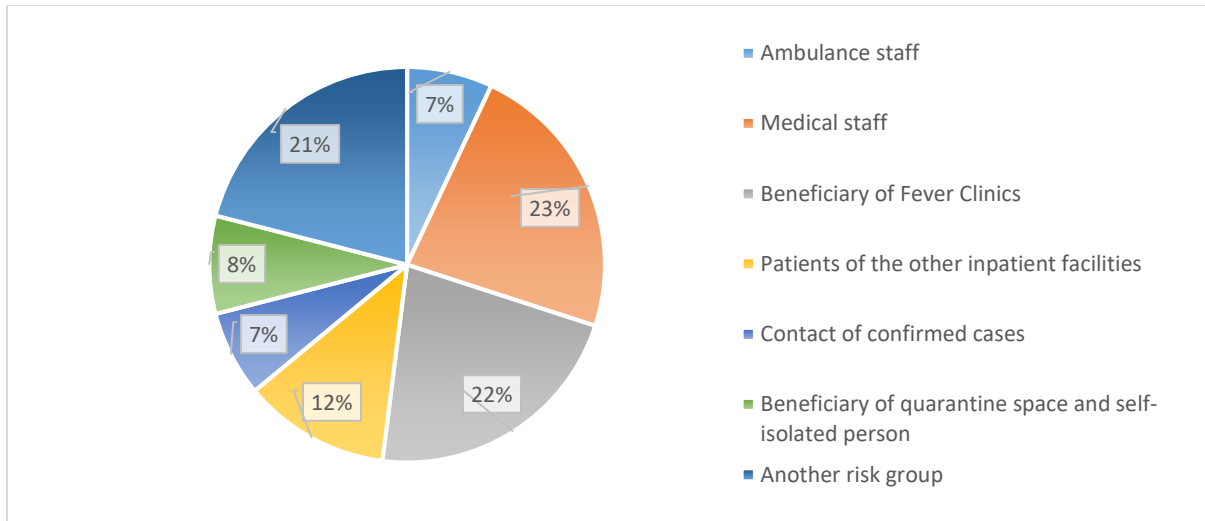
Testing of various medical service providers and quarantine space / customs service staff constituted 35% of tested cases (a total of 22,429 tests).

Up to 12% of the tests were performed on patients from different hospitals who had COVID -19 symptoms. 7.5% of the tested persons were in contact with the confirmed cases.

Table 2. Testing of target groups with PCR method (as of June 11, 2020)

Target Groups	Number of Tests	Number of Unique Persons
Beneficiary of Fever or Covid Clinics	14 116	11 443
Beneficiary of quarantine space	11 584	10 832
Emergency staff of the other inpatient facilities	9 900	7 815
Contact of confirmed cases	4 851	4 383
Patients of the other inpatient facilities (fever and respiratory disease, pneumonia, tuberculosis)	7 564	7 340
Employee of a fever or COVID clinic	3 642	2 743
Ambulance staff	4 633	3 186
Self-isolated person	1 518	1 220
Beneficiaries / Staff of shelter	1 680	1 505
Quarantine space staff	1 084	1 004
Employee of the customs and border checkpoints	2 657	2 400
Epidemiologists of the NCDC and / or Public Healthcare Centers	403	328
Another risk group	165	164
PCR Lab staff	110	81
Truck drivers	517	503
Total Number	64 424	54 947

Figure 7. Number of PCR tests by target groups (%) (as of June 11, 2020)



Confirmed Cases:

The first confirmed case in Georgia was registered on February 26. As of June 11, overall 828 cases were confirmed. The so-called positivity rate of testing equaled to 1.2%.

Figure 8. Share of confirmed COVID-19 cases in the total number of tested persons (as of June 11, 2020)

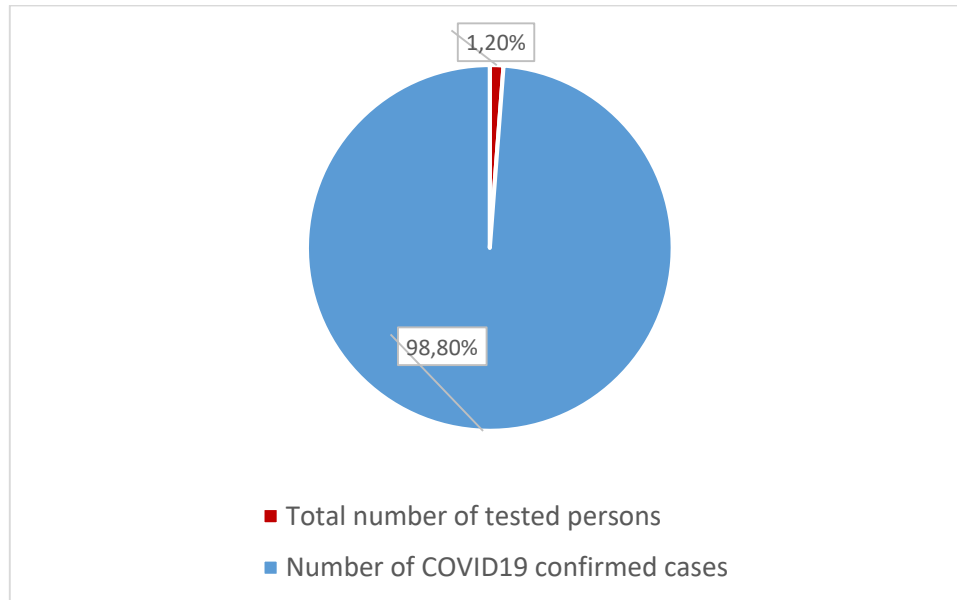
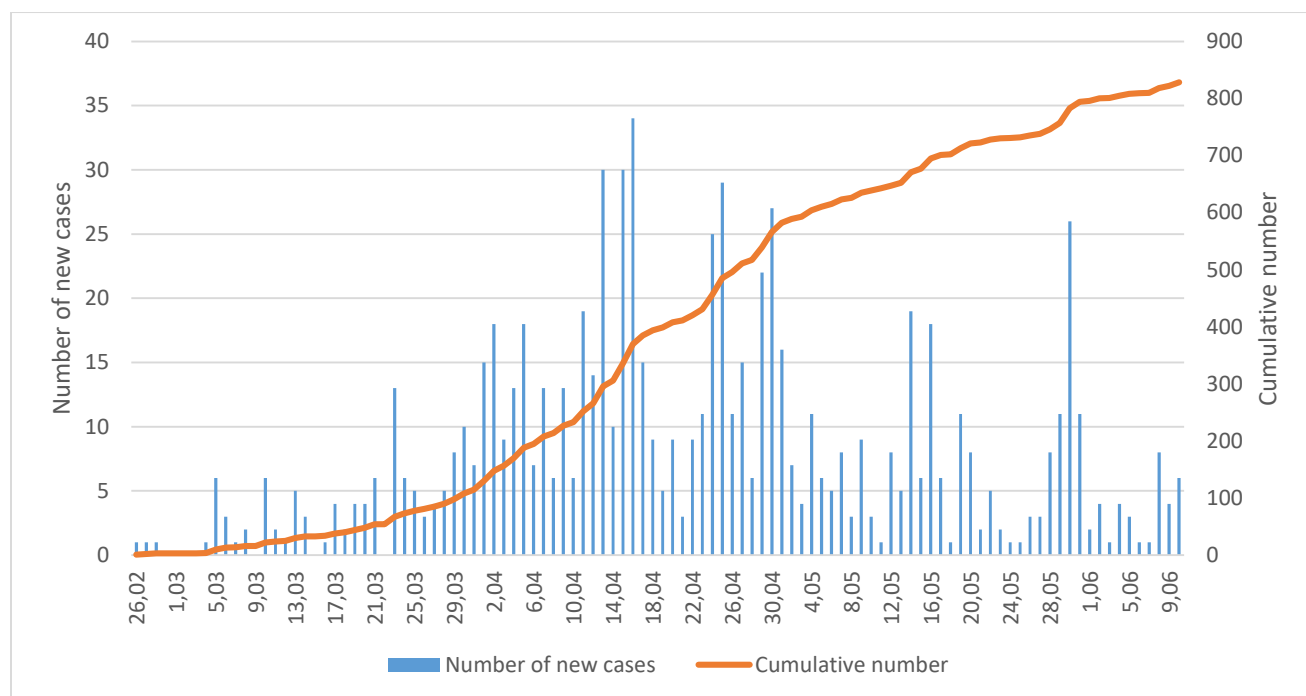


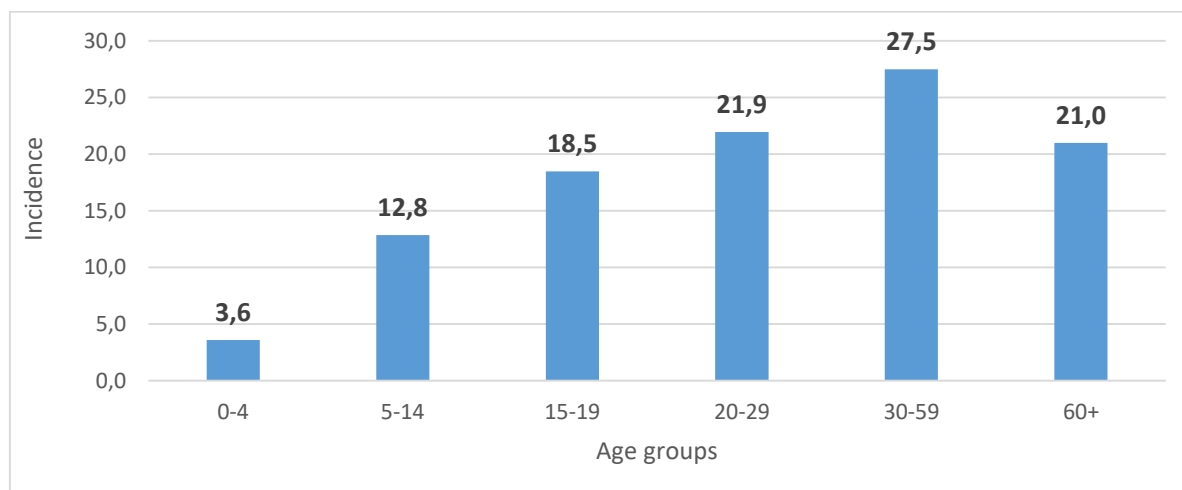
Figure 9. Daily number of new PCR confirmed and cumulative cases (as of June 11, 2020)



Incidence characteristics:

As of June 11, the cumulative incidence rate was 17.3 per 100,000 of population (95 % CI 16.0 - 18.7).

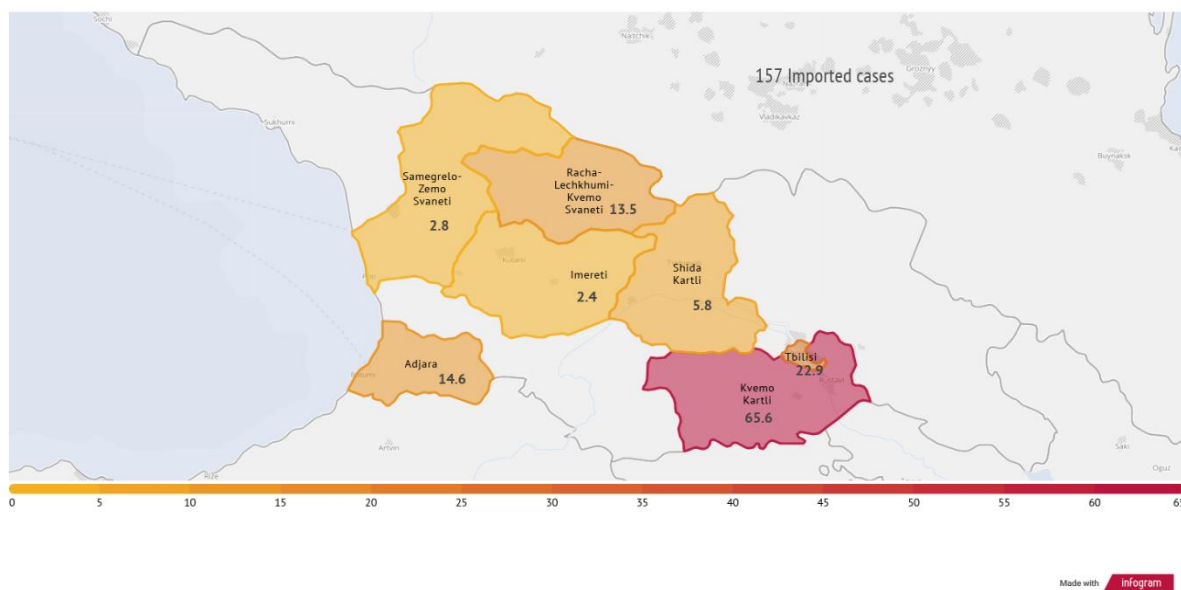
Figure 10. Incidence of COVID-19 confirmed cases per 100,000 population by age groups (n = 800)



The number of new COVID-19 cases per 100,000 population by place of exposure was the highest in the Kvemo Kartli region and Tbilisi, while the lowest in Samegrelo, Zemo Svaneti and Imereti.

The number of imported cases was 157 (19.6 %) out of 800 described ones.

Map 1. Indicator of COVID -19 confirmed cases per 100,000 population by the place of exposure (n = 800)



Among the other epidemiological characteristics of the COVID-19 in Georgia, it is noteworthy that from February 26 to June 11, the number of cases was doubling at average every 7.75 days. The effective reproduction index R_t equaled to 3.88 (95% CI 2.41 - 5.85) 2 weeks after the first case was detected, while it constituted 0.44 (95% CI 0.28 – 0.64) as of the issuance date (11. 06. 2020) of the present report.

Infection of COVID-19 in healthcare workers

Healthcare workers represent one of the risk groups in the COVID-19 outbreak, and preventing them from infection is an important aspect of management. Medical personnel often play a leading role in the transmission of the disease. The source of infection for health care representatives worldwide is not only the patient, but also the shortage of personal protective equipment, as well as family and social contacts. According to various sources, the frequency of infection among healthcare workers ranges from 5% to 20%^{7,8}

119 cases of infected employees of medical service providers were registered in Georgia from February 26 through June 10, 2020, which represented 14.4% of the registered cases (829) in the country, including medical staff - 84.9% (101 cases) and technical staff - 15.1% (18 cases).

Out of the infected medical personnel (101 persons), one case was classified as COVID-19 acquired in the community. Accordingly, during this period, the number of infected service provider medical staff in Georgia equaled to 100 persons, which represented 12.06% of the total infected cases in the country. Out of

⁷ European Centre for Disease Prevention and Control. Contact tracing: public health management of persons, including healthcare workers, having had contact with COVID-19 cases in the European Union – second update, 8 April 2020. Stockholm: ECDC; 2020

⁸ The Lancet. First experience of COVID-19 screening of health-care workers in England. Vol 395 May 2, 2020

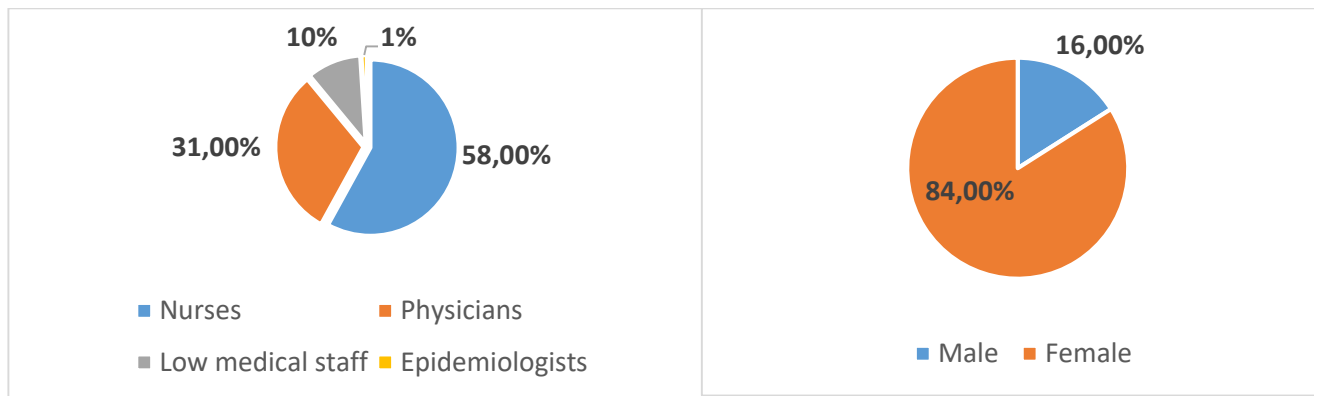
the mentioned number, 1 case had fatal outcome (female nurse, 70 years old, Kvemo Kartli). The fatality among infected medical staff was 1% during the delivery of medical services.

Distribution of cases by professional groups:

- Nurses – 58% (58 cases)
- Doctors - 31% (31 cases)
- Junior Medical Personnel- 10% (10 cases)
- Epidemiologist - 1% (1 case)

Majority of the infected medical staff (84%) are women.

Figure 11. Distribution of infected medical staff by professional groups and age



The average age of infected persons is 41 years and the age range is 19-72 years.

The analysis showed that the highest share of infected medical staff was recorded in April.

Most of the infected personnel are from Covid Clinics.

Figure 12. Healthcare personnel infected during service provision by age groups

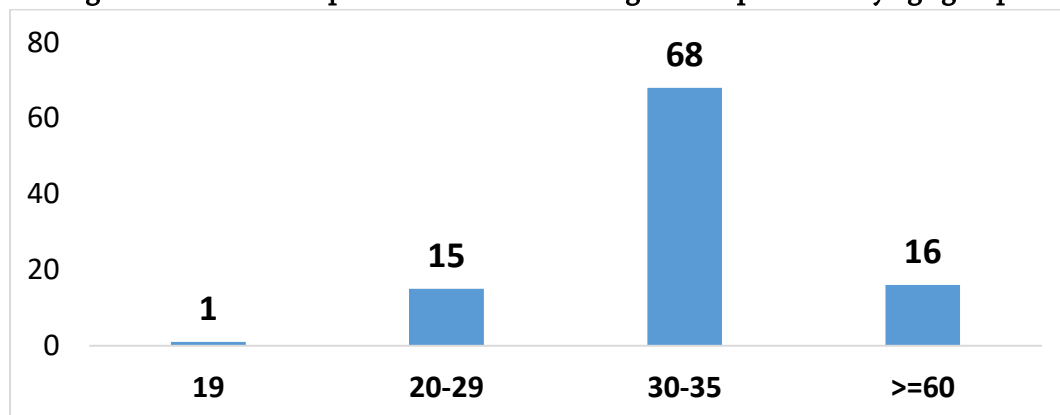


Figure 13. Share of healthcare personnel infected during service provision in the total number of infected persons by months (as of June 11, 2020)

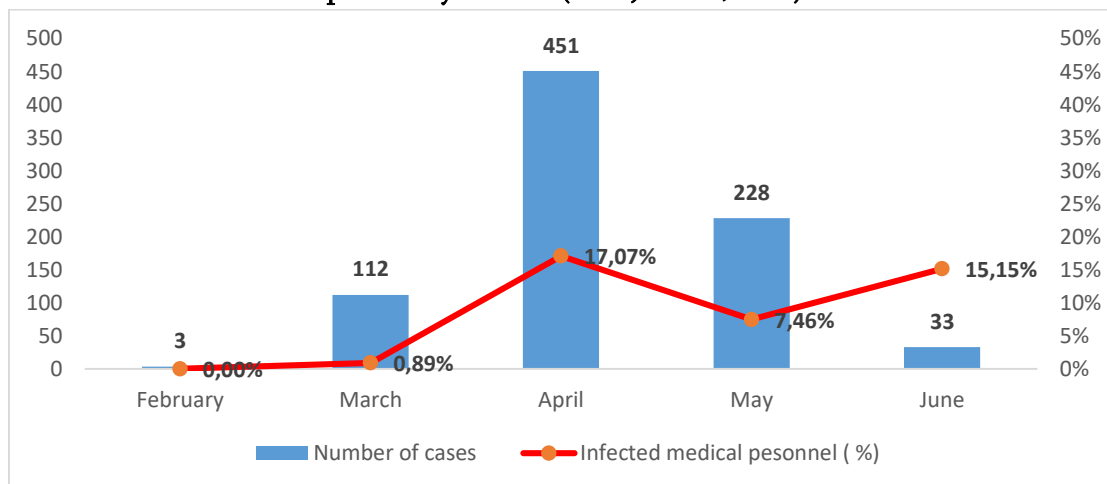


Figure 14. Number of infected healthcare workers by medical facilities (as of June 11, 2020)

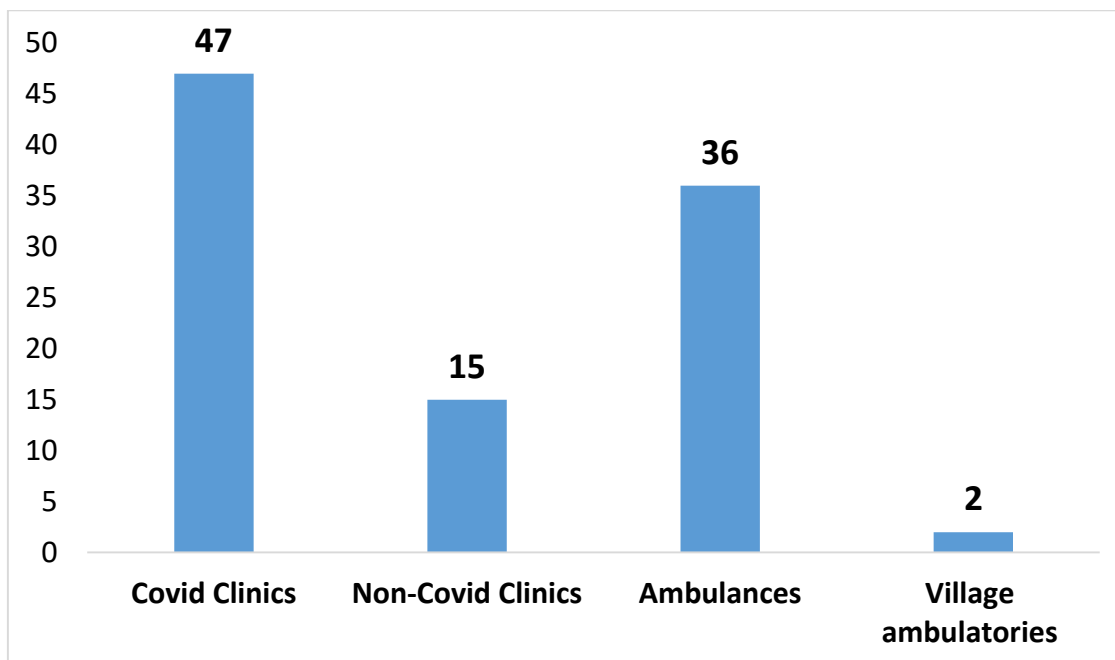
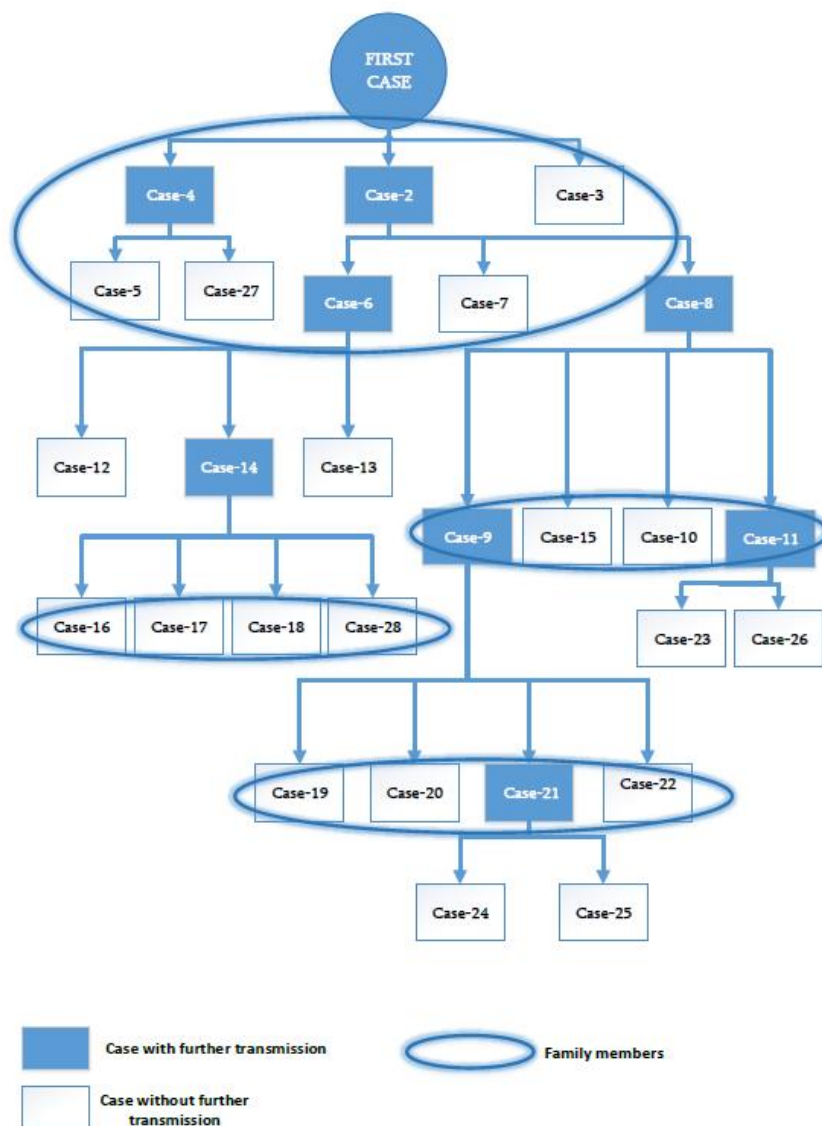


Figure 15. COVID-19 incidence Scheme (so-called „Saburtalo Cluster“)



In some cases, medical personnel became the cause of the spread of the disease in the community, which happened in case of so-called "Saburtalo Cluster". Infected medical staff became the primary source of infection for the next 27 cases (index case). The first two cases of the cluster were identified on May 27, 2020, as a result of PCR research.

A serological research (ELISA method) was used to identify a medical worker as an index case.

The epidemiological investigation revealed numerous close contacts who were densely settled. When tracing contacts, an additional 13 and 8 cases were identified on May 28 – 30. The epidemiological research and follow-up of the secondary cases revealed 5 more cases that were in the quarantine area as part of the control activities.



Out of the 28 confirmed cases, 4 were up to the age of 16 (18) and 1 - over 80 years.

Overall, by June 11, the "Saburtalo Cluster" included 28 confirmed cases. 211 contacts were found and laboratory tested within the scope of control activities. 106 persons were transferred to quarantine. 92 self-isolated persons were monitored by the relevant public health facilities.

82.1% (23/28) of the cases included in this cluster were characterized by light progression. During the reporting period only in one case (3.6% - 1/28) was a critically severe clinical situation identified (48 year old male patient, moved to managed respiration).

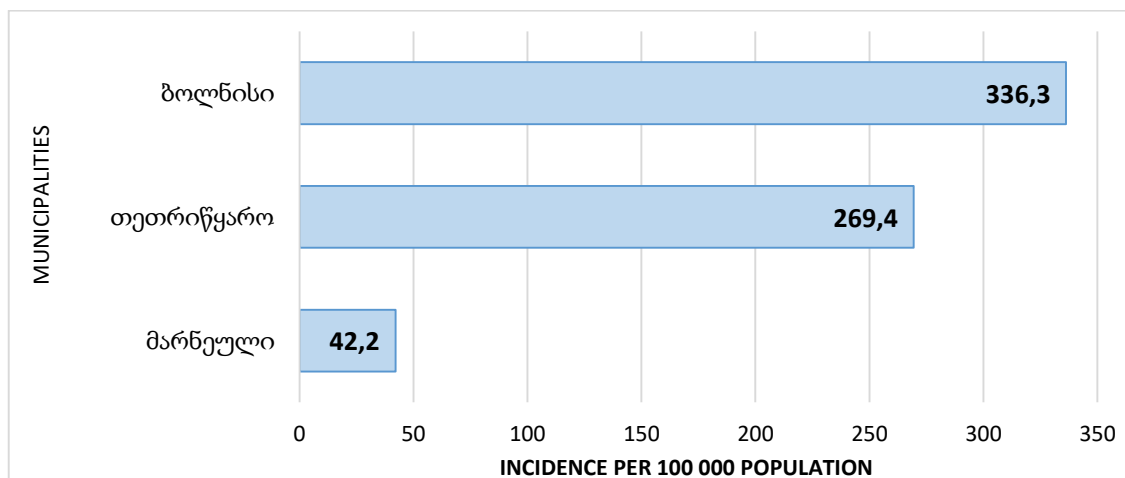
Contact tracing:

In case of each patient epidemiological research was conducted, contacts were traced (~4 500), their laboratory testing was performed and telephone or face-to-face interviews were held about contacts, travel, existing symptoms of the infected persons and the other parameters. Outbreak clusters have been identified through epidemiological research. The most notable of the large clusters were the Bolnisi and Kobuleti clusters, where additional in-depth investigation was carried out. In order to follow-up on the contacts, they were self-isolated or taken to a special quarantine area and further monitored.

Analysis of Epidemiological Situation in Kvemo Kartli

As of June 11, 290 cases of COVID-19 were registered in Kvemo Kartli municipality, which represented 35% of cases detected across the country. Specifically, 186 cases were identified in Bolnisi, 59 cases in Tetrtskaro and 45 in Marneuli. Incidence rate per 100,000 of population was high in Bolnisi municipality - 336.3, Tetrtskaro municipality came the second - 269.4 and Marneuli municipality was the third with 42.2.

Figure 16. COVID-19 incidence per 100,000 population by municipalities, Kvemo Kartli (as of June 11, 2020)



Bolnisi Municipality

Since March 23, Bolnisi Municipality had been under a strict quarantine regime, which was lifted on May 23. Two villages (Mushevani and Geta) were left in isolation.

Cases were registered in 9 settlements of the municipality.

Currently, the village of Kv. Bolnisi, where the first COVID infected person was identified on March 28th, requires attention. Later the situation got improved, but on May 25, during the seroprevalence research, COVID -19 was confirmed for one suspicious case and the hot spot became active again. Testing of the family members and close contacts revealed 2 more cases. Out of 9 cases registered in the village 2 persons died.

The first case in Bolnisi was reported on April 13, while the last one on May 30. A total of 54 COVID cases have been reported in Bolnisi, out of which 52 got recovered.

The most active hot spot in the municipality is the village - Mushevani. The first case was reported on April 23 and the last on May 30. In total, 75 cases were registered in the village, out of which 28 got recovered and one died. The village has been isolated since April 25.

The first case in Geta village was registered on May 4, while the last case on May 17. Out of total 18 cases, 15 got recovered. Cases were territorially concentrated in one district of the village. Geta has been in isolation since May 13.

As of June 11, 3,338 samples were taken in Bolnisi Municipality: 186 cases (5%) were confirmed, 114 got recovered and 4 died.

Marneuli Municipality

Starting from March 23, Marneuli Municipality was under the strict quarantine regime, which was lifted on May 18.

The first local case was reported on March 23, and the last one was registered on June 7 in the village of Kirachmughanlo. Epidemiological research is in progress in the area. As of June 11, the active hot spots were Marneuli and the villages of Mareti, Kirachmughanlo and Tsereteli.

During this period, 2,750 samples were taken in Marneuli. The number of confirmed cases equaled 45 (1.6%) and 32 persons got recovered. No deaths were reported.



Tetritskaro Municipality

Tetritskaro was under a strict quarantine regime since April 26, which was lifted on June 4.

The first case in Tetritskaro municipality was registered on April 24, while the last on May 21.

As of June 11, a total of 907 samples were taken in Tetrtskaro, and 59 cases (6%) were confirmed for COVID. 31 of them represented employees of medical facilities, the rest - family members and close contacts. 57 persons got recovered. No deaths were reported.

Taking into account the epidemiological situation, the implementation of strict epidemiological measures should be continued on the whole territory of Kvemo Kartli.



COVID-19 Seroprevalence Surveys in Selected Municipalities

Purpose of the survey – study the presence of immune response (IgM / IgG) and antigen in the population selected on the territory of 2 municipalities of Georgia using rapid simple tests and identify the prevalence of COVID-19 in the country.

The research was conducted on May 22-26, 2020.

Methods: The study used: **STANDARD™ Q COVID-19 Ag Test** (manufacturer SD BIOSENSOR, (South Korea) and authorized representative **MT Promedt Consulting GmbH** (Germany); Coronavirus rapid antibody test "**Right Sign®**" (manufacturer **Hangzhou Biotest Biotech Co.** (China) and Authorized Representative **Shanghai International Holding Corp. GmbH (Europe)** (Germany).

In case of obtaining positive result during the screening, standard PCR testing was additionally conducted for participants in the Lugar laboratory.

Two independent samples were identified for the survey: Bolnisi (Red Zone) and Telavi (Green Zone) municipalities. These municipalities are characterized with similar demographic parameters (number of population, sex and age composition and ratio of urban and rural population). The following criteria were used for the selection: official statistics on the prevalence of coronavirus in the Bolnisi region, 95% confidence interval, 5% error and population response levels (based on the results of previous serological studies). Considering these parameters and using the cluster method, the sample size was determined as 150 persons in each municipality (15 clusters consisting of 10 persons).

At the first stage, 15 starting points were selected in each region, the selection was made with a regular step = number of studied population / 15.

At the second stage, using the lists provided by the local government, the participants over the age of 18 were selected for the study on a random basis. The study was conducted by the field squads of the National Center for Disease Control and Public Health, with 3 squads and one field coordinator operating simultaneously in each municipality.

Prior to commencement of field work, preparatory training was conducted to unify the testing techniques. In addition, the participants were repeatedly provided with the Biosafety Protection Methodology and the roles and responsibilities got distributed.

Survey Results:

Overall, 30 clusters were analyzed and 300 persons were tested.

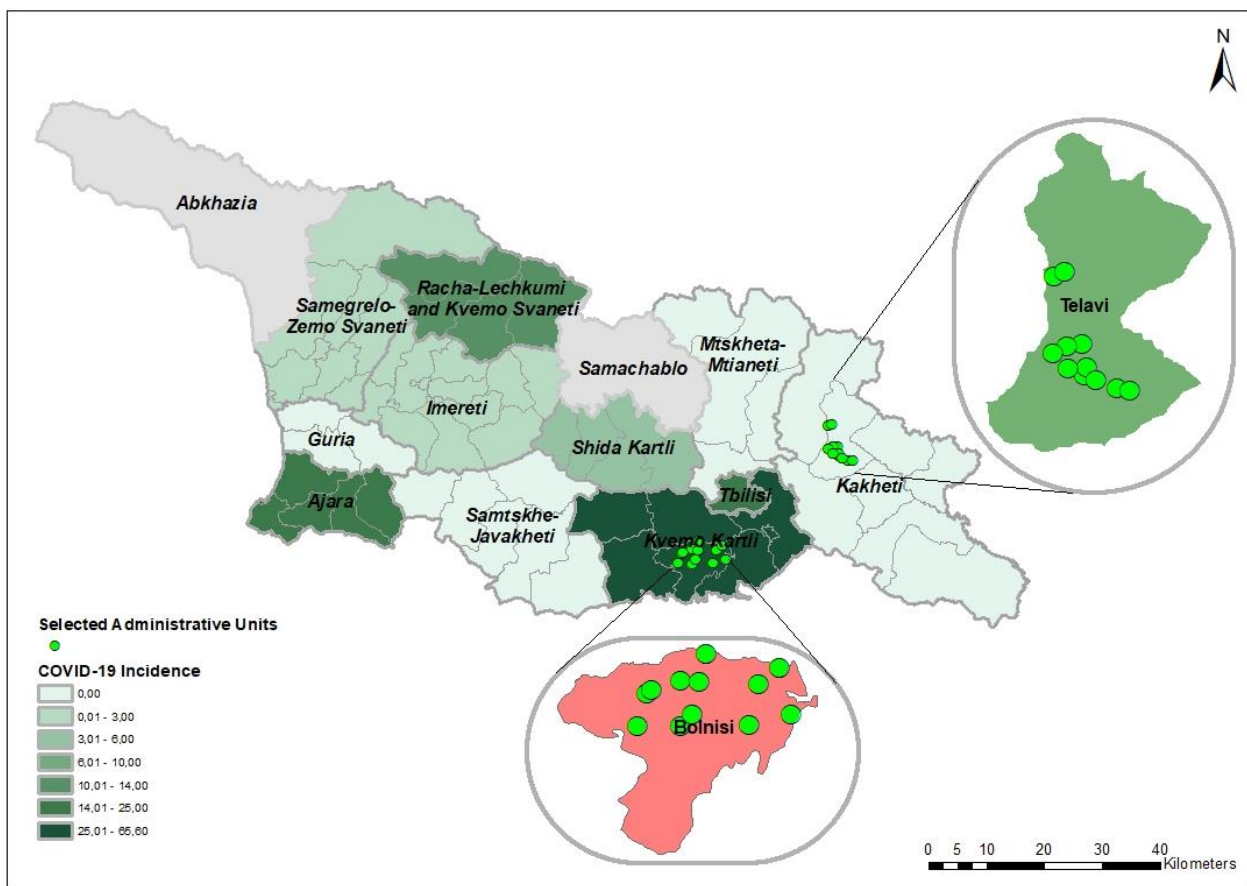
26.7% (8/30) of the clusters included the urban population (3 and 5 clusters in the towns of Bolnisi and Telavi respectively) and 73.3% (22/30) covered the rural, community and small town population (12 clusters in Bolnisi municipality and 10 clusters in Telavi municipality).

The average age of the survey participants was 48 years, the age range was 18 - 95 years, the median was 48 years and mode 51 years (11 cases). 55.3% of participants (166 /300) were males and 44.7% (134/300) females.

In the course of the screening process, IgM positive results were observed in 2 cases and IgG positive outcome in 1 case, all of them in different clusters of Bolnisi district. Antigen test was positive in 15 cases (60% (9/16) in Telavi and 40% (6/15) in various clusters of Bolnisi municipality). PCR test showed a positive result only in one case in the village of Kvemo Bolnisi, where the IgM and antigen based rapid tests were simultaneously positive.



Map 2. Analysis of COVID-19 incidence in two municipalities (May 22 – 26, 2020)



Conclusion: An instantaneous survey of two municipalities showed positive results when testing antibodies across affected municipalities identified by the epidemiological surveillance system and the disease was detected by PCR test, while in the municipality where the epidemiological surveillance system was not registering the COVID-19 case, IgM and IgG antibody based testing did not reveal positive outcome and all PCR test results were negative.

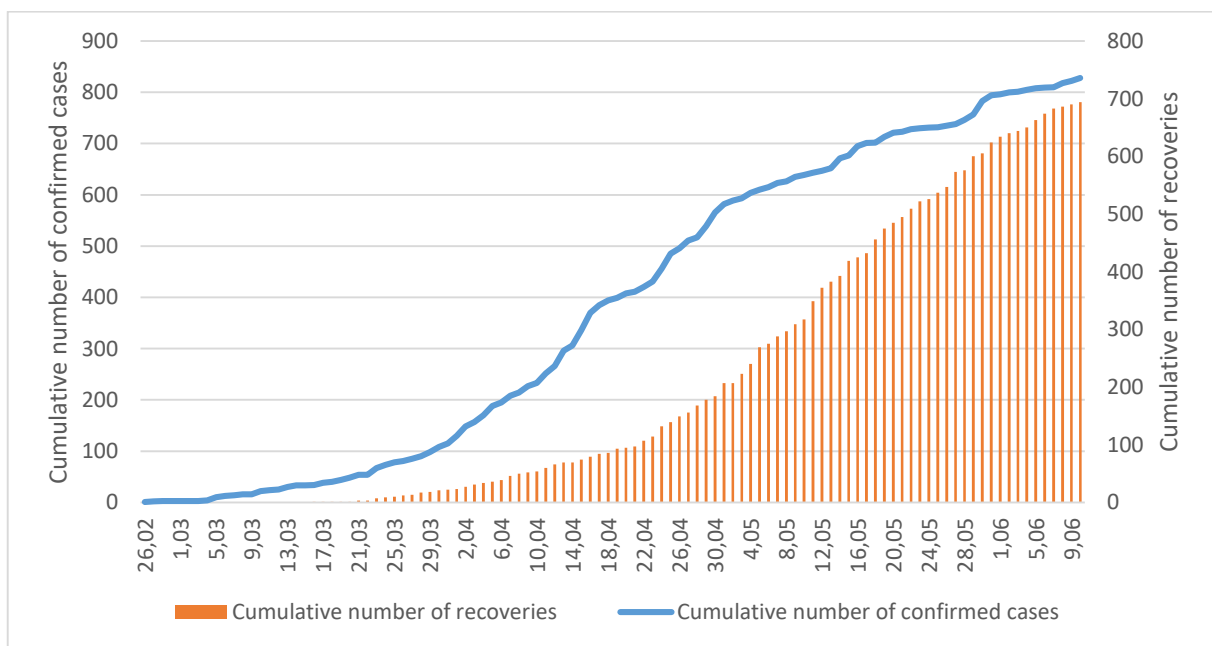
Hospitalization

According to the Ministerial Order N 01-119 /O of March 24, all patients with confirmed coronavirus disease of any severity are to be hospitalized.

Pursuant to the *Order N01-136 / O (March 30, 2020) on Designation of so-called Fever Centers for Preventing Spread of Potential COVID-19 Cases (epidemics, pandemic, epidemic outbreak) and Readiness to Respond to Potential and/ or Confirmed Cases*, the services provided by Fever Clinics include triage of all fever cases, diagnostics of COVID-19 infection in accordance with the algorithm approved by the Ministry, determination of further treatment tactics and referral of confirmed cases to the respective facility.

The first COVID patient was hospitalized on February 26, 2020 and the first recovered patient got discharged from the clinic on March 16. As of June 11, the total number of recovered patients constituted 694.

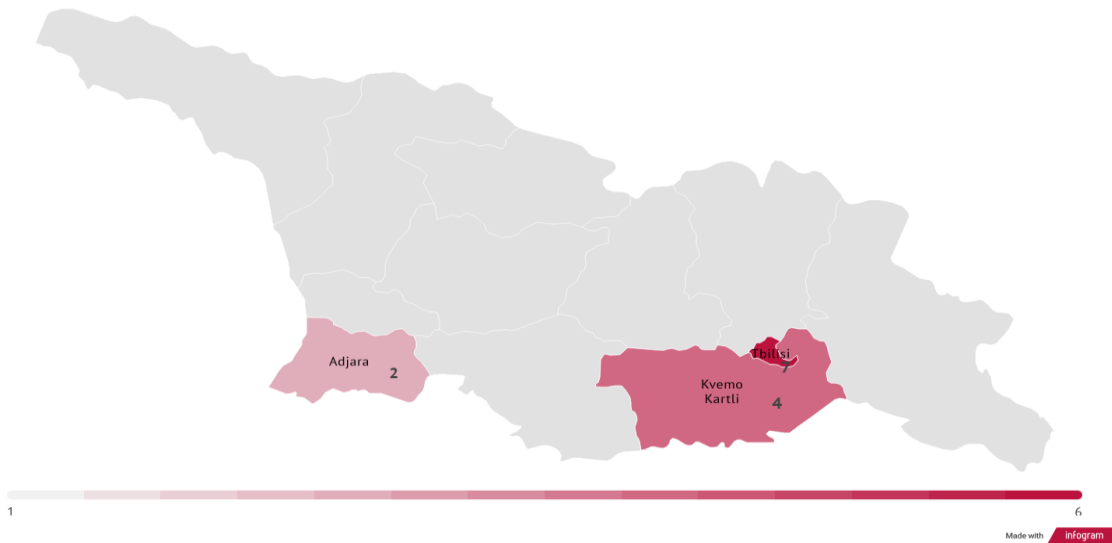
Figure 17. Daily number of PCR confirmed and recovered cases (as of June 11, 2020)



Mortality due to COVID-19

As of June 11, the total number of deaths in Georgia due to COVID-19 was 13, and the case fatality rate equaled to 1.57%. 7 cases of death were registered in Tbilisi, 4 in Kvemo Kartli and 2 in Adjara.

Map 3. Distribution of COVID-19 deaths by actual region of residence (as of June 11, 2020)

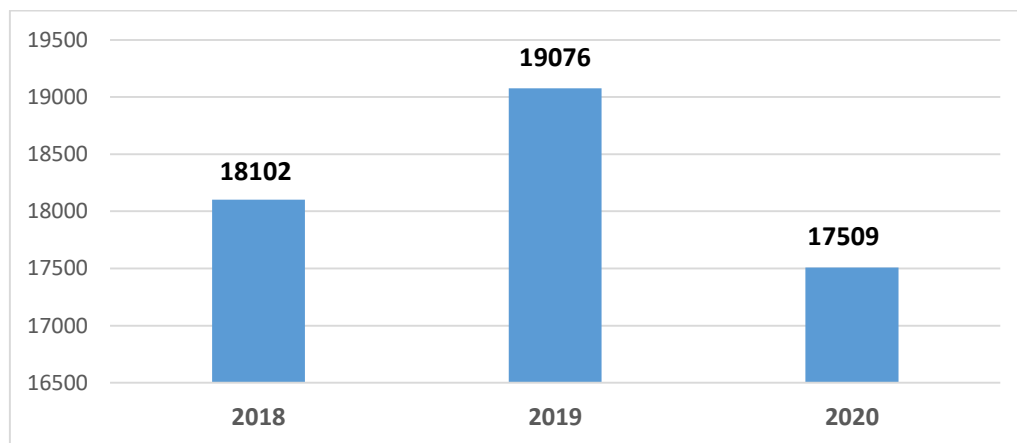


Apart from the number of COVID-19 infected cases, excess mortality is considered in many countries as one of the most significant indicators, to assess the impact (if any) the fast spread of the disease and associated deaths had on the mortality rate.

Excess mortality is defined as the mortality rate in the general population that exceeds the expected rate caused by a particular disease. Relatively high mortality rates for this stage are observed in Belgium, France, Sweden, Spain, Italy, England and the Netherlands.

The total number of deaths in Georgia from January 1, 2020 through May 15, 2020 was 17,509, which is less compared to previous years: less by 8% compared to 2019 and by 3% compared to 2018.

Figure 18. The number of deaths due to all causes, (during the period of 01.01.2020 - 15.05.2020)



From January through April, 2020 the monthly decline in deaths from all causes was 11, 6 and 13%, respectively.

Figure 19. Number of deaths due to all causes from January 1 through May, 2018-2020

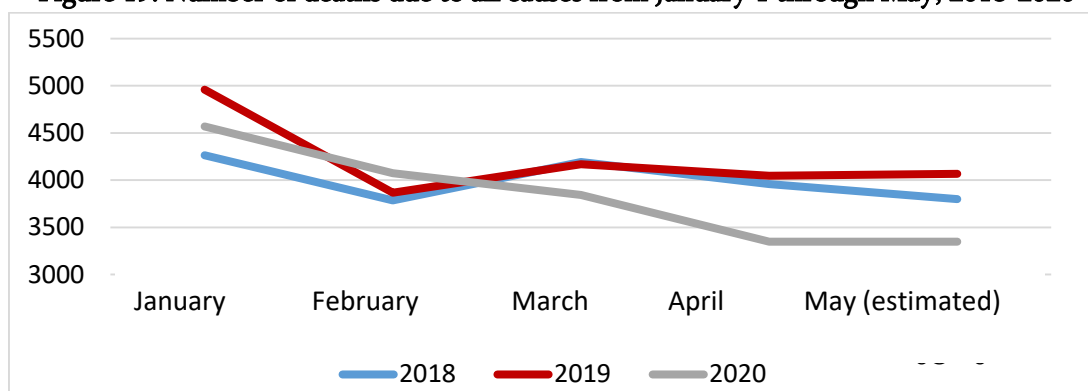


Figure 20. Distribution of COVID-19 caused deaths by gender and age (as of June 11, 2020)

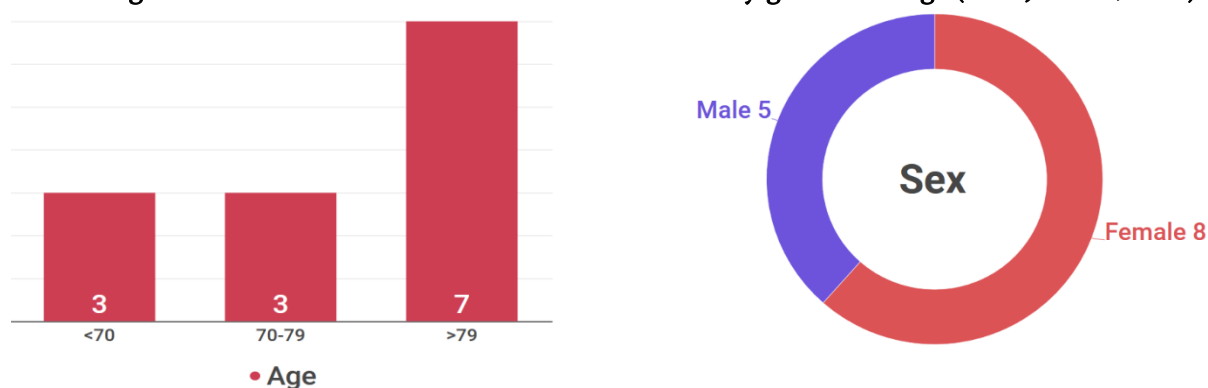


Figure 21. Distribution of COVID-19 caused deaths by the Thanatogenetic Chain of the main causes of death (as of June 11, 2020)

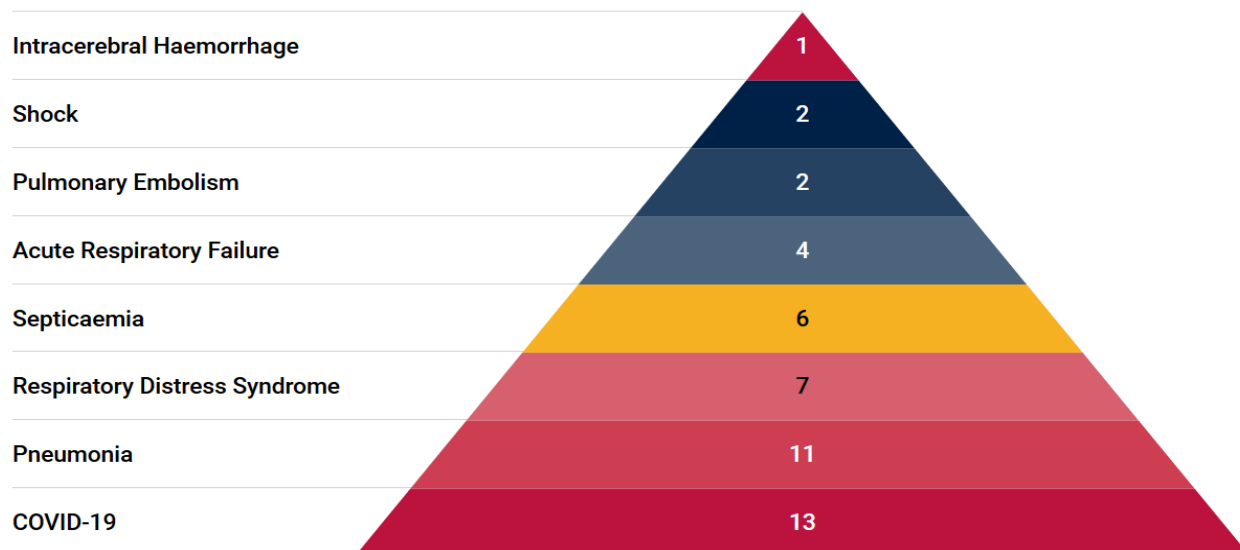


Figure 22. Distribution of COVID-19 deaths by underlying health conditions (as of June 11, 2020)

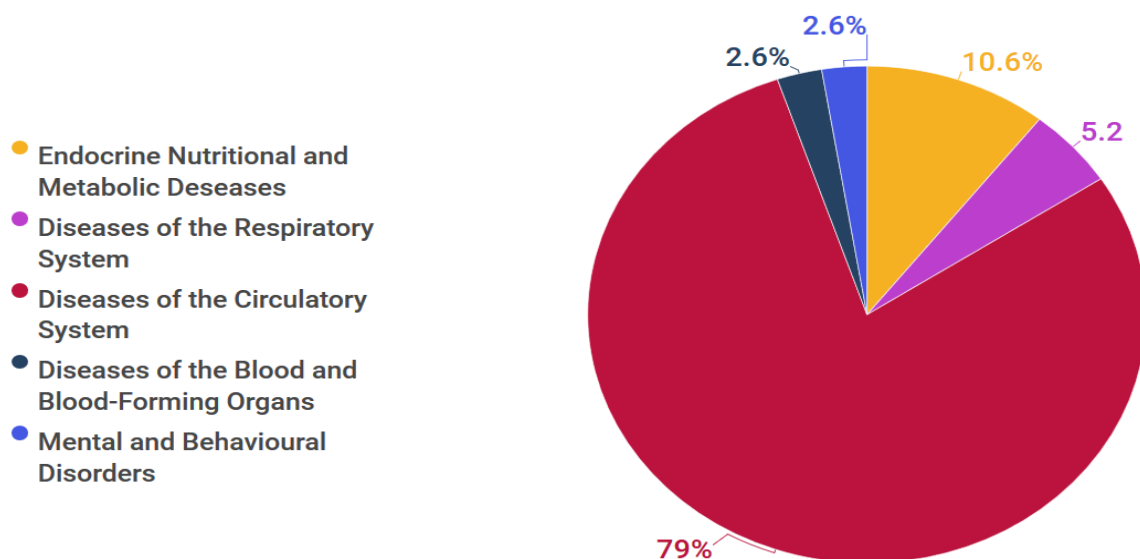
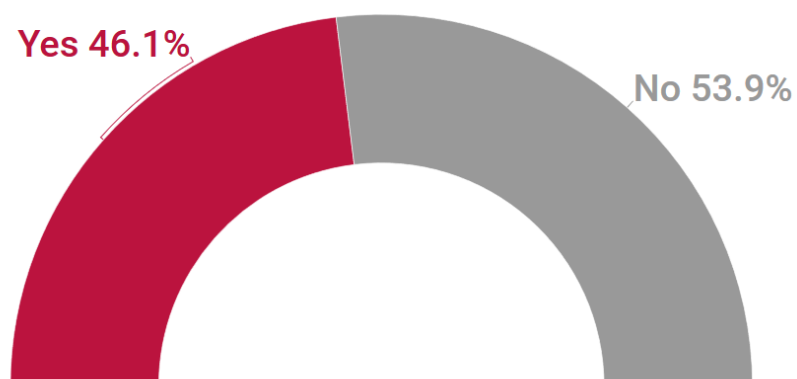
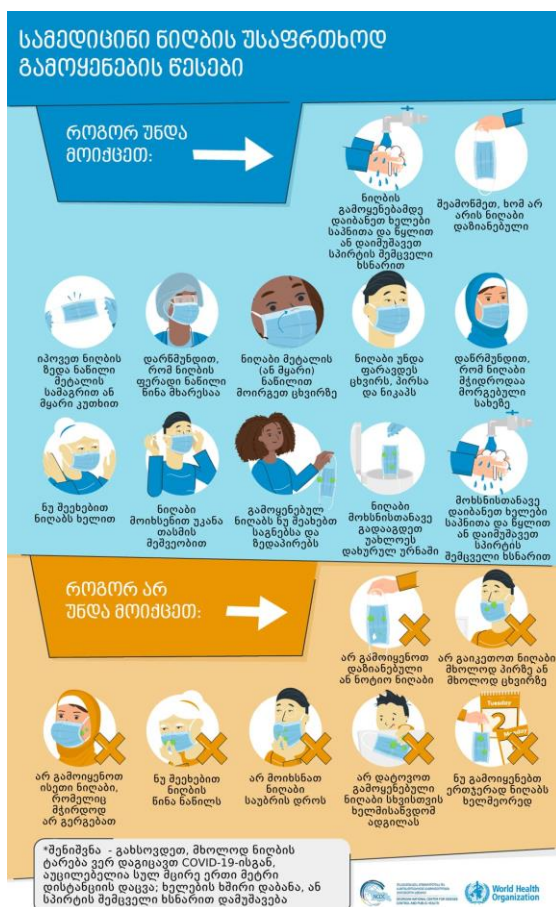


Figure 23. History of hospitalization in the anamnesis of patients died due to COVID-19
Years of 2014 - 2019 (as of June 11, 2020)

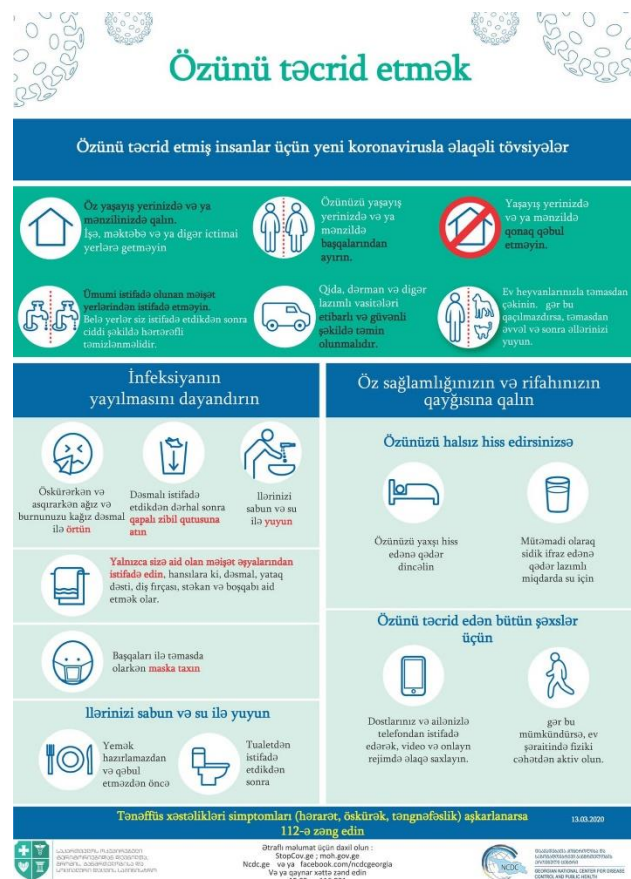


Communication campaign related to COVID-19

Information and educational materials were prepared, published and disseminated, including for ethnic minorities in Armenian and Azerbaijani languages; evidence-based educational materials are being translated and adapted continuously from CDC and WHO and the other international sources. Visual materials, educational posts, infographics, video materials were made and disseminated through their social network (some are enclosed for demonstration). In collaboration with the donor organizations, informative electronic banners were created and posted on various websites and video portals. Also, several video clips were made in partnership with the donor organizations. At the beginning of the pandemic, informative advertisements on street monitors were prepared and posted.



Work is underway to develop risk communication and community engagement strategies in partnership with the United Nations Children's Fund (UNICEF), the World Health Organization (WHO), and various government agencies.



Hotline of the National Center for Disease Control and Public Health (NCDC) 116 001

Receival of calls to the hotline of the National Center for Disease Control and Public Health with respect to COVID-19 issues began on January 23, 2020. In order to respond appropriately, totally 43 persons were gradually trained to perform the function of an operator on the hotline, including:

- Employees hired under the labor contract for the Center hotline - 3;
- Employees of the Medical Statistics Department of the Center - 11;
- Employees of the Non-Communicable Diseases Department of the Center - 14;
- Employees hired under labor contract within the scope of *Hepatitis C* State Program - 6;
- Volunteer students (Tbilisi State Medical University) - 9.

Management of incoming calls received at the hotline has significantly contributed to stopping non-purposeful referrals of patients to medical institutions. At the initial stage of the pandemic, in conditions of information shortage and panic, the bulk of the population's calls was being directed exactly to 116 001. It should be noted that the public confidence at the NCDC hotline during this period was quite high, to which also contributed the launch of so-called feedback principle – implying reverse communication to callers and provision of further detailed responses to asked questions regarding numerous issues.

As of June 11, 2020, 14 persons were performing operator functions at the hotline, including:

- Employee hired under the labor contract on the hotline of the center - 3;
- Employee hired under a labor contract within the scope of *Hepatitis C* State Program - 6;
- Volunteer student (Tbilisi State Medical University) - 5.

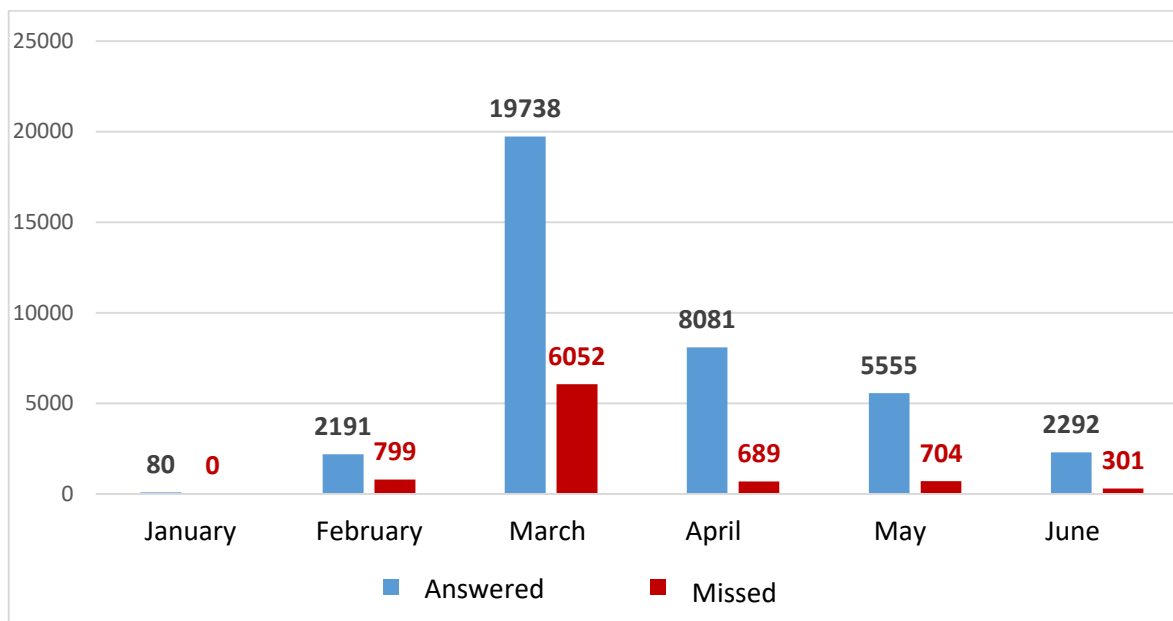
The total number of calls received by the hotline from January 23 through June 10, 2020, was 46 482, including:

- answered: 37 937 Call (82 %)
- missed: 8 545 calls (18 %).

Hotline work hours:

- Working days: 09:00 - 23:00
- Non-working days: 10:00 - 20:00

Figure 24. Total number of incoming calls during the period from 23. 01. 2020 to 11. 06. 2020



[Hotline of the National Center for Disease Control and Public Health, Georgian Psychosocial Assistance Association "Trust" and Club "Synergy" 2 911 000](#)

Since apart from the legislative, logistical and epidemiological issues, the demand for psychological assistance was frequent, the Georgian Association of Psychosocial Assistance "Trust", the National Center for Disease Control and Public Health and the club "Synergy", through the funding by the Open Society Georgia Foundation, provided emergency psychological assistance. The line provides counseling from both the psychologist and the psychiatrist and, if necessary, ensures the appropriate referral; the hotline number is 2 911 000.

III. Epidemiological Characteristics of 800 Novel Coronavirus Infection Cases Registered in Georgia after February 26, 2020

Descriptive analysis

Research Materials and Methods

Epidemiological characteristics of the first 800 COVID-19 infection cases registered since February 26, 2020 in Georgia and confirmed with PCR method were analyzed retrospectively within the framework of the descriptive research. The analysis included the following areas:

- Characteristics of gender, age and territorial distribution;
- Characteristics related to the course of the disease, symptoms and concomitant⁹ conditions;
- Test-related features;
- Results of contacts and cluster research;
- Characteristics related to medical personnel.

The disease prevalence figure for the surveyed period is calculated as the ratio of the number of new confirmed cases (800) to the population at risk.

Data Sources

The main source of information on COVID-19 infected persons is represented by the Electronic Integrated Disease Surveillance System (EIDSS), which aims to strengthen and support monitoring and prevention of human and animal diseases within the scope of the One Health Concept and ensure application of international health regulations (IHR) 2005. Disease-specific information, samples, case-related laboratory data and total figures are managed by means of EIDSS. Pursuant to the Order # 01-26N of March 2019, the EIDSS is an official reporting system for public health facilities and agencies under the Ministry of Health. It is possible to adapt its configuration to the needs of the country according to the changed requirements, such as the list of diseases, official reports, disease-specific research forms, and more.

Data were also validated through special protocols completed during the epidemiological survey.

Research Results

Characteristics of gender, age and territorial distribution: The research analyzed data on 800 new coronavirus infection cases confirmed with PCR method including 390 (48.7%) male and 410 (51.2%) female patients. The maximum age of patients was 90 years and the minimum 9 months. Average age was 42 years and median 43. COVID -19 in patients under the age of 18, was reported in 98 (12.25%) cases.



⁹ Determination of concomitant disease variable on the basis of medical history collected during epidemiological research

Table 3. Distribution of confirmed COVID -19 cases by age (n = 800)

Age Group	Number	%
0-4	19	2,4%
5-14	61	7,6%
15-19	38	4,7%
20-29	106	13,2%
30-59	412	51,5%
60-69	89	11,1%
70-79	53	6,6%
80+	22	2,7%
Total	800	100%

Figure 25. Distribution of confirmed COVID -19 cases by age and gender (n = 800)

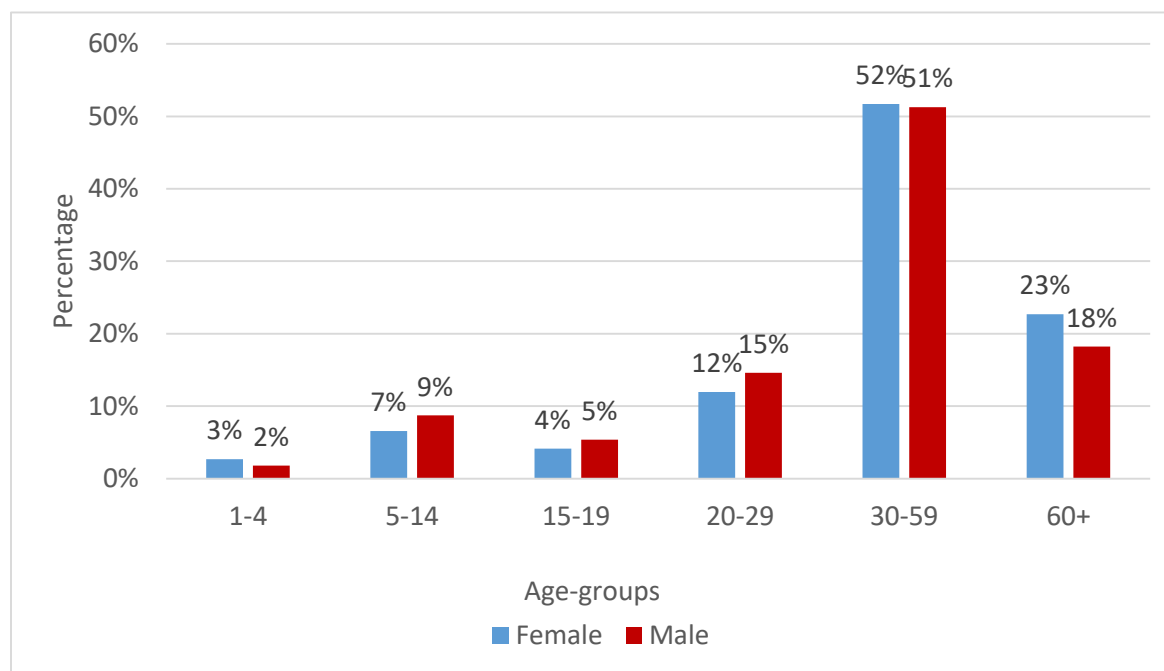
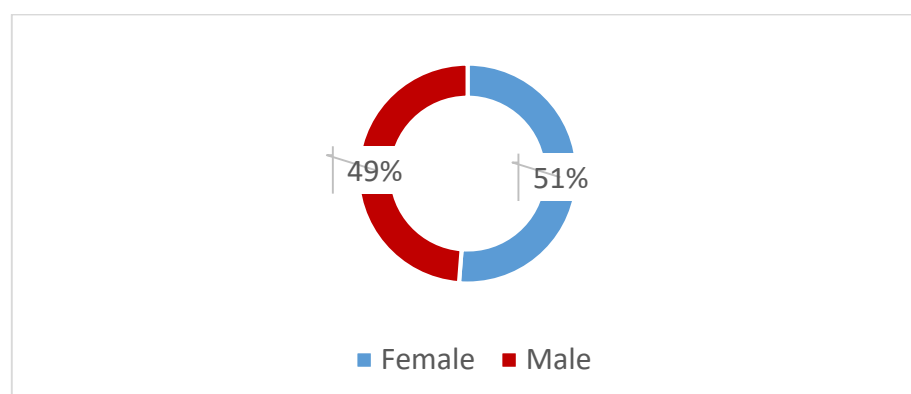
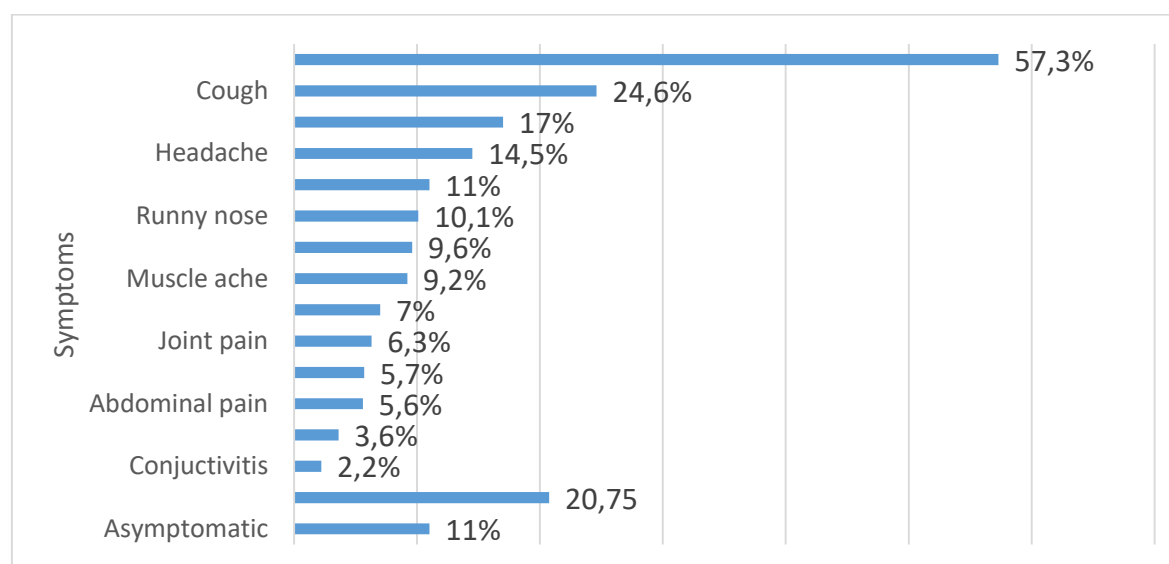


Figure 26. Distribution of confirmed COVID - 19 cases by gender (n = 800)



Characteristics related to the disease symptoms and concomitant conditions: Within the scope of the research, the presence of disease related clinical symptoms and concomitant conditions was analyzed for each patient prior to hospitalization.

Figure 27. Clinical characteristics of COVID – 19 confirmed cases - symptoms before hospitalization (%) (n = 800)



The most common symptoms are fever (57.3%, 95% CI 53.79% - 60.76%), fatigue (34.5%, 95% CI 31.21% - 37.91%), cough (24.6%, 95% CI 21.65% - 27.74%), sore throat (17%, 95% CI 14.46% - 19.79%) and headache (14.5%, 95% CI 12.13% - 17.13%). Change in taste and smell senses was calculated for 500 cases (14.8 %, 95% CI 11.80% - 18.22%). Out of the 800 cases, 88 cases were asymptomatic during PCR testing¹⁰. Accordingly, the proportion of asymptomatic cases was 11% (95% CI 28.49% - 35.05%).

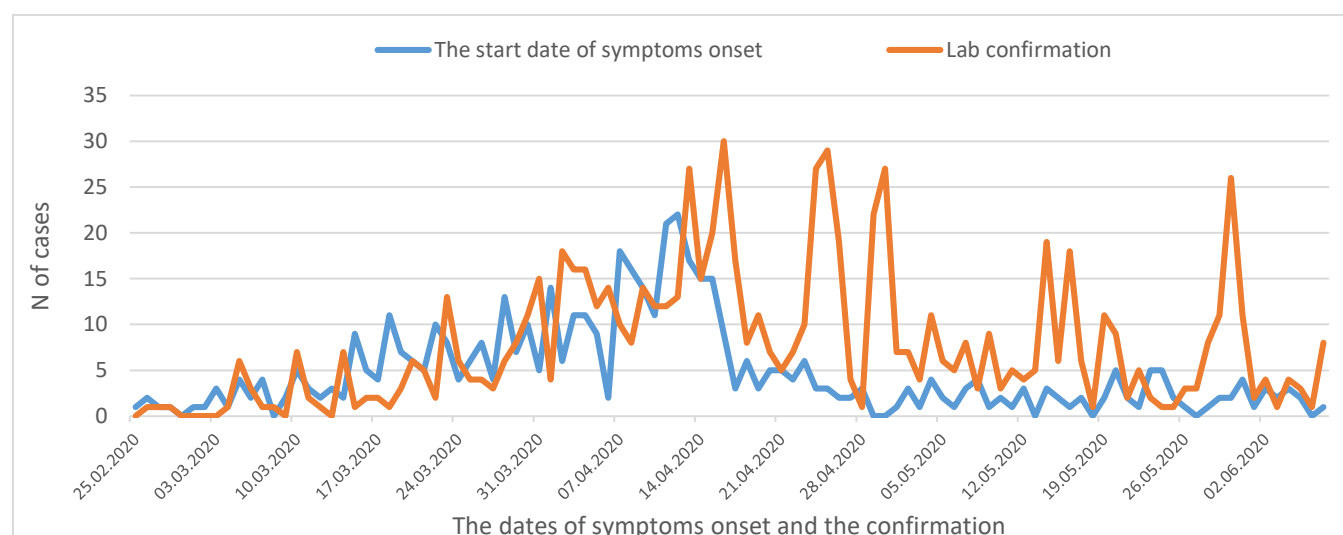
¹⁰ An asymptomatic laboratory-confirmed case is a person infected with COVID-19 who does not develop symptoms (WHO Coronavirus disease 2019 (COVID-19) Situation Report - 73). These 83 cases were asymptomatic on the day of PCR testing, however with the course of the disease, certain symptoms could have appeared later. Detailed research of the clinical course for each case is ongoing and the figure will be updated in the next report.

Collecting information about the intensity of symptoms was problematic in 166 cases, which was caused by a number of subjective and objective factors, namely the language barrier, bias of recollection, different approaches to the symptom perception, stigmatization. These cases were concentrated in Kvemo Kartli region and accounted for 58.4% of the cases detected in this area.

Table 4. Distribution of COVID – 19 confirmed cases - symptoms prior to hospitalization by clinical characteristics (%) (n = 800)

Symptoms	Male		Female		Both	
	Number	%	Number	%	Number	%
Fever /Shiver	229	58.72	230	56.1	459	57.3
Fatigue	131	33.5	145	35.3	276	34.5
Cough	89	22.8	108	26.3	197	24.6
Dry / sore throat	70	17.95	66	16.1	136	17.0
Headache	58	14.1	58	14.8	116	14.5
Rhinitis	42	10.7	38	9.27	80	10.1
Muscle pain	33	8.4	41	10.0	74	9.2
Breath Shortage	27	6.92	29	7.7	56	7.8
Joint pain	25	6.4	26	6.3	51	6.3
Stomach ache	14	3.5	31	7.5	45	5.6
Nausea	20	5.1	26	6.3	46	5.7
Chest pain	17	4.3	12	2.9	29	3.6
Conjunctivitis	14	3.5	4	0.9	18	2.2
Diarrhea	39	10.0	38	9.2	77	9.6
Asymptomatic	39	10.0	49	11.9	88	11.0
Unknown	86	22.0	80	19.5	166	20.75

Figure 28. COVID - 19 confirmed cases by symptom onset and confirmation dates (n = 800)



The average number of days from the onset of symptoms to laboratory confirmation is 5.

Table 5. Distribution of COVID - 19 confirmed cases according to clinical characteristics - underlying health conditions before hospitalization, % of confirmed cases in the total number (n = 800)

	Both genders		Male		Female	
	Number	%	Number	Number	%	Number
Cardiovascular diseases, Hypertension	88	11	35	8.9	53	12.9
Diabetes	39	4.8	18	4.6	21	5.1
Kidney disease	13	1.6	4	1.0	9	2.2
Chronic lung disease	15	1.8	8	2.0	7	1.7
Chronic neurological disease	9	1.1	3	0.7	6	1.4
Cancer	6	0.8	4	1	2	0.5
Liver disease	5	0.6	2	0.5	3	0.7

Among the most common concomitant diseases, there were cardiovascular diseases, hypertension 88 (11%) and diabetes 39 (4.8%).

According to COVID-19, the number of new cases per 100,000 population is highest in Kvemo Kartli region and Tbilisi, and lowest in Samegrelo, Zemo-Svaneti and Imereti.

According to the place of exposure, no cases of the disease have been reported in other regions of Georgia. The number of imported cases out of 800 described ones was 157 (19.6%).

Figure 29. COVID -19 incidence by regions (per 100,000 of population), Georgia, 2020 (N = 643)

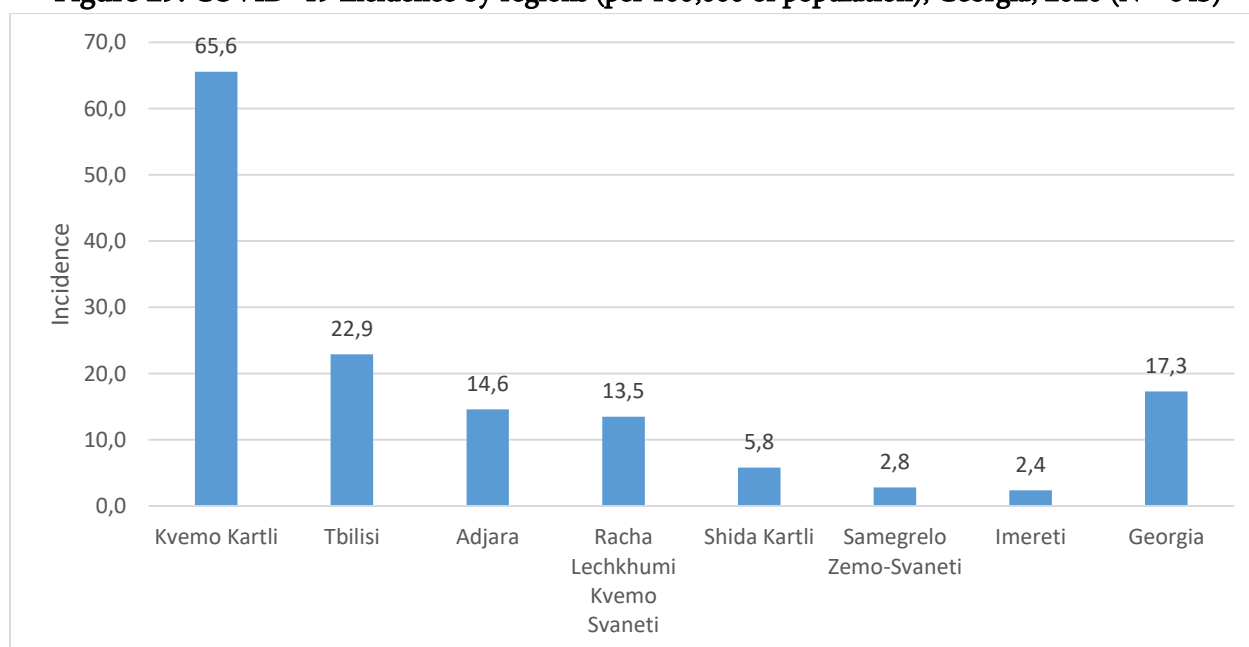


Table 6. COVID-19 incidence (per 100,000 population) by municipalities (N = 643)

District	Number of Cases	Incidence
Batumi	13	7.8
Bolnisi	182	328.0
Gori	13	10.6
Khashuri	2	3.9
Kobuleti	38	52.2
Kutaisi	2	1.4
Lentekhi	4	95.8
Marneuli	39	36.5
Rustavi	9	7.0
Sachkhere	1	2.8
Terjola	4	12.3
Tetritskaro	54	244.8
Tskaltubo	4	8.0
Vani	1	4.5
Zougdidi	9	8.8
Tbilisi	268	22.9

IV. Characteristics of 500 Patients Diagnosed with Novel Coronavirus and Discharged from Hospitals (as of June 11, 2020)

Descriptive analysis

According to the regulations introduced in the country, all patients who have been confirmed to be infected with coronavirus are subject to hospitalization, regardless severity of the disease (Order No. 01-119 / O of March 24).

The first recovered patient was discharged from the hospital on March 16.

The present study retrospectively analyzed the data on 500 patients diagnosed with new coronavirus and discharged from the hospital in Georgia since February 26, 2020. Diagnosis of these patients was confirmed with PCR method.

Research Materials and Methods

The analysis included the following characteristics:

- The type of hospital referral
- Gender / age structure
- Territorial distribution of patients
- Clinical symptoms during hospitalization
- Dates of clinical symptoms onset and hospitalization
- Underlying health conditions
- Complications of major disease
- Severity of disease progression
- Bed - days
- Treatment in intensive care
- Application of artificial ventilation for lungs
- Treatment outcome

Data Sources

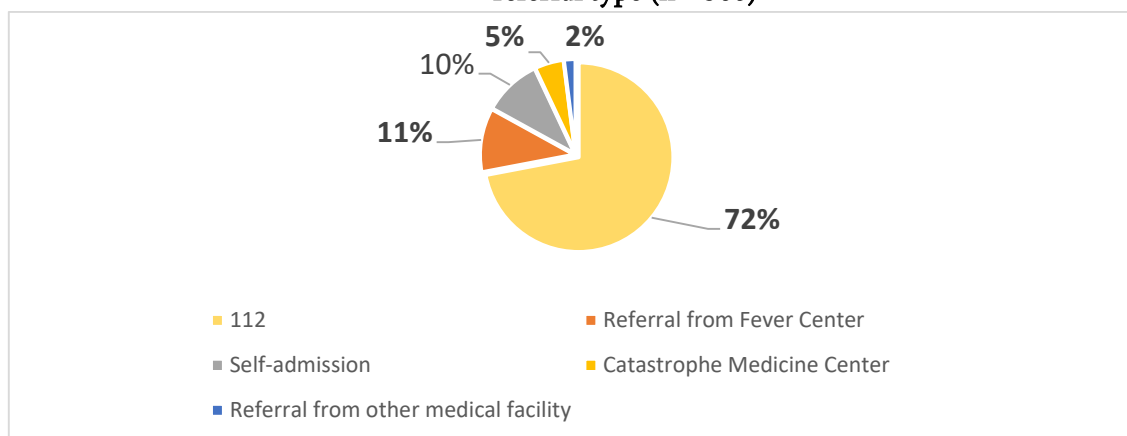
The main sources of information on hospitalized patients diagnosed with COVID - 19 were:

- Electronic module for registration of patients discharged from inpatient facility (Form IV - 066) (Order of the Minister of Internally Displaced Persons from the Occupied Territories, Labor, Health and Social Affairs of Georgia N01 - 43 / N of April 16, 2020);
- A special questionnaire filled out for each patient discharged from inpatient medical institution.
- Birth – death database.

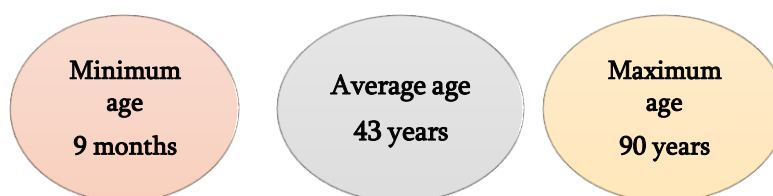
Research Results

Type of hospital referral: Majority (72.0%) of the 500 patients covered by the research were delivered to the hospital by ambulance.

Figure 30. Percentage distribution of COVID – 19 patients discharged from the inpatient facility by the referral type (n = 500)



Gender/ age structure: The maximum age of patients was 90 and the minimum 9 months. The average age of the patients was 43 years.

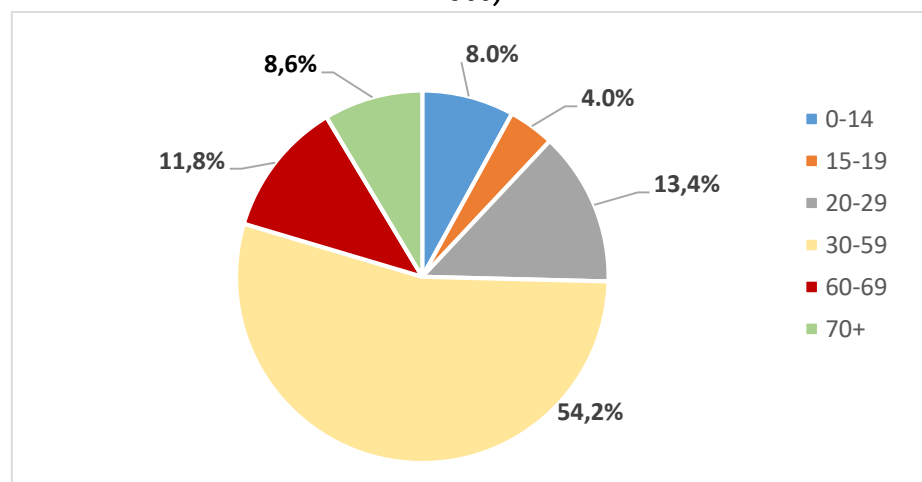


Patients included children aged from 0 to 15 years (8%), adolescents within the age range of 15–19 years (4%), and children group of 0 - 15 years equaled to 9.2%.

Table 7. Distribution by age of COVID – 19 diagnosed patients discharged from hospital (n = 500)

Age Group	Number	Share (%)
0-4	11	2.2
5-9	15	3.0
10-14	14	2.8
15-19	20	4.0
20-24	39	7.8
25-29	28	5.6
30-34	46	9.2
35-39	42	8.4
40-44	46	9.2
45-49	44	8.8
50-54	52	10.4
55-59	41	8.2
60-64	38	7.6
65-69	21	4.2
70+	43	8.6
Total number	500	100

Figure 31. Distribution of COVID – 19 diagnosed patients discharged from the hospital by age groups (n = 500)



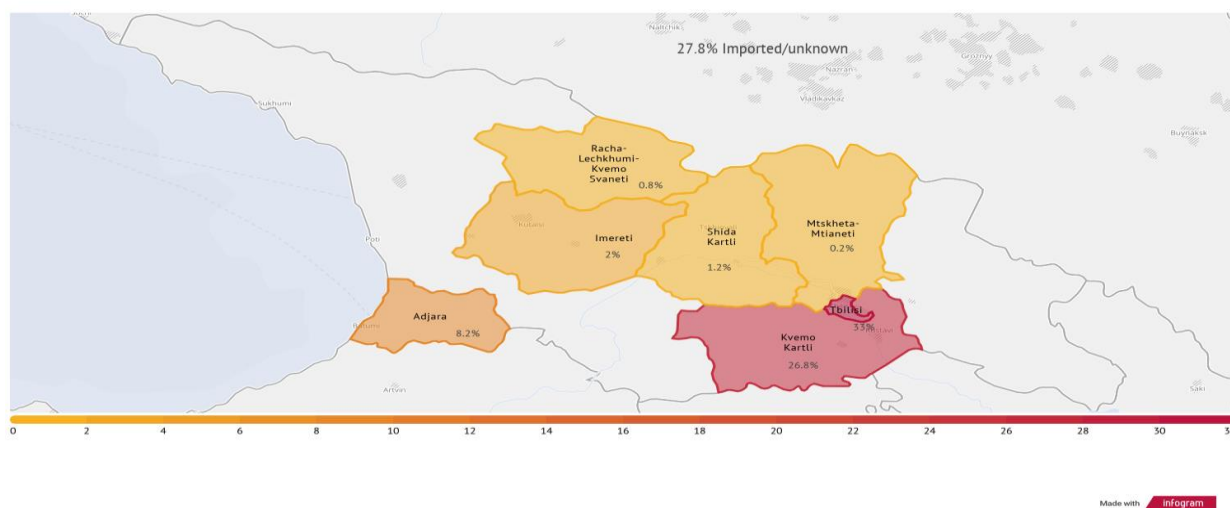
The number of discharged patients was almost equally distributed by gender: 49.4% males and 50.6% females. According to marital status, up to 70% of patients were married and almost half of the patients were employed. Over 50% of patients were overweight or obese.

Table 8. Distribution of COVID-19 patients discharged from hospital by gender and marital status, employment and body mass index (n = 500)

	Number	Share (%)
Gender		
Female	253	50.6
Male	247	49.4
Marital Status		
Married	344	68.8
Other	132	26.4
Unknown	24	4.8
Employment		
Employed	231	46.2
Unemployed	215	43.0
Pupil	1	0.2
Retired	39	7.8
Unknown	14	2.8
Body Mass Index		
<18.5	14	2.8
18.5–24.9	155	31.0
25–29.9	181	36.2
30 and over	68	13.6
Unknown	82	16.4
Total Number	500	100.0

Distribution of patients by regions: The survey analyzed regional distribution of 500 patients in two directions: according to the place of infection exposure and the place of hospitalization. The majority of patients by exposure come from Tbilisi (33%) and Kvemo Kartli (27%). 13% of cases were imported.

Map 4. Distribution of patients diagnosed with COVID-19 and discharged from the hospital by the place of infection exposure (n = 500)



According to the place of hospitalization, 68% of patients were treated in Tbilisi hospitals.

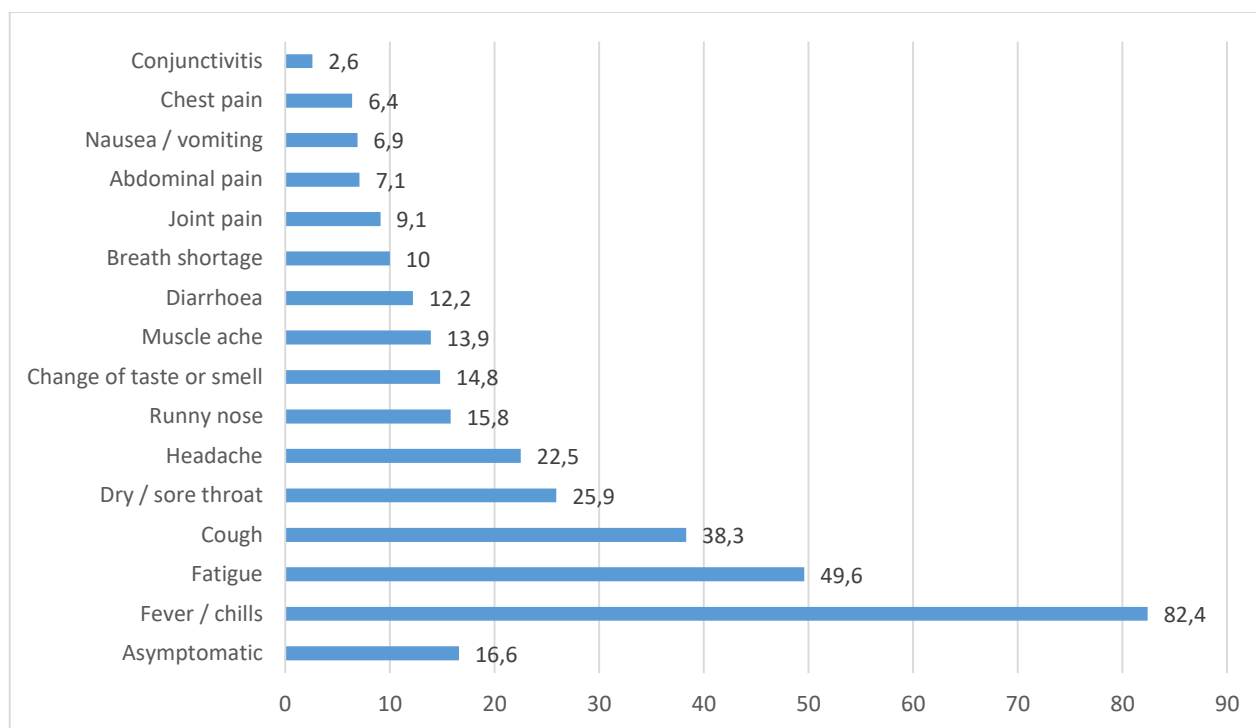
Table 9. Regional distribution of patients discharged from the hospital diagnosed with COVID-19 according to the place of hospitalization (n = 500)

	Total Number	Share (%)
Tbilisi	342	68.4
Mtskheta - Mtianeti	9	1.8
Kvemo Kartli	2	0.4
Imereti	45	9.0
Shida Kartli	52	10.4
Adjara A /R	50	10.0
Georgia	500	100.0

Clinical symptoms before hospitalization: As part of the study, the presence of clinical symptoms of the disease in each patient was analyzed prior to hospitalization.

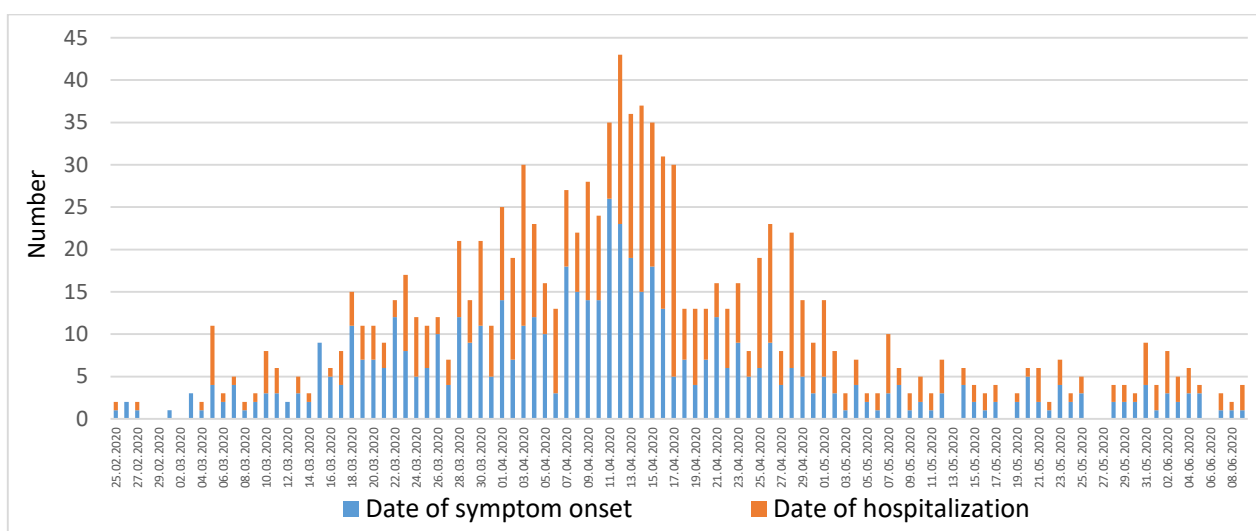
The most common symptoms are fever (82.4%, 95% CI 78.40% - 85.93%), fatigue (49.6%, 95% CI 44.70% - 54.51%), cough (38.3%, 95% CI 33.61% - 43.16%), sore throat (25.9%, 95% CI 21.76% - 30.39%) and headache (22.5%, 95% CI 18.58% - 26.82%). Of the 500 cases, 83 cases were asymptomatic during PCR testing (16.6%, 95% CI 13.44% - 20.16%). More than one symptom was noticed in 57.6% of patients (288 cases).

Figure 32. Distribution of COVID-19 diagnosed patients discharged from hospital according to clinical characteristics during hospitalization (n = 500)



The average number of days between the date of onset of clinical symptoms and the date of hospitalization was 4.7.

Figure 33. Distribution of COVID-19 diagnosed patients discharged from hospital by the onset of symptoms and the date of hospitalization (n = 500)



Underlying health conditions: Information on underlying health conditions of all hospitalized patients was obtained from their inpatient cards. 165 (33%) patients had various, predominantly chronic illnesses in

addition to coronavirus disease. The most common concomitant diseases among patients are hypertension (14%), other cardiovascular diseases (8%) and diabetes (8%).

Table 10. Distribution of underlying health conditions in patients discharged from hospital diagnosed with COVID-19 (n = 206)

Concomitant Diseases	Number	Share (%)
Cardiovascular diseases except of hypertension	39	7.8
Hypertension	70	14.0
COPD	12	2.4
Diabetes	38	7.6
Cancer	11	2.2
Liver disease	9	1.8
Viral hepatitis	9	1.8
Kidney disease	18	3.6

Major disease complications: Among the 500 hospitalized patients, 5% (25 cases) developed respiratory distress syndrome during hospitalization.

Table 11. Distribution of patients discharged from hospital diagnosed with COVID-19 by complication of the main disease (n = 143)

Major complications	Number	Share (%)
Respiratory failure	89	17.8
Respiratory distress syndrome of adults	29	5.8
Acute cardiovascular failure	25	5.0

Consumption of tobacco and alcohol: The share of tobacco users in the total number of patients was 9%. Alcohol consumption was observed only in men and the share of consumers was 2.4%.

Distribution of patients by the severity of the disease: The following criteria were used to determine the severity of the disease:¹¹

- Mild / asymptomatic course of acute respiratory infection without pneumonia;
- Moderate progression - acute respiratory infection with pneumonia, without respiratory failure;
- Severe progression - acute respiratory infection with pneumonia and with or without respiratory failure and sepsis / septicemia;
- Critical progression - the need for managed respiration (non-invasive or invasive ventilation) in the following conditions: severe pneumonia, acute respiratory distress syndrome (ARDS), sepsis / septicemia, septic shock, polyorganic insufficiency.

Depending on the severity of the disease, 52% of cases were mild, while 33% moderate. In 8.2% of cases, the disease progression was severe or critical.

¹¹ "Clinical management of infection (COVID-19) caused by novel coronavirus (SARS-CoV-2)", State Standard for Clinical Situation Management (protocol), Decree 01-119/n

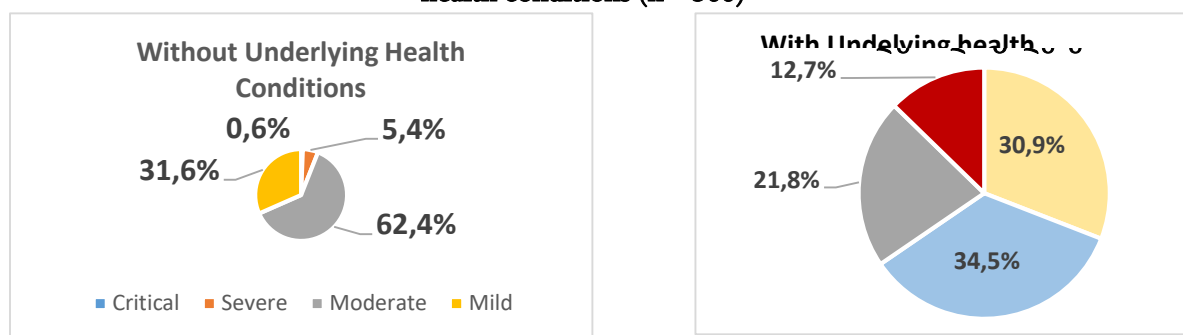
Table 12. Distribution of COVID-19 diagnosed patients discharged from the hospital by the severity of the disease (n = 500)

Severity of Disease Progression	Number	Share (%)
Mild	260	52.0
Moderate	163	32.6
Severe	54	10.8
Critical	23	4.6
Total Number	500	100.0

8% of patients (40 patients) were transferred to the Intensive Care Unit.

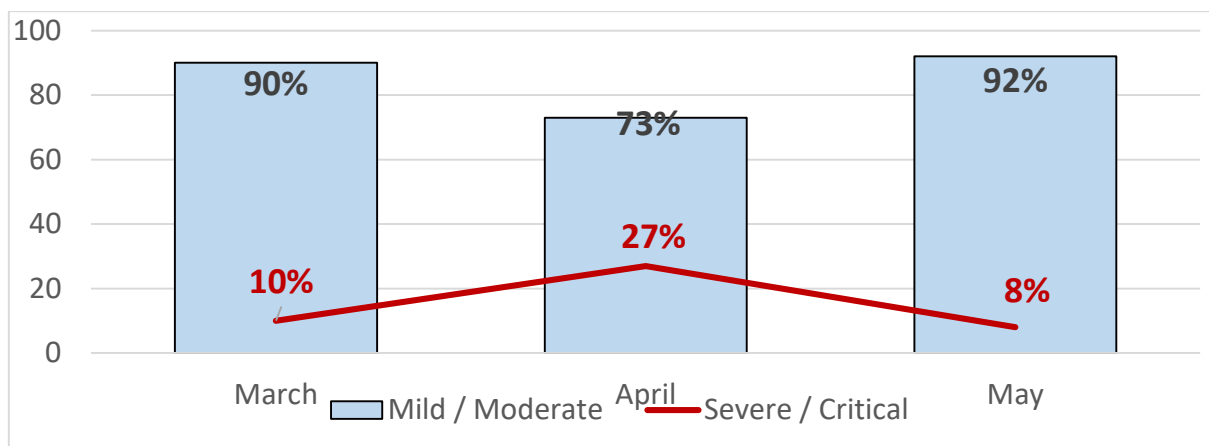
The severity of the disease progression varied considerably depending on the presence of underlying health conditions. In patients who did not have concomitant diseases, infection was mild or moderate in 94% of cases, and in 35% of cases, with concomitant aspects, the disease was severe or critical.

Figure 34. The Severity of the COVID-19 progression in patients with and without of underlying health conditions (n = 500)



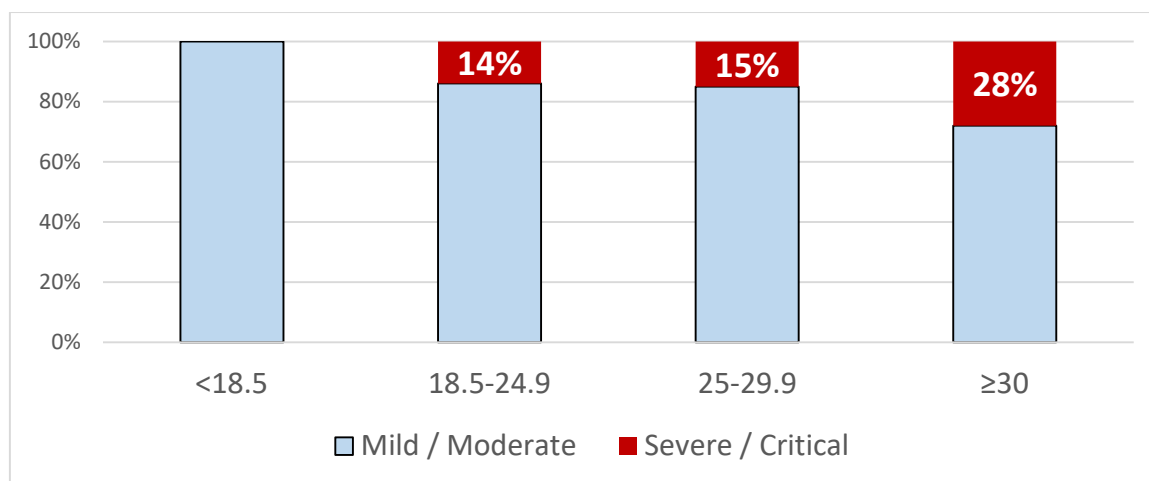
The severity of the disease also varied by months. In April 2020, the number of cases of mild to moderate severity decreased by 20% compared to March, and the share of severe and critical cases almost tripled. In May, this process was reversed, with increase in the number of mild to moderate cases by 26% and reduction in the share of severe and critical cases three times (from 27% to 8%).

Figure 35. The severity of the COVID-19 disease by months (n = 500)

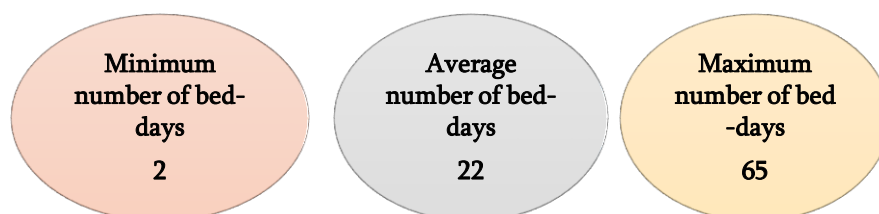


Patients who were overweight or obese experienced more severe progression of the disease.

Figure 36. The severity of the COVID-19 disease by body mass index (n=500)



Bed-days: The average number of bed-days spent in a hospital by surveyed patients' was 22.



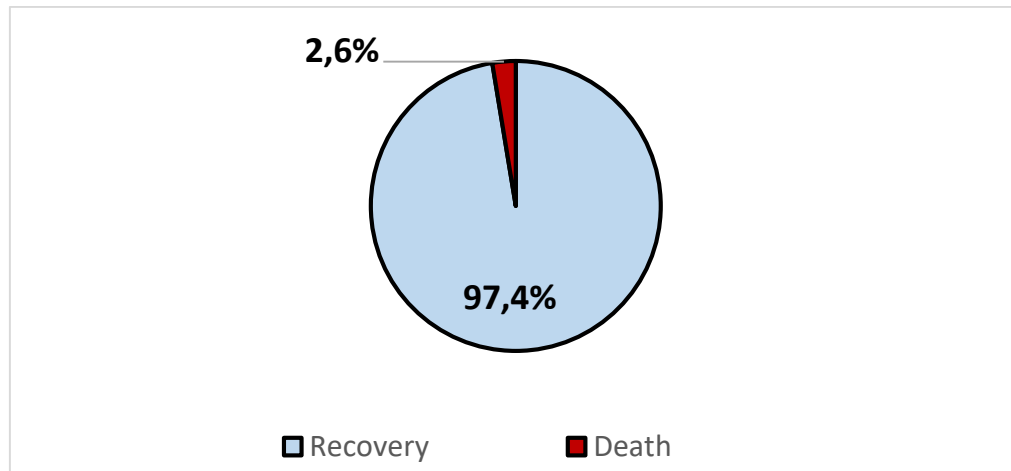
The average number of bed-days spent by patients in hospital was higher in patients with concomitant diseases.

Table 13. Distribution of COVID-19 patients discharged from hospital by bed-days (n = 500)

	Average number of bed-days
Presence of concomitant disease	
yes	23
no	21
Severity of disease progression	
Mild	21
Moderate	24
Severe	23
Critical	21
Average Number	22

Treatment: 487 (97.4%) discharged patients recovered and 13 cases ended with lethal outcome (mortality rate - 2.6%). Most of the dead belonged to the age group of 70 and older.

Figure 37. **Distribution of COVID-19 hospitalization cases by outcome (n = 500)**



V. CONCLUSION

The document prepared by the National Center for Disease Control and Public Health, covering analysis of the measures taken by the Center and descriptive study (including 800 patients starting with the first confirmed case and the hospitalized and discharged 500 patients) represents interesting information both for local and international partners.

The effective (early and timely) measures taken by Georgia have to some extent reduced the growing number of infection cases. Despite the achieved results, the intensive implementation of preventive / restrictive measures, detection of infected persons through testing, contact tracing and following isolation remain as important directions for managing epidemic in the country. The existing approach should be further strengthened. In addition, it would be advisable to create periodical health monitoring system for recovered patients at outpatient level, in order to investigate potential long-term outcomes of yet unknown infection.

VI. ACKNOWLEDGMENTS

The National Center for Disease Control and Public Health extends its appreciation to the Coordination Council established by the Government of Georgia, the Ministry of Health and all other agencies within the Council for their support in implementation of the measures taken in accordance with the recommendations.

The Center extends its special gratitude to all international and local organizations that supported its operations during the challenging period. This assistance made it possible to maximize effectiveness of implemented activities. More than 40 organizations have provided technical and / or financial assistance to the National Center for Disease Control. The complete list of these organizations and the letter of appreciation are posted at the official Facebook page of the Center.

Abbreviations

ARDS	Acute Respiratory Distress Syndrome
PD	Person with Disabilities
WHO	World Health Organization
COVID-19	Coronavirus Disease - 19
CDC	Centers for Disease Control and Prevention
CI	Confidence Interval
IHR	International Health Regulations
PCR	Polymerase Chain Reaction
SARS-CoV-2	Severe Acute Respiratory Syndrome-Related Coronavirus 2

COVID-19 Update

16/06/2020 Georgia



879

Confirmed cases



0

New cases



724

Recovered



14

Deaths



2 933

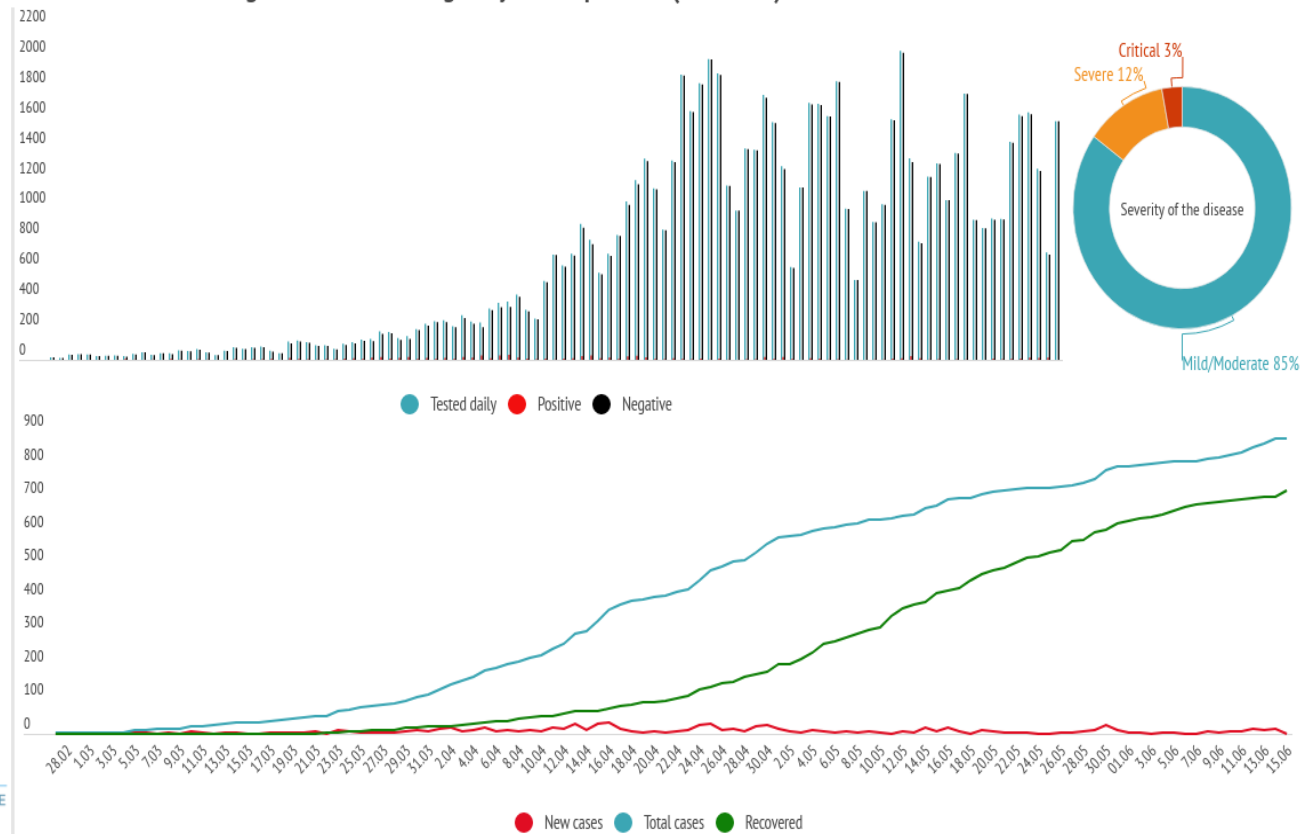
In quarantine



დაავადებათა კონტროლისა და
საზოგადოებრივი ჯანმრთელობის
ცენტრის ეროვნული ცენტრი

GEORGIAN NATIONAL CENTER FOR DISEASE
CONTROL AND PUBLIC HEALTH

Positive and negative results among daily tested patients (PCR tests)



Covid-19 in Georgia

Total confirmed cases



879



Among confirmed cases



141

Active case*



724(82%)

Recovered



14

Death



82 479

Number of tests



78 158

Primarily tested (PCR test)



22 190

PCR tests per million population



2 933

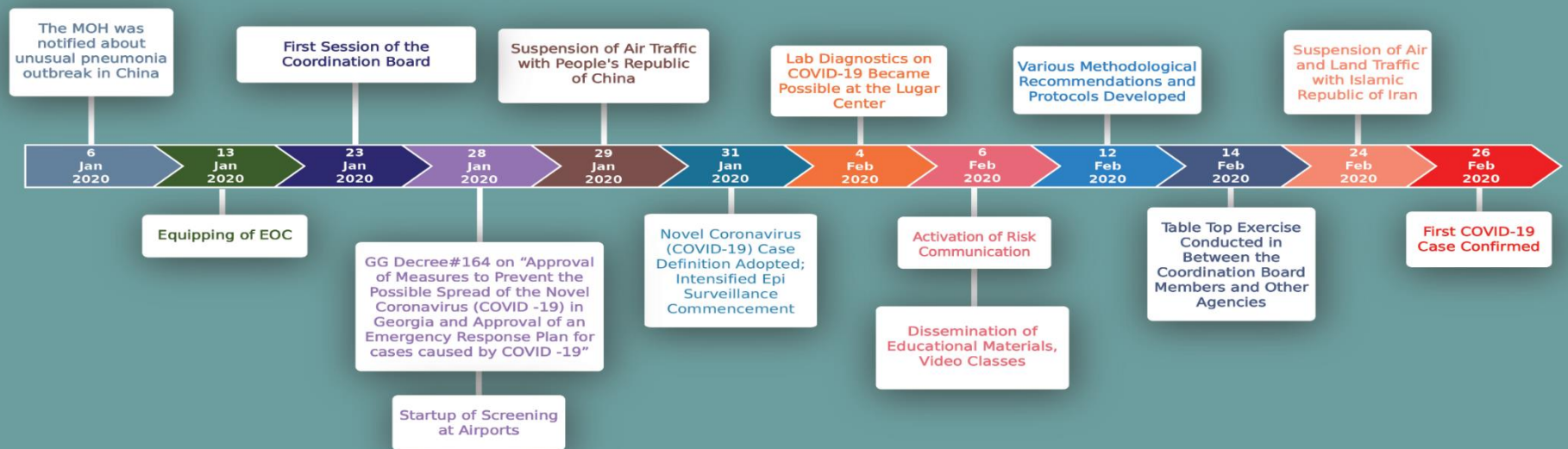
In quarantine

*confirmed cases, which are receiving treatment now

16.06.2020 09:00

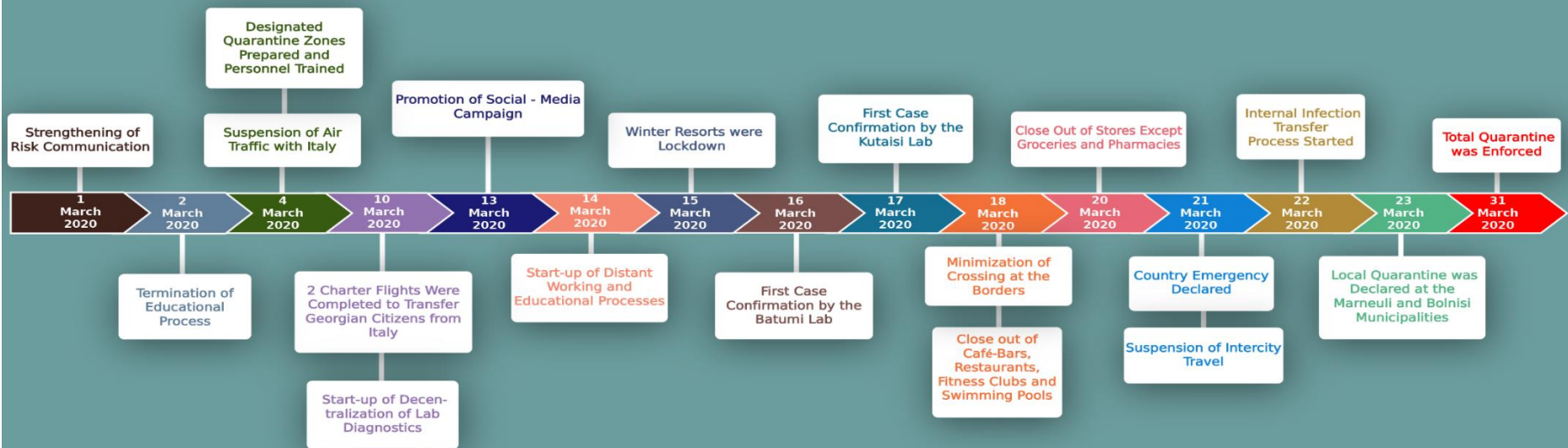
Made with **infogram**

Actions Taken in Georgia in terms of Novel Coronavirus (COVID-19) Prior to the First Confirmed Case



დაავადებათა კონტროლისა და
საზოგადოებრივი ჯანმრთელობის
ეროვნული ცენტრი
GEORGIAN NATIONAL CENTER FOR DISEASE
CONTROL AND PUBLIC HEALTH

Actions Taken in Georgia after the First Confirmed Case in Terms of Combatting COVID-19



#Stayhome

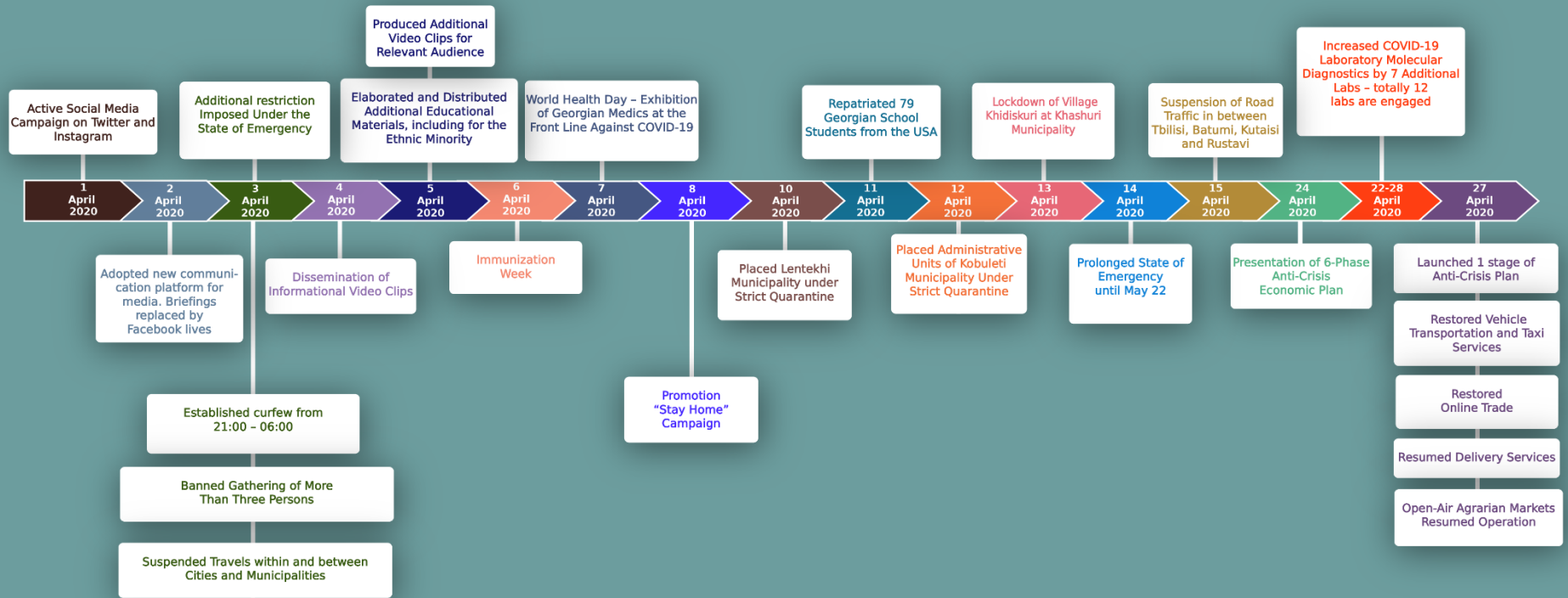


დაავადებათა კონტროლისა და
საზოგადოებრივი ჯანმრთელობის
ეროვნული ცენტრი

GEORGIAN NATIONAL CENTER FOR DISEASE
CONTROL AND PUBLIC HEALTH

Actions Taken in Georgia in Terms of Fighting the Novel Coronavirus Infection COVID-19 After the Confirmation of the First Case

April 2020



#Stayhome

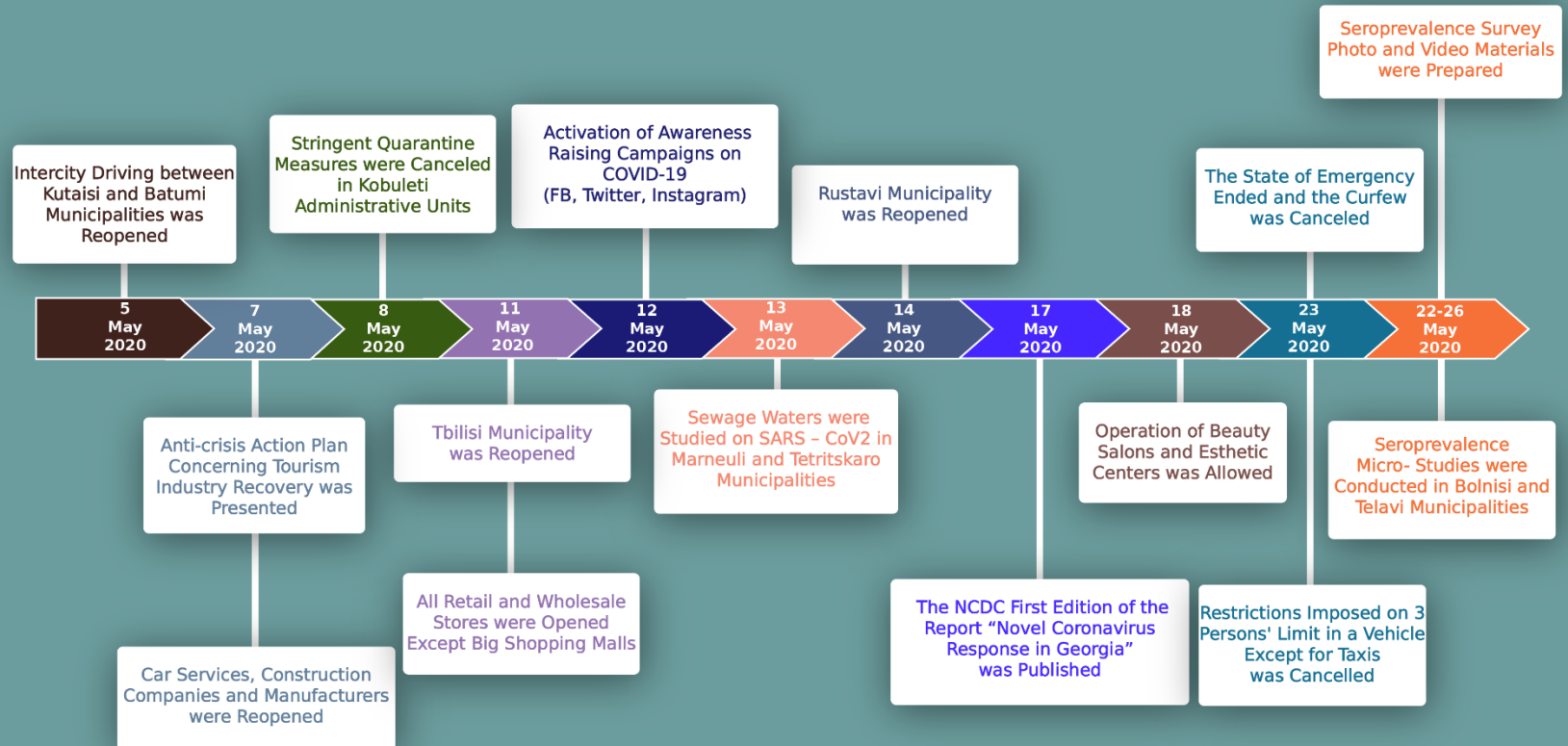
During this period, the Government of Georgia has been continuing repatriation of Georgian Citizens from abroad and enhanced monitoring and prevention of spread of COVID-19 are being implemented in compliance with the established procedures.



საქართველოს ეპიდემიოლოგიისა და საზოგადოებრივი ჯანმრთელობის ეროვნული ცენტრი
GEORGIAN NATIONAL CENTER FOR DISEASE CONTROL AND PUBLIC HEALTH

Relaxing Measures after the Lockdown in Georgia in terms of COVID-19

May, 2020



დაავადებათა კონტროლისა და
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GEORGIAN NATIONAL CENTER FOR DISEASE
CONTROL AND PUBLIC HEALTH



National Center for Disease Control and Public Health

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