



Coronavirus Disease 2019 (COVID-19)

National Surveillance Report as of 28/04/2020

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Summary

- As of April 28th, a total of 836 COVID-19 cases and 20 deaths (case fatality rate: 2.4%) have been reported in the Republic of Cyprus.
- Among these cases, 21.5% are health-care workers (n = 180) - 4.5% physicians (n = 38), 10.8% nurses (n = 90), 1.4% other health occupations (n = 12), and 4.8% auxiliary staff (n = 40).
- The median age of cases is 46 years (interquartile range - IQR: 32-60 years); 50.5% are female.
- Overall, of 695 cases for which the place of exposure was known, locally acquired infections (index cases and close-contacts of confirmed cases) were 579 (83.3%) - of these 9.7% (n = 56) were related to a health-care facility (General Hospital in Pafos) and 13.8% (n = 80) were reported in Aradippou municipality.
- In total, 19.6% (n = 164) of cases received hospital care, of which 116 (70.7%) have been discharged alive from the hospital. Median age of all hospitalized patients is: 62 years (interquartile range: 49.5-72.5 years), and 66.9% are males.
- Six patients were still in intensive care units (for part of the day if they died, were discharged or transferred on that day or for the whole day, by April 28th); of these 4 (66.7%) were intubated.
- Overall, 296 (35.4%) cases have recovered.
- A total of 53,120 tests have been performed as of April 28th (6,064.6 per 100,000 population).



Epidemiological surveillance in the Republic of Cyprus

Analyses are based on laboratory-confirmed cases notified to the Epidemiological Surveillance Unit of the Ministry of Health.

As of April 28th, 836 laboratory-confirmed cases of coronavirus disease 2019 (COVID-19) have been reported (Figure 1 and 2).

The median time between symptoms onset and date of sampling was 4 days (Interquartile range - IQR: 2-7 days). It should be noted that for 14 cases the date of sample collection was before the onset of symptoms because of immediate testing of contacts of possible and laboratory-confirmed cases.

As of April 28th, the 14-day cumulative incidence rate of COVID-19 (per 100,000 population), a measure which reflects the number of active COVID-19 cases in the population (prevalence)¹, is 14.3 per 100,000 population (Figure 3).

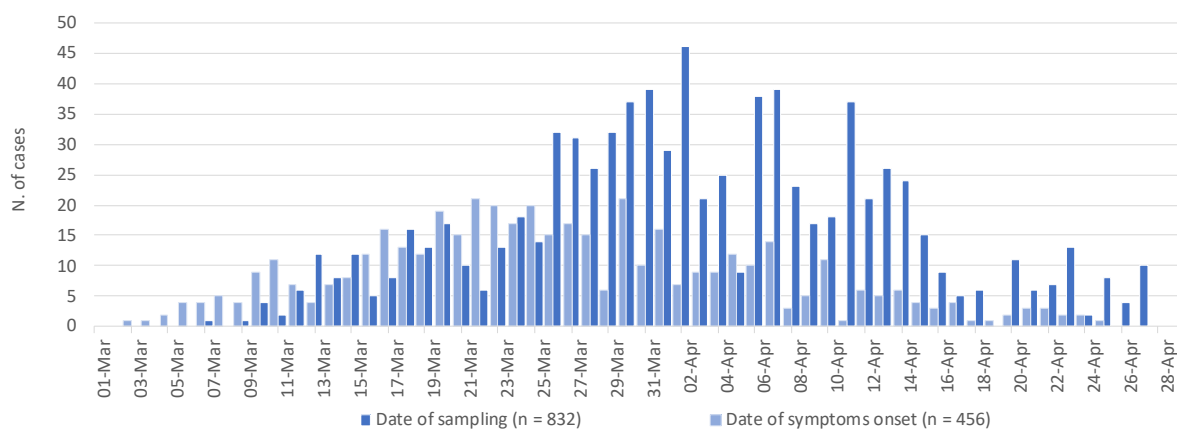


Figure 1: Number of laboratory-confirmed COVID-19-cases in Cyprus since 01/03/2020 by date of sample collection and date of symptoms onset (n = 832 and n = 456 with data available, respectively).

Recent data should be interpreted with caution due to the possibility that cases with date of onset within the reporting period have not yet been diagnosed.

¹Coronavirus disease 2019 (COVID-19) pandemic: increased transmission in the EU/EEA and the UK – seventh update, 25 March 2020. Stockholm: ECDC; 2020.

<https://www.ecdc.europa.eu/sites/default/files/documents/RRA-seventh-update-Outbreak-of-coronavirus-disease-COVID-19.pdf>

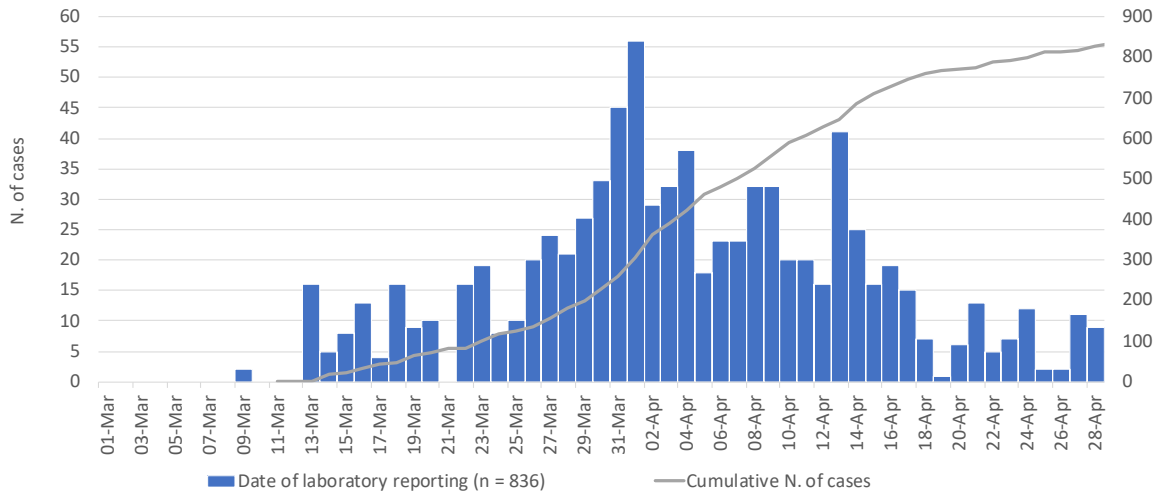


Figure 2: Number and cumulative number of laboratory-confirmed COVID-19-cases in Cyprus since 01/03/2020, by date of laboratory reporting (n = 836). Recent data should be interpreted with caution due to the possibility that cases with date of onset within the reporting period have not yet been diagnosed.

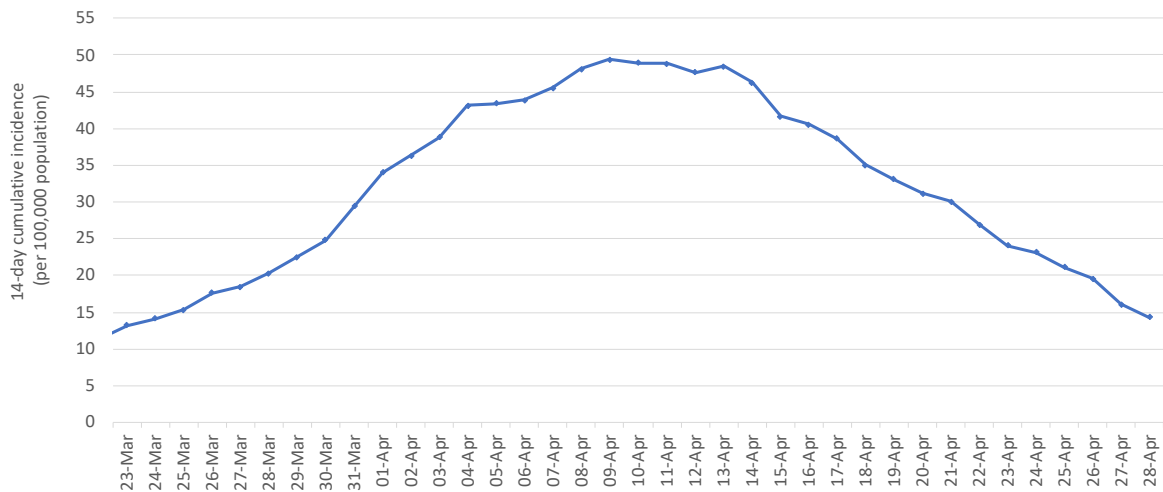


Figure 3. COVID-19 14-day cumulative incidence rate per 100,000 population (proxy of COVID-19 prevalence).

March 23rd represents the first 14th day since cases have been reported.

Characteristics of the cases

Among these cases, 49.5% are male (n = 414) and 50.5% female (n = 422).

The median age of cases is 46 years (IQR: 32-60 years). By age groups, cases included 51 infants, children and adolescents aged 0-17 years-old (6.1%), 574 adults aged 18-59 years (68.7%), and 210 persons aged 60 years and older (25.2%). The age of one notified case has not been recorded at the moment (Figure 4).

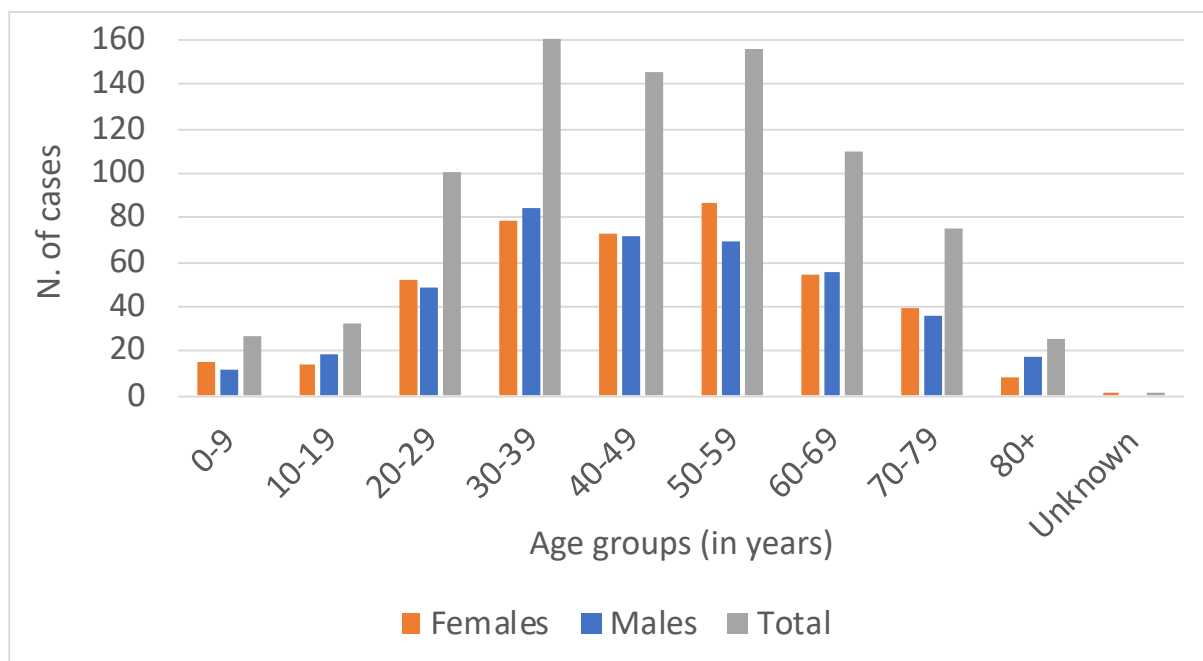


Figure 4: Laboratory-confirmed COVID-19-cases in Cyprus by sex and age groups.

Among all cases, 317 (37.9%) were reported in Nicosia district, 218 (26.1%) in Larnaka, 153 (18.3%) in Pafos, 91 (10.9%) in Limassol, 40 (4.8%) in Ammochostos, and 14 (1.7%) were reported either in British bases or had a residence abroad, or information was not available (Table A1 in appendix).

Figure A1 in appendix shows the distribution of cases by postal code.

Notably, 122 cases (14.6%) were reported in Aradippou, a municipality in Larnaka district (Table A1 in appendix). Cases in Aradippou, including a cluster in a local bakery production line, are mainly males (59.0%; n = 72) and the median age is 49 years (IQR: 33-62 years). If the cluster is excluded, cases are mainly female (53.4%; n = 50) and the median age is 55 years (IQR: 40.5-69.5 years).



Among the 836 cases, 21.5% are health-care workers² (n = 180), of which 4.5% physicians (n = 38), 10.8% nurses (n = 90), 1.4% other health occupations (n = 12), and 4.8% auxiliary staff (n = 40).

Table 1 shows the distribution of health-care workers by district of residence.

Table 1: Health-care workers by district of residence (n=180).

District	Health-care worker	Physicians	Nurses	Other health occupations	Auxiliary staff
Ammochostos	16	3	7	1	5
Larnaka	40	7	22	3	8
Limassol	15	3	9	1	2
Nicosia	50	11	20	5	14
Pafos	59	14	32	2	11
Total	180	38	90	12	40

Epidemiological link

As of April 28th, place of exposure is available for 695 cases (83.1%).

In total, 16.7% (n = 116) of laboratory-confirmed COVID-19-cases had history of travel or residence abroad during the 14 days prior to symptom onset (imported). These cases have a direct link to the UK and Greece, mainly.

Locally acquired infections (index cases and close-contacts of confirmed cases) occurred in 83.3% (n = 579 of 695 with known place of exposure) of the cases, of which 9.7% (n = 56) were related to a health-care facility (General Hospital in Pafos).

Of all cases in Aradippou (Larnaka district) (n = 122), 80 (65.6%) were locally-acquired, 10 (8.2%) imported and for 32 cases (26.2%) the epidemiological link was not recorded at the moment.

Table A1 in the appendix shows the number and the rate (per 100,000 population) of locally-acquired cases by district of residence.

² The term “health-care worker” is based on the occupation and not on the place of exposure. Health-care workers are defined as all health care professionals, allied health workers, and auxiliary health workers.



Clinical features

Of the 836 laboratory-confirmed COVID-19-cases, clinical information is available for 94.4% (n = 823), of which 29.5% (n = 243) reported no symptoms at diagnosis and 70.5% (n = 580) reported at least one symptom. The most commonly reported symptoms were:

- cough (299/799; 37.4%),
- fever (270/808; 33.4%),
- myalgia (192/806; 23.8%),
- sore throat (152/804; 18.9%),
- anosmia (105/712; 14.7%), and
- shortness of breath (104/790; 13.2%).

Other reported symptoms were diarrhoea, runny nose, and headache.

Table A2 in appendix reports the sex and age distribution of asymptomatic cases at diagnosis.

Pre-existing conditions

Information on comorbidities was available for 720 (86.1%) cases. Of these, 305 (42.4%) reported at least one comorbidity.

The most commonly reported comorbidities were:

- hypertension (119/700; 17.0%),
- diabetes (66/704; 9.4%),
- heart disease (60/700; 8.6%), and
- cancer (18/433; 4.2%).

Other reported comorbidities were chronic kidney disease, autoimmune disease, and chronic respiratory disease.



Deaths

As of April 28th, 20 deaths were reported in Cyprus (Case Fatality Rate - CFR: 2.4%). The mortality rate for COVID-19 is 2.3 per 100,000 population.

Sixteen deaths (80.0%) occurred in men and four (20.0%) in women; the median age of all deaths was 76 years (IQR: 67-79 years). Six deaths were reported among residents in Larnaka and in Pafos, each, three in Nicosia and Ammochostos, each, and two in Limassol (Appendix Table A3).

The median time from date of sampling to death was 7 days (IQR: 3.5-15.0 days). Figure A3 shows the Kaplan-Meier curve of the time from date of sampling to death.

For 15 deaths, COVID-19 was the underlying cause of death (COVID-19 CFR: 1.8%). Figure 5 reports the number of deaths by date.

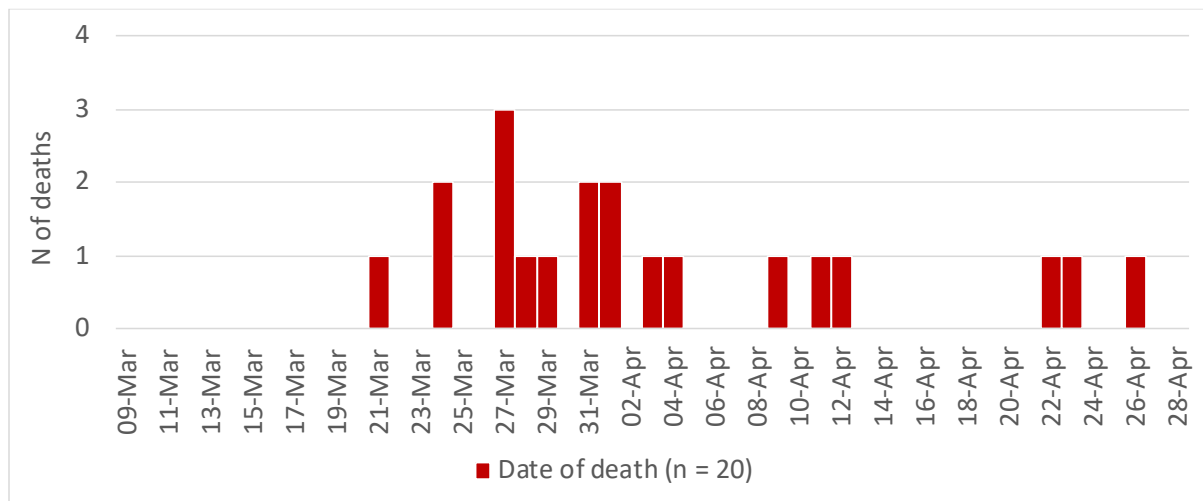


Figure 5: Number of deaths among COVID-19 cases in Cyprus by date of death (n = 20).

Hospitalization and intensive care unit (ICU) admissions³

In total, 19.6% (n = 164) patients received hospital care, and 116 patients (70.7%) have been discharged alive from the hospital. The median age of hospitalized patients was 62 years (IQR: 49.5-72.5 years). Hospitalized cases were mainly males (n = 109; 66.5%). Figure 6 shows the total number of hospital admissions by date.

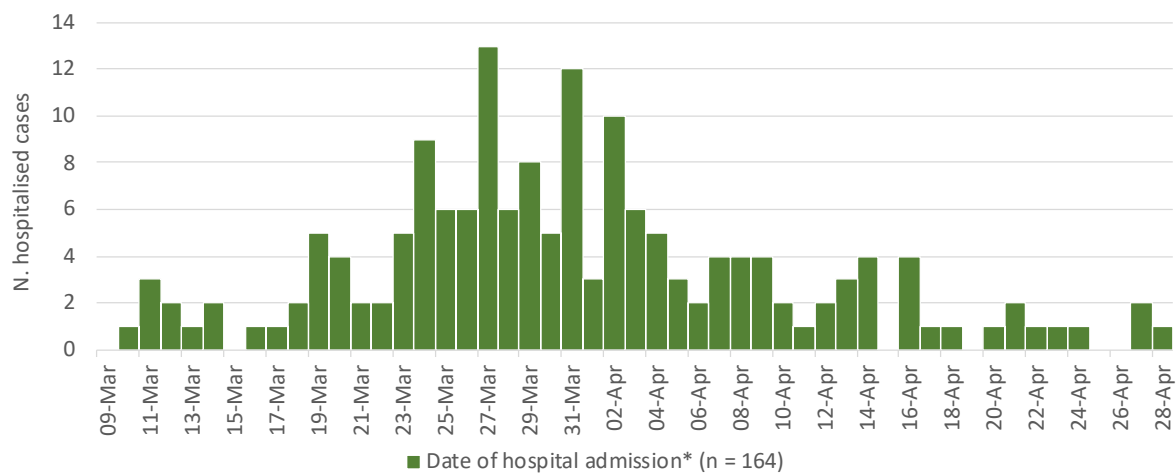


Figure 6: Number of laboratory-confirmed COVID-19 cases by date of hospital admission (n = 146).

* Date of hospital admission, for inpatients hospitalised prior the beginning of the epidemic, was replaced with date of sampling.

Overall, 31 cases (18.9% of all hospitalized patients) have been admitted to ICU⁴, of which 6 were still in ICU (as of April 28th).

A total of 26 ICU patients (83.9% of all ICU patients) have been intubated, of which 4 (66.7% of all patients currently in ICU) are still intubated.

The overall median length of stay in ICU (for all 31 ICU cases, considering those still in ICU until 28th April) was 10 days (IQR: 7-27 days). Figure A4 shows the Kaplan-Meier curve of the length of stay in ICU.

³ Data on hospitalisation and ICU are provisional and should be interpreted with caution because delay in data reporting is likely; for the construction of the curve, people are no longer in an ICU the day next to the date of their discharge, death or transfer.

⁴ Intensive care unit (ICU) refers only to the ICU in Limassol General Hospital and to the ICU in Nicosia General Hospital.



For patients who died while in ICU (n = 13), the median length of stay in ICU was 9 days (IQR: 3-16). Figure A5 shows the Kaplan-Meier curve of the length of stay in ICU for the people who died.

For patients transferred/discharged alive from ICU (n = 12), the median length of stay in ICU was 9 days (IQR: 7.5-24.5 days).

The median age of patients ever admitted to ICU was 66 years (IQR: 56-76 years). ICU patients are mainly male (n = 22; 71.0%).

The number of cases currently in ICU is 0.7 per 100,000 population. For comparison, Italy and Lombardia reported the highest rates of 6.7 per 100,000 population (n = 4,068) and 13.8 per 100,000 population (n = 1,381) on April 3rd. The ICU rates in Italy and Lombardia on April 28th are 3.1 per 100,000 population (n = 1,863) and 6.6 per 100,000 population (n = 665) (<https://github.com/pcm-dpc/COVID-19/blob/master/dati-andamento-nazionale/dpc-covid19-ita-andamento-nazionale-20200428.csv>; <https://github.com/pcm-dpc/COVID-19/blob/master/dati-regioni/dpc-covid19-ita-regioni-20200428.csv>).

Figure 7 shows the number of patients in ICU, by day and intubation. Table A4 in the appendix shows the total number of ICU admissions by date.

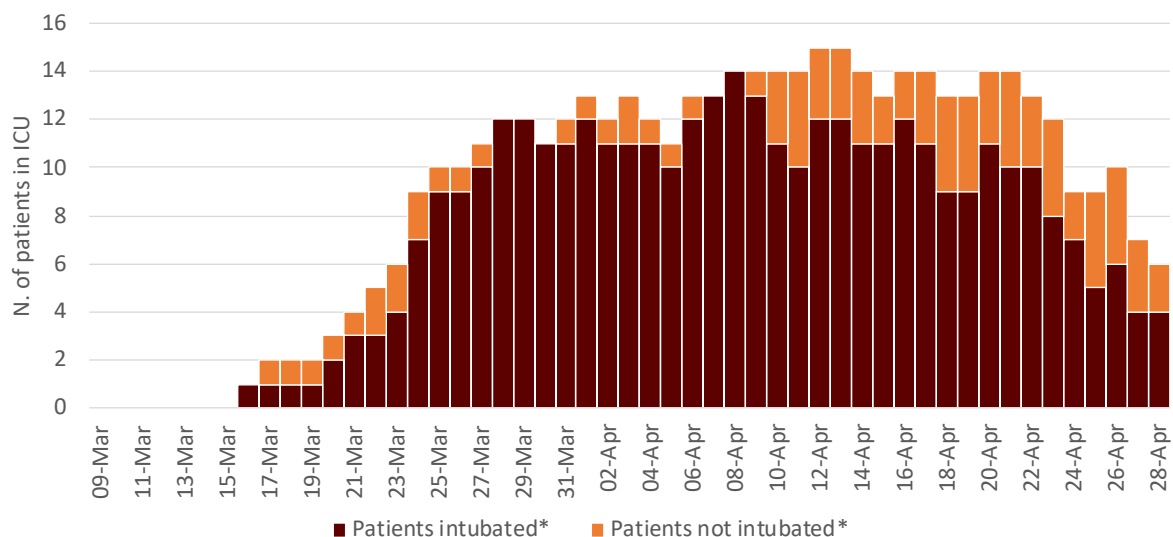


Figure 7: Number of laboratory-confirmed COVID-19 cases in ICU by date and intubation.

**Date of discharge/transfer/death included*



Recovered

As of April 28th, 35.4% (n = 296) of COVID-19 cases have recovered⁵.

The median time between the second negative result and the first date of sampling was 18 days (IQR: 16-21 days); for two cases the dates of sampling were not available at the moment.

Table 2 shows the number and percentage of recovered cases and their characteristics.

Table 2: Characteristics of recovered cases (n = 296).

Characteristics	Total	Recovered	
	N	n	%
Total	836	296	35.4
Sex			
Male	414	163	39.4
Female	422	133	31.5
Age groups (years)			
0-9	25	7	28.0
10-19	31	6	19.4
20-29	89	34	38.2
30-39	155	74	47.7
40-49	139	55	39.6
50-59	145	59	40.7
60-69	105	35	33.3
70-79	74	22	29.7
80+	25	4	16.0
Unknown	1	0	0.0

⁵ For symptomatic cases, or for cases hospitalised, a COVID-19 case can be considered cured after the resolution of symptoms and two negative tests for SARS-CoV-2 at 24-hour interval at least.

For asymptomatic cases, or for persons isolated at home, the negative tests to document virus clearance should be obtained at a minimum of 14 days after the initial positive test (end of the quarantine period). Novel coronavirus (SARS-CoV-2). Discharge criteria for confirmed COVID-19 cases- When is it safe to discharge COVID-19 cases from the hospital or end home isolation? - Technical Report, 10 March 2020. Stockholm: ECDC; 2020.

Comparison with selected countries

As of April 28th, in Cyprus the reporting rate was 95.4 cases per 100,000 population, the mortality rate was 2.3 deaths per 100,000 population and the CFR was 2.4%.

Table 3 shows COVID-19 indicators for Cyprus and other selected countries.

Figure A2 in appendix reports the rates of cumulative tests and cases (per 100,000 population) in Cyprus and other selected countries. In Cyprus the testing rate is 6,064.6 per 100,000 population.

It should be noted that the number of cases, tests and deaths for Cyprus are aggregated and include people from abroad and the British bases, while the total population does not include inhabitants from abroad or from the British bases.

Table 3: COVID-19 indicators by selected countries, as of 28/04/2020.

Country	N. of cases †	N. of cases (per 100,000 pop)	N. of tests §	N. of tests (per 100,000 pop)	N. of deaths†	CFR° (%)	Mortality rate (per 100,000 pop)	Pop. (in thousands)†
Cyprus	836	95.4	53,120	6,064.6	20	2.4	2.3	875.9*
Italy	199,414	330.0	1,846,934	3,056.3	26,977	13.5	44.6	60,431.3
USA	988,451	302.1	5,795,728	1,771.5	56,245	5.7	17.2	327,167.4
UK	157,149	236.4	763,387	1,148.1	21,092	13.4	31.7	66,488.9
Greece	2,534	23.6	66,094	616.1	136	5.4	1.3	10,727.7
Malta	450	93.1	25,645	5,303.7	4	0.9	0.8	483.5
Sweden	18,926	185.9	94,500	928.0	2,274	12.0	22.3	10,183.2
Netherlands	38,245	222.0	168,745	979.3	4,518	11.8	26.2	17,231
Republic of Korea	10,752	20.8	608,514	1,178.5	244	2.3	0.5	51,635.3

†Number of cases, number of deaths and population (in thousands) for all countries, but Cyprus, as reported by ECDC at

<https://www.ecdc.europa.eu/en/publications-data/download-todays-data-geographic-distribution-covid-19-cases-worldwide>

§ Data for Cyprus: internal communication; data for other countries: <https://www.finddx.org/covid-19/test-tracker/>

° CFR: Case fatality ratio.

* Data from Statistical Service of the Republic of Cyprus, 2018 ([Statistical Service of the Republic of Cyprus](#))



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Appendix

Table A1: Laboratory-confirmed COVID-19-cases in Cyprus by district of residence and origin (n = 836).

District/ <i>municipality</i>	Total		Travel-related		Unknown origin		Locally-acquired			Pop.
	N	%	N	%	N	%	N	%	N (per 100,000 pop)	
Ammochostos	40	4.8	8	6.9	9	6.4	23	4.0	47.7	48,200
Larnaka	218	26.1	16	13.8	46	32.6	156	26.9	106.1	147,000
<i>Aradippou</i>	122	14.6	10	8.6	32	22.7	80	13.8	416.1	19,228
Limassol	91	10.9	24	20.7	13	9.2	54	9.3	22.0	244,900
Nicosia	317	37.9	45	38.8	46	32.6	226	39.0	66.1	341,700
Pafos	153	18.3	11	9.5	26	18.4	116	20.0	123.3	94,100
Other	17	2.0	12	10.3	1	0.7	4	0.7		
Total	836	100	116	100	141	100	579	100	66.1	875,900

Other includes British Bases, abroad and unknown



Table A2: Sex and age distribution of asymptomatic cases at diagnosis (n = 243).

Characteristics	All cases (n = 836)	Asymptomatic cases (n = 243)	
	N	n	%
Sex			
Male	414	134	32.4
Female	422	109	25.8
Age groups (years)			
0-9	27	11	40.7
10-19	33	15	45.5
20-29	101	33	32.7
30-39	163	57	35.0
40-49	145	39	26.9
50-59	156	40	25.6
60-69	110	21	19.1
70-79	75	22	29.3
80+	25	5	20.0
Unknown	1	0	0.0
Median age in years (IQR*)	46 (32-60)	40 (30-56)	

*IQR: Interquartile Range



Table A3: Characteristics of all deaths (n = 20).

Characteristics	N	%
Sex		
Male	16	80.0
Female	4	20.0
Age groups (years)		
0-9	0	0.0
10-19	0	0.0
20-29	0	0.0
30-39	0	0.0
40-49	1	5.0
50-59	1	5.0
60-69	6	30.0
70-79	8	40.0
80+	4	20.0
Median age in years (IQR*)	76 (67-79)	
District		
Ammochostos	3	15.0
Larnaka	6	30.0
Limassol	2	10.0
Nicosia	3	15.0
Pafos	6	30.0

*IQR: Interquartile Range



Table A4: Number of cases by date of sampling, laboratory reporting, death, and ICU admission.

Date	Sampling (n = 832)	Laboratory reporting (n = 836)	Death (n = 20)	ICU admission (n = 31)
01-Mar	0	0	0	0
02-Mar	0	0	0	0
03-Mar	0	0	0	0
04-Mar	0	0	0	0
05-Mar	0	0	0	0
06-Mar	0	0	0	0
07-Mar	1	0	0	0
08-Mar	0	0	0	0
09-Mar	1	2	0	0
10-Mar	4	0	0	0
11-Mar	2	0	0	0
12-Mar	6	0	0	0
13-Mar	12	16	0	0
14-Mar	8	5	0	0
15-Mar	12	8	0	0
16-Mar	5	13	0	1
17-Mar	8	4	0	1
18-Mar	16	16	0	0
19-Mar	13	9	0	0
20-Mar	17	10	0	1
21-Mar	10	0	1	1
22-Mar	6	16	0	1
23-Mar	13	19	0	1
24-Mar	18	8	2	3
25-Mar	14	10	0	2
26-Mar	32	20	0	1
27-Mar	31	24	3	2
28-Mar	26	21	1	3
29-Mar	32	27	1	1
30-Mar	37	33	0	0
31-Mar	39	45	2	0
01-Apr	29	56	2	1
02-Apr	46	29	0	0

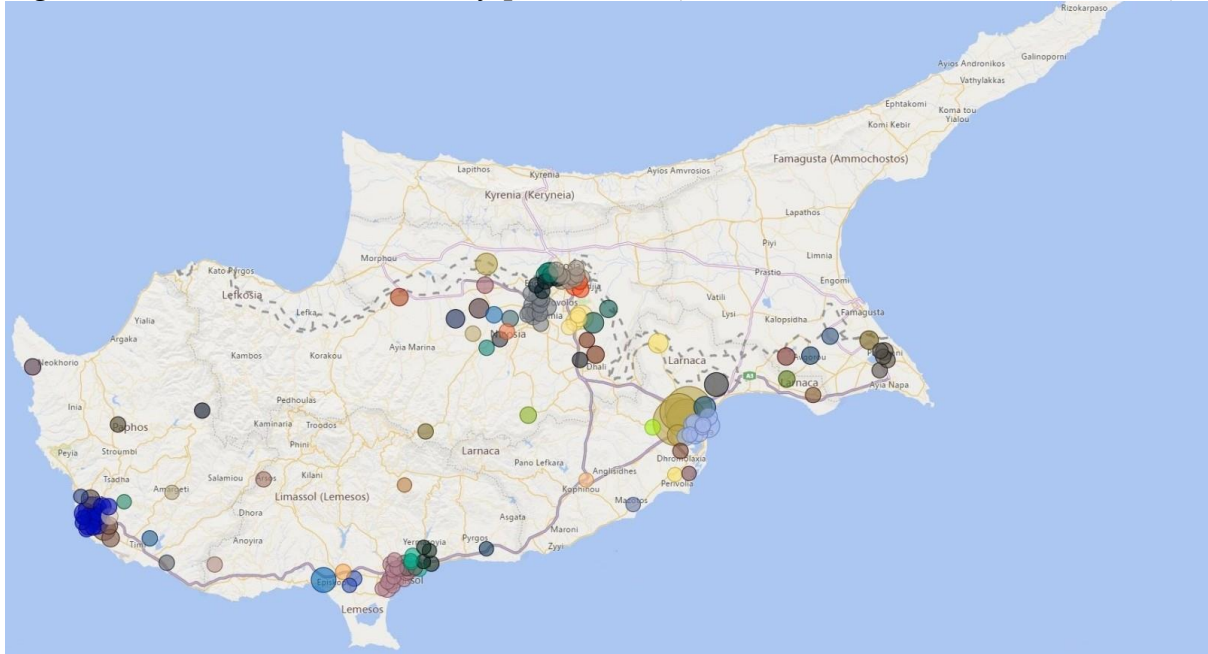


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03-Apr	21	32	1	2
04-Apr	25	38	1	0
05-Apr	9	18	0	0
06-Apr	38	23	0	1
07-Apr	39	23	0	1
08-Apr	23	32	0	1
09-Apr	17	32	1	1
10-Apr	18	20	0	1
11-Apr	37	20	1	0
12-Apr	21	16	1	1
13-Apr	26	41	0	0
14-Apr	24	25	0	0
15-Apr	15	16	0	0
16-Apr	9	19	0	2
17-Apr	5	15	0	0
18-Apr	6	7	0	0
19-Apr	0	1	0	0
20-Apr	11	6	0	1
21-Apr	6	13	0	0
22-Apr	7	5	1	0
23-Apr	13	7	1	0
24-Apr	2	12	0	0
25-Apr	8	2	0	0
26-Apr	4	2	1	1
27-Apr	10	11	0	0
28-Apr	0	9	0	0



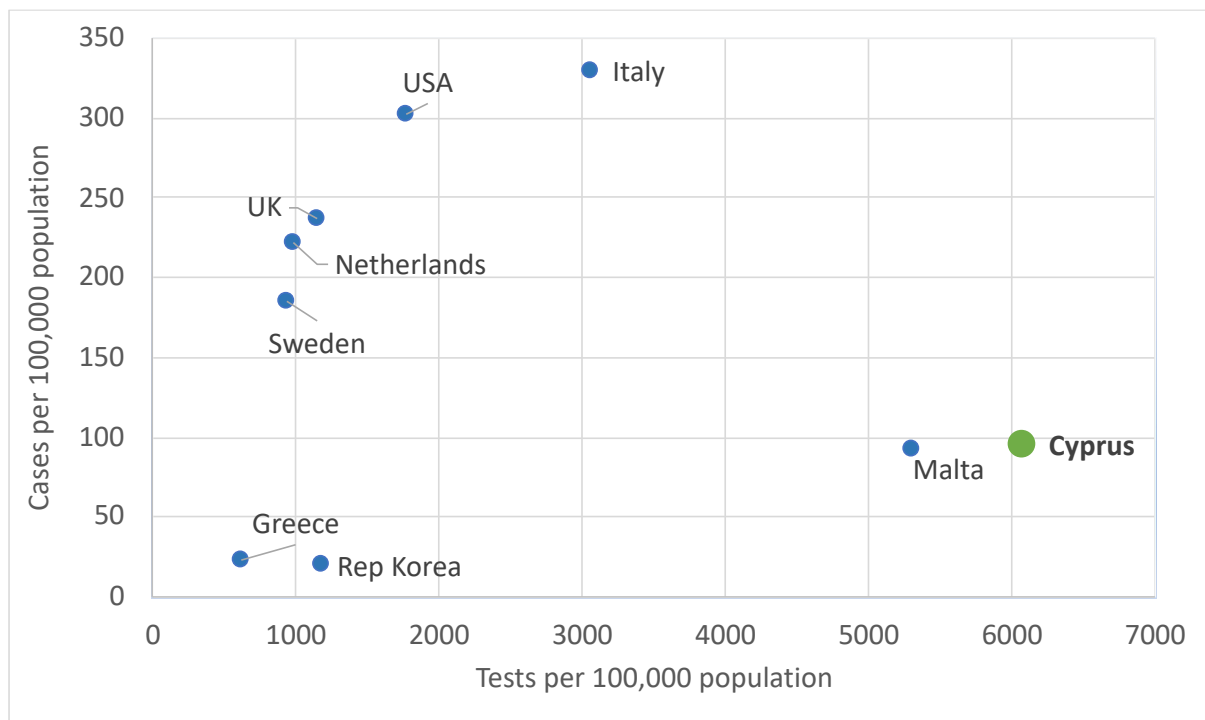
Figure A1: Distribution of cases by postal code (n = 815 with information available).



Each colour represents a different postal code and the size changes according to the number of cases.



Figure A2: Cumulative tests and cases per 100,000 population in Cyprus and other selected countries (Updated: 28/04/2020).



Data source for Cyprus: internal communication; data source for other countries:

<https://www.finddx.org/covid-19/test-tracker/>

Numbers of cases, tests and deaths for Cyprus are aggregated and include people from abroad and the British bases, while the total population does not include inhabitants from abroad or from the British bases.



Figure A3: Time from date of sampling to death of COVID-19 cases who died (n = 20; for three cases who died on the day of sampling/reporting, the time alive has been considered 0.5 days).

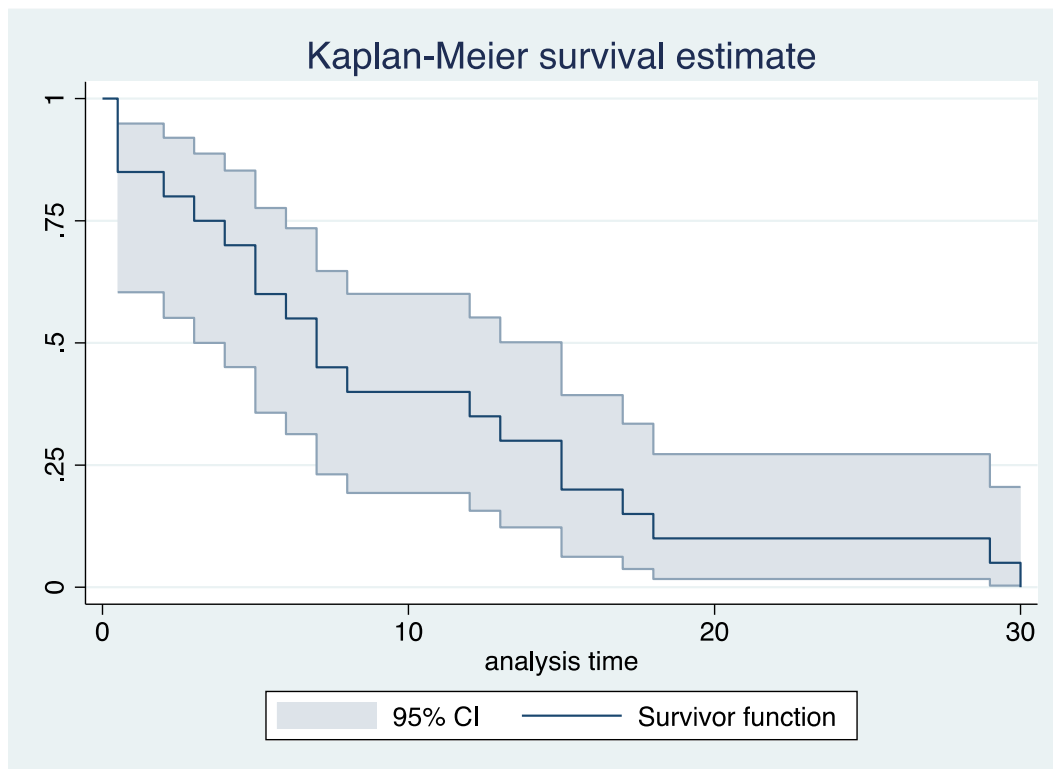




Figure A4: Length of stay in ICU (n = 31; for two cases died who on the same day of ICU admission the length of stay in ICU has been considered 0.5 days).

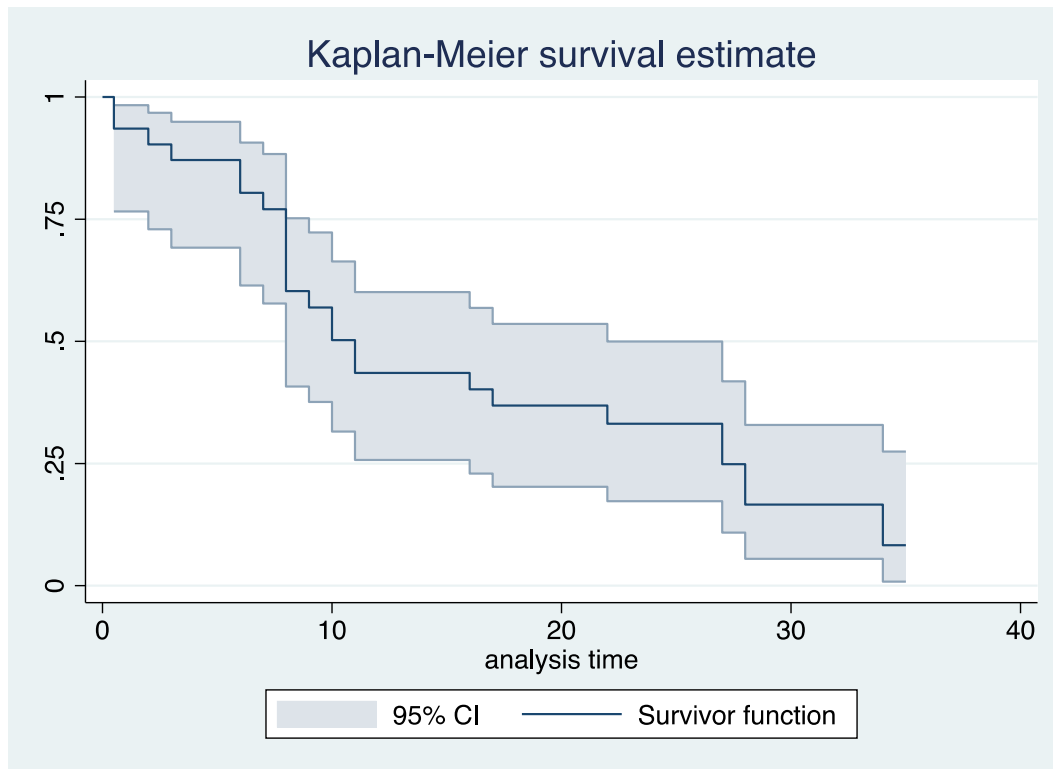




Figure A5: Length of stay in ICU of patients who died and had been admitted to an ICU (n = 13; for two cases who died the same day of ICU admission the length of stay in ICU has been considered 0.5 days).

