COVID-19

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PHASE DYNAMICS OF THE COVID-19 PANDEMIC. A SYSTEMATIC ANALYSIS OF 213 COUNTRIES AND TERRITORIES. REPORT 2

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The study was carried out to evaluate the dynamics of monthly numbers of cases, deaths, tests and case fatality ratio worldwide during three phases of the COVID-19 pandemic.
Material and methods: Twenty-three sets of databases, dated the 22nd of each month from January 2020 to November 2021, for 213 countries were collected from the Worldometer website. The number of cases, deaths, tests, case fatality ratio, infection fatality ratio, etc. were counted for various periods of time for each of the 213 countries, then the results related to different periods of time were compared.
The analysis of main epidemiological parameters resulted in division of three phases of the global pandemic evolution. The first phase (23.01.20–22.07.20), the second phase (23.07.20–22.01.21) and the third phase (23.01.21–22.07.21) were different in terms of the number of tests performed, new cases and mortality due to COVID-19. By the end of second phase, the worldwide statistics indicated end of the pandemic, but the third phase was characterized by sudden rise in number of new cases and deaths. The most dramatic evolution of epidemic curve occurred in the countries where physicians had successfully confronted COVID-19 during the first two phases of the pandemic. Despite the decrease in the overall numbers deaths during the latest months analyzed, additional study is necessary to identify causes of new cases and deaths during the third phase of the pandemic. It can be suggested that preventive and therapeutic protocols should be changed from the 'standard' to 'personalized' types.

K e y w o r d s : COVID-19; phases of the pandemic; mortality rate; case fatality ratio; infection fatality ratio; polymerase chain reaction.

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3.1. Overall analysis of the three phases of the COVID-19 pandemic in 213 countries

Material and Methods. Four databases, dated 22.01.20, 22.07.20, 22.01.21 and 22.07.21 were collected from the Worldometer website. The number of cases, deaths, and tests related to each phase for each of the 213 countries was calculated by subtracting the previous phase's data from the analyzed phase's data. For example, on 22.01.21 there were 98,669,593 cases, 2,113,750 deaths, and 1,375,887,509 tests worldwide; and on 22.07.21 there were 193,348,564 cases, 4,150,533 deaths, and 2,926,443,254 tests. Subtracting the first numbers (dated 22.01.21) from the second (dated 22.07.21), one concludes that during the 6 months from 23.01.21 to 22.07.21 there were 94,678,971 new cases, 2,036,783 new deaths, and 1,550,555,745 new tests, etc. CFR for each phase was calculated.

Ratios between cases, deaths, and tests recorded during the 1st, 2nd and 3rd phases in relation to similar parameters recorded during the whole 1.5 years were also counted. Additionally, a calculation of ratios between cases, deaths, and tests recorded during 12 months of the first year of the pandemic in relation to similar parameters recorded during the whole 1.5 years was also carried out (Table 2).

Table 2

Numbers of cases, deaths and tests related to six months of each phase of the pandemic; numbers of cases, deaths and tests related to the first 12 months (phases I+II) and to the 18 months (phases I+II+III)

Phase, #	Date	Cases	%	Deaths	%	Tests	%	CFR, %
I	23.01.20–22.07.20	15,362,166	7.94	625,378	15.07	302,374,544	10.33	4.071
II	23.07.20–22.01.21	83,306,848	43.09	1,488,355	35.86	1,073,512,965	36.68	1.787
III	23.01.21–22.07.21	94,678,971	48.97	2,036,783	49.07	1,550,555,745	52.99	2.151
I+II+III	**23.01.20–22.07.21**	**193,348,564**	**100.0**	**4,150,533**	**100.0**	**2,926,443,254**	**100.0**	**2.147**
I+II	23.01.20–22.01.21	98,669,014	51.03	2,113,733	50.93	1,375,887,509	47.01	2.142
III	23.01.21–22.07.21	94,678,971	48.97	2,036,783	49.07	1,550,555,745	52.99	2.151
I+II+III	**23.01.20–22.07.21**	**193,348,564**	**100.0**	**4,150,533**	**100.0**	**2,926,443,254**	**100.0**	**2.147**

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Results. According to the calculations done, the 3rd phase was characterized by a dramatic increase for all parameters of the pandemic, including cases, deaths, and tests. The most intensive growing parameter was tests conducted to reveal new suspicious cases of COVID-19. The case fatality ratio was highest in the 1st phase, then decreased in the 2nd phase and again increased in the 3rd phase.

3.2. Analysis of the three phases of the COVID-19 pandemic for each of the 213 countries

Material and Methods. Four databases for each country, dated 22.01.20, 22.07.20, 22.01.21 and 22.07.21 were collected from the Worldometer website.

The number of cases, deaths, and tests related to each phase for every country was calculated by subtracting the previous phase's data from the analyzed phase's data. For example, in Malaysia, on 22.01.20, there were no deaths; on 22.07.20, there were 123 deaths; on 22.01.21, there were 660 deaths, and on 22.07.21, there were 7,574 deaths in total. Subtracting '0' from 123, 123 from 660, and 660 from 7,574, one concludes that during the 6 months, from 23.01.20 to 22.07.20 there were 123 deaths; from 23.07.20 to 22.01.21 there were 537 deaths; and from 23.01.21 to 22.07.21 there were 6,914 new deaths. A CFR was calculated for each country for every phase.

Then a comparison between the number of cases, deaths, and tests recorded during the 3rd phase of the pandemic (23.01.21—22.07.21) and the number of similar parameters recorded during the 1.5 years (23.01.20—22.07.21) was carried out for each country.

For example, in Mongolia, at the end of the 2nd phase (22.01.21), there were 2 deaths only; but at the end of the 3rd phase or 1.5 years of the pandemic (22.07.21), there were 755 deaths in total. After simple calculations one can conclude that during 6 months of the 3rd phase of the pandemic there were 753 new deaths in Mongolia. If the number of deaths for the 3rd phase (n=753) is divided by the number of deaths for 1.5 years of the pandemic (n=755), it can be concluded that during the 1.5 years of the pandemic, 99.74% of deaths due to COVID-19 in Mongolia took place during the 3rd phase of the COVID-19 pandemic.

If the ratio between numbers recorded during the 3rd phase and the numbers recorded during the whole 1.5 years of the pandemic is higher than 33.33 %, it means the number of cases, or deaths or tests recorded during the 3rd phase was higher than the average number for each of the three phases. If this ratio is higher than 50.00 %, it means that the vast majority of cases, or deaths or tests took place during the 3rd phase of the pandemic. The higher the percentage, the more cases, deaths, or tests took place during the 3rd phase.

Results. There are 109 out of 213 countries, where more than 50.0 % of new cases were diagnosed during the 3rd phase of the pandemic; there are 107 countries where more than 50.0 % of new deaths were recorded during the 3rd phase of the pandemic; and there are 141 out of 213 countries where more than 50 % of tests on SARS-CoV-2 were performed during the 3rd phase of the pandemic.

Number of countries with a CFR less than 1.00 % was 64 (30.05%) during the 1st phase, 91 (42.72 %) during the 2nd phase, and 73 (34.27 %) during the 3rd phase. The average CFR among the countries (N) with fatal cases was 3.60±3.73 % (N=185) during the 1st phase, 1.86±2.62 % (N=194) during the 2nd phase, and 2.03±2.10 % (N=197) during the 3rd phase.

A list of countries where more than 80 % of deaths due to COVID-19 took place during the 3rd phase of the pandemic includes Antigua and Barbuda, Barbados, Botswana, British Virgin Islands, Cambodia, Caribbean Netherlands, Cuba, Curaçao, Eritrea, Fiji, Laos, Malaysia, Mongolia, Namibia, Papua New Guinea, Paraguay, Réunion, Saint Lucia, Saint Kitts and Nevis; Seychelles, Somalia, Sri Lanka, St. Vincent and the Grenadines, Taiwan, Thailand, Timor-Leste, Trinidad and Tobago, Uganda, Uruguay, Vietnam, and Zambia.

Conclusion. Calculations done in this section have revealed that in most countries, the main number of cases, deaths and tests were recorded during the 3rd phase of the pandemic. The average CFR was the highest during the 1st phase, and the lowest — during the 2nd phase of the pandemic.

4. Twenty-Two Months of the COVID-19 pandemic

4.1. Twenty-two months of the COVID-19 pandemic: Overall cases, deaths, tests and CFR worldwide

Objective. To evaluate dynamics of monthly numbers of cases, deaths, tests, and CFR worldwide during 22 months of the COVID-19 pandemic.

Material and Methods. Twenty-three sets of databases dated the 22nd of each month from January 2020 to November 2021, for 213 countries were collected. The databases related to each month for every country were calculated by subtracting the previous month's data from the analyzed month's data. The number of cases, deaths, tests as well as monthly ratios between cases and tests (C/T), deaths and tests (D/T), CFR, cases per 1 million (C/M) and deaths per 1 million (D/M) for all 213 countries together were counted and presented in Table 3. Monthly number of deaths was illustrated in Fig. 4.

Results. During 22 months of the pandemic, the monthly number of cases varied from 77,422 in the first month up to 21,729,103 in the 16th month; there are three peaks, in the 11—12th, 15—16th and 19—20th months. The monthly number of deaths varied from 2,440 in the first month up to 428,155 in the 17th month; there are two peaks, in the 12th month and in the 17th month (Fig. 4). The monthly number of tests increased almost gradually from 23,282,447 in the 3rd month, up to 380,323,725 in the 20th month.

The highest monthly CFR (7.367) and the highest monthly ratio between cases and tests (9.869), as well as deaths and tests (0.727) were in the 3rd month (23.03.20—22.04.20) of the pandemic. Since March 11, 2020, the highest weekly CFR (8.507%) was estimated

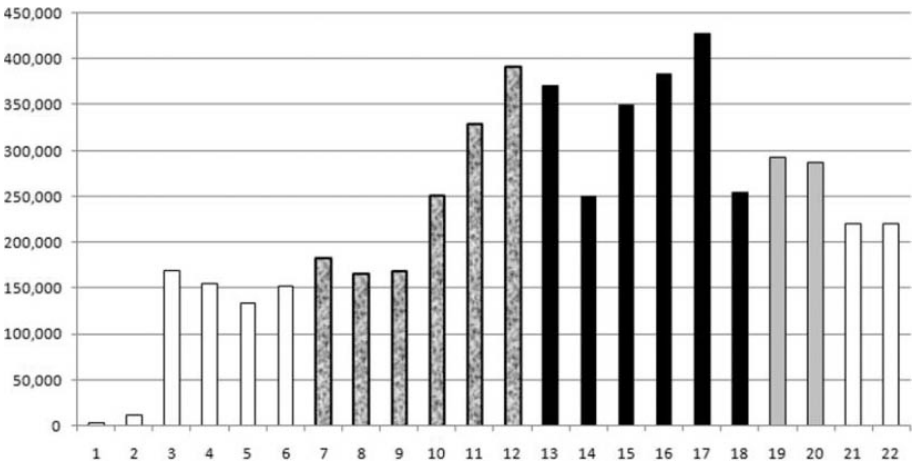

Fig. 4. Monthly number of deaths. The vertical axis shows number of deaths; the horizontal axis shows number of a month. The 1st phase includes months # 1—6 (white columns); the 2nd phase includes months # 7—12 (grey-white columns); the 3rd phase includes months # 13—18 (black columns); months # 19—20 (grey columns); months # 21—22 (white columns).

for the week April 12—18, 2020, and the highest daily CFR (9.514%) was estimated for April 17, 2020 [1].

4.2. Evolution of the COVID-19 pandemic before and after the end of the 3rd Phase

Background. During 1.5 years of the pandemic, in most of the countries analyzed, number of COVID-19 cases, deaths and tests were highest during the 3rd phase.

Objective. To analyze the evolution of COVID-19 pandemic before and after the end of the 3rd phase.

Material and Methods. Three databases for each country, dated 22.05.21, 22.07.21, and 22.09.21 were collected from the Worldometer website. Then, for each country, the cases, deaths, and tests were calculated for 2 periods of time: (1st) 23.05.21 — 22.07.21 and (2nd) 23.07.21 — 22.09.21.

The trend of the pandemic was analyzed by dividing the numbers recorded during the 2nd period by the numbers recorded during the 1st period, accordingly. If the ratio is more than 1, i.e., more than 100 %, it means that after the end of the 3rd phase, there is still an upward trend in the number of COVID-19 cases, deaths, or tests in a certain country.

For example, in the United Kingdom, there were 127,716 total deaths on 22.05.21, 128,980 on 22.07.21, and 135,621 on 22.09.21. Hence, there were 6,641 new deaths recorded during the 2nd period (23.07.21 — 22.09.21) and 1,264 new deaths recorded during the 1st period (23.05.21 — 22.07.21). Dividing 6,641 by 1,264 resulted in 5.225. That means, the number of deaths during the second period was more than five times higher than the number of deaths during the 1st period. Thus, in the United Kingdom there was a trend pointing to a dramatic increase in the number of deaths, etc.

Results. A comparison of the main parameters of the pandemic between the 2nd and 1st period for each country revealed that in most of them, there was an upward trend pointing to an increase in cases (n=158; 74.18 %), deaths (n=133; 62.44 %) and tests (n=125; 58.69 %) (Table 4).

Conclusion. Groups of countries with a dramatic increase in COVID-19 cases, deaths, and tests during the 2nd period (23.07.21 — 22.09.21), in comparison with the 1st period 23.05.21 — 22.07.21), were unveiled. In some of these countries the difference between analyzed parameters exceeded 10—20 times.

Table 3

Monthly parameters of COVID-19 pandemic during 22 months worldwide

M,#	Date	Cases	Deaths	Tests	CFR	C/T	D/T	C/M	D/M
0	before 22.01.20	579	17	—	2.936	—	—	—	—
1	23.01.20–22.02.20	77,422	2,440	—	3.152	—	—	—	—
2	23.02.20–22.03.20	256,885	12,146	—	4.728	—	—	—	—
3	23.03.20–22.04.20	2,297,673	169,276	23,282,447	7.367	9.869	0.727	—	—
4	23.04.20–22.05.20	2,664,254	155,495	44,391,233	5.836	6.002	0.350	344	20
5	23.05.20–22.06.20	3,879,188	134,032	63,136,698	3.455	6.144	0.212	500	17
6	23.06.20–22.07.20	6,186,744	151,989	171,564,166	2.457	3.606	0.089	797	20
7	23.07.20–22.08.20	7,995,415	182,270	107,399,739	2.280	7.445	0.170	1,029	23
8	23.08.20–22.09.20	8,392,192	166,385	199,993,233	1.983	4.196	0.083	1,079	21
9	23.09.20–22.10.20	10,208,746	168,007	149,682,016	1.646	6.820	0.112	1,312	22
10	23.10.20–22.11.20	16,987,950	250,906	195,846,982	1.477	8.674	0.128	2,181	32
11	23.11.20–22.12.20	19,333,794	328,839	209,035,776	1.701	9.249	0.157	2,481	42
12	23.12.20–22.01.21	20,388,751	391,948	211,555,219	1.922	9.638	0.185	2,614	50
13	23.01.21–22.02.21	13,569,785	370,676	213,529,397	2.732	6.355	0.174	1,738	47
14	23.02.21–22.03.21	12,026,578	250,262	215,897,738	2.081	5.571	0.116	1,539	32
15	23.03.21–22.04.21	21,032,036	349,214	282,659,828	1.660	7.441	0.124	2,690	45
16	23.04.21–22.05.21	21,729,103	384,092	290,300,012	1.768	7.485	0.132	2,777	49
17	23.05.21–22.06.21	12,844,311	428,155	282,525,550	3.333	4.546	0.152	1,640	55
18	23.06.21–22.07.21	13,477,158	254,384	265,643,220	1.888	5.073	0.096	1,720	32
19	23.07.21–22.08.21	19,204,383	293,313	291,627,554	1.527	6.585	0.101	2,448	37
20	23.08.21–22.09.21	18,271,358	287,615	380,323,725	1.574	4.804	0.076	2,328	37
21	23.09.21–22.10.21	12,851,934	220,802	290,724,128	1.718	4.421	0.076	1,636	28
22	23.10.21–22.11.21	14,586,015	220,598	323,461,722	1.512	4.509	0.068	1,855	28

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Table 4

Results of comparison between the numbers of cases, deaths and testes recorded in the databases of 213 countries during the 2nd (23.07.21—22.09.21) and the 1st (23.05.21—22.07.21) periods of time

#	Decrease / Increase	Cases		Deaths		Tests	
		n	%	n	%	n	%
1	Decrease (<100%)	53	24.88	65	30.52	69	32.39
2	No change	2	0.94	15	7.04	19	8.92
3	Increase (>100%) including:	158	74.18	133	62.44	125	58.69
	from 0 to 1+n	4	01.88	16	07.51	3	01.41
	+ 100 — 200%	46	21.60	38	17.84	91	42.72
	+ 200 — 500%	54	25.35	46	21.60	24	11.27
	+ >500%	54	25.35	33	15.49	7	03.29
	Total	213	100	213	100	213	100

A list of countries where there was a dramatic increase in deaths after the end of the 3rd phase of the pandemic, includes: Albania, Aruba, Australia, Azerbaijan, Barbados, Belize, Benin, Bermuda, Burundi, Curaçao, Eswatini, French Polynesia, Gambia, Ghana, Guadeloupe, Guinea-Bissau, Israel, Ivory Coast, Kazakhstan, Libya, Malta, Martinique, Mauritius, Morocco, Nigeria, North Macedonia, Saint Lucia, Singapore, Somalia, Timor-Leste, Togo, the United Kingdom, and Vietnam.

In three countries: Guadeloupe, Israel, Vietnam, there was a dramatic increase in all parameters including cases, deaths, and tests.

4.3. Comparison of the average monthly number of cases, deaths, and tests in each of the 213 countries related to the latest month analyzed # 22 (23.10.21 — 22.11.21) and the previous month # 21 (23.09.21 — 22.10.21)

Objective. To evaluate the dynamics of the monthly number of cases, deaths, and tests in each of the 213 countries during the months # 21—22, and to identify countries with a negative tendency.

Material and Methods. The number of monthly cases, deaths, and tests for the months # 22 (23.10.21 — 22.11.21) and # 21 (23.09.21 — 22.10.21) was counted in the same manner as in the previous sections. A comparison between two months was done by dividing the numbers related to month # 22 by the numbers related to the month # 21. If the ratio is more than 1, i.e., more than 100 %, it indicates a continuous upward trend in the number of COVID-19 cases, deaths, or tests in a certain country. If the ratio is less than one (<100%), it means parameters of the pandemic tended to decrease.

Results. A comparison of the data related to the month # 22 with the data related to the previous month (# 21) revealed a trend showing a decrease in number of cases, deaths, and tests.

Nevertheless, there are a few countries where the monthly number of cases and deaths during the month # 22 was at least 5 times higher than during the previous month # 21. For example, a dramatic increase in both cases and deaths took place in Poland (638%; 535%), Czechia (803%; 1075 %), and Hungary (733%; 768%).

Conclusion. The study done in this section has revealed that during the months # 21—22 in most of countries analyzed, the number of new COVID-19 cases, deaths and tests had shown a tendency to decrease. This is an objective basis for optimism and inspires hope for an end to the pandemic.

5. Discussion

An analysis of the main epidemiological parameters worldwide has resulted in distinguishing three phases of the pandemic worldwide: these phases are different in terms of the number of new tests, cases, and deaths, and they have their own features in each country.

The first phase (23.01.20 — 22.07.20) began with new cases and first victims of COVID-19 identified outside China. During the first phase, diagnostic tests to detect SARS-CoV-2 were used mainly on people with symptoms and their immediate contacts. Clinical trials of potentially effective drugs were in the initial phase, and invasive mechanical ventilation, which had no therapeutic effect on patients with COVID-19, was used very actively. Since protocols of treatment were not developed yet, and the number of confirmed cases was small, the CFR value was the highest in the first phase of the pandemic.

During the second phase (23.07.20 — 22.01.21) clinical trials were completed and doctors received effective protocols of treatment. Despite the emergence of new variants of the virus, mechanisms of the disease development remained unchanged and were not associated with a more severe course of the disease. In most countries the mortality rate was very low. By the end of the second phase, worldwide statistics indicated the imminent end of the pandemic [1].

During the third phase (23.01.21 — 22.07.21) of the pandemic, in various countries, mass vaccination was introduced to protect people against SARS-CoV-2. Coincidentally, a sudden rise in the number of new cases and deaths happened, and it could not be explained rationally. The highest number of monthly deaths was recorded between May 23, and June 22, 2021. The most dramatic evolution of the epidemic curve occurred in the countries where doctors had successfully battled COVID-19 during the first year of the pandemic.

The further evolution of the pandemic was an undulating continuation of the third phase. In the following countries the number of deaths continued to increase even during the latest month analyzed (# 22): Burkina Faso, Cameroon, Congo, Djibouti, Gabon, Hungary, Laos, Latvia, Lesotho, Papua New Guinea, Poland, Romania, Singapore, Slovakia, South Sudan, Tanzania, Ukraine, etc.

6. Conclusions

Two years have passed since the Wuhan Municipal Health Commission announced a pneumonia epidemic. Despite the positive dynamics during October-November 2021, the current pandemic is not over yet, and additional research is necessary to identify the cause of the increase in the number of new cases and deaths observed during the third phase of the pandemic.

After simulating a forecast done by Neil M. Ferguson and his team (Imperial College London) in March 2020 [35], many countries introduced social distancing, quar-

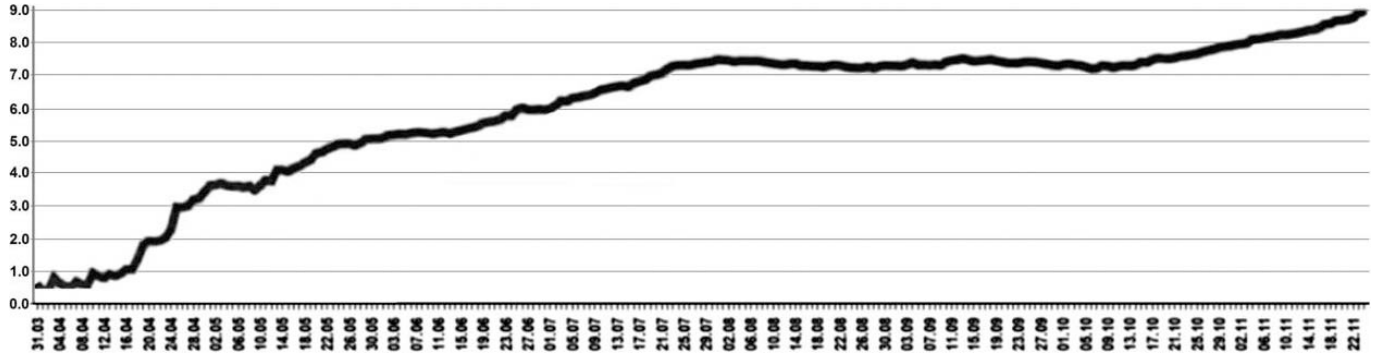

Fig. 5. A steady increase in mortality in the anti-COVID-19 hospital # 40 in Moscow City [50]. A modified screenshot of the panel lecture 'COVID-19 and Sepsis' at 1.55—2.35 min (24.11.20). The vertical axis shows mortality, the horizontal axis shows dates: from 31.03.20 to 22.11.20.

antines and lockdowns. Despite objections to Mr. Ferguson's calculations from his own colleagues [36], quarantine measures were continued. Medical prophylactic measure in the form of global vaccination program had already been proposed before introduction of quarantines and lockdowns, and even before the new disease got its own name [34].

There are plenty of studies which revealed that in certain cases, various prophylactic measures used to prevent the spread of SARS-CoV-2 and other viruses and bacteria, could have negative effects on the human body, could have low efficacy or may even be useless in terms of prevention of diseases [37—40].

Since the main target for SARS-CoV-2 are people with weak immunity [5], and prolonged mental stress affects both the entire body, and the immune system in particular [41], an additional study is needed to answer the question, if medical and non-medical measures used to prevent the spread of SARS-CoV-2 could affect natural immunity. This question is especially relevant for countries which had a dramatic increase in cases and deaths during the third phase of the pandemic. An affirmative answer to this question is highly probable since certain types of medical prophylactic products can reprogram immune system response [42], and without a new dose of a booster, immunity of the body of the vaccinated people declines after 3—6 months [43].

At the time when Dr. Tedros A. Ghebreyesus assumed the outbreak of the pandemic [21], objective data for such a decision was not available yet. Therefore, no official documents were issued and published. Five days later, Dr. Ghebreyesus explained that WHO did not know how many people were infected, and invited all countries to fill up this informative gap, by suggesting: "We have a simple message for all countries: test, test, test" [44]. Mass testing resulted in sudden outbreaks of COVID-19 in many countries and this fact could not be explained rationally based on the natural evolution of infectious diseases [45].

Previously, some experts had already rejected the reliability and validity of the RT-PCR test to be used for screening [46]. That rejection has been done to avoid negative epidemic consequences of false positive results which could be caused by the limitations of the diagnostic method itself, and errors of the software used, by contamination of the environment or test kits, as well as by application of a cycle threshold of 25—30 or higher [47]. A number of false positive results could be dramatically increased if the RT-PCR test is used to conduct large-volume screening at the area of low prevalence of SARS-CoV-2 [48]. Thus, mass-screening with RT-PCR test could create a false epidemic without a real basis.

Since the recent study by A. Stang et al. (2021) revealed that application of mass screening with RT-PCR test had no value to predict severe cases or deaths [49], an additional study is required to answer the question — if screening with RT-PCR test can increase the number of deaths, especially in countries where quarantine facilities do not provide isolated rooms for each person suspected to be infected.

One can assume that the application of non-specialized premises for quarantine and treatment of people suffering from infectious diseases can lead to unpredictable outcomes. For example, the conversion of a new general municipal hospital (#40) in Moscow City into a specialized hospital for COVID-19 patients without reconstructions according to the hygienic requirements for infectious hospitals resulted in the steady increase in hospital mortality from 0.5% on 31.03.20, up to 9.0% on 22.11.20 (Fig. 5). Three fourths of the patients died due to sepsis caused by *K. pneumoniae*, *A. baumannii*, *P. aeruginosa*, *E. coli*, *S. aureus*, fungus, etc. [50]. Since these data were presented by the head physician of the modern and well equipped hospital, one can assume that mass mortality from nosocomial infection was a common occurrence in COVID-19 hospitals worldwide.

A comparison of different therapeutic methods and protocols used during the current pandemic should be done to identify the most effective ones. An equally important task is to analyze information on the preventive effects of certain drugs, food supplements, vitamins, and microelements. This analysis should be carried out by experts in the appropriate field who have already demonstrated low mortality using their therapeutic protocols, but not by an outside reviewer who has no practical experience with analyzed remedies, and who selects and rejects publications using an unprofessional view of the reviewed remedy or method. Global negative consequences of unprofessional review of the topic can be demonstrated by the example of the use of hydroxychlo-

roquine and chloroquine, where reviewers "were unable to confirm a benefit" of these effective drugs [25].

Thus, only complete information regarding the positive and negative impact of medical and non-medical methods of diagnostics and prophylaxis of COVID-19 can help to organize effective measures to end the current pandemic and prevent a similar one from occurring in the future.

Presumably, there are several causes of the negative evolution of the current pandemic, including (1) overreliance on PCR tests, (2) application of non-specialized premises for quarantine and treatment, (3) non-professional management, (4) following therapeutic protocols used in countries with high number of deaths, (5) ignoring prophylactic treatment, and (6) decreasing in herd and individual immunity.

It can be suggested that the use of drugs to modulate T-cell immunity (e.g., thymus extracts, or thymic peptides) is vital, and prophylactic and therapeutic protocols should be changed from the 'standard' types to 'personalized' ones

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