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Special Note

COVID-19 Coronavirus

Numbers in Context and Forecasts

Quantec

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Background

We have recently pointed out in a special note that the effects of an extended (and still continuing) lockdown on the economy will be quite severe. Some 20% or more of GDP could be lost in 2020. Many businesses face permanent ruin and millions of people will join the ranks of the unemployed. Not only will this cause hardship, hunger and countless deaths due to malnutrition, poverty and disease, but crime rates may soar while government will face a fiscal debt trap of unimaginable proportions. Already politicians are hinting at forcing the Reserve Bank to fund the growing borrowing requirement of government (known as monetising the debt). This contradicts the constitution which guarantees an independent central bank and hyperinflation is bound to be the result, much like Zimbabwe.

As far as the rate of infection itself is concerned, the Actuarial Society of South Africa (ASSA) has recently published some results of a model which reported that the death toll from South Africa's coronavirus outbreak, this year, could range between 48,000 [1] and 88,000 [2]. The outputs vary depending on the assumptions made about the percentage of people who are asymptomatic, how infectious people are, and how effective the lockdown is.

According to reports [2], the ASSA's model output is broadly in line with government projections and has been provided to ASSA's members to assist actuaries in their work, advising clients in the insurance industry. Life assurance companies need reasonable projections to assess their mortality expectations and stress test capital requirements, according to ASSA president Lusani Mulaudzi.

The report says the model itself is still a work in progress and will only be provided to actuaries at a later stage. There was limited local data at present because South Africa's epidemic was still in its early stages. New information was constantly emerging about SARS-CoV-2, the coronavirus that causes COVID-19.

ASSA has provided the industry with a range of scenarios that predict the number of symptomatic patients will peak between August and September of this year, at between 588,000 and 2.3m people. The demand for hospital beds when the outbreak is at its worst will range between 69,400 and 125,000, while intensive care unit bed demand ranges between 10,700 and 19,200, according to the model.

While we do not have access to either the model or the assumptions described above, we have looked at the statistics regarding the historical global course of the COVID-19 pandemic to get some perspective of what these numbers entail for South Africa.

Firstly, we will look at the COVID-19 in context to other diseases over time – both globally and in South Africa. Secondly, we will look at the current statistics about infection and death rates of the hardest hit countries and where South Africa fits in. Thirdly, we will model our own projected trajectory of the disease to arrive at the modelled "final" infection and death numbers as per the ASSA model. Lastly, we will show the historical and projected relative outcomes for South Africa in relation to some of the most affected countries.

The COVID-19 pandemic in context

Thus far, globally around 4.3 million people have been infected since late last year. Nearly 300,000 deaths are now attributed to the COVID-19 coronavirus [3].

As far as these numbers go in a global context, they remain low. In 2017 – the latest year for which global causes of deaths are available [4], 53.9 million people died. This was 0.65% of the world population. Deaths due COVID-19, thus far, amount to 0.004% of the world population. If COVID-19 deaths would double, this would amount to 0.008% of the world population, or 1.2% of all deaths.

Figure 1 shows that global deaths relating lower respiratory infections (mainly seasonal flu / pneumonia) amounted to 2.6 million in 2017, while other respiratory diseases accounted for 3.9 million deaths.

In figure 2, annual deaths due to lower respiratory disease are plotted, together with 2020 numbers relating to the COVID-19 virus.

In Figure 3, the assumption was made that all coronavirus deaths (based on current numbers and a doubling to 650,000 global deaths, would push deaths due respiratory infections and diseases to 0.08% or 0.084%. This assumes that the same number of people will still succumb to respiratory diseases apart from COVID-19. However, it is fair to assume that some COVID-19 fatalities would have occurred in any case due to normal seasonal flu.

Figures 4 to 6 show that lower respiratory infections account for far less deaths in South Africa compared with the global average, and amounted to 27,000 cases in 2017.

Figure 1

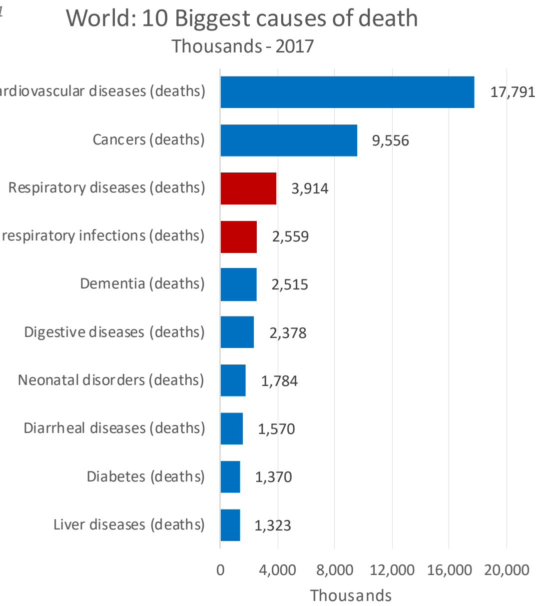


Figure 2

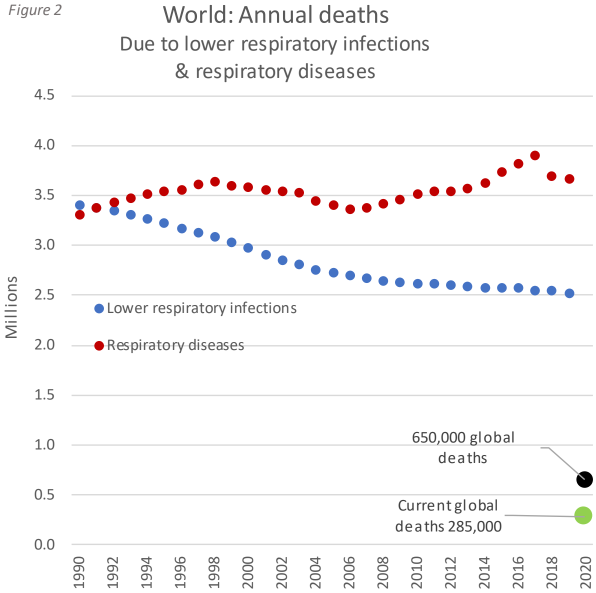


Figure 3

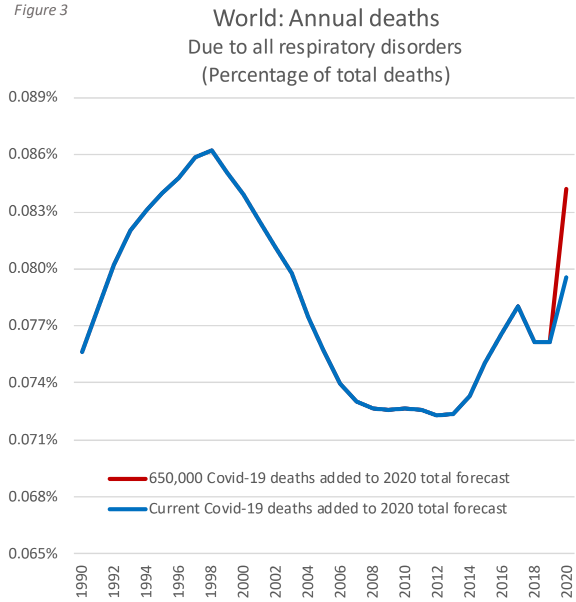


Figure 4

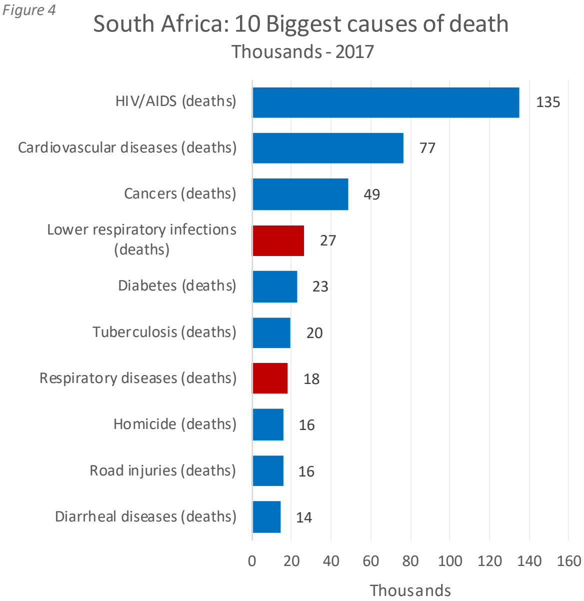


Figure 5

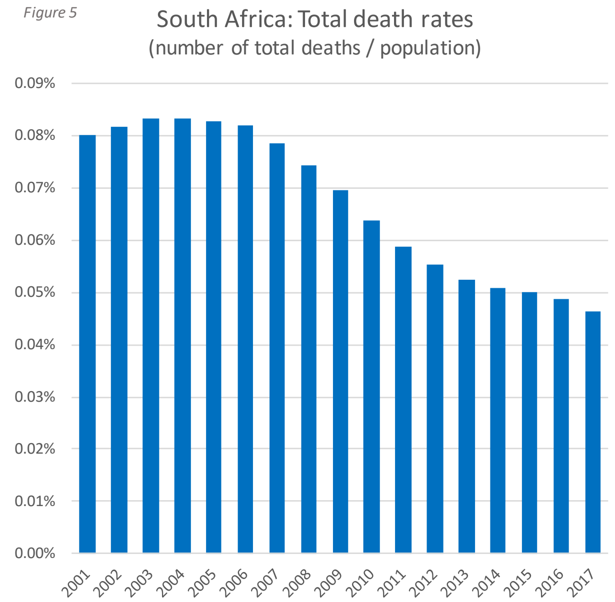
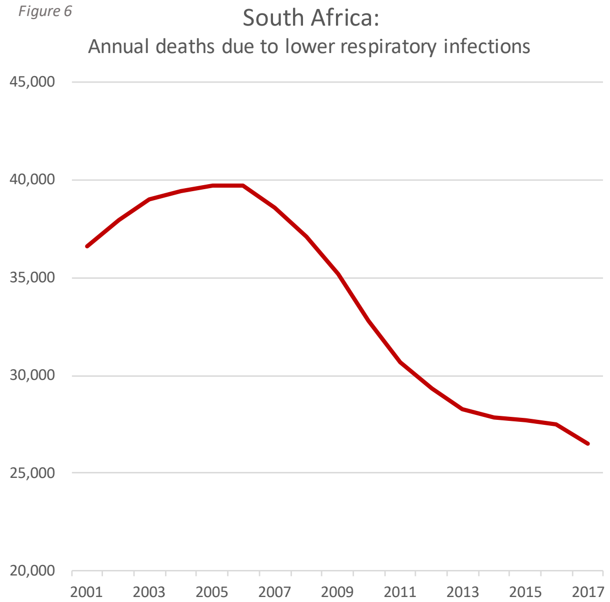


Figure 6



Latest COVID-19 figures

Recent Worldometer [3] data are depicted in the table and pertain to countries with populations of 50 million and more people.

The USA is reporting the highest number of cases per 1 million people at more than 4,100, while South Africa stood at 169 cases per 1 million.

Italy is the country with the highest deaths per 1 million people at 505, followed by the UK at 469. Although the USA has reported the highest number of deaths at more than 80,000, its deaths per million people amounts to around half of Italy's at 244. In South Africa the deaths per million people stood at only 3.

Country	Total Cases	Total Deaths	Total Recovered	Active Cases	Serious, Critical	Tot Cases/ 1M pop	Deaths/ 1M pop	Total Tests	Tests/ 1M pop	Recoveries / Total	Death rate	Population
USA	1,367,963	80,787	256,336	1,030,840	16,514	4,133	244	9,444,525	28,533	18.7%	5.9%	330,985,483
Italy	219,070	30,560	105,186	83,324	1,027	3,623	505	2,565,912	42,439	48.0%	13.9%	60,466,464
UK	219,183	31,855		186,984	1,559	3,229	469	1,821,280	26,829		14.5%	67,879,529
France	176,970	26,380	56,217	94,373	2,776	2,711	404	1,384,633	21,213	31.8%	14.9%	65,278,495
Germany	171,879	7,569	145,600	18,710	1,581	2,051	90	2,755,770	32,891	84.7%	4.4%	83,802,535
Turkey	138,657	3,786	92,691	42,180	1,154	1,644	45	1,370,598	16,251	66.8%	2.7%	84,341,241
Iran	109,286	6,685	87,422	15,179	2,703	1,301	80	601,324	7,159	80.0%	6.1%	84,001,537
Brazil	162,699	11,123	64,957	86,619	8,318	765	52	339,552	1,597	39.9%	6.8%	212,678,431
World	4,200,968	284,152	1,502,669	2,414,147	47,074	539	37			35.8%	6.8%	7,794,003,711
Colombia	11,063	463	2,705	7,895	130	217	9	151,396	2,975	24.5%	4.2%	50,981,567
South Korea	10,909	256	9,632	1,021	55	213	5	668,492	13,039	88.3%	2.3%	51,215,962
South Africa	10,015	194	4,173	5,648	77	169	3	341,336	5,755	41.7%	1.9%	59,260,355
Pakistan	30,941	667	8,212	22,062	111	140	3	294,894	1,335	26.5%	2.2%	221,007,143
Bangladesh	15,691	239	2,902	12,550	1	95	1	129,865	789	18.5%	1.5%	165,168,421
China	82,918	4,633	78,144	141	9	58	3			94.2%	5.6%	1,429,620,690
Indonesia	14,265	991	2,881	10,393		52	4	161,351	590	20.2%	6.9%	274,326,923
India	67,700	2,215	21,130	44,355		49	2	1,673,688	1,213	31.2%	3.3%	1,381,632,653
Thailand	3,015	56	2,796	163	61	43	0.8	227,860	3,264	92.7%	1.9%	70,116,279
Nigeria	4,399	143	778	3,478	4	21	0.7	23,835	116	17.7%	3.3%	209,476,190
Kenya	672	32	239	401	1	12	0.6	31,041	577	35.6%	4.8%	56,000,000
DRC	991	41	136	814		11	0.5			13.7%	4.1%	90,090,909
Tanzania	509	21	183	305	7	9	0.4			36.0%	4.1%	56,555,556
Myanmar	180	6	72	102		3	0.1	11,222	206	40.0%	3.3%	60,000,000

Figures 7 to 9 depict South Africa's infection and death rates based on recent Worldometer statistics.

South Africa is shown to have a particularly low death rate of 1.9% (total deaths / total infections), while France's death rate is close to 15%. Belgium, a country which is not shown in the table because it has a population of around 11.6 million people, is the country with the highest death rate at 16.4%.

Many countries are reporting recovery rates in excess of 80%. These include China (94%), Thailand (92%), South Korea (88%), Germany (85%) and Iran (80%). South Africa's recovery rate stands at around 42%.

South Africa's tests performed per 1 million people is still quite low, at 5,800 compared with a country such as Italy which has performed more than 42,000 tests per million of its population.

Figure 7

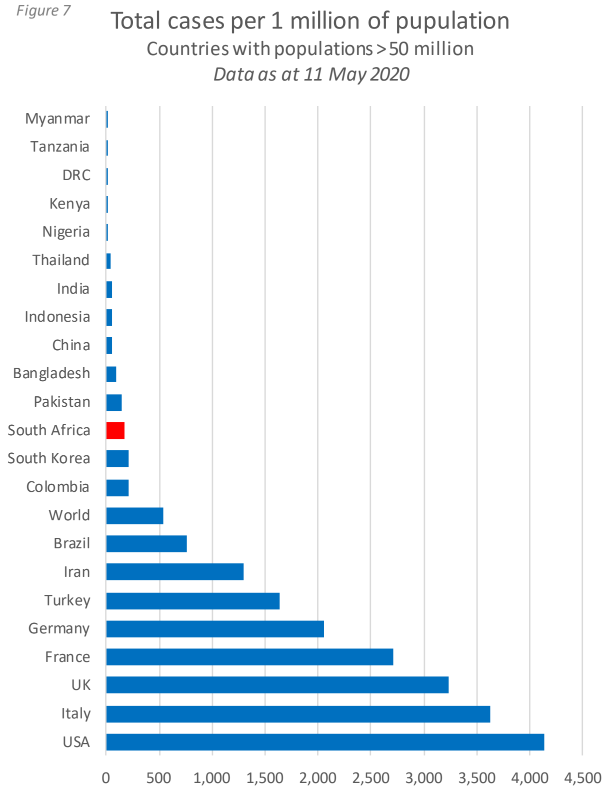


Figure 8

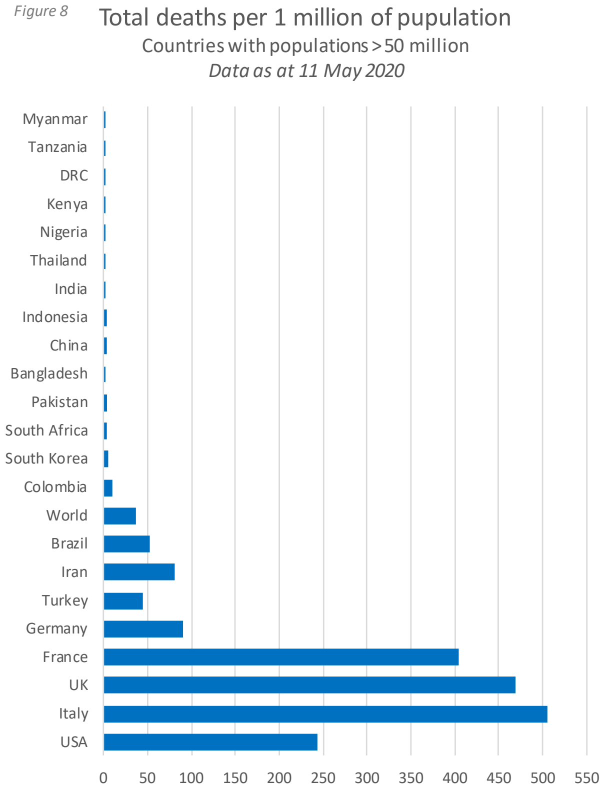
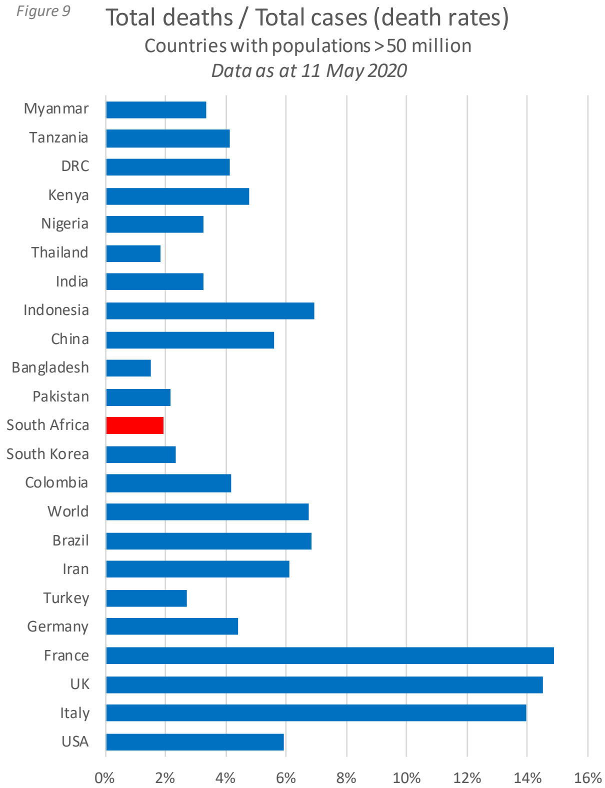


Figure 9



From figures 10 and 11, it would appear as though there have been steep increases in both discovery rates of the COVID-19 in South Africa as well as deaths. Using 7-day moving averages, daily new cases per million of the population, had risen from less than one in middle-March to around 10 per million by middle-May [5].

Daily deaths have risen from 0 deaths to nearly 0.16 deaths per million of the population over the same period.

However, as can be seen from figures 12 and 13, the discovery rate (new cases / new tests) as well as the ratio of total tests to total infections have remained fairly stable. Since middle March, the latter ratio has averaged around 2.7%, i.e. around 2.7% of persons tested, tested positive for the virus.

However, during the latter part of March, the daily number tests average 1,800, while this figure had increased to more than 15,000 per day by 9 May 2020.

Although infection rates and death rates relating to a pandemic can only be calculated with certainty once the infection has run its course, it would appear that that there are significant differences in the various ratios between regions and countries.

Figure 10

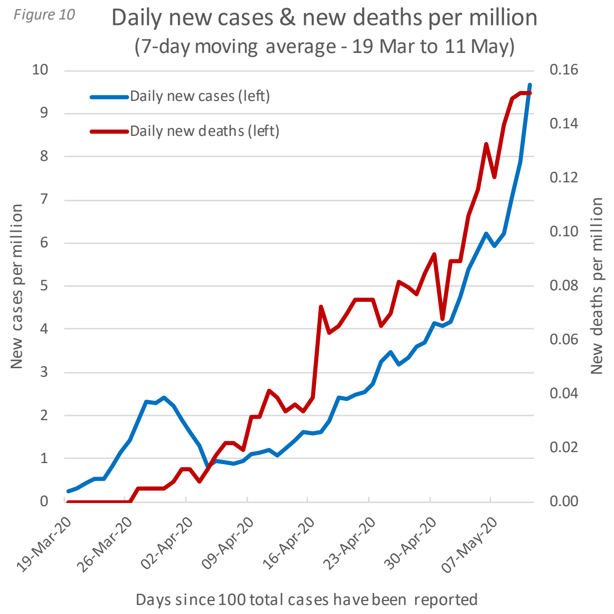


Figure 11

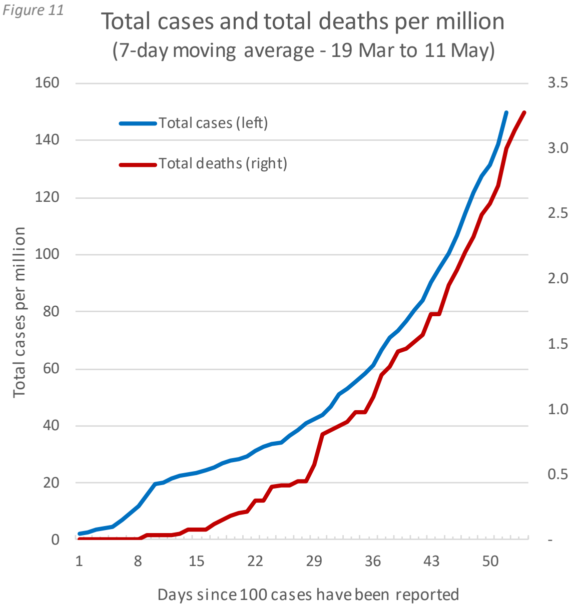


Figure 12

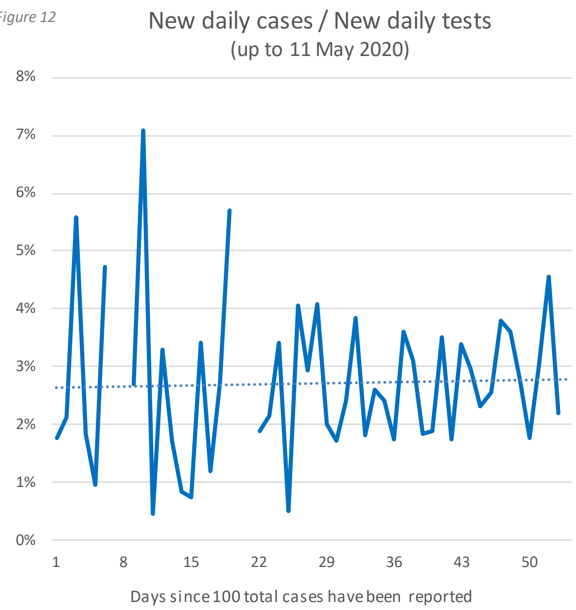
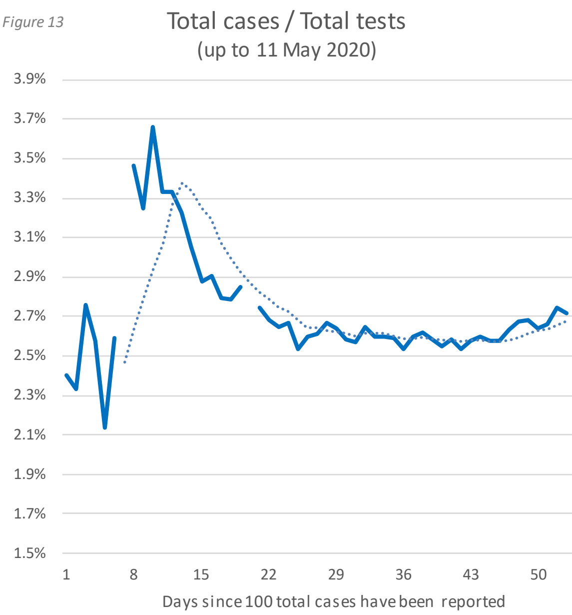


Figure 13



From figures 14 and 15, data up to 9 May 2020, show the duration and extent of new daily cases (reported infections) and deaths due to virus for different countries [5]. 7-Day moving averages were used in the plots. A number of observations can be made from these graphs:

- The main affected countries are mostly in Europe and North America
- Both daily cases and daily deaths appear to be easing in the hardest hit countries
- Most of theses countries have experienced a peaking in both daily cases and daily deaths of between 30 and 50 days since the 100th case was reported
- South Africa's numbers of daily cases and deaths remain low compared with the most affected countries after more than 50 days since reporting 100 cases in total

Figure 14

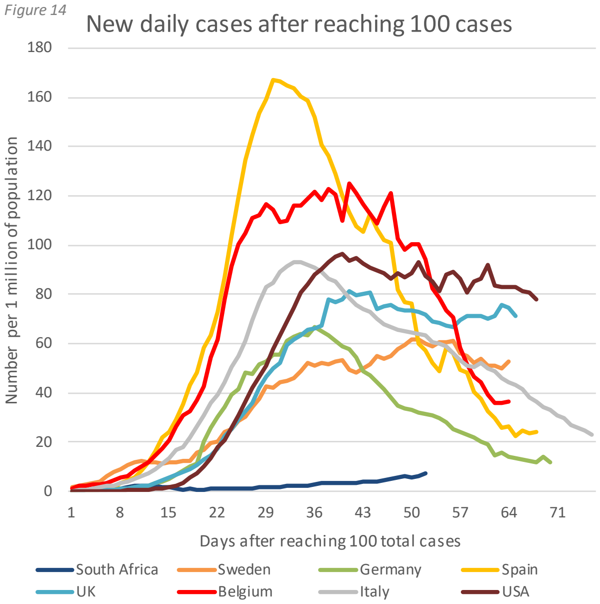
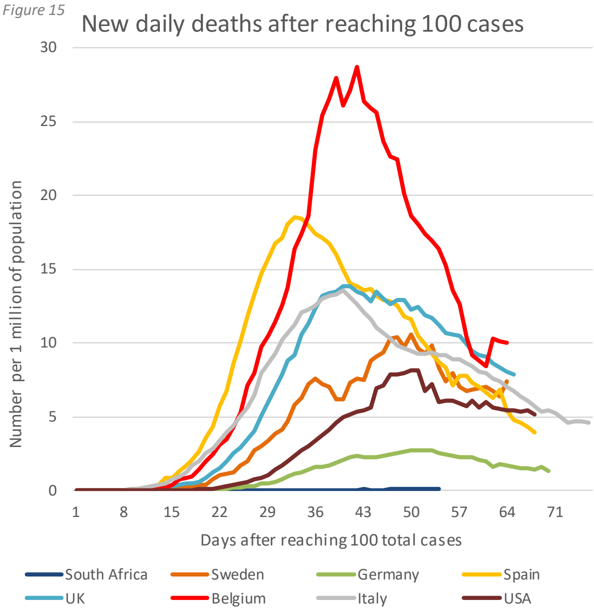


Figure 15



ASSA low case and high case scenarios

As was mentioned in the introduction, the Actuarial Society of South Africa (ASSA) has modelled the total number of cases and deaths to reach their peaks towards the end of September. Their outputs were obtained by making assumptions made about the percentage of people who are asymptomatic, how infectious people are, and how effective the lockdown is [2].

Since we do not have any information pertaining to the parameters that went into the ASSA model, we have attempted to reach the same numbers of total infected persons (between 580,000 and 2.3 million) and total deaths (between 48,000 and 88,000) using assumptions on different parameters. Firstly, as can be seen from figures 14 and 15, the daily reported infection and death numbers appear to follow a parabolic pattern.

By fitting second order polynomial functions using the starting numbers, peaks and the end values for reported cases and deaths respectively, we modelled the high case and low case SASSA scenarios over the next 4.5 months as shown in figure 16. Secondly, we made assumptions on the death rates (total deaths / total cases) as per figure 17 for the scenarios. From these two assumptions all the relevant numbers and ratios were calculated for South Africa.

Figures 18 and 19 show the "low case" scenario numbers and figures 20 and 21 the "high case" scenario numbers.

Figure 16

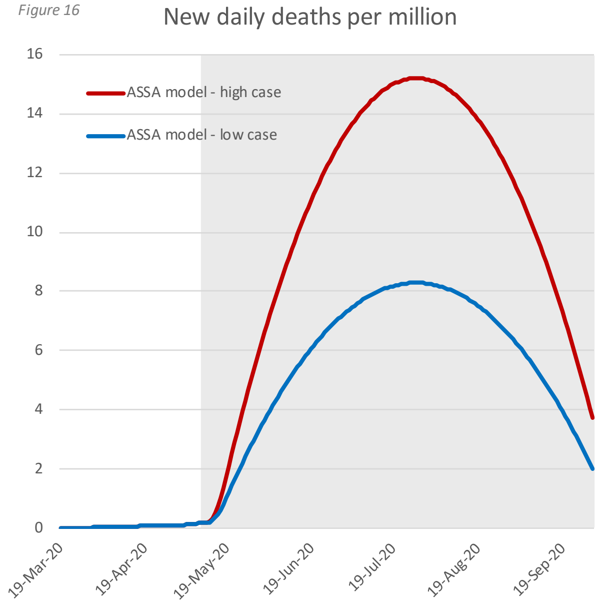


Figure 17

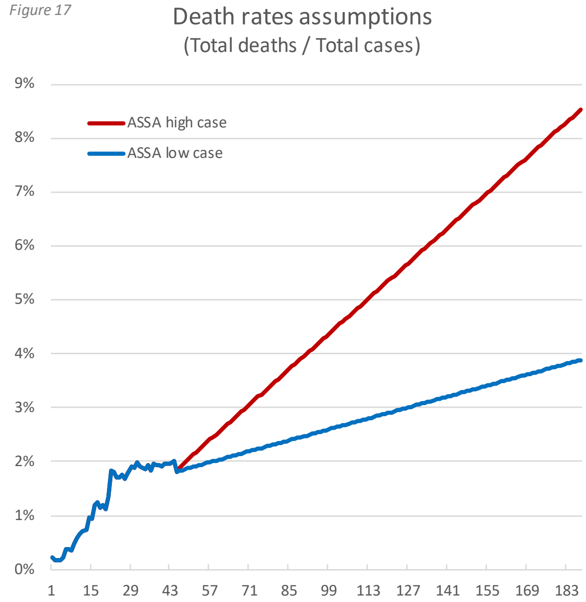


Figure 18

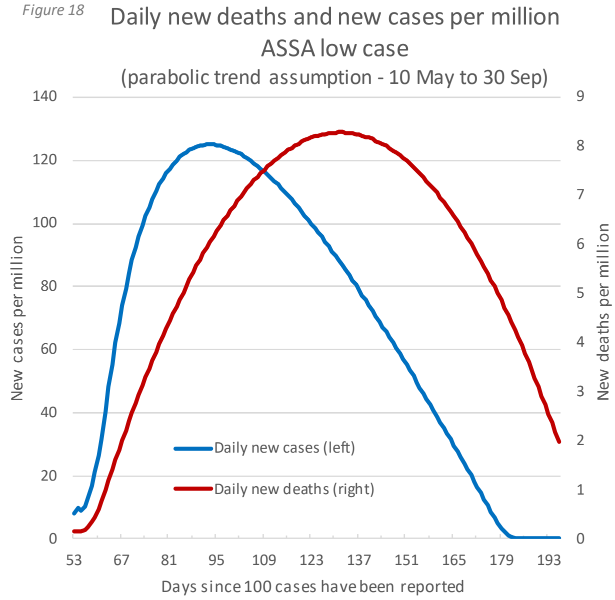


Figure 19

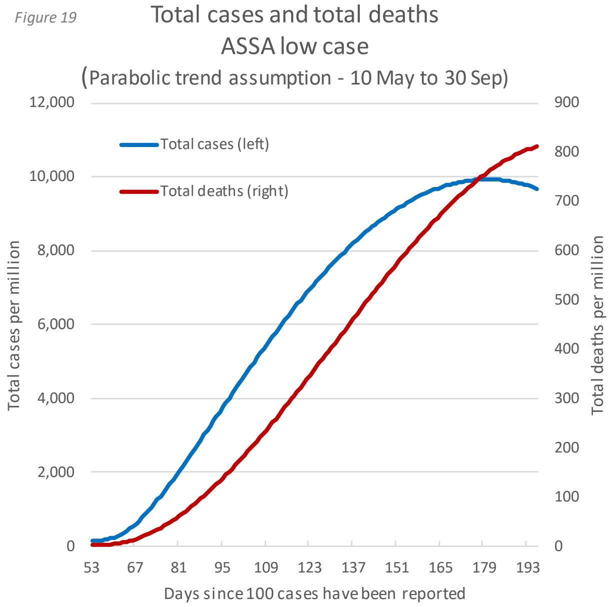


Figure 20

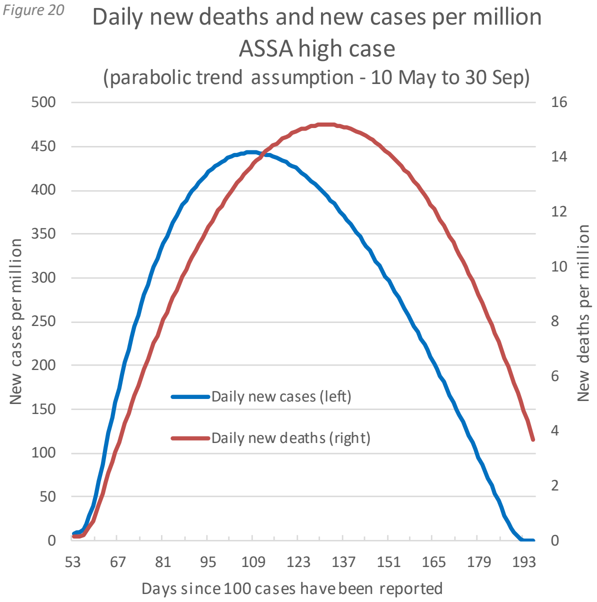
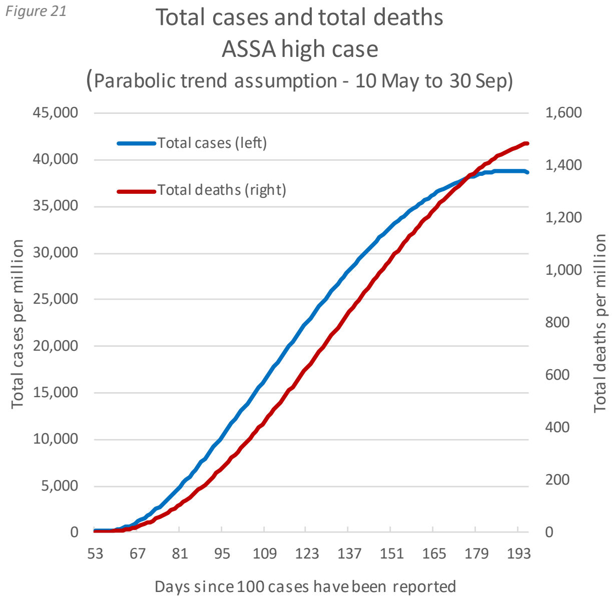


Figure 21



The ASSA forecast scenarios vs other severely affected countries

There is a website which models forecast deaths, showing historical trends, for different countries [6]. Unfortunately there are no projections available for South Africa. For the major countries, shown earlier in figures 14 and 15, projections were added to the historical trends for new daily deaths. The ASSA-based scenarios were inserted for South Africa (figure 22).

There are not forecasts available for newly reported cases for other countries, but the ASSA-based scenarios were added for South Africa (figure 23).

The total cumulative deaths, up to end-September 2020, are also shown in figure 24.

Figure 22

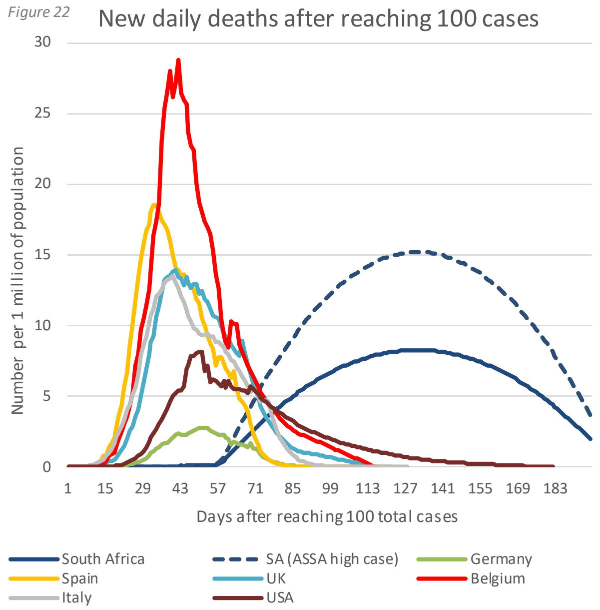


Figure 23

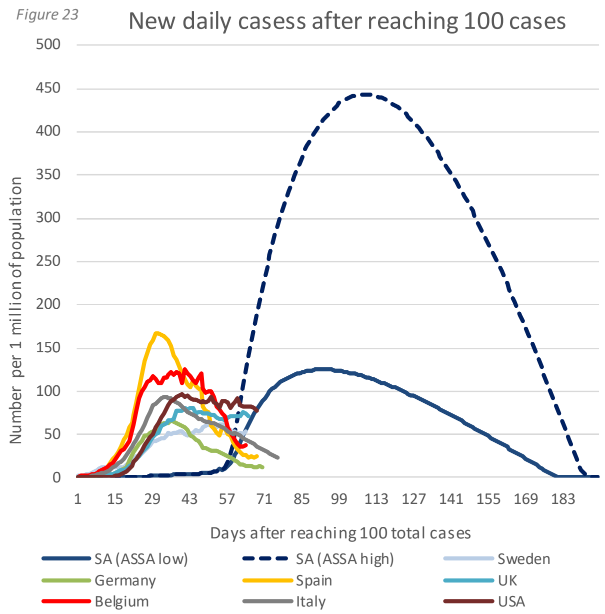
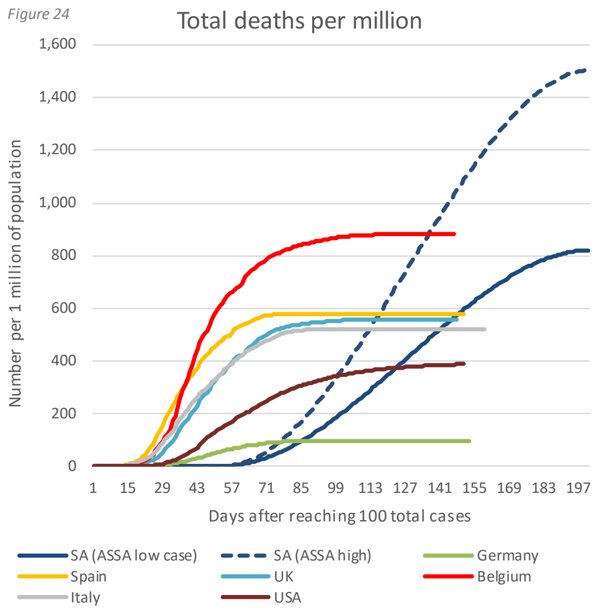


Figure 24



Conclusion

The ASSA scenarios appear to overstate the expected number of total deaths by end September 2020 and bears little resemblance to historical trends in either South Africa or other highly affected countries. Total deaths per million, at 820 in the ASSA low case scenario, will be similar to that of Belgium, the country with the most deaths per million.

ASSA's high case scenario, at 1,500 total deaths per million will be a scenario unsurpassed by any highly affected country, with more than three times the total deaths expected in the USA (130,000 in total or around 400 per million), and more than twice as many deaths per million as in Italy or Spain.

South Africa: Historical data

Date	Total cases	New cases	Total deaths (ASSA low - exp)	New deaths	Total cases per million	New cases per million	Total deaths per million	New deaths per million	Death rate	New cases per million (7-day mov avg)	New deaths per million (7-day mov avg)	Total cases per million (7-day mov avg)	Total deaths per million (7-day mov avg)
11-Feb-20	-	0	-	-									
13-Feb-20	-	0	-	-									
14-Feb-20	-	0	-	-									
19-Feb-20	-	0	-	-									
20-Feb-20	-	0	-	-									
24-Feb-20	-	0	-	-									
26-Feb-20	-	0	-	-									
02-Mar-20	-	0	-	-									
03-Mar-20	-	0	-	-									
06-Mar-20	1	1	-	-	0	0.0	-	-					
07-Mar-20	-	0	-	-									
08-Mar-20	2	1	-	-	0	0.0	-	-					
09-Mar-20	3	1	-	-	0	0.0	-	-					
10-Mar-20	7	4	-	-	0	0.1	-	-					
11-Mar-20	-	0	-	-									
12-Mar-20	13	6	-	-	0	0.1	-	-					
13-Mar-20	17	4	-	-	0	0.1	-	-					
14-Mar-20	24	7	-	-	0	0.1	-	-					
15-Mar-20	24	0	-	-	0	-	-	-					
16-Mar-20	51	27	-	-	1	0.5	-	-					
17-Mar-20	62	11	-	-	1	0.2	-	-					
18-Mar-20	85	23	-	-	1	0.4	-	-					
19-Mar-20	116	31	-	-	2	0.5	-	-		0.25	-	1	-
20-Mar-20	150	34	-	-	3	0.6	-	-		0.32	-	1	-
21-Mar-20	205	55	-	-	3	0.9	-	-		0.44	-	2	-
22-Mar-20	240	35	-	-	4	0.6	-	-		0.52	-	2	-
23-Mar-20	274	34	-	-	5	0.6	-	-		0.54	-	3	-
24-Mar-20	402	128	-	-	7	2.2	-	-		0.82	-	4	-
25-Mar-20	557	155	-	-	9	2.6	-	-		1.14	-	5	-
26-Mar-20	709	152	-	-	12	2.6	-	-		1.43	-	6	-
27-Mar-20	927	218	2	2	16	3.7	0.0	0.0	0.22%	1.87	0.005	8	0
28-Mar-20	1,170	243	2	-	20	4.1	0.0	-	0.17%	2.32	0.005	10	0
29-Mar-20	1,187	17	2	-	20	0.3	0.0	-	0.17%	2.28	0.005	13	0
30-Mar-20	1,280	93	2	-	22	1.6	0.0	-	0.16%	2.42	0.005	15	0
31-Mar-20	1,326	46	3	1	22	0.8	0.1	0.0	0.23%	2.23	0.007	17	0
01-Apr-20	1,353	27	5	2	23	0.5	0.1	0.0	0.37%	1.92	0.012	19	0
02-Apr-20	1,380	27	5	-	23	0.5	0.1	-	0.36%	1.62	0.012	21	0
03-Apr-20	1,462	82	5	-	25	1.4	0.1	-	0.34%	1.29	0.007	22	0
04-Apr-20	1,505	43	7	2	25	0.7	0.1	0.0	0.47%	0.81	0.012	23	0
05-Apr-20	1,585	80	9	2	27	1.3	0.2	0.0	0.57%	0.96	0.017	24	0
06-Apr-20	1,655	70	11	2	28	1.2	0.2	0.0	0.66%	0.90	0.022	25	0
07-Apr-20	1,686	31	12	1	28	0.5	0.2	0.0	0.71%	0.87	0.022	26	0
08-Apr-20	1,749	63	13	1	29	1.1	0.2	0.0	0.74%	0.95	0.019	27	0
09-Apr-20	1,845	96	18	5	31	1.6	0.3	0.1	0.97%	1.12	0.031	28	0
10-Apr-20	1,934	89	18	-	33	1.5	0.3	-	0.93%	1.14	0.031	29	0
11-Apr-20	2,003	69	24	6	34	1.2	0.4	0.1	1.20%	1.20	0.041	30	0
12-Apr-20	2,028	25	25	1	34	0.4	0.4	0.0	1.23%	1.07	0.039	31	0
13-Apr-20	2,173	145	25	-	37	2.4	0.4	-	1.15%	1.25	0.034	32	0
14-Apr-20	2,272	99	27	2	38	1.7	0.5	0.0	1.19%	1.41	0.036	34	0
15-Apr-20	2,415	143	27	-	41	2.4	0.5	-	1.12%	1.60	0.034	35	0
16-Apr-20	2,506	91	34	7	42	1.5	0.6	0.1	1.36%	1.59	0.039	37	0
17-Apr-20	2,605	99	48	14	44	1.7	0.8	0.2	1.84%	1.62	0.072	39	1
18-Apr-20	2,783	178	50	2	47	3.0	0.8	0.0	1.80%	1.88	0.063	40	1
19-Apr-20	3,034	251	52	2	51	4.2	0.9	0.0	1.71%	2.42	0.065	43	1
20-Apr-20	3,158	124	54	2	53	2.1	0.9	0.0	1.71%	2.37	0.070	45	1
21-Apr-20	3,300	142	58	4	56	2.4	1.0	0.1	1.76%	2.48	0.075	48	1
22-Apr-20	3,465	165	58	-	58	2.8	1.0	-	1.67%	2.53	0.075	50	1
23-Apr-20	3,635	170	65	7	61	2.9	1.1	0.1	1.79%	2.72	0.075	53	1
24-Apr-20	3,953	318	75	10	67	5.4	1.3	0.2	1.90%	3.25	0.065	56	1
25-Apr-20	4,220	267	79	4	71	4.5	1.3	0.1	1.87%	3.46	0.070	60	1
26-Apr-20	4,361	141	86	7	74	2.4	1.5	0.1	1.97%	3.20	0.082	63	1
27-Apr-20	4,546	185	87	1	77	3.1	1.5	0.0	1.91%	3.34	0.079	66	1
28-Apr-20	4,793	247	90	3	81	4.2	1.5	0.1	1.88%	3.60	0.077	70	1
29-Apr-20	4,996	203	93	3	84	3.4	1.6	0.1	1.86%	3.69	0.084	73	1
30-Apr-20	5,350	354	103	10	90	6.0	1.7	0.2	1.93%	4.13	0.092	78	1
01-May-20	5,647	297	103	-	95	5.0	1.7	-	1.82%	4.08	0.068	82	2
02-May-20	5,951	304	116	13	100	5.1	2.0	0.2	1.95%	4.17	0.089	86	2
03-May-20	6,336	385	123	7	107	6.5	2.1	0.1	1.94%	4.76	0.089	91	2
04-May-20	6,783	447	131	8	114	7.5	2.2	0.1	1.93%	5.39	0.106	96	2
05-May-20	7,220	437	138	7	122	7.4	2.3	0.1	1.91%	5.85	0.116	102	2
06-May-20	7,572	352	148	10	128	5.9	2.5	0.2	1.95%	6.20	0.133	108	2
07-May-20	7,808	236	153	5	132	4.0	2.6	0.1	1.96%	5.92	0.120	114	2
08-May-20	8,232	424	161	8	139	7.1	2.7	0.1	1.96%	6.23	0.140	120	2
09-May-20	8,895	663	178	17	150	11.2	3.0	0.3	2.00%	7.09	0.149	127	2
10-May-20	9,605	710	186	8	175	12.0	3.1	0.1	1.80%	7.88	0.152	137	3
11-May-20	10,015	410	194	8	173	20.0	3.3	0.1	1.89%	9.66	0.152	145	3

South Africa: ASSA “Low case” (left) and “high case” (right) scenarios

Date	Total cases	New cases	Total deaths (ASSA low - exp)	New deaths	Total cases per million	New cases per million	Total deaths per million	New deaths per million	Death rate	New cases per million (7-day mov avg)	New deaths per million (7-day mov avg)	Total cases per million (7-day mov avg)	Total deaths per million (7-day mov avg)
12-May-20	10,180	166	202	8	176	2.8	3.4	0.1	1.94%	9.01	0.154	153	3
13-May-20	10,995	815	223	21	190	13.8	3.8	0.4	1.99%	10.13	0.181	162	3
14-May-20	12,406	1,410	257	34	214	23.8	4.3	0.6	2.03%	12.96	0.251	174	3
15-May-20	14,363	1,957	304	47	247	33.1	5.1	0.8	2.08%	16.67	0.344	189	4
16-May-20	16,822	2,460	363	59	288	41.6	6.1	1.0	2.13%	21.01	0.446	209	4
17-May-20	19,744	2,921	434	71	338	49.4	7.3	1.2	2.17%	26.35	0.599	232	5
18-May-20	23,090	3,346	518	84	394	56.6	8.8	1.4	2.22%	31.57	0.782	264	6
19-May-20	26,826	3,736	613	96	457	63.2	10.4	1.6	2.27%	40.20	0.994	304	7
20-May-20	30,922	4,095	721	107	527	69.2	12.2	1.8	2.31%	48.12	1.202	352	8
21-May-20	35,347	4,426	840	119	601	74.8	14.2	2.0	2.36%	55.40	1.408	407	9
22-May-20	40,076	4,729	970	130	681	79.9	16.4	2.2	2.41%	62.10	1.610	470	11
23-May-20	45,084	5,008	1,112	142	766	84.7	18.8	2.4	2.45%	68.25	1.810	538	13
24-May-20	50,348	5,264	1,265	153	855	89.0	21.4	2.6	2.50%	73.91	2.006	612	15
25-May-20	55,847	5,499	1,429	164	948	93.0	24.1	2.8	2.55%	79.11	2.199	691	17
26-May-20	61,562	5,714	1,603	174	1,045	96.6	27.1	2.9	2.59%	83.88	2.390	775	19
27-May-20	67,473	5,912	1,788	185	1,144	99.9	30.2	3.1	2.64%	88.27	2.577	863	22
28-May-20	73,565	6,092	1,983	195	1,247	103.0	33.5	3.3	2.69%	92.29	2.762	955	25
29-May-20	79,821	6,256	2,189	206	1,353	105.8	37.0	3.5	2.73%	95.98	2.943	1,051	27
30-May-20	86,227	6,406	2,405	216	1,462	108.3	40.6	3.6	2.78%	99.36	3.121	1,151	31
31-May-20	92,769	6,542	2,630	225	1,572	110.6	44.5	3.8	2.83%	102.44	3.296	1,253	34
01-Jun-20	99,434	6,665	2,865	235	1,685	112.7	48.4	4.0	2.87%	105.26	3.469	1,358	37
02-Jun-20	106,210	6,776	3,109	245	1,799	114.5	52.6	4.1	2.92%	107.82	3.638	1,466	41
03-Jun-20	113,085	6,876	3,363	254	1,916	116.2	56.9	4.3	2.97%	110.15	3.804	1,576	45
04-Jun-20	120,050	6,965	3,626	263	2,033	117.7	61.3	4.4	3.01%	112.26	3.967	1,689	49
05-Jun-20	127,095	7,044	3,898	272	2,152	119.1	65.9	4.6	3.06%	114.16	4.127	1,803	53
06-Jun-20	134,209	7,114	4,179	281	2,273	120.3	70.6	4.7	3.11%	115.87	4.284	1,919	57
07-Jun-20	141,384	7,175	4,468	289	2,394	121.3	75.5	4.9	3.15%	117.40	4.438	2,036	62
08-Jun-20	148,613	7,228	4,765	298	2,516	122.2	80.6	5.0	3.20%	118.76	4.589	2,155	66
09-Jun-20	155,886	7,273	5,071	306	2,639	123.0	85.7	5.2	3.25%	119.96	4.738	2,275	71
10-Jun-20	163,197	7,311	5,385	314	2,763	123.6	91.0	5.3	3.30%	121.02	4.883	2,396	76
11-Jun-20	170,539	7,342	5,707	322	2,887	124.1	96.5	5.4	3.34%	121.93	5.024	2,518	81
12-Jun-20	177,905	7,366	6,036	329	3,011	124.5	102.0	5.6	3.39%	122.70	5.163	2,640	86
13-Jun-20	185,290	7,384	6,373	337	3,136	124.8	107.7	5.7	3.44%	123.36	5.299	2,764	91
14-Jun-20	192,686	7,396	6,717	344	3,261	125.0	113.6	5.8	3.48%	123.89	5.432	2,888	97
15-Jun-20	200,089	7,403	7,069	351	3,386	125.1	119.5	5.9	3.53%	124.31	5.562	3,012	102
16-Jun-20	207,494	7,404	7,427	358	3,511	125.2	125.5	6.1	3.58%	124.63	5.689	3,137	108
17-Jun-20	214,895	7,401	7,792	365	3,637	125.1	131.7	6.2	3.62%	124.84	5.813	3,261	114
18-Jun-20	222,287	7,392	8,164	372	3,762	125.0	138.0	6.3	3.67%	124.97	5.934	3,386	120
19-Jun-20	229,667	7,380	8,542	378	3,886	124.7	144.4	6.4	3.72%	125.00	6.051	3,511	126
20-Jun-20	237,029	7,362	8,926	384	4,011	124.5	150.9	6.5	3.76%	124.95	6.166	3,636	132
21-Jun-20	244,370	7,341	9,317	390	4,135	124.1	157.5	6.6	3.81%	124.81	6.278	3,761	138
22-Jun-20	251,687	7,316	9,713	396	4,259	123.7	164.2	6.7	3.86%	124.60	6.386	3,886	145
23-Jun-20	258,974	7,287	10,115	402	4,382	123.2	171.0	6.8	3.90%	124.32	6.492	4,010	151
24-Jun-20	266,229	7,255	10,523	408	4,504	122.6	177.9	6.9	3.95%	123.97	6.595	4,134	158
25-Jun-20	273,449	7,219	10,936	413	4,626	122.0	184.9	7.0	4.00%	123.55	6.694	4,258	164
26-Jun-20	280,629	7,181	11,354	418	4,748	121.4	191.9	7.1	4.04%	123.07	6.791	4,381	171
27-Jun-20	287,768	7,139	11,777	423	4,868	120.7	199.1	7.2	4.09%	122.53	6.885	4,503	178
28-Jun-20	294,862	7,094	12,205	428	4,988	119.9	206.3	7.2	4.14%	121.93	6.975	4,625	185
29-Jun-20	301,908	7,046	12,638	433	5,107	119.1	213.6	7.3	4.18%	121.28	7.063	4,746	192
30-Jun-20	308,905	6,996	13,075	437	5,226	118.3	221.0	7.4	4.23%	120.58	7.147	4,867	199
01-Jul-20	315,848	6,943	13,516	441	5,343	117.4	228.5	7.5	4.28%	119.83	7.228	4,987	206
02-Jul-20	322,736	6,888	13,962	445	5,460	116.4	236.0	7.5	4.32%	119.03	7.307	5,106	214
03-Jul-20	329,567	6,831	14,411	449	5,575	115.5	243.6	7.6	4.37%	118.18	7.382	5,224	221
04-Jul-20	336,338	6,771	14,864	453	5,689	114.5	251.3	7.7	4.42%	117.29	7.455	5,341	229
05-Jul-20	343,047	6,709	15,321	457	5,803	113.4	259.0	7.7	4.46%	116.36	7.524	5,458	236
06-Jul-20	349,693	6,645	15,781	460	5,915	112.3	266.8	7.8	4.51%	115.39	7.590	5,573	244
07-Jul-20	356,272	6,579	16,244	463	6,026	111.2	274.6	7.8	4.56%	114.39	7.654	5,687	251
08-Jul-20	362,783	6,512	16,711	466	6,137	110.1	282.5	7.9	4.60%	113.34	7.714	5,801	259
09-Jul-20	369,225	6,442	17,180	469	6,245	108.9	290.4	7.9	4.65%	112.27	7.771	5,913	267
10-Jul-20	375,596	6,371	17,652	472	6,353	107.7	298.4	8.0	4.70%	111.16	7.825	6,024	275
11-Jul-20	381,894	6,298	18,126	474	6,460	106.5	306.4	8.0	4.74%	110.01	7.877	6,134	283
12-Jul-20	388,117	6,223	18,602	477	6,565	105.2	314.5	8.1	4.79%	108.84	7.925	6,243	291
13-Jul-20	394,264	6,147	19,081	479	6,669	103.9	322.6	8.1	4.84%	107.64	7.970	6,351	298
14-Jul-20	400,334	6,069	19,562	481	6,771	102.6	330.7	8.1	4.88%	106.41	8.012	6,457	306
15-Jul-20	406,324	5,990	20,044	482	6,873	101.3	338.8	8.2	4.93%	105.15	8.051	6,562	315
16-Jul-20	412,234	5,910	20,529	484	6,972	99.9	347.0	8.2	4.98%	103.86	8.087	6,666	323
17-Jul-20	418,062	5,828	21,014	486	7,071	98.5	355.2	8.2	5.02%	102.55	8.120	6,769	331
18-Jul-20	423,808	5,745	21,501	487	7,168	97.1	363.5	8.2	5.07%	101.22	8.150	6,870	339
19-Jul-20	429,469	5,661	21,989	488	7,264	95.7	371.7	8.2	5.12%	99.86	8.177	6,970	347
20-Jul-20	435,045	5,576	22,477	489	7,358	94.3	380.0	8.3	5.16%	98.48	8.201	7,068	355
21-Jul-20	440,534	5,489	22,967	489	7,451	92.8	388.2	8.3	5.21%	97.08	8.222	7,165	363
22-Jul-20	445,935	5,402	23,457	490	7,542	91.3	396.5	8.3	5.26%	95.66	8.240	7,261	372
23-Jul-20	451,248	5,313	23,947	490	7,632	89.8	404.8	8.3	5.30%	94.22	8.255	7,355	380
24-Jul-20	456,472	5,223	24,437	490	7,720	88.3	413.1	8.3	5.35%	92.75	8.267	7,448	388
25-Jul-20	461,604	5,133	24,928	490	7,807	86.8	421.4	8.3	5.40%	91.27	8.276	7,539	397
26-Jul-20	466,645	5,041	25,418	490	7,892	85.2	429.7	8.3	5.44%	89.78	8.281	7,629	405
27-Jul-20	471,593	4,948	25,908	490	7,976	83.6	438.0	8.3	5.49%	88.26	8.284	7,717	413
28-Jul-20	476,448	4,855	26,397	489	8,058	82.1	446.2	8.3	5.54%	86.73	8.284	7,804	421
29-Jul-20	481,209	4,761	26,886	489	8,138	80.5	454.5	8.3	5.58%	85.18	8.281	7,889	430
30-Jul-20	485,874	4,665	27,373	488	8,217	78.9	462.7	8.2	5.63%	83.62	8.274	7,973	438
31-Jul-20	490,443	4,569	27,860	487	8,295	77.2	471.0	8.2	5.68%	82.04	8.265	8,055	446
01-Aug-20	494,916	4,473	28,345	485	8,370	75.6	479.2	8.2	5.72%	80.45	8.253	8,135	454
02-Aug-20	499,291	4,375	28,829	484	8,444	74.0	487.3	8.2	5.77%	78.84	8.237	8,214	463
03-Aug-20	503,568	4,277	29,311	482	8,516	72.3	495.5	8.2	5.82%	77.22	8.219	8,291	471
04-Aug-20	507,746	4,178	29,792	480	8,587	70.6	503.6	8.1	5.86%	75.58	8.198	8,367	479
05-Aug-20	511,825	4,079	30,270	478	8,656	68.9	511.7	8.1	5.91%	73.94	8.173	8,441	487
06-Aug-20	515,803	3,978	30,746	476	8,723	67.2	519.7	8.1	5.96%	72.28	8.146	8,513	495
07-Aug-20	519,681	3,877	31,220	474	8,789	65.5	527.8	8.0	6.00%	70.61	8.115	8,584	504
08-Aug-20	523,456	3,776	31,692	471	8,853	63.8	535.7	8.0	6.05%	68.92	8.082	8,653	512
09-Aug-20	527,130	3,674	32,160	469	8,915	62.1	543.7	7.9	6.10%	67.23	8.045	8,720	520
10-Aug-20	530,701	3,571	32,626	466	8,975	60.4	551.5	7.9	6.15%	65.52	8.005	8,785	528
11-Aug-20	534,169	3,468	33,089	463	9,034	58.6	559.3	7.8	6.19%	63.81	7.963	8,849	536
12-Aug-20	537,533	3,364	33,548	460	9,091	56.9	567.1	7.8	6.24%	62.08	7.917	8,911	544
13-Aug-20	540,792	3,260	34,005	456	9,146	55.1	574.8	7.7	6.29%	60.35	7.869	8,972	551
14-Aug-20	543,947	3,155	34,457	453	9,199	53.3	582.5	7.6	6.33%	58.60	7.817	9,030	559
15-Aug-20	546,996	3,049	34,906	449	9,251	51.5	590.1	7.6	6.38%	56.85	7.762	9,087	567
16-Aug-20	549,940	2,943	35,351	445	9,300	49.8	597.6	7.5	6.43%	55.08	7.704	9,142	575
17-Aug-20	552,777	2,837	35,791	441	9,348	48.0	605.0	7.4	6.47%	53.31	7.644	9,195	582
18-Aug-20	555,507	2,730	36,228	436	9,394	46.2	612.4	7.4	6.52%	51.53	7.580	9,247	590
19-Aug-20	558,130	2,623	36,660	432	9,439	44.3	619.7	7.3	6.57%	49.74	7.513	9,297	597
20-Aug-20	560,646	2,515	37,087	427	9,481	42.5	626.9	7.2	6.61%	47.94	7.443	9,345	605
21-Aug-20	563,053	2,407	37,509	422	9,522	40.7	634.1	7.1	6.66%	46.14	7.370	9,391	612
22-Aug-20	565,352	2,299	37,926	417	9,561	38.9	641.1	7.1	6.71%	44.33	7.294	9,435	620
23-Aug-20	567,542	2,190	38,339	412	9,598	37.0	648.1	7.0	6.75%	42.51	7.215	9,478	627
24-Aug-20	569,622	2,081	38,745	407	9,633	35.2	655.0	6.9	6.80%	40.68	7.134	9,518	634
25-Aug-20	571,593	1,971	39,146	401	9,666	33.3	661.7	6.8	6.85%	38.85	7.049	9,557	641
26-Aug-20	573,454	1,861	39,542	395	9,698	31.5	668.4	6.7	6.89%	37.01	6.961	9,594	648
27-Aug-20	575,205	1,751	39,931	390	9,727	29.6	675.0	6.6	6.94%	35.16	6.870	9,629	655
28-Aug-20	576,845	1,640	40,315	383	9,755	27.7	681.5	6.5	6.99%	33.31	6.776	9,663	662
29-Aug-20	578,373	1,529	40,692	377	9,781	25.8	687.9	6.4	7.03%	31.45	6.678	9,694	668
30-Aug-20	579,791	1,417	41,063	371	9,805	24.0	694.1	6.3	7.08%	29.58	6.578	9,724	675
31-Aug-20	581,096	1,306	41,427	364	9,827	22.1	700.3	6.2	7.13%	27.71	6.475	9,751	681
01-Sep-20	582,290	1,194	41,784	357	9,847	20.2	706.3	6.0	7.17%	25.83	6.369	9,777	688
02-Sep-20	583,371	1,081	42,134	350	9,865	18.3	712.3	5.9	7.22%	23.95	6.260	9,801	694
03-Sep-20	584,340	969	42,477	343	9,882	16.4	718.0	5.8	7.27%	22.06	6.148	9,823	700
04-Sep-20	585,195	856	42,813	336	9,896	14.5	723.7	5.7	7.31%	20.17	6.032	9,843	706
05-Sep-20	585,938	742	43,141	328	9,909	12.6	729.3	5.5	7.36%	18.27	5.914	9,862	712
06-Sep-20	586,567	629	43,461	320	9,919	10.6	734.7	5.4	7.41%	16.36	5.793	9,878	718
07-Sep-20	587,082	515	43,774	313	9,928	8.7	740.0	5.3	7.45%	14.45	5.669	9,892	723
08-Sep-20	587,483	401	44,078	304	9,935	6.8	745.1	5.1	7.50%	12.54	5.541	9,905	729
09-Sep-20	587,770	287	44,375	296	9,940	4.9	750.1	5.0	7.55%	10.62	5.411	9,916	734
10-Sep-20	587,942	172	44,662	288	9,943	2.9	755.0	4.9	7.59%	8.70	5.278	9,924	740
11-Sep-20	588,000	58	44,942	279	9,944	1.0	759.7	4.7	7.64%	6.77	5.141	9,931	745
12-Sep-20	588,000	0	45,212	270	9,943	-	764.3	4.6	7.69%	4.98	5.002	9,936	750
13-Sep-20	588,000	0	45,474	261	9,940	-	768.7	4.4	7.73%	3.46	4.859	9,939	755
14-Sep-20	588,000	0	45,726	252	9,935	-	773.0	4.3	7.78%	2.22	4.714	9,940	759
15-Sep-20	588,000	0	45,969	243	9,928	-	777.1	4.1	7.83%	1.25	4.565	9,939	764
16-Sep-20	588,000	0	46,202	233	9,919	-	781.0	3.9	7.87%	0.56	4.414	9,936	768
17-Sep-20	588,000	0	46,426	224	9,909	-	784.8	3.8	7.92%	0.14	4.259	9,931	773
18-Sep-20	588,000	0	46,640	214	9,896	-	788.4	3.6	7.97%	0.00	4.102	9,924	777
19-Sep-20	588,000	0	46,844	204	9,881	-	791.9	3.4	8.01%	0.00	3.941	9,915	781
20-Sep-20	588,000	0	47,038	194	9,865	-	795.1	3.3	8.06%	0.00	3.777	9,905	784
21-Sep-20	588,000	0	47,221	183	9,846	-	798.2	3.1	8.11%	0.00	3.611	9,892	788
22-Sep-20	588,000	0	47,394	173	9,825	-	801.2	2.9	8.15%	0.00	3.441	9,877	792
23-Sep-20	588,000	0	47,556	162	9,803	-	803.9	2.7	8.20%	0.00	3.268	9,861	795
24-Sep-20	588,000	0	47,707	151	9,778	-	806.5	2.6	8.25%	0.00	3.092	9,842	798
25-Sep-20	588,000	0	47,847	140	9,752	-	808.8	2.4	8.29%	0.00	2.914	9,821	801
26-Sep-20	588,000	0	47,975	129	9,723	-	811.0	2.2	8.34%	0.00	2.732	9,799	804
27-Sep-20	588,000	0	48,092	117	9,692	-	813.0	2.0	8.39%	0.00	2.547	9,774	806
28-Sep-20	588,000	0	48,198	106	9,660	-	814.8	1.8	8.43%	0.00	2.359	9,748	808
29-Sep-20	588,000	0	48,292	94	9,625	-	816.3	1.6	8.48%	0.00	2.168	9,719	811
30-Sep-20	588,000	0	48,373	82	9,589	-	817.7	1.4	8.53%	0.00	1.974	9,688	813

Date	Total cases	New cases	Total deaths (ASSA low - exp)	New deaths	Total cases per million	New cases per million	Total deaths per million	New deaths per million	Death rate	New cases per million (7-day mov avg)	New deaths per million (7-day mov avg)	Total cases per million (7-day mov avg)	Total deaths per million (7-day mov avg)
12-May-20	10,365	351	202	8	185.23	5.9	3.41	0.14	1.84%	9.45	0.154	155	3
13-May-20	12,006	1,641	234	32	212.96	27.7	3.96	0.54	1.86%	12.57	0.208	168	3
14-May-20	14,889	2,883	290	56	261.70	48.7	4.90	0.94	1.87%	18.96	0.330	186	3
15-May-20	18,968	4,079	369	79	330.66	69.0	6.24	1.34	1.89%	27.79	0.502	214	4
16-May-20	24,199	5,231	471	102	419.08	88.4	7.97	1.73	1.90%	38.83	0.709	252	5
17-May-20	30,539	6,339	596	125	526.25	107.2	10.08	2.11	1.92%	52.42	0.991	302	6
18-May-20	37,945	7,406	744	147	651.44	125.2	12.58	2.49	1.93%	67.45	1.328	370	7
19-May-20	46,376	8,431	913	170	793.97	142.5	15.44	2.87	1.94%	86.96	1.718	457	9
20-May-20	55,794	9,418	1,105	191	953.16	159.2	18.68	3.23	1.96%	105.74	2.103	562	11
21-May-20	66,159	10,365	1,318	213	1,128.38	175.2	22.27	3.60	1.97%	123.81	2.482	686	13
22-May-20	77,434	11,276	1,551	234	1,318.99	190.6	26.23	3.95	1.99%	141.19	2.855	827	16
23-May-20	89,584	12,150	1,806	255	1,524.38	205.4	30.53	4.30	2.00%	157.90	3.223	985	19
24-May-20	102,573	12,989	2,081	275	1,743.95	219.6	35.18	4.65	2.02%	173.96	3.586	1,159	23
25-May-20	116,367	13,794	2,376	295	1,977.12	233.2	40.17	4.99	2.03%	189.38	3.942	1,349	27
26-May-20	130,933	14,566	2,692	315	2,223.35	246.2	45.50	5.33	2.05%	204.20	4.294	1,553	31
27-May-20	146,238	15,305	3,026	334	2,482.07	258.7	51.15	5.65	2.06%	218.42	4.639	1,771	36
28-May-20	162,251	16,013	3,380	354	2,752.77	270.7	57.13	5.98	2.08%	232.06	4.980	2,003	41
29-May-20	178,942	16,691	3,752	372	3,034.92	282.2	63.43	6.30	2.09%	245.13	5.314	2,248	46
30-May-20	196,281	17,339	4,143	391	3,328.03	293.1	70.03	6.61	2.10%	257.66	5.643	2,506	52
31-May-20	214,240	17,958	4,552	409	3,631.60	303.6	76.95	6.91	2.12%	269.66	5.967	2,776	58
01-Jun-20	232,789	18,549	4,979	427	3,945.17	313.6	84.16	7.22	2.13%	281.15	6.284	3,057	64
02-Jun-20	251,903	19,113	5,423	444	4,268.27	323.1	91.68	7.51	2.15%	292.13	6.597	3,349	71
03-Jun-20	271,553	19,651	5,885	462	4,600.45	332.2	99.48	7.80	2.16%	302.63	6.903	3,652	78
04-Jun-20	291,716	20,162	6,363	478	4,941.28	340.8	107.56	8.09	2.18%	312.64	7.205	3,964	85
05-Jun-20	312,364	20,649	6,858	495	5,290.33	349.1	115.93	8.36	2.19%	322.20	7.500	4,286	92
06-Jun-20	333,475	21,110	7,369	511	5,647.19	356.9	124.57	8.64	2.21%	331.31	7.790	4,618	100
07-Jun-20	355,023	21,548	7,896	527	6,011.45	364.3	133.47	8.91	2.22%	339.98	8.075	4,958	108
08-Jun-20	376,986	21,963	8,438	542	6,382.73	371.3	142.64	9.17	2.23%	348.22	8.354	5,306	116
09-Jun-20	399,341	22,355	8,996	558	6,760.63	377.9	152.07	9.43	2.25%	356.05	8.627	5,662	125
10-Jun-20	422,066	22,725	9,568	572	7,144.78	384.2	161.74	9.68	2.26%	363.48	8.895	6,025	134
11-Jun-20	445,140	23,074	10,155	587	7,534.83	390.0	171.66	9.92	2.28%	370.51	9.157	6,396	143
12-Jun-20	468,542	23,401	10,756	601	7,930.41	395.6	181.83	10.16	2.29%	377.15	9.414	6,773	153
13-Jun-20	492,250	23,708	11,371	615	8,331.19	400.8	192.22	10.40	2.31%	383.43	9.665	7,157	162
14-Jun-20	516,246	23,996	12,000	629	8,736.82	405.6	202.85	10.63	2.32%	389.34	9.911	7,546	172
15-Jun-20	540,509	24,263	12,641	642	9,146.98	410.2	213.70	10.85	2.34%	394.89	10.151	7,941	182
16-Jun-20	565,021	24,512	13,296	655	9,561.35	414.4	224.76	11.07	2.35%	400.10	10.385	8,341	193
17-Jun-20	589,764	24,743	13,963	667	9,979.60	418.3	236.04	11.28	2.37%	404.97	10.614	8,746	203
18-Jun-20	614,719	24,955	14,643	679	10,401.45	421.8	247.53	11.49	2.38%	409.52	10.837	9,155	214
19-Jun-20	639,868	25,150	15,334	691	10,826.59	425.1	259.21	11.69	2.39%	413.74	11.055	9,569	225
20-Jun-20	665,196	25,327	16,037	703	11,254.73	428.1	271.09	11.88	2.41%	417.65	11.267	9,987	236
21-Jun-20	690,684	25,488	16,751	714	11,685.59	430.9	283.17	12.07	2.42%	421.25	11.474	10,408	248
22-Jun-20	716,316	25,632	17,476	725	12,118.89	433.3	295.42	12.26	2.44%	424.56	11.675	10,833	260
23-Jun-20	742,077	25,761	18,212	736	12,554.36	435.5	307.86	12.44	2.45%	427.57	11.871	11,260	271
24-Jun-20	767,950	25,874	18,958	746	12,991.74	437.4	320.47	12.61	2.47%	430.30	12.061	11,690	284
25-Jun-20	793,922	25,971	19,713	756	13,430.77	439.0	333.24	12.78	2.48%	432.76	12.245	12,123	296
26-Jun-20	819,976	26,054	20,479	765	13,871.19	440.4	346.18	12.94	2.50%	434.94	12.424	12,558	308
27-Jun-20	846,098	26,122	21,253	775	14,312.77	441.6	359.27	13.09	2.51%	436.86	12.597	12,995	321
28-Jun-20	872,274	26,176	22,037	784	14,755.26	442.5	372.52	13.25	2.52%	438.52	12.765	13,434	334
29-Jun-20	898,490	26,216	22,829	792	15,198.43	443.2	385.91	13.39	2.54%	439.93	12.927	13,874	346
30-Jun-20	924,733	26,243	23,630	800	15,642.05	443.6	399.44	13.53	2.55%	441.10	13.084	14,315	360
01-Jul-20	950,989	26,256	24,438	808	16,085.89	443.8	413.11	13.67	2.57%	442.02	13.235	14,757	373
02-Jul-20	977,245	26,256	25,254	816	16,529.74	443.8	426.90	13.79	2.58%	442.71	13.380	15,199	386
03-Jul-20	1,003,489	26,244	26,077	823	16,973.38	443.6	440.82	13.92	2.60%	443.17	13.520	15,643	400
04-Jul-20	1,029,708	26,219	26,908	830	17,416.59	443.2	454.86	14.04	2.61%	443.40	13.654	16,086	413
05-Jul-20	1,055,891	26,182	27,744	837	17,859.19	442.6	469.00	14.15	2.63%	443.42	13.783	16,529	427
06-Jul-20	1,082,024	26,134	28,588	843	18,300.96	441.8	483.26	14.25	2.64%	443.22	13.906	16,973	441
07-Jul-20	1,108,097	26,073	29,437	849	18,741.71	440.8	497.61	14.35	2.66%	442.81	14.024	17,415	455
08-Jul-20	1,134,099	26,002	30,292	855	19,181.25	439.5	512.06	14.45	2.67%	442.19	14.136	17,858	469
09-Jul-20	1,160,018	25,919	31,152	860	19,619.40	438.1	526.60	14.54	2.68%	441.38	14.243	18,299	483
10-Jul-20	1,185,843	25,825	32,017	865	20,055.96	436.6	541.23	14.62	2.70%	440.37	14.344	18,739	498
11-Jul-20	1,211,564	25,721	32,887	870	20,490.75	434.8	555.93	14.70	2.71%	439.17	14.439	19,178	512
12-Jul-20	1,237,170	25,606	33,761	874	20,923.61	432.9	570.71	14.78	2.73%	437.77	14.529	19,616	527
13-Jul-20	1,262,652	25,481	34,639	878	21,354.36	430.7	585.55	14.84	2.74%	436.20	14.613	20,052	541
14-Jul-20	1,287,998	25,347	35,521	882	21,782.83	428.5	600.46	14.91	2.76%	434.44	14.692	20,487	556
15-Jul-20	1,313,201	25,202	36,406	885	22,208.86	426.0	615.42	14.96	2.77%	432.51	14.765	20,919	571
16-Jul-20	1,338,249	25,048	37,294	888	22,632.28	423.4	630.43	15.01	2.79%	430.41	14.833	21,350	586
17-Jul-20	1,363,133	24,885	38,185	891	23,052.93	420.7	645.49	15.06	2.80%	428.14	14.895	21,778	601
18-Jul-20	1,387,845	24,712	39,078	893	23,470.67	417.7	660.59	15.10	2.81%	425.70	14.951	22,204	616
19-Jul-20	1,412,375	24,530	39,973	895	23,885.34	414.7	675.72	15.13	2.83%	423.10	15.002	22,627	631
20-Jul-20	1,436,715	24,340	40,870	897	24,296.80	411.5	690.88	15.16	2.84%	420.35	15.048	23,047	646
21-Jul-20	1,460,856	24,141	41,768	898	24,704.88	408.1	706.07	15.18	2.86%	417.44	15.087	23,465	661
22-Jul-20	1,484,790	23,933	42,668	899	25,109.46	404.6	721.27	15.20	2.87%	414.37	15.122	23,879	676
23-Jul-20	1,508,507	23,718	43,568	900	25,510.40	400.9	736.48	15.21	2.89%	411.16	15.150	24,290	691
24-Jul-20	1,532,001	23,494	44,468	900	25,907.55	397.1	751.70	15.22	2.90%	407.80	15.173	24,698	706
25-Jul-20	1,555,263	23,262	45,368	900	26,300.78	393.2	766.92	15.22	2.92%	404.30	15.191	25,102	721
26-Jul-20	1,578,286	23,023	46,269	900	26,689.96	389.2	782.14	15.22	2.93%	400.66	15.203	25,503	736
27-Jul-20	1,601,061	22,775	47,168	900	27,074.96	385.0	797.35	15.21	2.94%	396.88	15.209	25,900	752
28-Jul-20	1,623,582	22,521	48,067	899	27,455.66	380.7	812.54	15.19	2.96%	392.97	15.210	26,293	767
29-Jul-20	1,645,841	22,259	48,964	897	27,831.93	376.3	827.71	15.17	2.97%	388.92	15.206	26,682	782
30-Jul-20	1,667,830	21,989	49,860	896	28,203.65	371.7	842.85	15.14	2.99%	384.75	15.195	27,066	797
31-Jul-20	1,689,543	21,713	50,754	894	28,570.70	367.0	857.96	15.11	3.00%	380.45	15.180	27,447	812
01-Aug-20	1,710,973	21,430	51,645	892	28,932.96	362.3	873.03	15.07	3.02%	376.03	15.158	27,823	828
02-Aug-20	1,732,113	21,140	52,534	889	29,290.32	357.4	888.06	15.03	3.03%	371.48	15.131	28,194	843
03-Aug-20	1,752,956	20,843	53,420	886	29,642.66	352.3	903.04	14.98	3.05%	366.81	15.099	28,561	858
04-Aug-20	1,773,497	20,540	54,303	883	29,989.88	347.2	917.96	14.92	3.06%	362.03	15.061	28,923	873
05-Aug-20	1,793,727	20,231	55,183	879	30,331.86	342.0	932.83	14.86	3.08%	357.13	15.017	29,280	888
06-Aug-20	1,813,642	19,915	56,058	875	30,668.51	336.6	947.63	14.80	3.09%	352.12	14.968	29,632	903
07-Aug-20	1,833,234	19,593	56,929	871	30,999.71	331.2	962.35	14.73	3.10%	347.00	14.913	29,979	918
08-Aug-20	1,852,499	19,264	57,796	867	31,325.36	325.7	977.00	14.65	3.12%	341.77	14.853	30,321	933
09-Aug-20	1,871,429	18,930	58,657	862	31,645.37	320.0	991.57	14.57	3.13%	336.44	14.787	30,658	947
10-Aug-20	1,890,020	18,590	59,514	857	31,959.63	314.3	1,006.05	14.48	3.15%	331.00	14.715	30,989	962
11-Aug-20	1,908,265	18,245	60,365	851	32,268.05	308.4	1,020.43	14.39	3.16%	325.45	14.638	31,314	977
12-Aug-20	1,926,158	17,894	61,210	845	32,570.53	302.5	1,034.72	14.29	3.18%	319.81	14.556	31,634	991
13-Aug-20	1,943,695	17,537	62,049	839	32,866.98	296.4	1,048.90	14.18	3.19%	314.07	14.468	31,948	1,006
14-Aug-20	1,960,870	17,175	62,881	832	33,157.30	290.3	1,062.97	14.07	3.21%	308.23	14.374	32,256	1,020
15-Aug-20	1,977,677	16,807	63,707	826	33,441.42	284.1	1,076.93	13.95	3.22%	302.29	14.275	32,558	1,035
16-Aug-20	1,994,111	16,434	64,525	818	33,719.23	277.8	1,090.76	13.83	3.23%	296.27	14.170	32,855	1,049
17-Aug-20	2,010,167	16,056	65,336	811	33,990.65	271.4	1,104.47	13.71	3.25%	290.15	14.060	33,145	1,063
18-Aug-20	2,025,841	15,673	66,139	803	34,255.60	265.0	1,118.04	13.57	3.26%	283.94	13.944	33,429	1,077
19-Aug-20	2,041,126	15,286	66,934	795	34,513.99	258.4	1,131.48	13.44	3.28%	277.64	13.822	33,706	1,091
20-Aug-20	2,056,019	14,893	67,720	786	34,765.75	251.8	1,144.77	13.29	3.29%	271.25	13.695	33,978	1,104
21-Aug-20	2,070,514	14,495	68,498	777	35,010.78	245.0	1,157.91	13.14	3.31%	264.78	13.563	34,242	1,118
22-Aug-20	2,084,607	14,093	69,266	768	35,249.01	238.2	1,170.90	12.99	3.32%	258.23	13.425	34,501	1,131
23-Aug-20	2,098,293	13,686	70,025	759	35,480.37	231.4	1,183.72	12.83	3.34%	251.59	13.281	34,752	1,144
24-Aug-20	2,111,568	13,275	70,774	749	35,704.77	224.4	1,196.39	12.66	3.35%	244.87	13.132	34,997	1,158
25-Aug-20	2,124,427	12,859	71,513	739	35,922.14	217.4	1,208.88	12.49	3.37%	238.08	12.977	35,235	1,171
26-Aug-20	2,136,865	12,439	72,241	728	36,132.40	210.3	1,221.19	12.31	3.38%	231.20	12.816	35,466	1,183
27-Aug-20	2,148,879	12,014	72,959	718	36,335.49	203.1	1,233.32	12.13	3.39%	224.25	12.650	35,691	1,196
28-Aug-20	2,160,465	11,585	73,665	706	36,531.33	195.8	1,245.26	11.94	3.41%	217.22	12.479	35,908	1,209
29-Aug-20	2,171,617	11,152	74,360	695	36,719.85	188.5	1,257.01	11.75	3.42%	210.12	12.302	36,118	1,221
30-Aug-20	2,182,332	10,715	75,043	683	36,900.99	181.1	1,268.56	11.55	3.44%	202.95	12.119	36,321	1,233
31-Aug-20	2,192,606	10,274	75,714	671	37,074.66	173.7	1,279.90	11.34	3.45%	195.70	11.931	36,517	1,245
01-Sep-20	2,202,435	9,829	76,373	659	37,240.82	166.2	1,291.03	11.13	3.47%	188.38	11.737	36,705	1,257
02-Sep-20	2,211,815	9,380	77,019	646	37,399.38	158.6	1,301.95	10.92	3.48%	181.00	11.538	36,886	1,268
03-Sep-20	2,220,742	8,927	77,651	633	37,550.29	150.9	1,312.65	10.70	3.50%	173.54	11.333	37,060	1,279
04-Sep-20	2,229,213	8,471	78,271	619	37,693.48	143.2	1,323.12	10.47	3.51%	166.02	11.122	37,226	1,291
05-Sep-20	2,237,224	8,011	78,876	606	37,828.90	135.4	1,333.35	10.24	3.52%	158.43	10.906	37,384	1,302
06-Sep-20	2,244,770	7,547	79,468	591	37,956.47	127.6	1,343.35	10.00	3.54%	150.78	10.685	37,535	1,312
07-Sep-20	2,251,849	7,079	80,045	577	38,076.14	119.7	1,353.10	9.75	3.55%	143.07	10.457	37,678	1,323
08-Sep-20	2,258,458	6,608	80,607	562	38,187.84	111.7	1,362.61	9.50	3.57%	135.29	10.225	37,813	1,333
09-Sep-20	2,264,591	6,134	81,154	547	38,291.53	103.7	1,371.86	9.25	3.58%	127.45	9.986	37,941	1,343
10-Sep-20	2,270,247	5,656	81,686	532	38,387.14	95.6	1,380.85	8.99	3.60%	119.55	9.743	38,060	1,353
11-Sep-20	2,275,422	5,175	82,202	516	38,474.61	87.5	1,389.57	8.72	3.61%	111.59	9.493	38,172	1,362
12-Sep-20	2,280,112	4,690	82,702	500	38,553.90	79.3	1,398.02	8.45	3.63%	103.57	9.238	38,275	1,371
13-Sep-20	2,284,314	4,202	83,185	484	38,624.94	71.0	1,406.19	8.17	3.64%	95.50	8.978	38,371	1,380
14-Sep-20	2,288,026	3,711	83,652	467	38,687.68	62.7	1,414.09	7.89	3.66%	87.36	8.712	38,458	1,389
15-Sep-20	2,291,243	3,217	84,102	450	38,742.06	54.4	1,421.69	7.60	3.67%	79.17	8.440	38,537	1,397
16-Sep-20	2,293,963	2,720	84,534	432	38,788.04	46.0	1,429.00	7.31	3.68%	70.93	8.163	38,608	1,406
17-Sep-20	2,296,183	2,220	84,949	415	38,825.57	37.5	1,436.01	7.01	3.70%	62.63	7.880	38,671	1,414
18-Sep-20	2,297,899	1,717	85,345	397	38,854.58	29.0	1,442.71	6.70	3.71%	54.28	7.592	38,725	1,421
19-Sep-20	2,299,110	1,210	85,724	378	38,875.04	20.5	1,449.11	6.39	3.73%	45.88	7.298	38,771	1,428
20-Sep-20	2,299,811	701	86,083	360	38,886.90	11.9	1,455.18	6.08	3.74%	37.42	6.998	38,809	1,435
21-Sep-20	2,300,000	189	86,424	341	38,890.09	3.2	1,460.94	5.76	3.76%	28.92	6.693	38,837	1,442
22-Sep-20	2,300,000	0	86,745	321	38,884.59	-	1,466.37	5.43	3.77%	21.15	6.383	38,858	1,448
23-Sep-20	2,300,000	0	87,046	301	38,870.33	-	1,471.46	5.10	3.79%	14.58	6.067	38,870	1,455
24-Sep-20	2,300,000	0	87,328	281	38,847.28	-	1,476.22	4.76	3.80%	9.22	5.745	38,873	1,460
25-Sep-20	2,300,000	0	87,589	261	38,815.39	-	1,480.64	4.41	3.81%	5.07	5.418	38,867	1,466
26-Sep-20	2,300,000	0	87,829	240	38,774.61	-	1,484.70	4.06	3.83%	2.15	5.085	38,853	1,471
27-Sep-20	2,300,000	0	88,049	219	38,724.90	-	1,488.41	3.71	3.84%	0.46	4.746	38,830	1,476
28-Sep-20	2,300,000	0	88,247	198	38,666.22	-	1,491.76	3.35	3.86%	0.00	4.403	38,798	1,480
29-Sep-20	2,300,000	0	88,423	176	38,598.52	-	1,494.74	2.98	3.87%	0.00	4.053	38,757	1,484
30-Sep-20	2,300,000	0	88,578	154	38,521.76	-	1,497.35	2.61	3.89%	0.00	3.698	38,707	1,488