How cases have developed globally

- Global cases rose 2.2 per cent, to over 3.6m over the last 24 hours. Fatalities rose 1.7 per cent to over 252,000. Cases and deaths continue to steadily slow worldwide, with the slowing pace in larger and more infected countries overshadowing some of the other hot spots.

- As testing expands, especially serological testing that determines whether an individual has antibodies for the coronavirus, we will start to understand how much of the world has already been infected by a disease that has a large number of asymptomatic cases. Yesterday, Researchers from Bonn University announced the results of a study (not yet peer reviewed) that found about 15 per cent of a town in Germany had been infected, with a fatality rate of 0.37 per cent. This study concluded that Germany has possibly seen 1.8m cases rather than a reported figure of less than a tenth of this.

- If you multiply current reported cases by ten then the German mortality rate falls from 4.2 per cent to 0.42 per cent, close to the completely unmitigated Imperial College London covid-19 scenario, which would have led to around 7bn infections and around 40m deaths or 0.51 per cent of the global population. This is a bit higher than what was seen on the Diamond Princess Cruise.

- It is also roughly in line with the results in New York City, where a recent antibody study found that 25 per cent of the city may have already been infected. This would lower the overall mortality rate closer to 0.57 per cent. The one overriding concern is the counting of excess deaths everywhere, which could change the numerator significantly.

- In regional cases, the US continued its slow and steady descent in cases and death. Cases rose by 1.9 per cent, compared with the five-day average of 2.6 per cent. Fatalities also rose by 1.9 per cent, lower than the 2.5 per cent five-day average. In New York State, cases rose by 1.1 per cent, the lowest of the outbreak so far, while fatalities rose by 1.2 per cent. That is right in the middle of the tight range it has been in for a week.

- In Germany, cases rose by 0.3 per cent as the country continues to see lower and lower new infections. Fatalities rose by 1.8 per cent over the last 24 hours, which is higher than the five-day average of 1.6 per cent, but it remains in a downward trend since 14 days ago at 4.7 per cent.

- France saw fatalities increase by 306 or 1.2 per cent, the most in four days, and likely due to the country releasing nursing home data later in the week due to weekend delays. The number of cases rose by 0.5 per cent, just above the five-day average of 0.3 per cent. According to the health ministry,
hospitalisations fell to 25,548 from 258,815 three weeks ago.

- Cases in the UK rose 2.1 per cent, below five-day average of 2.8 per cent. Today is likely to see a notable spike back up. The same will be true of fatalities which rose by 1.0 per cent, the second lowest yet.

- Spain continues to loosen restrictions methodically this week. As the reopening slowly progresses, fatalities rose by 164 (0.6 per cent) to 25,428 in the 24 hours, slower than yesterday. Infections rose by 0.5 per cent to 248,301, with two straight days under 1.0 per cent now.

- Italy has announced an extra 11,600 deaths unaccounted for, and it was reasonable to assume these people either died of covid-19 without being tested or due to the extra stress on the health system. It has not been indicated if these will be included in the official numbers. The country has started to reopen, with case growth continuing to steadily slow (0.6 per cent in the last 24 hours) even as testing has increased. Announced fatalities grew by 0.7 per cent, just one tenth higher than yesterday.

- Brazil, one of the current hot spots in the world saw cases increase by 6.7 per cent, slightly higher than the five-day average of 6.5 per cent and higher than the 5.7 per cent seen two weeks ago. Fatalities rose by 4.5 per cent, the second-lowest in almost a month.

- Russia is another hot spot, with a 7.9 per cent increase in cases over the last 24 hours, in line with the five-day average. At this rate, the country could pass Germany in overall cases before the end of the week, with France not too far ahead. Total fatalities in Russia remain relatively low at 1,356, and have not been growing as fast – 5.9 per cent over the past 24 hours and 6.9 per cent on average over the last 5 days.

![Figure 1: Change in coronavirus cases over the last five days across major affected areas of the world](attachment:image.png)

<table>
<thead>
<tr>
<th>Country/Territory</th>
<th>Confirmed Cases</th>
<th>Cases/1M Population</th>
<th>Last 5 Days Daily Rate of Change</th>
<th>Rate of Change 14 days ago</th>
<th>Total Testing</th>
<th>Tests/ 1M Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>1,180,288</td>
<td>3,566</td>
<td>T-1 1.9% T-2 2.2% T-3 2.7% T-4 3.2% T-5 3.0%</td>
<td>4.8%</td>
<td>7,462,431</td>
<td>22,545</td>
</tr>
<tr>
<td>New York</td>
<td>327,374</td>
<td>16,840</td>
<td>T-1 1.1% T-2 1.5% T-3 1.3% T-4 1.4% T-5 1.5%</td>
<td>1.8%</td>
<td>900,636</td>
<td>46,328</td>
</tr>
<tr>
<td>Spain</td>
<td>248,301</td>
<td>6,311</td>
<td>T-1 0.5% T-2 0.6% T-3 1.1% T-4 1.3% T-5 1.2%</td>
<td>2.0%</td>
<td>1,291,591</td>
<td>19,031</td>
</tr>
<tr>
<td>Italy</td>
<td>211,938</td>
<td>3,505</td>
<td>T-1 0.6% T-2 0.7% T-3 0.9% T-4 1.0% T-5 0.9%</td>
<td>1.5%</td>
<td>2,547,052</td>
<td>16,856</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>150,584</td>
<td>2,808</td>
<td>T-1 2.1% T-2 1.7% T-3 2.7% T-4 4.3% T-5 2.9%</td>
<td>2.4%</td>
<td>1,291,591</td>
<td>19,031</td>
</tr>
<tr>
<td>France</td>
<td>169,462</td>
<td>3,196</td>
<td>T-1 0.5% T-2 0.2% T-3 0.6% T-4 0.1% T-5 0.4%</td>
<td>0.3%</td>
<td>1,100,228</td>
<td>16,856</td>
</tr>
<tr>
<td>Germany</td>
<td>166,152</td>
<td>1,983</td>
<td>T-1 0.3% T-2 0.4% T-3 0.5% T-4 0.7% T-5 0.9%</td>
<td>0.9%</td>
<td>2,547,052</td>
<td>30,400</td>
</tr>
<tr>
<td>Russia</td>
<td>145,268</td>
<td>995</td>
<td>T-1 7.9% T-2 8.6% T-3 8.4% T-4 7.4% T-5 7.1%</td>
<td>12.0%</td>
<td>2,547,052</td>
<td>30,400</td>
</tr>
<tr>
<td>Turkey</td>
<td>127,659</td>
<td>1,518</td>
<td>T-1 1.3% T-2 1.3% T-3 1.6% T-4 1.8% T-5 2.2%</td>
<td>5.1%</td>
<td>1,171,138</td>
<td>13,924</td>
</tr>
<tr>
<td>Brazil</td>
<td>108,620</td>
<td>512</td>
<td>T-1 6.7% T-2 4.9% T-3 5.3% T-4 9.8% T-5 5.8%</td>
<td>5.7%</td>
<td>339,552</td>
<td>1,600</td>
</tr>
<tr>
<td>Iran</td>
<td>98,647</td>
<td>1,174</td>
<td>T-1 1.3% T-2 1.0% T-3 0.8% T-4 1.1% T-5 1.0%</td>
<td>1.6%</td>
<td>1,171,138</td>
<td>13,924</td>
</tr>
<tr>
<td>China</td>
<td>82,881</td>
<td>58</td>
<td>T-1 0.0% T-2 0.0% T-3 0.0% T-4 0.0% T-5 0.0%</td>
<td>0.0%</td>
<td>882,700</td>
<td>38,067</td>
</tr>
<tr>
<td>Belgium</td>
<td>50,267</td>
<td>4,342</td>
<td>T-1 0.7% T-2 0.8% T-3 1.0% T-4 1.1% T-5 1.4%</td>
<td>2.4%</td>
<td>440,700</td>
<td>38,067</td>
</tr>
<tr>
<td>India</td>
<td>46,437</td>
<td>24</td>
<td>T-1 9.3% T-2 7.1% T-3 6.6% T-4 10.9% T-5 1.7%</td>
<td>8.3%</td>
<td>1,107,233</td>
<td>802</td>
</tr>
<tr>
<td>Netherlands</td>
<td>40,770</td>
<td>2,673</td>
<td>T-1 0.5% T-2 0.3% T-3 1.1% T-4 1.2% T-5 1.3%</td>
<td>2.2%</td>
<td>235,909</td>
<td>13,732</td>
</tr>
<tr>
<td>Switzerland</td>
<td>29,981</td>
<td>2,646</td>
<td>T-1 0.3% T-2 0.3% T-3 0.4% T-4 0.4% T-5 0.6%</td>
<td>0.4%</td>
<td>282,750</td>
<td>32,670</td>
</tr>
<tr>
<td>Sweden</td>
<td>22,721</td>
<td>2,250</td>
<td>T-1 1.8% T-2 1.1% T-3 2.6% T-4 2.0% T-5 3.9%</td>
<td>3.7%</td>
<td>119,500</td>
<td>11,953</td>
</tr>
<tr>
<td>Mexico</td>
<td>24,905</td>
<td>193</td>
<td>T-1 6.1% T-2 6.3% T-3 6.5% T-4 16.5% T-5 6.3%</td>
<td>8.3%</td>
<td>100,041</td>
<td>776</td>
</tr>
<tr>
<td>Singapore</td>
<td>18,778</td>
<td>1,518</td>
<td>T-1 3.1% T-2 3.7% T-3 2.6% T-4 5.8% T-5 3.4%</td>
<td>13.9%</td>
<td>143,919</td>
<td>25,522</td>
</tr>
<tr>
<td>Japan</td>
<td>15,078</td>
<td>1,174</td>
<td>T-1 1.4% T-2 2.1% T-3 1.9% T-4 2.4% T-5 0.5%</td>
<td>3.4%</td>
<td>183,251</td>
<td>1,449</td>
</tr>
<tr>
<td>South Korea</td>
<td>10,804</td>
<td>211</td>
<td>T-1 0.0% T-2 0.1% T-3 0.1% T-4 0.1% T-5 0.0%</td>
<td>0.1%</td>
<td>630,973</td>
<td>12,307</td>
</tr>
</tbody>
</table>

Source: Deutsche Bank, WHO, CDC, ECDC, JHU
Figure 2: Change in coronavirus fatalities over the last five days across major affected areas of the world

<table>
<thead>
<tr>
<th>Country/Territory</th>
<th>Confirmed Deaths</th>
<th>Deaths/1M Population</th>
<th>Last 5 Days Daily Rate of Change</th>
<th>Rate of Change 14 days ago</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>69,921</td>
<td>211</td>
<td>1.9% 3.3% 2.2% 3.6% 1.6%</td>
<td>6.6%</td>
</tr>
<tr>
<td>New York</td>
<td>24,944</td>
<td>1,283</td>
<td>1.2% 1.1% 1.4% 1.1% 1.3%</td>
<td>4.0%</td>
</tr>
<tr>
<td>Spain</td>
<td>25,428</td>
<td>544</td>
<td>0.6% 0.7% 1.1% 1.1% 1.1%</td>
<td>2.1%</td>
</tr>
<tr>
<td>Italy</td>
<td>29,079</td>
<td>481</td>
<td>0.7% 0.6% 1.7% 1.0% 1.0%</td>
<td>2.2%</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>28,734</td>
<td>423</td>
<td>1.0% 0.9% 2.3% 3.0% 2.6%</td>
<td>5.0%</td>
</tr>
<tr>
<td>France</td>
<td>25,201</td>
<td>386</td>
<td>1.2% 0.5% 0.5% 1.0% 1.2%</td>
<td>2.6%</td>
</tr>
<tr>
<td>Germany</td>
<td>6,993</td>
<td>83</td>
<td>1.8% 0.8% 1.1% 2.6% 1.5%</td>
<td>4.6%</td>
</tr>
<tr>
<td>Russia</td>
<td>1,356</td>
<td>9</td>
<td>5.9% 4.7% 4.5% 8.9% 10.4%</td>
<td>12.6%</td>
</tr>
<tr>
<td>Turkey</td>
<td>3,461</td>
<td>41.1</td>
<td>1.9% 1.8% 2.4% 5.7% 0.0%</td>
<td>5.6%</td>
</tr>
<tr>
<td>Brazil</td>
<td>7,367</td>
<td>35</td>
<td>4.5% 4.3% 5.4% 8.7% 7.0%</td>
<td>6.0%</td>
</tr>
<tr>
<td>Iran</td>
<td>6,277</td>
<td>74.7</td>
<td>1.2% 0.8% 1.1% 1.0% 1.2%</td>
<td>1.7%</td>
</tr>
<tr>
<td>China</td>
<td>4,638</td>
<td>3</td>
<td>0.0% 0.0% 0.0% 0.0% 0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Belgium</td>
<td>7,924</td>
<td>684</td>
<td>1.0% 1.0% 0.8% 1.4% 1.2%</td>
<td>2.9%</td>
</tr>
<tr>
<td>India</td>
<td>1,566</td>
<td>1</td>
<td>12.6% 5.1% 8.2% 13.3% 0.0%</td>
<td>9.0%</td>
</tr>
<tr>
<td>Netherlands</td>
<td>5,082</td>
<td>296</td>
<td>0.5% 1.1% 1.9% 2.0% 2.1%</td>
<td>4.4%</td>
</tr>
<tr>
<td>Switzerland</td>
<td>1,784</td>
<td>206.1</td>
<td>1.2% 0.0% 0.5% 1.0% 1.2%</td>
<td>3.4%</td>
</tr>
<tr>
<td>Sweden</td>
<td>2,769</td>
<td>274</td>
<td>3.4% 0.4% 0.6% 2.6% 5.0%</td>
<td>11.7%</td>
</tr>
<tr>
<td>Mexico</td>
<td>2,271</td>
<td>18</td>
<td>5.4% 4.5% 4.5% 13.9% 0.0%</td>
<td>20.4%</td>
</tr>
<tr>
<td>Singapore</td>
<td>18</td>
<td>3.2</td>
<td>0.0% 5.9% 6.3% 14.3% 0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Japan</td>
<td>536</td>
<td>4.2</td>
<td>10.1% 2.7% 4.2% 7.1% 2.9%</td>
<td>6.8%</td>
</tr>
<tr>
<td>South Korea</td>
<td>254</td>
<td>5.0</td>
<td>0.8% 0.8% 0.0% 1.2% 0.4%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Worldwide</td>
<td>252,396</td>
<td>32</td>
<td>1.7% 1.8% 2.1% 2.3% 2.6%</td>
<td>4.2%</td>
</tr>
</tbody>
</table>

Source: Deutsche Bank, WHO, CDC, ECDC, JHU

Exit Strategy

- **South Korea**: The education minister said that some schools will begin to reopen from 13 May.
- **Slovakia**: The Prime Minister said that shops and services that are not in shopping malls can open from Wednesday.
- **UK**: Companies resuming operations after the lockdown is relaxed will be told to stagger shifts, enforce social distancing, and avoid sharing materials. The country remains in lockdown until at least Thursday.
- **Italy**: 4.4m Italians were able to return to work yesterday, and restrictions on movement eased. That follows nearly two months of shutdowns.
- Both Apple and Google announced they will not allow the use of location tracking in apps that use the new contact tracing system the two companies are building to slow the spread of the virus. Both companies cited privacy concerns and wanting to prevent governments from using the newly-developed system to compile data on citizens. The system will use bluetooth signals from all phones to detect each other and present a log of those people encountered.
- **California**, the first state in the US to shutdown, will start to ease restrictions this Friday. The state will allow some non-essential shops to organise curb-side pickups and some more rural counties will see even further relaxation, if they can show they can track infections.
Finland: Some restrictions will be lifted starting 1 June. Restaurants will be allowed to reopen along with public services including libraries and sports facilities. The ban on public meetings will be relaxed from a ten person maximum to 50 people, but emergency powers will be kept in place.

Turkey: President Erdoğan announced the easing of restrictions starting next week, with hair salons and malls reopening. Universities are set to resume starting 15 June. The full reopening plans announced could take until July.

Medical Updates

- Antibody tests will receive tighter oversight from US health regulators after some manufacturers made allegedly false or inappropriate claims, causing questions to arise surrounding the accuracy of some tests. The FDA said Monday that makers of the tests will have to apply for authorisation within ten days of their product coming to market.

- The EU pledged €1bn toward the search for vaccines and treatments, according to the European Commission President Von der Leyen. In addition, Chancellor Merkel said yesterday that Germany will contribute €525m to a global fund-raising effort to find a vaccine and for treatments of the virus.

- Spain will pledge €125m to develop a global response to the pandemic, Prime Minister Sánchez announced yesterday. Sánchez said Spain would contribute €50m to the Global Vaccine Alliance and €75m to the Coalition for Epidemic Preparedness Innovations.

Major virus updates over the weekend

- The “most massive public health effort in history” is needed to overcome the COVID-19 pandemic, UN Secretary-General Antonio Guterres on Monday, addressing a European Union pledging conference in Brussels.

- Japan: Prime Minister Abe announced that the state of emergency will be extended until 31 May.

- Spain: Reports indicate the leader of Spain’s main opposition party, Pablo Casado, will not vote in favour of the government extending the state of emergency. Rather, he reportedly hinted his party will abstain.

- France: A French hospital, which retested old samples from pneumonia patients, has discovered that it treated a man who had covid-19 as early as 27 December. This was just under a month before the government confirmed its first cases.

- US: According to the White House, President Trump is planning to sign an executive order to increase the production of medical products and energy components in the country.

- US Treasury secretary Mnuchin said it is “too hard to tell” if the US will loosen international travel restrictions affecting Asia and Europe this year, even as measures limiting domestic economic activity are lifted.

- The rise of the 1918 Spanish ‘flu has been linked to extremist voting in 1930s Germany, in a report by the New York Fed. The result provides a challenge to leaders in how they deal with the many social effects of the current pandemic.

- Amidst the interplay between the virus and factors affecting climate change, France and the Netherlands have drawn up proposals urging the EU to be prepared to impose higher tariffs against countries that flout...
sustainable development commitments. They are also encouraging the European Commission to press ahead with plans for a “Carbon Border Adjustment Mechanism”, a levy on imports from non-EU countries based on their carbon footprint.

- The covid-19 pandemic is “exposing the frailties and inequalities of our societies” across the world, said Deputy UN Chief Amina J. Mohammed.

Company Updates

- AIG reported $272m in costs attributed to virus losses, while CEO Duperreault said on the accompanying earnings call that it will probably be the single largest catastrophe loss ever.
- Tyson Foods said that the challenges related to the pandemic are “anticipated to increase our operating costs and negatively impact our volumes for the remainder of fiscal 2020.”
- Ferrari lowered its guidance for 2020, saying it now expects adjusted ebitda of €1.05bn-1.20bn, down from €1.38bn-1.43bn.
- General Electric’s aviation unit said it will reduce its workforce this year by as much as 25 per cent.
- French automaker PSA will restart manufacturing sites in the coming weeks as European countries lift lockdown restrictions and reopen showrooms. The first wave of plant restarts is set to begin between yesterday through to 11 May, almost two months after being shut down.
- Fitch Ratings downgraded Starbucks, citing a higher debt load from an upcoming bond sale and the “significant business interruption” from covid-19. The company’s rating was cut to BBB from BBB+, one level above a junk rating.
- Carnival Cruise Lines announced plans to resume cruise operations by the start of August out of the US once the CDC’s no-sail order has expired.

Economic Data Highlights

- The April manufacturing PMI for the Euro Area came in at 33.4, two-tenths below the flash reading, and a record low since the series began in 1997.
  - Among the worst manufacturing PMIs by country were Greece (29.5) and India (27.4), both also at record lows.
- US: Factory orders fell by 10.3 per cent in March, while durable goods orders fell by 14.7 per cent.
- Hong Kong: GDP in the first quarter fell by 5.3 per cent, the largest quarterly decline on record.
- UK: New car sales fell 97 per cent in April, the lowest figure since 1946 and comparable to the drop seen in Spain and Italy.
Figure 3: Much of Northern Europe’s experience has been very similar on a population adjusted measure

- China
- South Korea
- Italy
- Iran
- France
- Germany
- Spain
- United States
- United Kingdom
- Switzerland
- Japan
- Sweden
- Netherlands
- Belgium
- India
- Turkey
- Russia
- Mexico
- Brazil

![Covid-19 Cases per 1 million of the country's population](source: Deutsche Bank, WHO, CDC, JHU)

Figure 4: France is no longer tracking the same fatality path as Italy on a population adjusted basis, with the rate of new deaths slowing

![Covid-19 Fatalities per 1 million of the country's population](source: Deutsche Bank, WHO, CDC, JHU)
Figure 5: Italy, Spain, and France shut down more completely than any of the other most heavily affected nations in terms of individual mobility.

Source: Deutsche Bank, Apple

Figure 6: Since the beginning of April there has been a steady rise in drivers, particularly in Germany and the US, which has seen a continued rise in the last week.

Source: Deutsche Bank, Apple
Figure 7: There has been increasing case growth in regions like Singapore and Russia just as Western Europe and the US flatten out.

Covid-19 case growth after 100 confirmed cases

Days since country announced 100th case

Confirmed Cases

Covid-19 case growth after 100 confirmed cases

If cases double every 3 days

If cases double every week

Source: Deutsche Bank, WHO, CDC, Worldometer

Figure 8: New cases in the US have been flat for over two weeks and Europe seems to be slowing across the board on a 5 day average basis.

5 Day Average of Daily New Cases Since Country Observed 100th case

Days since country announced 100th case

Confirmed Cases

5 Day Average of Daily New Cases Since Country Observed 100th case

Source: Deutsche Bank, WHO, CDC, Worldometer
Figure 9: Fatalities across the world have slowed substantially compared to where we were 2 weeks ago with hospitals seeing less strain in different regions.

Covid-19 Total Fatalities by Country

Source: Deutsche Bank, WHO, CDC, Worldometer

Figure 10: The growth in fatalities in the US and Europe have slowed on a 5 day average basis, yet we have seen the trend in fatalities lag the trend in new cases across the world.

5 day average of Daily Covid-19 Fatalities by Country

Source: Deutsche Bank, WHO, CDC, Worldometer
Figure 11: New York State and England were the last two major regions we are watching that have seen their rate of new fatalities start to flatten.

**Covid-19 Total Deaths by Region**

Days since 10th death in the region

Confirmed/Deaths

Source: Deutsche Bank, NHS, Covid Tracking Project, ECDC, Santépubliquefrance, Interaktiv.morgenpost

Figure 12: The UK has seen a spike in testing over the weekend, after the government sought to reach the milestone of 100K tests a day.

**Daily tests per 1 million of the population**

Source: Deutsche Bank, CDC, ECDC, OurWorldInData
Appendix 1

Important Disclosures

*Other information available upon request

*Prices are current as of the end of the previous trading session unless otherwise indicated and are sourced from local exchanges via Reuters, Bloomberg and other vendors. Other information is sourced from Deutsche Bank, subject companies, and other sources. For disclosures pertaining to recommendations or estimates made on securities other than the primary subject of this research, please see the most recently published company report or visit our global disclosure look-up page on our website at https://research.db.com/Research/Disclosures/CompanySearch. Aside from within this report, important risk and conflict disclosures can also be found at https://research.db.com/Research/Topics/Equities?topicId=RB0002. Investors are strongly encouraged to review this information before investing.

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