COVID-19 Cases
As of Wednesday 4/15/2020, 6:00PM HST

Statistics regarding daily new cases and active cases of the eight countries that has the highest number of total cases, Switzerland, Austria, South Korea, Israel, Australia, and Cyprus.

Source: https://www.worldometers.info/coronavirus/

Statistics regarding daily new cases are also included for Hawaii.

Daily New Cases in the United States

3-Day Moving Average Trendline

Active Cases in the United States
2. Spain

Daily New Cases in Spain

Active Cases in Spain
Trendlines for Spain

$y = -213.68x + 8595.4$

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21

Daily New Cases

Spain Bar Chart of Daily New Cases from Peak till Today

- Linear Trendline
  when $y = 0; x = 40$
  (May 05)
3. Italy

Daily New Cases in Italy

Active Cases in Italy
Trendlines for Italy

Y = -110.36x + 6033.5

Italy Bar Chart of Daily New Cases from Peak till Today

Linear Trendline when y = 0; x = 55 (May 15)
4. France

Daily New Cases in France

Active Cases in France

3-Day Moving Average Trendline

- France
- 3 per. Mov. Avg. (Daily New Cases)
5. Germany

Daily New Cases in Germany

Active Cases in Germany
Trendlines for Germany

3-Day Moving Average Trendline

Germany Bar Chart of Daily New Cases from Peak till Today

Linear Trendline when y = 0; x = 32 (April 28)

y = -214.45x + 6792.4

Germany

Day Moving Average Trendline

3 per. Mov. Avg. (Daily New Cases)
7. China

Daily New Cases in China

Active Cases in China

3-Day Moving Average Trendline

China  3 per. Mov. Avg. (Daily New Cases)
8. Iran
Trendlines for Iran

3-Day Moving Average Trendline

Iran

Daily New Cases

Linear Trendline when \( y = 0; x = 29 \)

(April 28)

\[ y = -112.04x + 3248.3 \]
9. Switzerland

**Daily New Cases in Switzerland**

![Daily New Cases graph]

**Active Cases in Switzerland**

![Active Cases graph]
3-Day Moving Average Trendline

- Switzerland
- 3 per. Mov. Avg (Daily New Cases)

Switzerland Bar Chart of Daily New Cases from Peak till Today

Linear Trendline
when \( y = 0; \ x = 39 \) (April 28)

\[ y = -33.078x + 1282.1 \]
Daily New Cases in Austria

Active Cases in Austria
3-Day Moving Average Trendline

Austria Bar Chart of Daily New Cases from Peak till Today

Logarithmic Trendline
when \( y = 0 \); \( x = 31 \)
(April 26)
Daily New Cases in Israel

Active Cases in Israel

(Cases per Day)

Data as of 0:00 GMT+0

Active Cases

(Number of Infected People)
3-Day Moving Average Trendline

Trendlines for Israel

Israel Bar Chart of Daily New Cases from Peak till Today

Linear Trendline
when $y = 0; x = 40$
(May 12)

$y = -13.905x + 562.08$
Daily New Cases in South Korea

Daily New Cases
Cases per Day
Data as of 0:00 GMT+0

3-Day Moving Average Trendline

Active Cases in South Korea

Active Cases
(Number of Infected People)

Total Coronavirus Currently Infected

Currently Infected
Trendlines for Australia

3-Day Moving Average Trendline
- Australia
- 3 per. Mov. Avg. (Daily New Cases)

Australia Bar Chart of Daily New Cases from Peak till Today

Logarithmic Trendline when $y = 0; x = 40$
(May 01)

$y = -156.5\ln(x) + 578.13$
Correlation, $r$ (Between Cyprus and Hawaii) = 0.561

$r$ is significant at $\alpha = 5\%$
Daily New Cases

Cases per Day
Data as of 0:00 GMT +0

3-Day Moving Average Trendline

- Worldwide
- 3 per. Mov. Avg. (Daily New Cases)

Active Cases
(Number of Infected People)

Worldwide
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>0.70</td>
<td>0.79</td>
<td>0.92</td>
<td>0.86</td>
<td>0.86</td>
<td>0.82</td>
<td>0.96</td>
<td>0.97</td>
<td>0.97</td>
<td>0.86</td>
<td>0.90</td>
<td>0.90</td>
<td>0.91</td>
<td>0.93</td>
<td>0.89</td>
<td>0.87</td>
<td>0.86</td>
<td>0.93</td>
<td>0.96</td>
<td>0.97</td>
<td>0.94</td>
<td>0.88</td>
<td>0.89</td>
<td>0.79</td>
<td>0.81</td>
</tr>
<tr>
<td>Spain</td>
<td>0.90</td>
<td>0.71</td>
<td>0.99</td>
<td>0.92</td>
<td>0.91</td>
<td>0.95</td>
<td>0.96</td>
<td>0.90</td>
<td>0.89</td>
<td>0.94</td>
<td>0.96</td>
<td>0.97</td>
<td>0.93</td>
<td>0.89</td>
<td>0.79</td>
<td>0.70</td>
<td>0.63</td>
<td>0.66</td>
<td>0.67</td>
<td>0.65</td>
<td>0.59</td>
<td>0.54</td>
<td>0.47</td>
<td>0.45</td>
<td>0.54</td>
</tr>
<tr>
<td>Italy</td>
<td>0.92</td>
<td>0.86</td>
<td>0.99</td>
<td>0.77</td>
<td>0.84</td>
<td>0.88</td>
<td>0.71</td>
<td>0.67</td>
<td>0.67</td>
<td>0.69</td>
<td>0.71</td>
<td>0.67</td>
<td>0.69</td>
<td>0.67</td>
<td>0.64</td>
<td>0.48</td>
<td>0.22</td>
<td>0.27</td>
<td>0.29</td>
<td>0.28</td>
<td>0.24</td>
<td>0.21</td>
<td>0.17</td>
<td>0.19</td>
<td>0.21</td>
</tr>
<tr>
<td>France</td>
<td>0.90</td>
<td>0.62</td>
<td>0.68</td>
<td>0.80</td>
<td>0.79</td>
<td>0.90</td>
<td>0.89</td>
<td>0.74</td>
<td>0.74</td>
<td>0.86</td>
<td>0.90</td>
<td>0.87</td>
<td>0.73</td>
<td>0.58</td>
<td>0.55</td>
<td>0.63</td>
<td>0.71</td>
<td>0.69</td>
<td>0.58</td>
<td>0.46</td>
<td>0.38</td>
<td>0.32</td>
<td>0.35</td>
<td>0.33</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>0.70</td>
<td>0.68</td>
<td>0.78</td>
<td>0.91</td>
<td>0.75</td>
<td>0.86</td>
<td>0.79</td>
<td>0.89</td>
<td>0.77</td>
<td>0.69</td>
<td>0.74</td>
<td>0.86</td>
<td>0.90</td>
<td>0.87</td>
<td>0.73</td>
<td>0.58</td>
<td>0.55</td>
<td>0.63</td>
<td>0.71</td>
<td>0.69</td>
<td>0.58</td>
<td>0.46</td>
<td>0.38</td>
<td>0.32</td>
<td>0.35</td>
</tr>
<tr>
<td>UK</td>
<td>0.77</td>
<td>0.86</td>
<td>0.71</td>
<td>0.88</td>
<td>0.74</td>
<td>0.87</td>
<td>0.87</td>
<td>0.90</td>
<td>0.87</td>
<td>0.82</td>
<td>0.95</td>
<td>0.93</td>
<td>0.79</td>
<td>0.75</td>
<td>0.73</td>
<td>0.70</td>
<td>0.71</td>
<td>0.70</td>
<td>0.73</td>
<td>0.71</td>
<td>0.70</td>
<td>0.73</td>
<td>0.71</td>
<td>0.57</td>
<td>0.57</td>
</tr>
<tr>
<td>China</td>
<td>0.00</td>
<td>0.04</td>
<td>0.04</td>
<td>0.05</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
</tr>
<tr>
<td>Iran</td>
<td>0.79</td>
<td>0.80</td>
<td>0.79</td>
<td>0.81</td>
<td>0.88</td>
<td>0.85</td>
<td>0.90</td>
<td>0.96</td>
<td>0.95</td>
<td>0.92</td>
<td>0.97</td>
<td>0.93</td>
<td>0.89</td>
<td>0.85</td>
<td>0.81</td>
<td>0.76</td>
<td>0.71</td>
<td>0.66</td>
<td>0.59</td>
<td>0.56</td>
<td>0.57</td>
<td>0.53</td>
<td>0.50</td>
<td>0.49</td>
<td>0.49</td>
</tr>
<tr>
<td>Switzerland</td>
<td>0.77</td>
<td>0.76</td>
<td>0.72</td>
<td>0.81</td>
<td>0.72</td>
<td>0.73</td>
<td>0.76</td>
<td>0.72</td>
<td>0.71</td>
<td>0.60</td>
<td>0.70</td>
<td>0.65</td>
<td>0.71</td>
<td>0.65</td>
<td>0.54</td>
<td>0.49</td>
<td>0.41</td>
<td>0.52</td>
<td>0.57</td>
<td>0.55</td>
<td>0.43</td>
<td>0.32</td>
<td>0.27</td>
<td>0.19</td>
<td>0.18</td>
</tr>
<tr>
<td>Austria</td>
<td>0.79</td>
<td>0.68</td>
<td>0.86</td>
<td>0.75</td>
<td>0.61</td>
<td>0.60</td>
<td>0.67</td>
<td>0.47</td>
<td>0.48</td>
<td>0.48</td>
<td>0.48</td>
<td>0.38</td>
<td>0.27</td>
<td>0.23</td>
<td>0.15</td>
<td>0.21</td>
<td>0.22</td>
<td>0.25</td>
<td>0.23</td>
<td>0.23</td>
<td>0.21</td>
<td>0.18</td>
<td>0.17</td>
<td>0.12</td>
<td>0.10</td>
</tr>
<tr>
<td>Israel</td>
<td>0.54</td>
<td>0.62</td>
<td>0.71</td>
<td>0.88</td>
<td>0.88</td>
<td>0.55</td>
<td>0.75</td>
<td>0.73</td>
<td>0.82</td>
<td>0.81</td>
<td>0.84</td>
<td>0.83</td>
<td>0.94</td>
<td>0.92</td>
<td>0.76</td>
<td>0.68</td>
<td>0.64</td>
<td>0.69</td>
<td>0.42</td>
<td>0.46</td>
<td>0.50</td>
<td>0.58</td>
<td>0.53</td>
<td>0.51</td>
<td>0.53</td>
</tr>
<tr>
<td>S Korea</td>
<td>0.13</td>
<td>0.12</td>
<td>0.09</td>
<td>0.11</td>
<td>0.11</td>
<td>0.13</td>
<td>0.13</td>
<td>0.13</td>
<td>0.19</td>
<td>0.11</td>
<td>0.10</td>
<td>0.10</td>
<td>0.09</td>
<td>0.08</td>
<td>0.06</td>
<td>0.05</td>
<td>0.04</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
</tr>
<tr>
<td>Australia</td>
<td>0.52</td>
<td>0.59</td>
<td>0.77</td>
<td>0.66</td>
<td>0.72</td>
<td>0.65</td>
<td>0.59</td>
<td>0.61</td>
<td>0.67</td>
<td>0.70</td>
<td>0.59</td>
<td>0.53</td>
<td>0.42</td>
<td>0.31</td>
<td>0.27</td>
<td>0.27</td>
<td>0.27</td>
<td>0.18</td>
<td>0.16</td>
<td>0.15</td>
<td>0.15</td>
<td>0.10</td>
<td>0.07</td>
<td>0.06</td>
<td>0.08</td>
</tr>
<tr>
<td>Cyprus</td>
<td>0.71</td>
<td>0.65</td>
<td>0.63</td>
<td>0.58</td>
<td>0.46</td>
<td>0.60</td>
<td>0.74</td>
<td>0.68</td>
<td>0.64</td>
<td>0.79</td>
<td>0.69</td>
<td>0.72</td>
<td>0.69</td>
<td>0.51</td>
<td>0.39</td>
<td>0.31</td>
<td>0.39</td>
<td>0.46</td>
<td>0.56</td>
<td>0.58</td>
<td>0.51</td>
<td>0.39</td>
<td>0.38</td>
<td>0.45</td>
<td>0.47</td>
</tr>
<tr>
<td>Hawaii</td>
<td>0.90</td>
<td>0.65</td>
<td>0.70</td>
<td>0.66</td>
<td>0.51</td>
<td>0.51</td>
<td>0.62</td>
<td>0.74</td>
<td>0.90</td>
<td>0.78</td>
<td>0.81</td>
<td>0.79</td>
<td>0.91</td>
<td>0.91</td>
<td>0.83</td>
<td>0.67</td>
<td>0.57</td>
<td>0.62</td>
<td>0.53</td>
<td>0.59</td>
<td>0.50</td>
<td>0.55</td>
<td>0.38</td>
<td>0.32</td>
<td>0.30</td>
</tr>
<tr>
<td>Worldwide</td>
<td>0.95</td>
<td>0.82</td>
<td>0.89</td>
<td>0.91</td>
<td>0.83</td>
<td>0.89</td>
<td>0.95</td>
<td>0.96</td>
<td>0.94</td>
<td>0.88</td>
<td>0.91</td>
<td>0.96</td>
<td>0.84</td>
<td>0.87</td>
<td>0.84</td>
<td>0.75</td>
<td>0.75</td>
<td>0.79</td>
<td>0.83</td>
<td>0.86</td>
<td>0.85</td>
<td>0.81</td>
<td>0.73</td>
<td>0.71</td>
<td>0.75</td>
</tr>
</tbody>
</table>

Table 1: Ratio of the average new cases of recent three days to max daily peak.
COVID-19

‘MODIFIED’ Control Chart Analysis
USA

'Modified' Control Chart Analysis:

- Two points, out of three successive points, are on the same side of the centerline in Zone A or beyond.
  - The last three points (4/13/20 - 4/15/20) are below the control line, which suggests a good 'out-of-control' pattern for COVID-19 cases in USA.

- Four points, out of five successive points, are on the same side of the centerline in Zone B or beyond.
  - The last five points (4/11/20 - 4/15/20) are below the control line, which suggests a good 'out-of-control' pattern for COVID-19 cases in USA.

'Modified' Control Chart of COVID-19 Daily Cases in USA (4/4/20 - 4/15/20)

AVG = 30301
Spain

‘Modified’ Control Chart Analysis:
• Two points, out of three successive points, are on the same side of the centerline in Zone A or beyond.
  o Three points (4/12/20 - 4/14/20) are below the control line, which suggests a good ‘out-of-control’ pattern for COVID-19 cases in Spain.
• Four points, out of five successive points, are on the same side of the centerline in Zone B or beyond.
  o Four points (4/10/20 - 4/14/20) are all below the control line, which suggests an ‘out-of-control’ pattern for COVID-19 cases in Spain. A good ‘out-of-control’ sign.
• Nine successive points are on one side of the centerline.
  o Nine consecutive points (3/26/20 - 4/3/20) are all on one side (above) of the centerline. This was a bad ‘out-of-control’ pattern.
‘Modified’ Control Chart Analysis:

- Two points, out of three successive points, are on the same side of the centerline in Zone A or beyond.
  - The last three points (4/13/20 - 4/15/20) are below the control line, which suggests a good ‘out-of-control’ pattern for COVID-19 cases in Italy. The linear trend line has a downward slope.

- Four points, out of five successive points, are on the same side of the centerline in Zone B or beyond.
  - The last four points (4/12/20 - 4/15/20) are all below the control line, which suggests an ‘out-of-control’ pattern for COVID-19 cases in Italy. A good ‘out-of-control’ sign. The linear trend line has a remarkable downward slope.

- Nine successive points are on one side of the centerline.
  - The nine consecutive points (3/21/20 - 3/29/20) are all on one side (above) of the centerline. This was not a good ‘out-of-control’ pattern.
France

'Modified' Control Chart Analysis:

- Two points, out of three successive points, are on the same side of the centerline in Zone A or beyond.
  - The last three points (4/13/20 - 4/15/20) are below the control line, which suggests a good 'out-of-control' pattern for COVID-19 cases in France.

- Four points, out of five successive points, are on the same side of the centerline in Zone B or beyond.
  - The last five points (4/11/20 - 4/15/20) are all below the control line, which suggests an 'out-of-control' pattern for COVID-19 cases in France. A good 'out-of-control' sign.
‘Modified’ Control Chart Analysis:

- Two points, out of three successive points, are on the same side of the centerline in Zone A or beyond.
  - The last three points (4/13/20 - 4/15/20) are below the control line, which suggests a good ‘out-of-control’ pattern for COVID-19 cases in Germany.

- Four points, out of five successive points, are on the same side of the centerline in Zone B or beyond.
  - The last five points (4/11/20 – 4/15/20) are all below the control line, which suggests an ‘out-of-control’ pattern for COVID-19 cases in Germany. A good ‘out-of-control’ sign. The linear trend line has a downward slope.

- There are six consecutive points, increasing or decreasing.
  - There are six consecutive points (4/8/20 - 4/15/20) decreasing which indicates a good ‘out-of-control’ sign.
Iran

‘Modified’ Control Chart Analysis:

- Two points, out of three successive points, are on the same side of the centerline in Zone A or beyond.
  - The last three points (4/11/20 - 4/13/20) are below the control line, which suggests a good 'out-of-control' pattern for COVID-19 cases in Iran. The linear trend line has a remarkable downward slope since 3/30/20.

- Four points, out of five successive points, are on the same side of the centerline in Zone B or beyond.
  - The last five points (4/11/20 - 4/15/20) are all below the control line, which suggests an 'out-of-control' pattern for COVID-19 cases in Iran. A good 'out-of-control' sign. The linear trend line has a downward slope.

- There are six consecutive points, increasing or decreasing.
  - Six consecutive points (4/3/20 - 4/9/20) are decreasing, which indicates a good 'out-of-control' sign.

‘Modified’ Control Chart of COVID-19 Daily Cases in Iran (3/30/20 - 4/15/20)

AVG=2240
'Modified' Control Chart Analysis:
- Two points, out of three successive points, are on the same side of the centerline in Zone A or beyond.
  - Three points (4/11/20 - 4/13/20) are below the control line, which suggests a good 'out-of-control' pattern for COVID-19 cases in Brazil.
- Four points, out of five successive points, are on the same side of the centerline in Zone B or beyond.
  - Four points (4/10/20 - 4/13/20) are all below the control line, which suggests an 'out-of-control' pattern for COVID-19 cases in Brazil. A good 'out-of-control' sign. However, a recent surge of daily cases has been observed for the last two days.

**Modified' Control Chart of COVID-19 Daily Cases in Brazil (4/8/20 - 4/15/20)

AVG=1822
Canada

'Modified' Control Chart of COVID-19 Daily Cases in Canada (4/5/20 - 4/15/20)

AVG=1315

'Modified' Control Chart Analysis:
- Two points, out of three successive points, are on the same side of the centerline in Zone A or beyond.
  - Three points (4/11/20 - 4/13/20) are below the control line, which suggests a good ‘out-of-control’ pattern for COVID-19 cases in Canada. Also, a linear trend line with a downward slope can be observed from 4/5/20.
'Modified' Control Chart Analysis:

- Two points, out of three successive points, are on the same side of the centerline in Zone A or beyond.
  - The last three points (4/13/20 - 4/15/20) are below the control line, which suggests a good ‘out-of-control’ pattern for COVID-19 cases in Switzerland.

- Four points, out of five successive points, are on the same side of the centerline in Zone B or beyond.
  - The last five points (4/11/20 – 4/15/20) are all below the control line, which suggests an ‘out-of-control’ pattern for COVID-19 cases in Switzerland. A good ‘out-of-control’ sign. The linear trend line has a downward slope.
Austria

‘Modified’ Control Chart Analysis:

- Two points, out of three successive points, are on the same side of the centerline in Zone A or beyond.
  - The last three points (4/13/20 - 4/15/20) are below the control line, which suggests a good ‘out-of-control’ pattern for COVID-19 cases in Austria.

- Four points, out of five successive points, are on the same side of the centerline in Zone B or beyond.
  - The last five points (4/11/20 - 4/15/20) are all below the control line, which suggests an ‘out-of-control’ pattern for COVID-19 cases in Austria. A good ‘out-of-control’ sign. The linear trend line has a downward slope.

- Nine successive points are on one side of the centerline.
  - Nine consecutive points (4/7/20 - 4/15/20) are all on one side (below) of the centerline. This good ‘out-of-control’ pattern suggests that the daily COVID-19 cases in Austria are stabilizing in a positive direction.
‘Modified’ Control Chart Analysis:

- Two points, out of three successive points, are on the same side of the centerline in Zone A or beyond.
  - Three points (4/12/20 - 4/13/20 and 4/15/20) are below the control line, which suggests a good ‘out-of-control’ pattern for COVID-19 cases in Israel.

- Four points, out of five successive points, are on the same side of the centerline in Zone B or beyond.
  - Four points (4/11/20 - 4/13/20 and 4/15/20) are below the control line, which suggests an ‘out-of-control’ pattern for COVID-19 cases in Israel. A good ‘out-of-control’ sign.
Australia

‘Modified’ Control Chart Analysis:
- Two points, out of three successive points, are on the same side of the centerline in Zone A or beyond.
  - The last three points (4/13/20 - 4/15/20) are below the control line, which suggests a good ‘out-of-control’ pattern for COVID-19 cases in Australia.
- Four points, out of five successive points, are on the same side of the centerline in Zone B or beyond.
  - The last five points (4/11/20 - 4/15/20) are all below the control line, which suggests an ‘out-of-control’ pattern for COVID-19 cases in Australia. A good ‘out-of-control’ sign.
- Nine successive points are on one side of the centerline.
  - Nine consecutive points (4/7/20 - 4/15/20) are all on one side (below) of the centerline. This good ‘out-of-control’ pattern suggests that the daily COVID-19 cases in Australia are stabilizing in a positive direction.