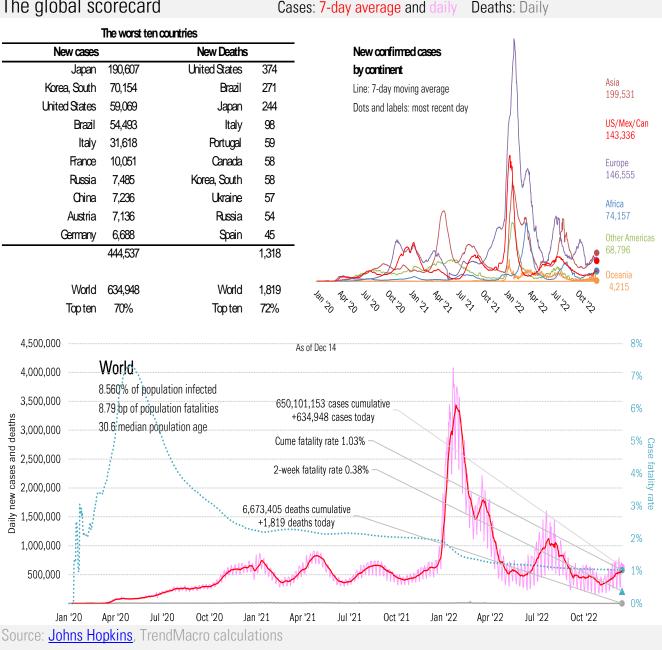


Trend Macrolytics, LLC Donald Luskin, Chief Investment Officer Thomas Demas, Managing Director Michael Warren, Energy Strategist

## Data Insights: Covid-2019 Monitor

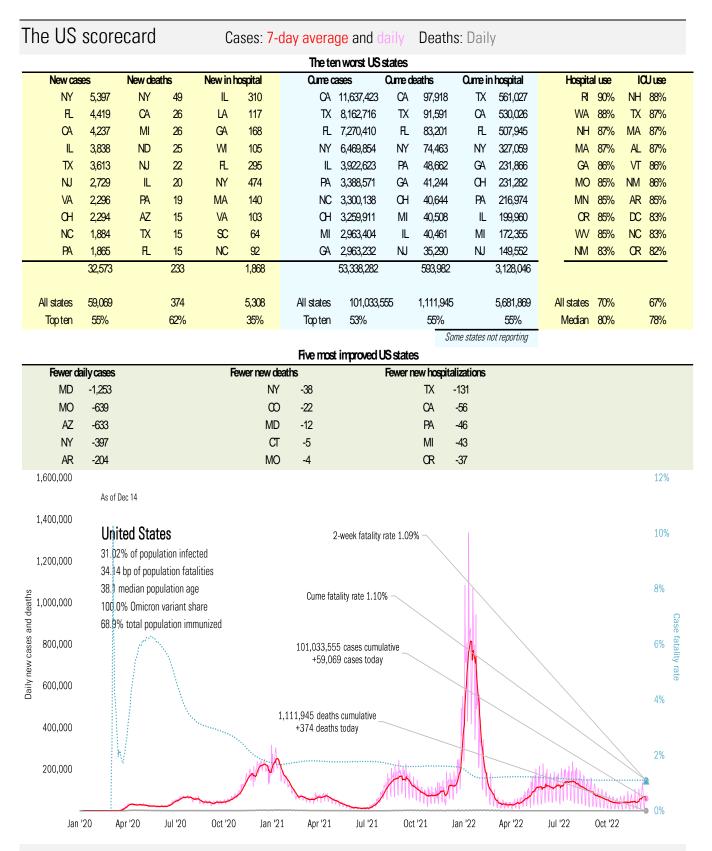
Thursday, December 15, 2022

## The global scorecard



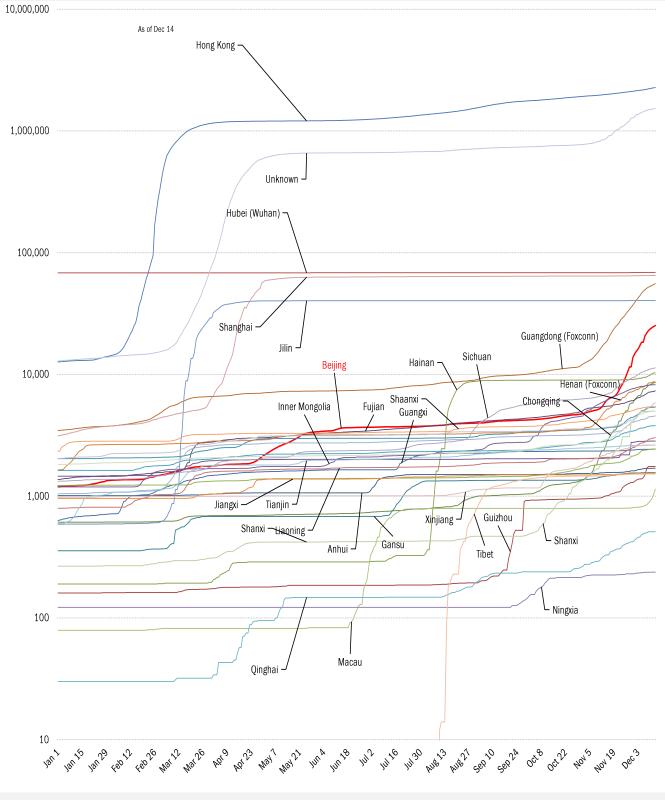
#### For more information contact us: Donald Luskin: 214 550 2121 don@trendmacro.com Thomas Demas: 704 552 3625 tdemas@trendmacro.com

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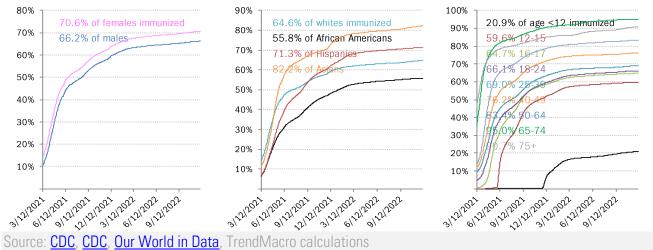
Source: Johns Hopkins, Dept. of Health and Human Services, CDC, TrendMacro calculations

**China provincial** coronavirus <u>case</u> accelerometer... tracking the "zero Covid" curves *Cumulative reported cases this year, log scale: flat line indicates "zero Covid"* 

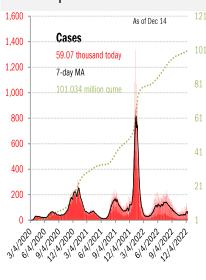


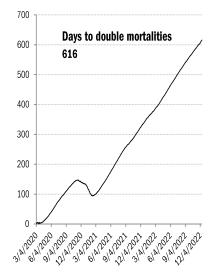
Administered     Cumulative     Today     Immunity     Full     Partial       Doses     674,343,860     +0.193     +0.193     0.05     68.9%     80.9%       One dose     % Pop     Immune     % pop     New immune today     France     78.3%     80.5%       Total population     276,021,875     83%     235,392,988     70%     +0.001 million     Germany     76.2%     77.8%     86.9%       Age 12 to 17     18,376,705     73%     15,735,500     62%     +0.001 million     Germany     76.2%     77.8%     86.9%       Age 65 and over     60,829,321     100%     53,278,288     97%     +0.004 million     Hatly     81.3%     86.2%       Moderma     3%     State     Best     Middle     Finance     82.7%     84.9%       T2.6%     State     Finance     NY     Foreital     80.9%     91.9%       Ak     Total population     Timmunity     as % population     84.9%     91.9%       T2.6%     State     State     State	Rolling out the vaccines in the US and the world <u>Updates weekly on Friday</u>												
One dose     % Pop     Immune     % pop Vew immune today     France     78.3%     80.5%       Age 12 to 17     18.376.705     73%     15.735.507     62%     +0.017 million     Sain 48.5%     86.9%       Age 18 to 64     183.614.597     90%     156,164,584     77%     +0.009 million     Hail 82.7%     84.9%       Age 65 and over     60,829.321     90%     53.278,288     97%     +0.004 million     Australia     82.7%     84.9%       Other     3%     53.278,288     97%     +0.004 million     Australia     82.7%     84.9%       Moderna     3%     59.population     Finance     84.9%     84.9%       Moderna     59%     At least partial immunity as % population     Finance     87.4%     87.4%       72.6%     At least partial immunity as % population     Finance     87.4%     87.4%     87.4%       64.8%     63.6%     67.9%     68.9%     78.3%     78.8%     69.1%     80.2%     71.3%       Getal atel attral partial immunity as % population     File     Mildele	Administered Cumulative			lative					То	day	Immunity	Full	Partial
One     One     One     One     One     Properation     Properation     Properation     Properation     Properation     Properation     Properation     Spain     85.5%     86.9%       Age 12 to 17     18.376.14.597     90%     156.164.584     77%     +0.009 million     Germany     76.2%     86.9%       Age 65 and over     60.829.321     100%     53.278.288     97%     +0.004 million     Germany     76.2%     84.9%       Age 65 and over     60.829.321     100%     53.278.288     97%     +0.004 million     Germany     76.2%     84.9%       Other     3%     State     Atleast partial immunity     Best     Middle     45.7%     84.9%     16.6     77.5%     83.3%     91.5%       AK     T26.6%     65.0%     64.0%     74.7%     67.4%     10     MT     ND     MN     IL     MI     93.8%     95.0%     87.4%       72.6%     65.9%     68.9%     78.3%     78.8%     69.1%     93.8%     95.0%     87.9% <t< td=""><td colspan="2">Doses</td><td colspan="2">674,343,860</td><td colspan="2"></td><td colspan="2">+0.193 million</td><td>US</td><td>68.9%</td><td>80.6%</td></t<>	Doses		674,343,860				+0.193 million		US	68.9%	80.6%		
Total population     276,021,875     83%     235,392,888     70%     +0.017 million     Spain     85,5%     86.9%       Age 12 to 17     18,376,705     73%     15,735,507     62%     +0.001 million     Germany     76.2%     77.8%       Age 18 to 64     183,61,297     90%     156,164,584     77%     +0.004 million     Australia     82.7%     84.9%       Other     3%     90.9%     156,164,584     77%     +0.004 million     Australia     82.7%     84.9%       Other     3%     53,278,288     97%     +0.004 million     Australia     82.7%     84.9%       Modema     3%     90.9%     100%     53,278,288     97%     +0.004 million     Australia     82.7%     84.9%       Israel     65.2%     53,278,288     97%     +0.004 million     Australia     82.7%     82.9%       Modema     38%     population     "immunity     as % population     Fill     72.5%     87.4%     62.1%     60.0%     72.9%     76.8%     95.0%     87.4%							Of which	Of which boosters: +0.		million	UK		79.7%
Age 12 to 17   18,376,705   73%   15,735,507   62%   +0.001 million   Germany   76.2%   77.8%     Age 18 to 64   183,614,597   90%   156,164,584   77%   +0.001 million   taly   81.3%   86.2%     Age 65 and over   60,829,321   100%   53,278,288   97%   +0.004 million   4ustralia   82.7%   84.9%     Other   3%   State   Middle   Israel   65,2%   71.1%   Canada   82.7%   84.9%     Modema   State   At least partial immunity as % population   Middle   Vert   State   83.1%   84.3%     Middle   Wort   Middle   Wort   State   82.5%   89.6%   32.0%   87.4%     Canada   82.6%   69.9%   78.3%   78.8%   69.1%   67.8%   90.9%   95.0%   82.8%   91.5%   60.2%   90.9%   91.5%   60.2%   82.9%   90.2%   85.0%   74.3%   82.8%   95.0%   82.8%   91.6%   82.8%   91.6%   90.2%   85.0%   91.4%   91.6%   90.2%   85.0%   9											France		
Age 18 to 64   183,614,597   90%   156,164,584   77%   +0.009 million   Italy   81.3%   86.2%     Age 65 and over   60,829,321   100%   53,278,288   97%   +0.004 million   Australia   82.7%   84.9%     Other   3%   State   Israel   65.2%   89.6%   77.1%   Canada   82.7%   84.9%     All least partial immunity   as % population   Full immunity'   84.3%   84.3%   84.3%     Ak   Full immunity'   as % population   Full immunity'   88.9%   97.9%   80.9%   87.4%     China   89.3%   opulation   Full immunity'   88.9%   81.3%   80.9%   87.4%     China   89.3%   77.%   70.9%   65.1%   80.9%   87.4%   65.2%   80.9%   87.4%     Gebash   Middle   Wort   As of Der 9   ME   95.0%   87.4%   80.9%   80.9%   80.9%   80.9%   80.9%   80.9%   80.9%   80.9%   87.4%   69.2%   65.9%   71.3%   72.9%   72.9%   87.9%   71.3%   82.8%											•		
Age 65 and over     60,829,321     100%     53,278,288     97%     +0.004 million     Australia     82.7%     84.9%       Other 3%     3%     Prizer     Australia     82.7%     84.9%     Israel     65.2%     71.1%       Modema 38%     Prizer     At least partial immunity as % population Full immunity as % population     Best     Middle     Arrica     26.0%     32.0%     India     67.1%     72.5%       AK     Arria     83.1%     84.3%     87.4%     89.6%     32.0%     87.4%     89.6%       AK     as % population     Middle     Worst     Wint     As of Dec 9     ME     ME     93.8%     91.5%       G6.8%     0.0 MT     ND     MN     IL     MI     NY     VT     NH       84.6%     63.6%     67.9%     68.9%     78.3%     71.7%     70.9%     62.1%     90.2%     85.0%     87.4%       0R     NV     WY     SD     IA     IN     OH     PA     NJ     MA       10.9	-										Germany		
Other 3%     State     Best     Israel     65.2%     71.1%       3%     Prizer 59%     State     At least partial immunity as % population Full immunity as % population     Middle     Nitice     26.0%     32.0%       Modema 38%     Prizer 59%     State     Middle     Nitice     26.0%     32.0%       AK 72.6%     Sk population     Full immunity as % population     Middle     Northold     89.3%     91.5%       WA     ID     MT     ND     MN     IL     MI     State     80.9%     87.4%       064.8%     63.6%     67.9%     68.9%     78.3%     78.8%     69.1%     93.8%     95.0%     87.2%       0R     NV     WY     SD     IA     NN     0H     PA     NJ     MA       81.0%     78.3%     68.1%     65.4%     89.8%     94.0%     95.0%       71.9%     63.1%     52.8%     65.8%     64.0%     57.5%     60.2%     72.7%     78.6%     83.5%       74.2%     66.3%     73.1% </td <td colspan="2"></td> <td colspan="2"></td> <td></td> <td></td> <td colspan="2"></td> <td colspan="2">+0.009 million</td> <td>Italy</td> <td></td> <td></td>									+0.009 million		Italy		
State     Canada     82.5%     89.6%       State     Middle       Atleast partial immunity as % population     Best     Middle       Vote: The dose     Wind: Full immunity as % population     Best     Middle       ***********************************	Age 65 ar	Age 65 and over		60,829,321		5	53,278,288		+0.004 million		Australia		
Modema 38%     State At least partial immunity as % population     Best Middle     Middle     Japan 83.1%     83.1%     84.3%       AK 72.6%     Full immunity as % population     Middle     Wortt     Niddle     State     State<											Israel		
Moderna 38%     Prizer 59%     State     Dest At least partial immunity as % opoulation Full immunity as % opoulation     Dest Middle     Africa Middle     26.0%     32.0%       AK     72.6%     Africa     26.0%     32.0%     India     67.1%     72.5%       Brazil     as % opoulation     Full immunity as % opoulation     Full immunity as % opoulation     State     Widdle     State     89.3%     91.5%       Global data diffes due to source, thing     State     Worst     As of Dec 9     ME     95.0%     82.8%       VA     ID     MT     ND     MN     IL     MI     NY     VT     NH       84.6%     63.6%     67.9%     66.9%     78.3%     78.8%     69.1%     93.8%     95.0%     87.2%       OR     NV     WY     SD     IA     IN     OH     PA     NJ     MA       81.0%     78.3%     60.5%     67.2%     90.3%     91.0%     95.0%     83.6%       71.9%     63.1%     64.0%     65.4%     89.8%     94.0%	3%										Canada		
Africa   26,0%   32,0%     Bit least partial immunity as % population Full immunity as % population   Middle   Middle     Vorst   Worst   Worst   Brazil   80,9%   91,5%     G6.8%   ''''''''''''''''''''''''''''''''''''	Madama		State		Best						Japan		
Prizer 59%     At least partial immunity as % population Full immunity as % population     Middle     India Bazil Worst     67.1% Bazil					Dest						Africa	26.0%	32.0%
S9%     Brazil as boullation Full immunity as % population     Worst     Brazil as 0.9% 87.4% China     89.9% 91.5% China     89.3% 91.5% China     89.3% China     91.5% China     89.3% S2.8%     91.5% China     S0.9% China     89.3% S2.8%     91.5% China     S0.9% China     89.3% S2.8%     91.5% S2.8%     S0.5% S2.8%     <			At least partial immunity		Midd						India	67.1%	72.5%
Full immunity as % population     Worst     China     89.3%     91.5%       72.6% 64.8%     "Immunity" - two doses     WI     As of Dec 9     ME     95.0%       64.8%     WA     ID     MT     ND     MN     IL     MI     NY     VT     NH       84.6%     63.6%     67.9%     68.9%     78.3%     78.8%     69.1%     93.8%     95.0%     82.8%       75.6%     56.2%     58.9%     58.3%     71.7%     70.9%     62.1%     80.2%     85.0%     71.3%       0R     NV     WY     SD     IA     IN     0H     PA     NJ     MA       81.0%     78.3%     66.40%     65.4%     89.8%     94.0%     95.0%     72.%       71.9%     63.1%     52.8%     65.8%     64.0%     57.5%     60.2%     72.7%     78.6%     83.6%     71.9%       74.2%     66.3%     73.1%     65.9%     58.7%     57.2%     90.3%     91.0%     95.0%     85.7%     72.9% <t< td=""><td></td><td></td><td colspan="2"></td><td colspan="2">IVIIdule</td><td colspan="2"></td><td colspan="2"></td><td>Brazil</td><td>80.9%</td><td>87.4%</td></t<>					IVIIdule						Brazil	80.9%	87.4%
AK     as % population     As of Dec 9     As of Dec 9     MI       72.6%			Full immunity		More						China	89.3%	91.5%
12.5 //s     ML     ML       64.8%     74.7%     67.7%     67.8%     95.0%     82.8%       WA     ID     MT     ND     MN     IL     MI     NY     VT     NH       84.6%     63.6%     67.9%     68.9%     78.3%     78.8%     69.1%     93.8%     95.0%     87.2%       75.6%     56.2%     58.9%     58.3%     71.7%     70.9%     62.1%     80.2%     85.0%     71.3%       OR     NV     WY     SD     IA     IN     OH     PA     NJ     MA       81.0%     78.3%     60.5%     83.1%     70.3%     64.0%     55.4%     89.8%     94.0%     95.0%       71.9%     63.1%     52.8%     65.8%     64.0%     57.5%     60.2%     72.7%     78.6%     83.6%       CA     UT     CO     NE     MO     KY     WV     VA     MD     CT     RI       84.1%     74.8%     83.2%     73.0%     68.5%					vvorst					Global data diff	ers due to sou	rces, timing	
WA     ID     MT     ND     MN     IL     MI     NY     VT     NH       84.6%     63.6%     67.9%     68.9%     78.3%     78.8%     69.1%     93.8%     95.0%     87.2%       75.6%     56.2%     58.9%     58.3%     71.7%     70.9%     62.1%     80.2%     85.0%     71.3%       OR     NV     WY     SD     IA     IN     OH     PA     NJ     MA       81.0%     78.3%     60.5%     83.1%     70.3%     64.0%     65.4%     89.8%     94.0%     95.0%       71.9%     63.1%     52.8%     65.8%     64.0%     57.5%     60.2%     72.7%     78.6%     83.6%       CA     UT     CO     NE     MO     KY     WV     VA     MD     CT     RI       84.1%     74.8%     83.2%     73.0%     68.9%     69.5%     59.5%     76.1%     79.2%     82.6%     87.1%       74.2%     66.3%     73.1%     65.9% <td colspan="2">"Immunity" = two doses</td> <td></td> <td></td> <td>WI</td> <td></td> <td>As of Dec 9</td> <td></td> <td></td> <td>ME</td> <td></td>			"Immunity" = two doses				WI		As of Dec 9			ME	
WA     ID     MT     ND     MN     IL     MI     NY     VT     NH       84.6%     63.6%     67.9%     68.9%     78.3%     78.8%     69.1%     93.8%     95.0%     87.2%       75.6%     56.2%     58.9%     58.3%     71.7%     70.9%     62.1%     80.2%     85.0%     71.3%       OR     NV     WY     SD     IA     IN     OH     PA     NJ     MA       81.0%     78.3%     60.5%     83.1%     70.3%     64.0%     65.4%     89.8%     94.0%     95.0%       71.9%     63.1%     52.8%     65.8%     64.0%     57.5%     60.2%     72.7%     78.6%     83.6%       CA     UT     CO     NE     MO     KY     WV     VA     MD     CT     RI       84.1%     74.8%     83.2%     73.0%     68.9%     59.3%     59.5%     76.1%     79.2%     82.6%     87.1%       74.2%     66.3%     73.1%     65.5% <td colspan="2">64.8%</td> <td colspan="2"></td> <td colspan="2"></td> <td>74.7%</td> <td></td> <td></td> <td></td> <td></td> <td>95.0%</td> <td></td>	64.8%						74.7%					95.0%	
84.6%     63.6%     67.9%     68.9%     78.3%     78.8%     69.1%     93.8%     95.0%     87.2%       75.6%     56.2%     58.9%     58.3%     71.7%     70.9%     62.1%     80.2%     85.0%     71.3%       OR     NV     WY     SD     IA     IN     OH     PA     NJ     MA       81.0%     78.3%     60.5%     83.1%     70.3%     64.0%     65.4%     89.8%     94.0%     95.0%       71.9%     63.1%     52.8%     65.8%     64.0%     57.5%     60.2%     72.7%     78.6%     83.6%       CA     UT     CO     NE     MO     KY     WV     VA     MD     CT     RI       84.1%     74.8%     83.2%     73.0%     68.9%     59.3%     59.5%     76.1%     79.2%     82.6%     87.1%       74.2%     66.3%     73.1%     65.9%     58.7%     59.3%     59.5%     76.1%     79.2%     82.6%     87.1%       65.6%     74							67.8%					82.8%	
75.6%   56.2%   58.9%   58.3%   71.7%   70.9%   62.1%   80.2%   85.0%   71.3%     OR   NV   WY   SD   IA   IN   OH   PA   NJ   MA     81.0%   78.3%   60.5%   83.1%   70.3%   64.0%   65.4%   89.8%   94.0%   95.0%     71.9%   63.1%   52.8%   65.8%   64.0%   57.5%   60.2%   72.7%   78.6%   83.6%     CA   UT   CO   NE   MO   KY   WV   VA   MD   CT   RI     84.1%   74.8%   83.2%   73.0%   68.9%   68.5%   67.2%   90.3%   91.0%   95.0%   95.0%     74.2%   66.3%   73.1%   65.9%   58.7%   59.3%   59.5%   76.1%   79.2%   82.6%   87.1%     AZ   NM   KS   AR   TN   NC   SC   DC   DE   70.6%   93.4%   75.7%   69.5%   64.4%   59.6%   84.8%   72.0%   74.2%   66.6%   61.4%   64.7% <t< td=""><td></td><td>WA</td><td>ID</td><td>MT</td><td>ND</td><td>MN</td><td>IL</td><td>MI</td><td></td><td>NY</td><td>VT</td><td>NH</td><td></td></t<>		WA	ID	MT	ND	MN	IL	MI		NY	VT	NH	
OR     NV     WY     SD     IA     IN     OH     PA     NJ     MA       81.0%     78.3%     60.5%     83.1%     70.3%     64.0%     65.4%     89.8%     94.0%     95.0%       71.9%     63.1%     52.8%     65.8%     64.0%     57.5%     60.2%     72.7%     78.6%     83.6%       CA     UT     CO     NE     MO     KY     WV     VA     MD     CT     RI       84.1%     74.8%     83.2%     73.0%     68.9%     59.3%     59.5%     76.1%     79.2%     82.6%     87.1%       74.2%     66.3%     73.1%     65.9%     58.7%     59.3%     59.5%     76.1%     79.2%     82.6%     87.1%       AZ     NM     KS     AR     TN     NC     SC     DC     DE       76.8%     93.4%     75.7%     69.5%     66.4%     59.6%     84.8%     72.0%       HI     90.9%     60.1%     54.8%     53.5%     52.9% <td></td> <td>84.6%</td> <td>63.6%</td> <td>67.9%</td> <td>68.9%</td> <td>78.3%</td> <td>78.8%</td> <td>69.1%</td> <td></td> <td>93.8%</td> <td>95.0%</td> <td>87.2%</td> <td></td>		84.6%	63.6%	67.9%	68.9%	78.3%	78.8%	69.1%		93.8%	95.0%	87.2%	
81.0%   78.3%   60.5%   83.1%   70.3%   64.0%   65.4%   89.8%   94.0%   95.0%     71.9%   63.1%   52.8%   65.8%   64.0%   57.5%   60.2%   72.7%   78.6%   83.6%     CA   UT   CO   NE   MO   KY   WV   VA   MD   CT   RI     84.1%   74.8%   83.2%   73.0%   68.9%   68.5%   67.2%   90.3%   91.0%   95.0%   95.0%     74.2%   66.3%   73.1%   65.9%   58.7%   59.3%   59.5%   76.1%   79.2%   82.6%   87.1%     AZ   NM   KS   AR   TN   NC   SC   DC   DE     76.8%   93.4%   75.7%   69.5%   64.2%   91.1%   70.6%   84.8%   72.0%     65.6%   74.7%   64.8%   56.6%   56.1%   66.4%   59.6%   84.8%   72.0%     HI   .   .   .   .   .   .   .   .   .     90.9%   .   . <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>85.0%</td><td>71.3%</td><td></td></t<>											85.0%	71.3%	
71.9%   63.1%   52.8%   65.8%   64.0%   57.5%   60.2%   72.7%   78.6%   83.6%     CA   UT   CO   NE   MO   KY   WV   VA   MD   CT   RI     84.1%   74.8%   83.2%   73.0%   68.9%   68.5%   67.2%   90.3%   91.0%   95.0%   95.0%     74.2%   66.3%   73.1%   65.9%   58.7%   59.3%   59.5%   76.1%   79.2%   82.6%   87.1%     AZ   NM   KS   AR   TN   NC   SC   DC   DE     76.8%   93.4%   75.7%   69.5%   64.2%   91.1%   70.6%   95.0%   86.7%     76.8%   93.4%   75.7%   69.5%   64.2%   91.1%   70.6%   84.8%   72.0%     HI   V   V   VA   MS   AL   GA   GA   V   V     90.9%   91.1%   74.2%   62.6%   61.4%   64.7%   67.9%   FL   PR     90.9%   81.1%   V   V <th< td=""><td></td><td>OR</td><td>NV</td><td>WY</td><td>SD</td><td>IA</td><td>IN</td><td>OH</td><td>PA</td><td>NJ</td><td>MA</td><td></td><td>-</td></th<>		OR	NV	WY	SD	IA	IN	OH	PA	NJ	MA		-
CA     UT     CO     NE     MO     KY     WV     VA     MD     CT     RI       84.1%     74.8%     83.2%     73.0%     68.9%     68.5%     67.2%     90.3%     91.0%     95.0%     95.0%       74.2%     66.3%     73.1%     65.9%     58.7%     59.3%     59.5%     76.1%     79.2%     82.6%     87.1%       AZ     NM     KS     AR     TN     NC     SC     DC     DE       76.8%     93.4%     75.7%     69.5%     64.2%     91.1%     70.6%     95.0%     86.7%       65.6%     74.7%     64.8%     56.6%     56.1%     66.4%     59.6%     84.8%     72.0%       HI       OK     LA     MS     AL     GA       90.9%        54.8%     53.5%     52.9%     56.9%        HI          62.6%     61.4%     64.7%     67.9%		81.0%	78.3%	60.5%	83.1%	70.3%	64.0%	65.4%	89.8%	94.0%	95.0%		
84.1%     74.8%     83.2%     73.0%     68.9%     68.5%     67.2%     90.3%     91.0%     95.0%     95.0%       74.2%     66.3%     73.1%     65.9%     58.7%     59.3%     59.5%     76.1%     79.2%     82.6%     87.1%       AZ     NM     KS     AR     TN     NC     SC     DC     DE       76.8%     93.4%     75.7%     69.5%     64.2%     91.1%     70.6%     95.0%     86.7%       65.6%     74.7%     64.8%     56.6%     56.1%     66.4%     59.6%     84.8%     72.0%       65.6%     74.7%     64.8%     56.6%     56.1%     66.4%     59.6%     84.8%     72.0%       HI      OK     LA     MS     AL     GA             90.9%     0.9%     61.4%     53.5%     52.9%     56.9% </td <td></td> <td>71.9%</td> <td>63.1%</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>78.6%</td> <td></td> <td></td> <td>_</td>		71.9%	63.1%							78.6%			_
74.2%   66.3%   73.1%   65.9%   58.7%   59.3%   59.5%   76.1%   79.2%   82.6%   87.1%     AZ   NM   KS   AR   TN   NC   SC   DC   DE     76.8%   93.4%   75.7%   69.5%   64.2%   91.1%   70.6%   95.0%   86.7%     65.6%   74.7%   64.8%   56.6%   56.1%   66.4%   59.6%   84.8%   72.0%     FI   V   V   62.6%   61.4%   64.7%   67.9%   67.9%     90.9%   V   V   54.8%   53.5%   52.9%   56.9%   V   V   V     90.9%   V   V   TX   V   V   V   PR     90.9%   V   V   75.8%   V   V   V   PR     92.9%   V   V   V   V   V   V   PR     90.9%   V   V   V   V   V   PR     95.0%   V   V   V   V   95.0%     91.1%   V <td></td> <td>CA</td> <td>UT</td> <td>CO</td> <td>NE</td> <td>MO</td> <td>KY</td> <td>WV</td> <td>VA</td> <td>MD</td> <td>СТ</td> <td>RI</td> <td></td>		CA	UT	CO	NE	MO	KY	WV	VA	MD	СТ	RI	
AZ     NM     KS     AR     TN     NC     SC     DC     DE       76.8%     93.4%     75.7%     69.5%     64.2%     91.1%     70.6%     95.0%     86.7%       65.6%     74.7%     64.8%     56.6%     56.1%     66.4%     59.6%     84.8%     72.0%       NH     V     V     MS     AL     GA     72.0%     74.7%       90.9%     V     V     53.5%     52.9%     56.9%     74.7%     PR       90.9%     TX     75.8%     V     V     V     PR     95.0%		84.1%	74.8%	83.2%	73.0%	68.9%	68.5%	67.2%	90.3%	91.0%	95.0%	95.0%	
76.8%   93.4%   75.7%   69.5%   64.2%   91.1%   70.6%   95.0%   86.7%     65.6%   74.7%   64.8%   56.6%   56.1%   66.4%   59.6%   84.8%   72.0%     OK   LA   MS   AL   GA   GA   74.7%   60.1%   53.5%   52.9%   56.9%   74.7%   PR     90.9%   90.9%   TX   75.8%   55.5%   52.9%   56.9%   PL   PR     81.1%   75.8%   55.5%   52.9%   56.9%   95.0%   95.0%		74.2%	66.3%	73.1%	65.9%	58.7%	59.3%	59.5%	76.1%	79.2%	82.6%	87.1%	
65.6%   74.7%   64.8%   56.6%   56.1%   66.4%   59.6%   84.8%   72.0%     OK   LA   MS   AL   GA     74.2%   62.6%   61.4%   64.7%   67.9%     90.9%   60.1%   54.8%   53.5%   52.9%   56.9%     90.9%   TX   75.8%   55.5%   52.9%   56.9%			AZ	NM	KS	AR	TN	NC	SC	DC	DE		-
OK     LA     MS     AL     GA       74.2%     62.6%     61.4%     64.7%     67.9%       60.1%     54.8%     53.5%     52.9%     56.9%       90.9%     TX     75.8%     57.9%     82.0%     95.0%			76.8%	93.4%	75.7%	69.5%	64.2%	91.1%	70.6%	95.0%	86.7%		
HI   62.6%   61.4%   64.7%   67.9%     60.1%   54.8%   53.5%   52.9%   56.9%     90.9%   TX   FL   PR     81.1%   75.8%   55.5%   52.9%   52.9%			65.6%	74.7%	64.8%	56.6%	56.1%	66.4%	59.6%	84.8%	72.0%		
HI     60.1%     54.8%     53.5%     52.9%     56.9%       90.9%     TX     FL     PR       81.1%     75.8%     -     82.0%     95.0%					OK	LA	MS	AL	GA				
HI     60.1%     54.8%     53.5%     52.9%     56.9%       90.9%     TX     FL     PR       81.1%     75.8%     -     82.0%     95.0%					74.2%	62. <u>6%</u>	61.4%	<u>64.7%</u>	67.9%				
81.1% 75.8% 82.0% 95.0%	HI				60.1%	54.8%	53.5%						
	90.9%									FL	1	PR	1
62.9% 69.1%	81.1%				75.8%					82.0%		95.0%	
					62.9%					69.1%		86.7%	

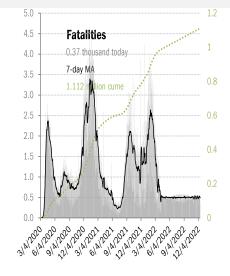
#### The demographics of US vaccination



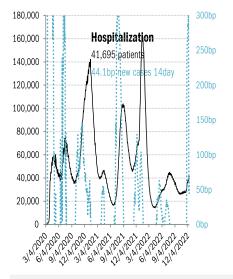


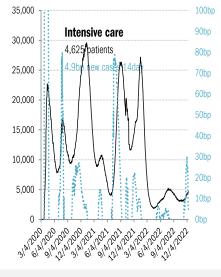


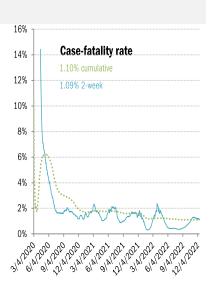


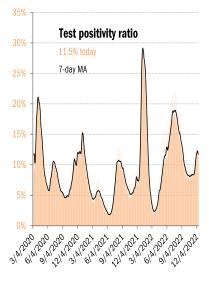


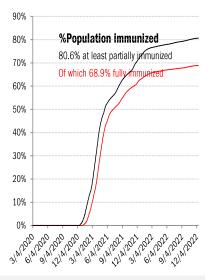




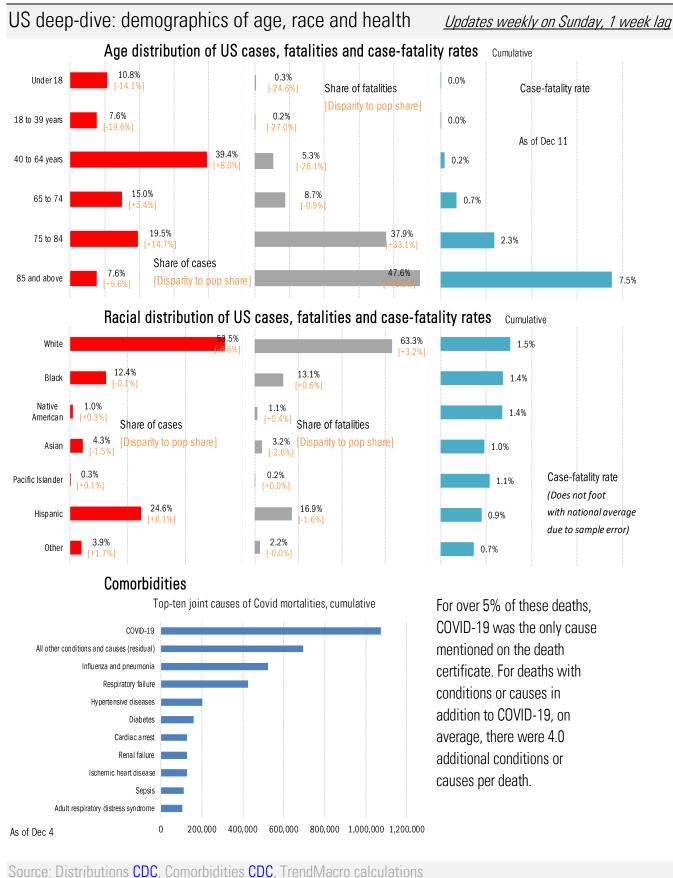








Source: Johns Hopkins, Covid Act Now, TrendMacro calculations



Source: Distributions <u>CDC</u>, Comorbialities <u>CDC</u>, Trenaiviacro calculatio

## Recommended Reading

#### How Fusion Works and Why It's a Breakthrough

Steven E. Koonin and Robert L. Powell *Wall Street Journal* December 14, 2022

## <u>Two Years of U.S. COVID-19 Vaccines Have Prevented</u> <u>Millions of Hospitalizations and Deaths</u>

Meagan C. Fitzpatrick et al. *Commonwealth Fund* December 13. 2-22 The dumbest, most dishonest argument for Covid jabs

<u>yet</u>

Alex Berenson *Unreported Truths* December 14, 2022

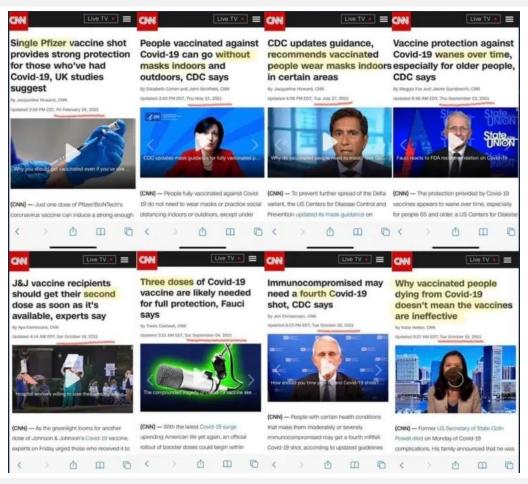
# Meme of the Day

## Identification of Deaths With Post-acute Sequelae of COVID-19 From Death Certificate Literal Text: United States, January 1, 2020–June 30, 2022

Farida B. Ahmad et al. *CDC NVSS Vital Statistics Rapid Release* December 2022

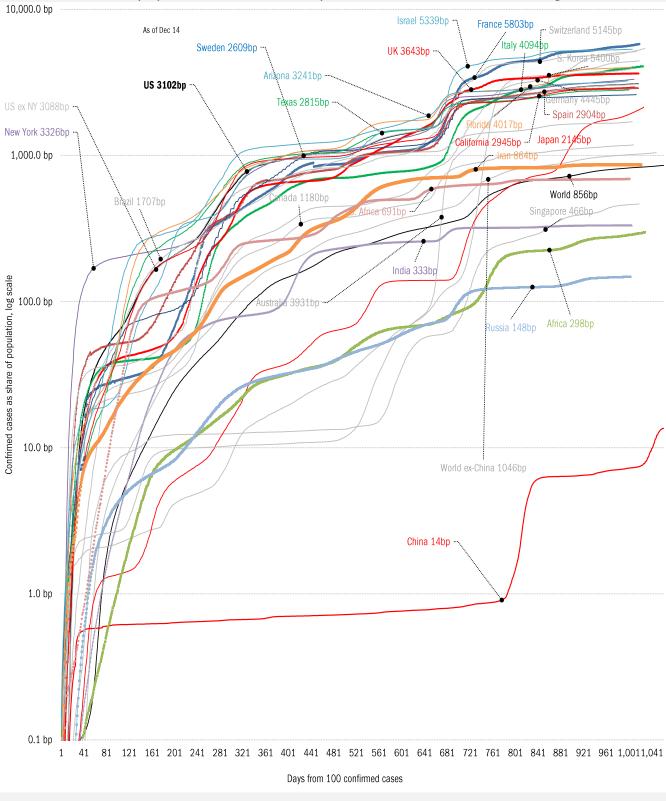
### Long Covid Has Played Role in More Than 3,500 Deaths in U.S., C.D.C. Says

Pam Belluck *New York Times* December 14, 2022

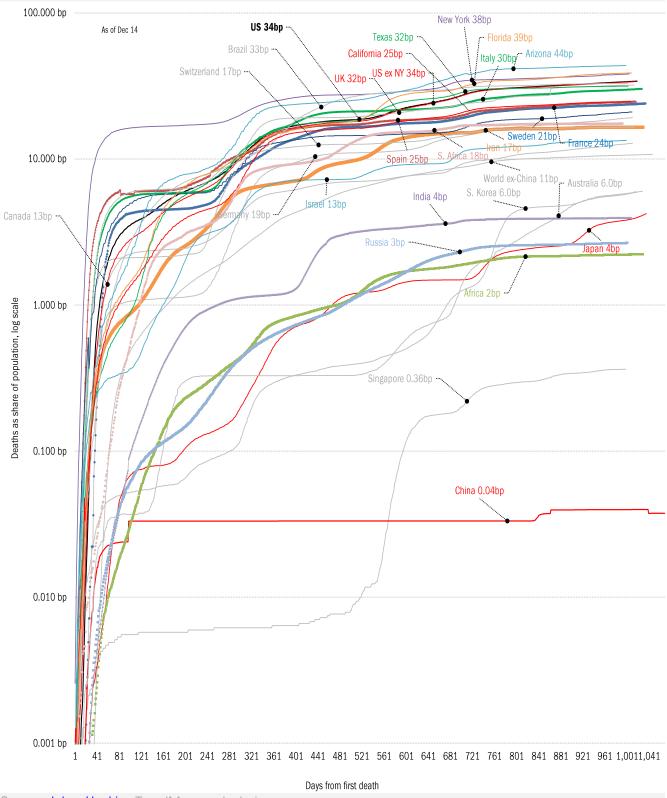


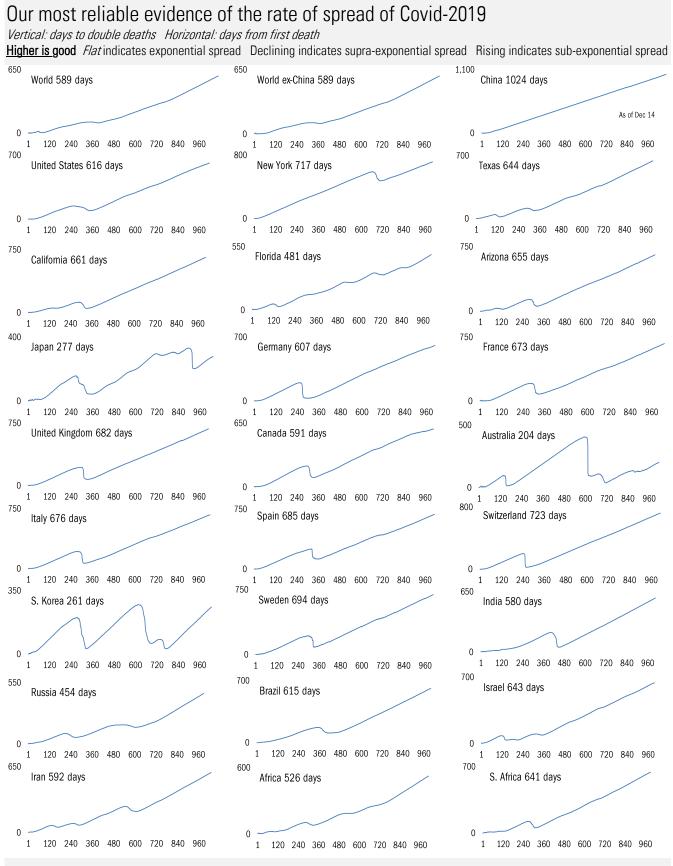
Source: Our beloved clients, Power Line blog "The Week in Pictures" and CTUP

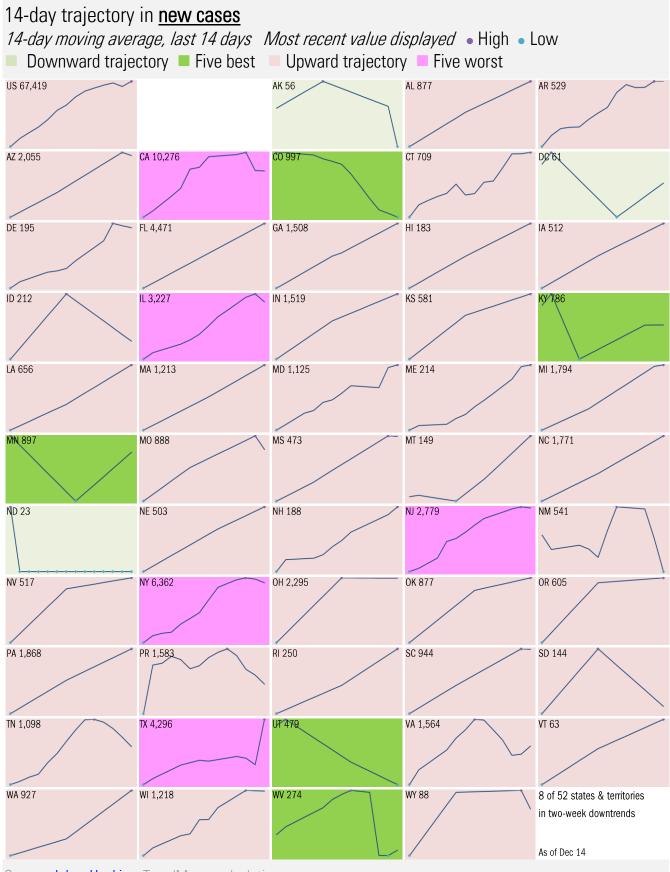
# The global coronavirus <u>case</u> accelerometer... tracking the world's infection curves Share of infected population from first day with 100 confirmed cases, log scale



The global coronavirus <u>mortality</u> accelerometer ... tracking the world's fatality curves *Share of deceased population from day of first fatality, log scale* 





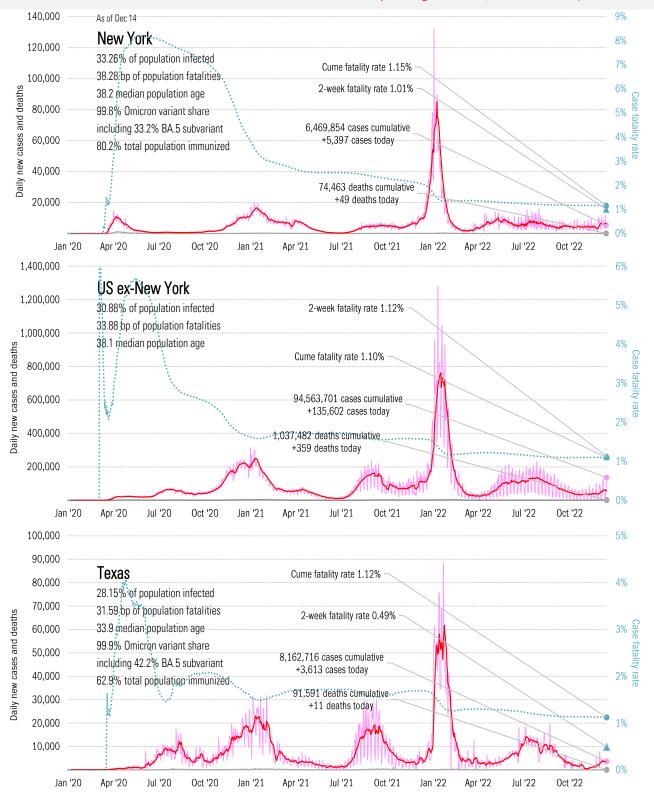




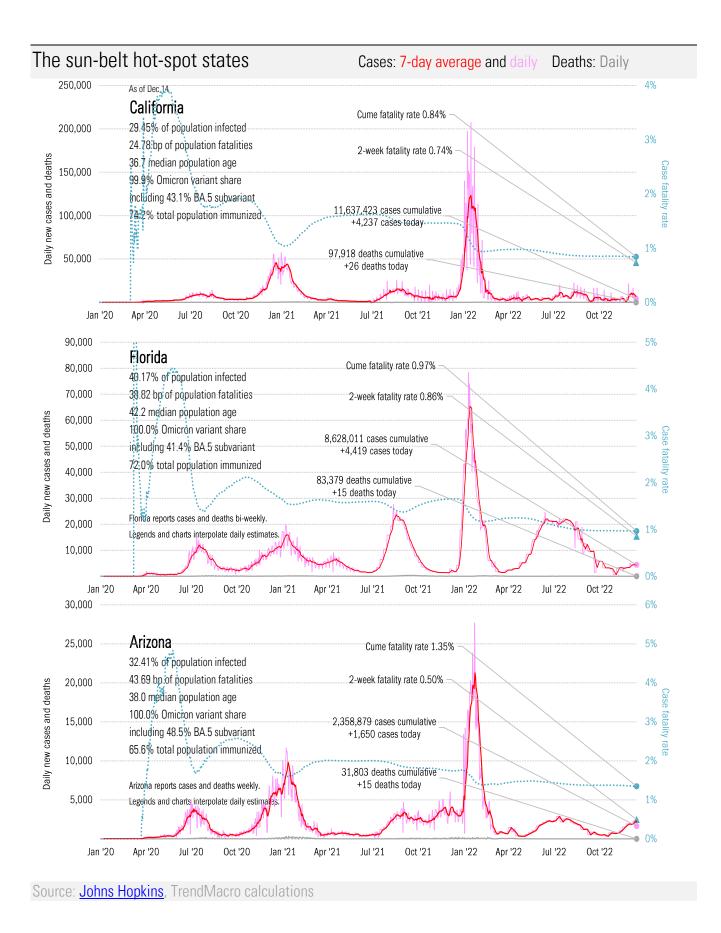
Source: Covid Act Now, TrendMacro calculations

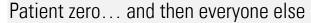
From Ground Zero to the Rio Grande

Cases: 7-day average and daily Deaths: Daily

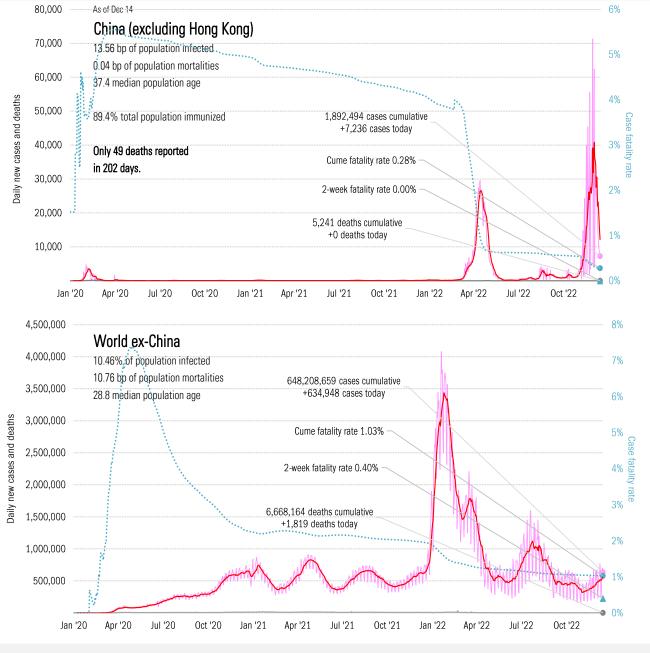


Source: Johns Hopkins, TrendMacro calculations

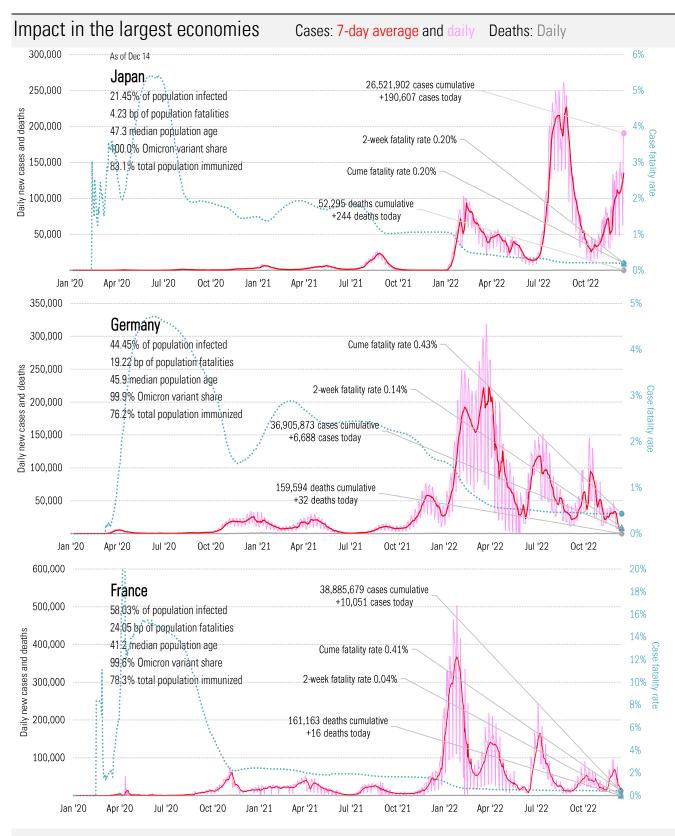


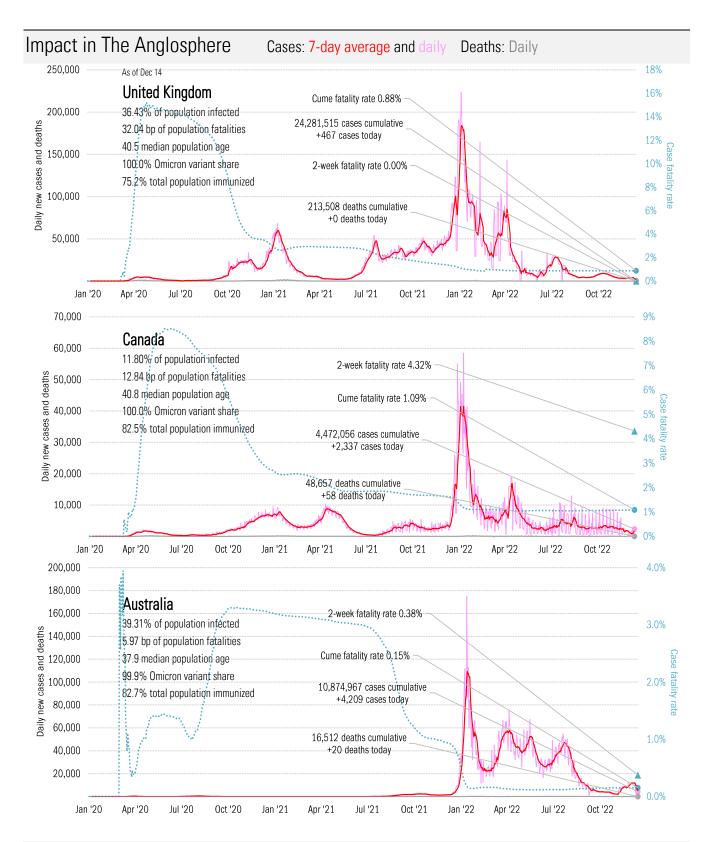


Cases: 7-day average and daily Deaths: Daily

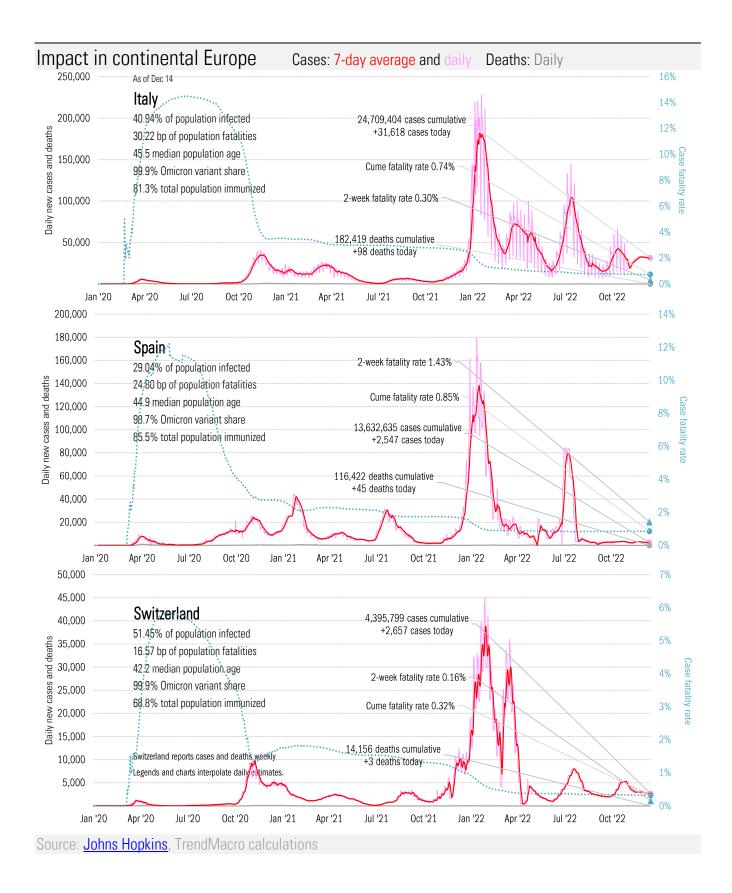


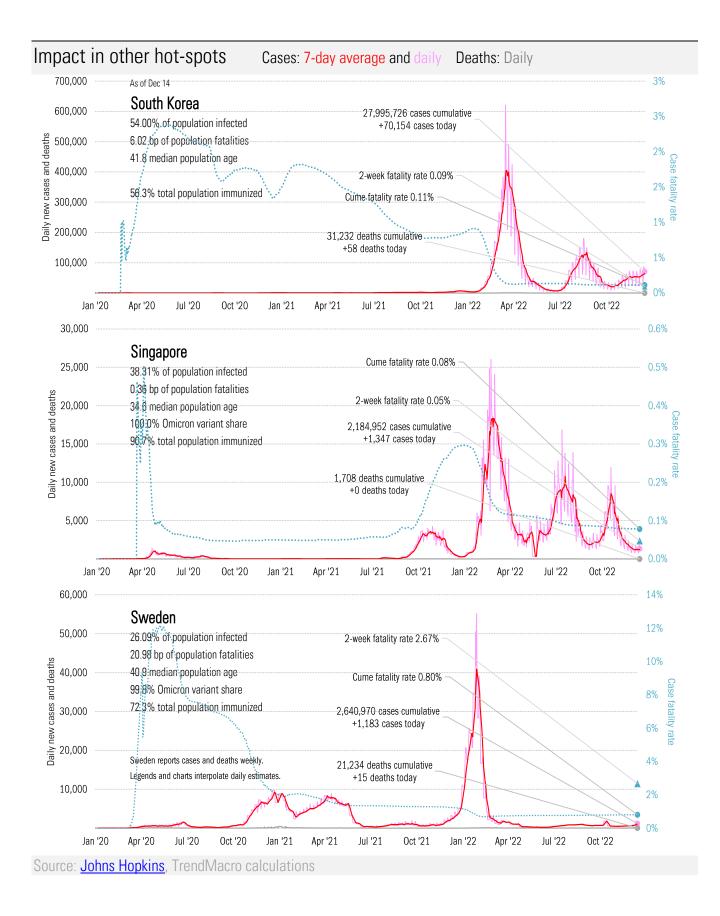
Source: Johns Hopkins, TrendMacro calculations





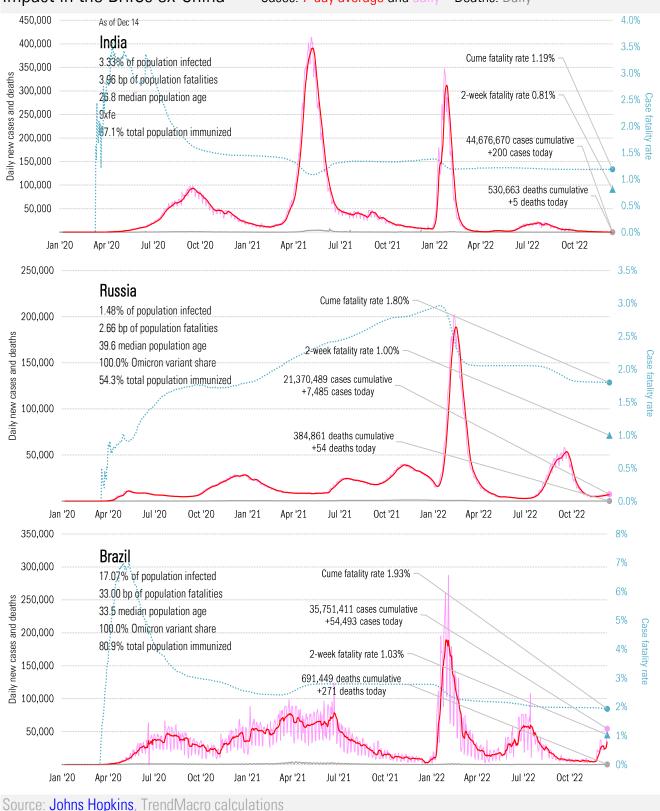
Source: Johns Hopkins, TrendMacro calculations

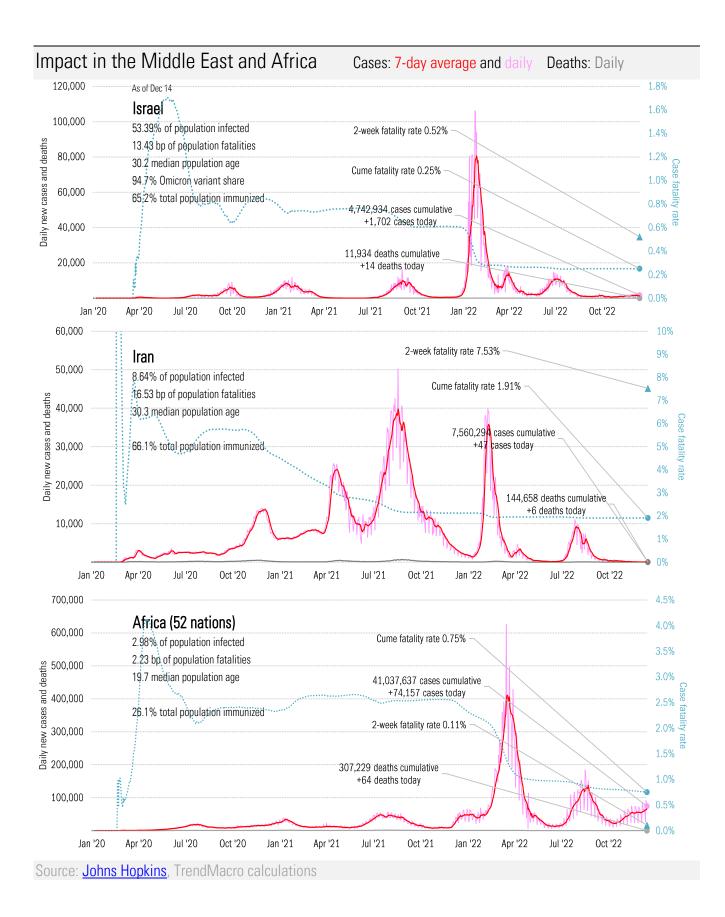




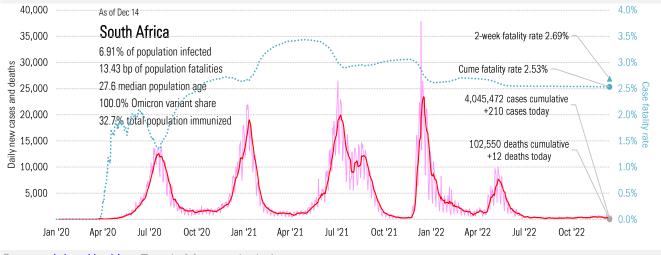
Impact in the BRICs ex-China Cases: 7-da

Cases: 7-day average and daily Deaths: Daily





Impact in Africa, continued Cases: 7-day average and daily Deaths: Daily



Source: Johns Hopkins, Trend Macro calculations