COVID-19 Weekly Newsletter
Issue N° 137, Sunday, 2021-07-25
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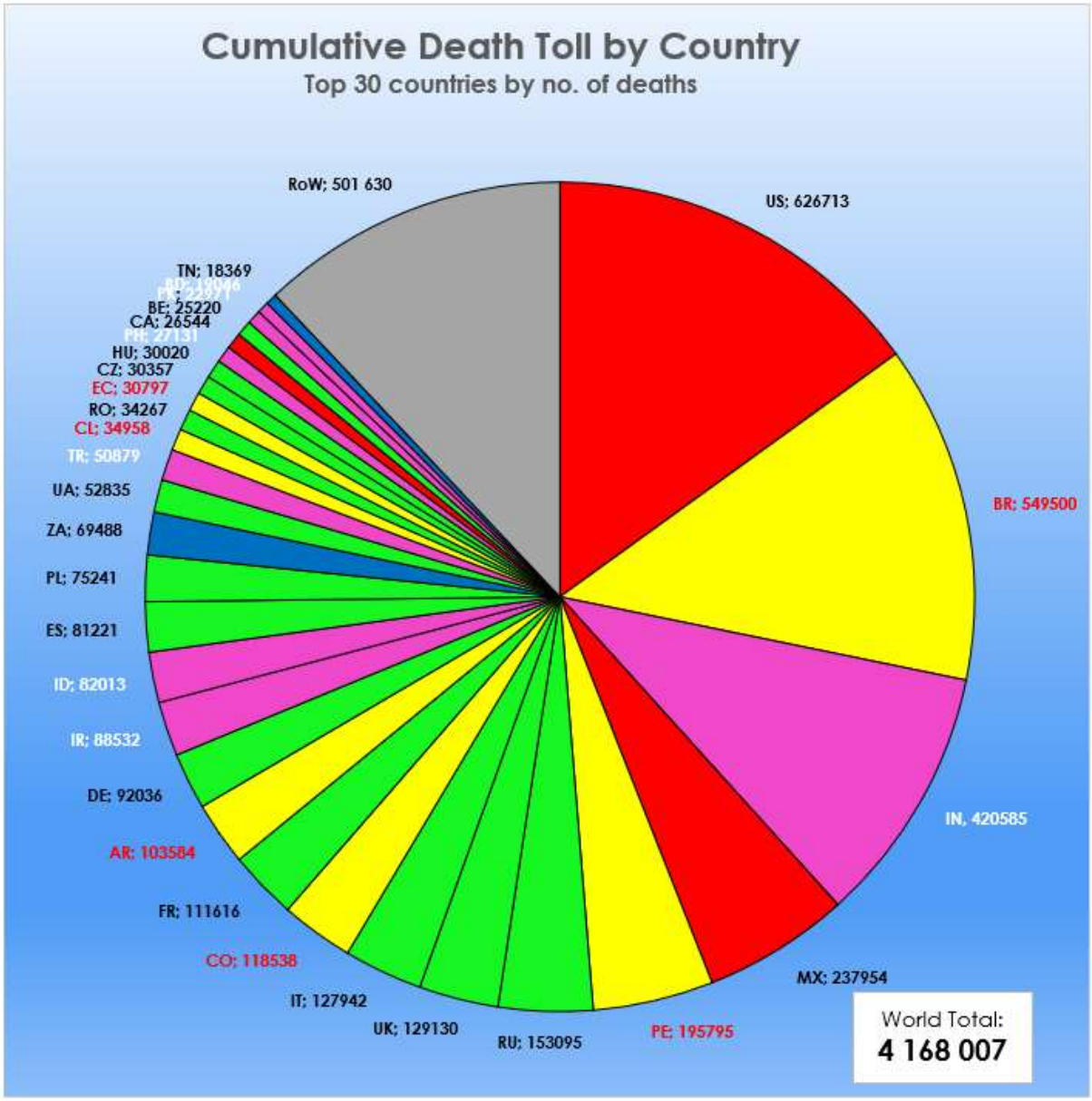
I leave on vacation this week, so there will be no issue next Sunday.

Contents: Global overview / National comparisons / EU Test comparisons / Vaccinations / US States focus / Today's images: Garden / [Notes]

Global overview: [0]
Since last time:

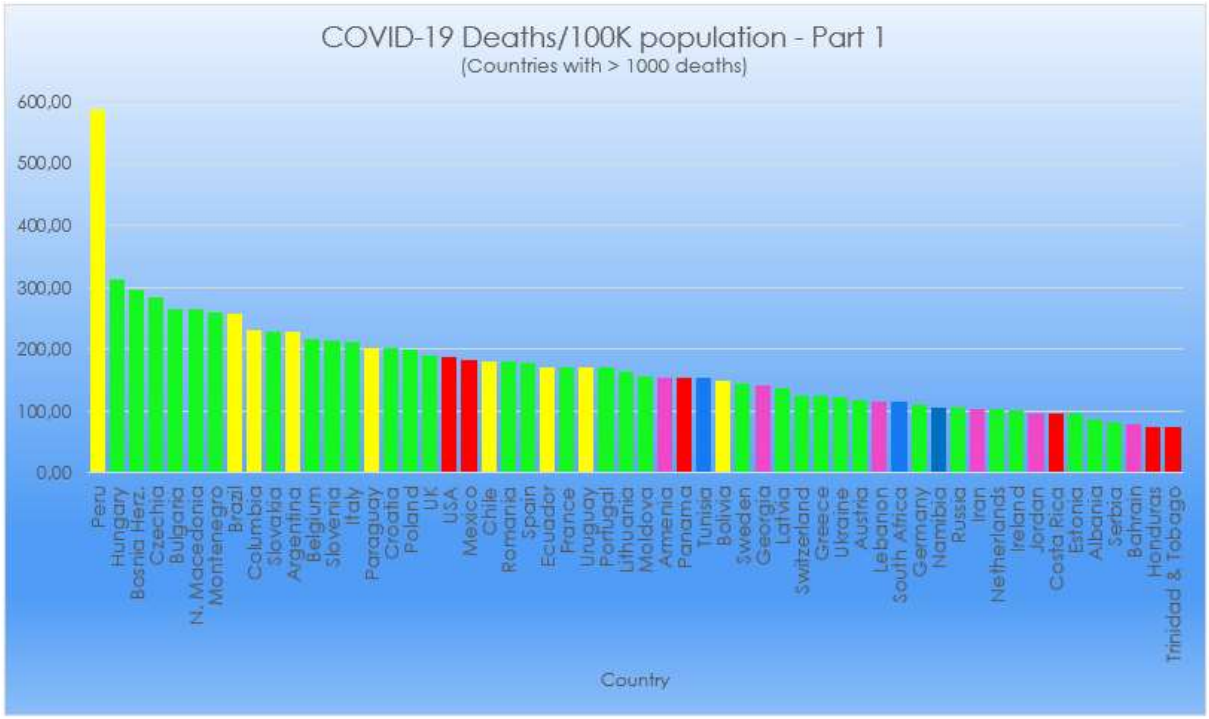
- The global daily death rate has been more or less static the past week, but may be starting to rise again.
- Democratic Republic of the Congo & Trinidad and Tobago (codes CD & TT) bring the number of countries with >1000 COVID-19 deaths to 110.

Cumulative death tolls for the top 30 countries [0]: N. America, S. America, Europe, Asia, & Africa Indonesia, Ecuador & Philippines move up the ranking; Bangladesh & Tunisia enter the Top 30 relegating Bulgaria & Netherlands:



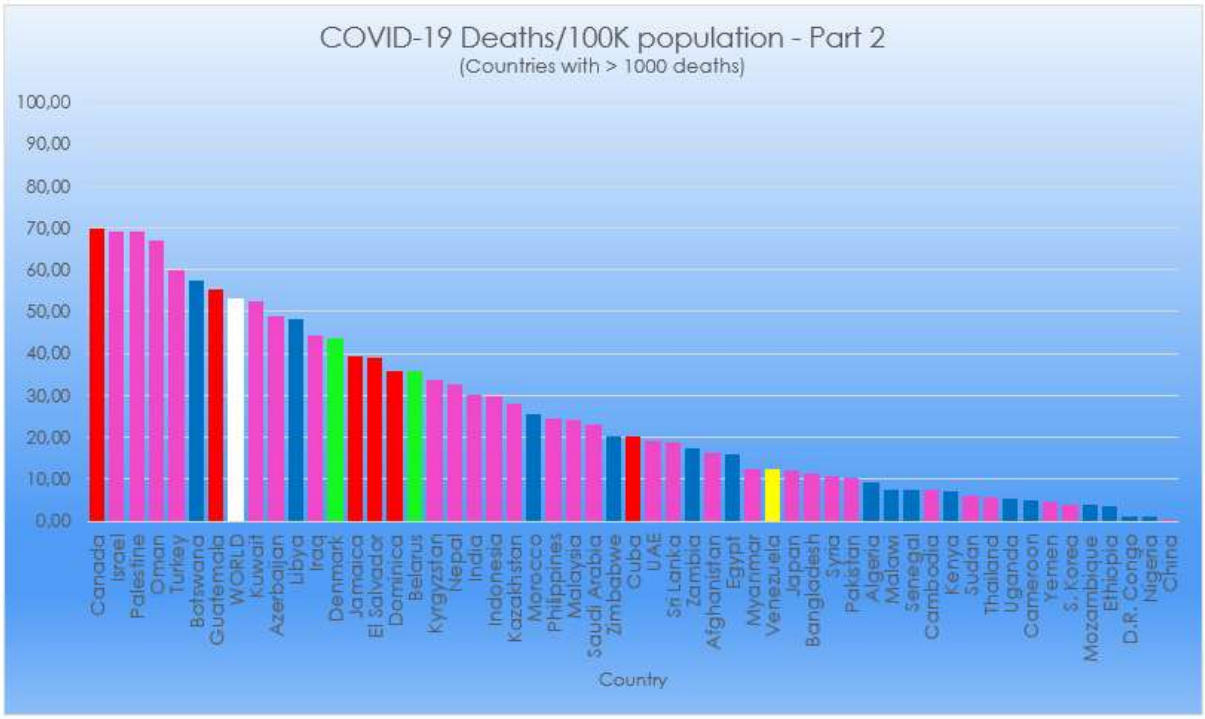
A lot of upward movement amongst the other >1000-death countries not shown above:
IQ, GT, NP, MY, MM, AF, KZ, LK, DZ, TH, PS, ZW, NA, SV, UG, CU, AE, MW & MZ. (again)

Per-capita death rates for all 110 countries with >1000 deaths:
It's the Americas & Europe which dominate the first half of the plot:



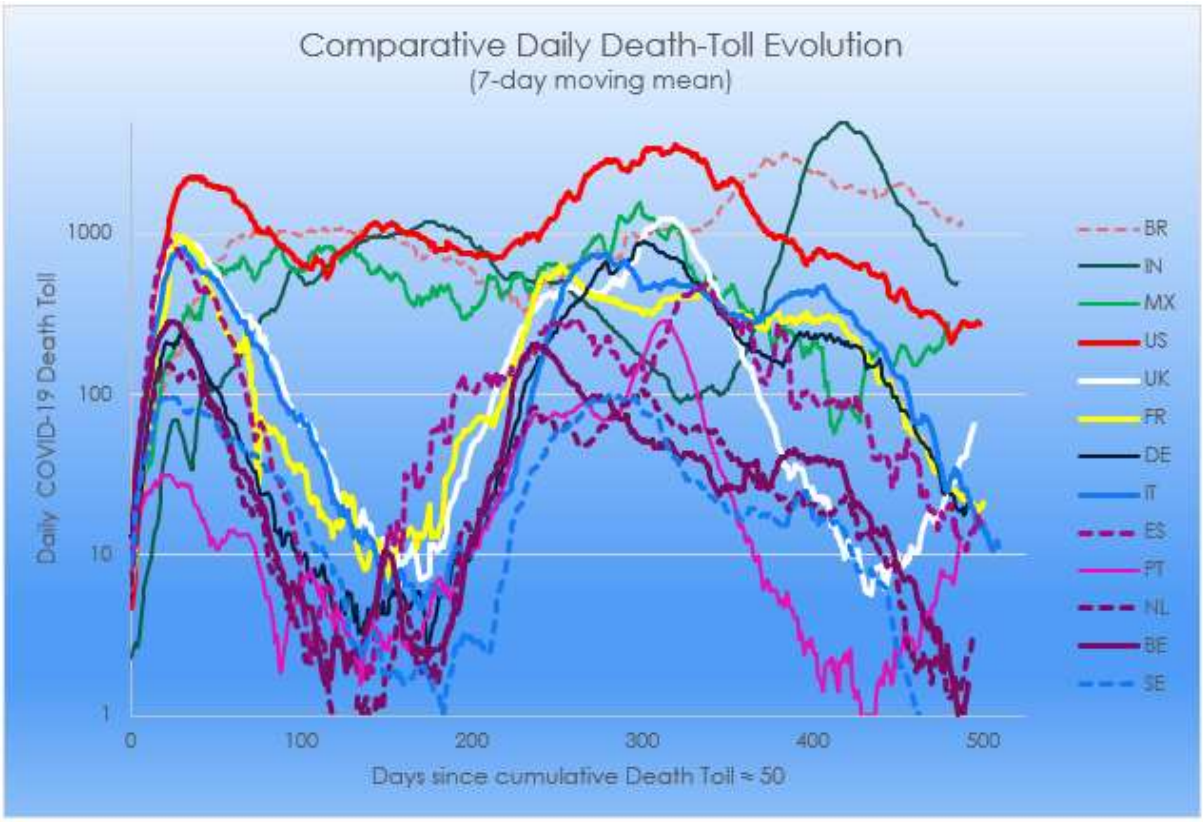
Moving left: BG, CO, PY, CL, EC, UY, TN, NA, RU, IR, CR & HN. (again)

The bottom half is mostly Asia, Africa & Central America:



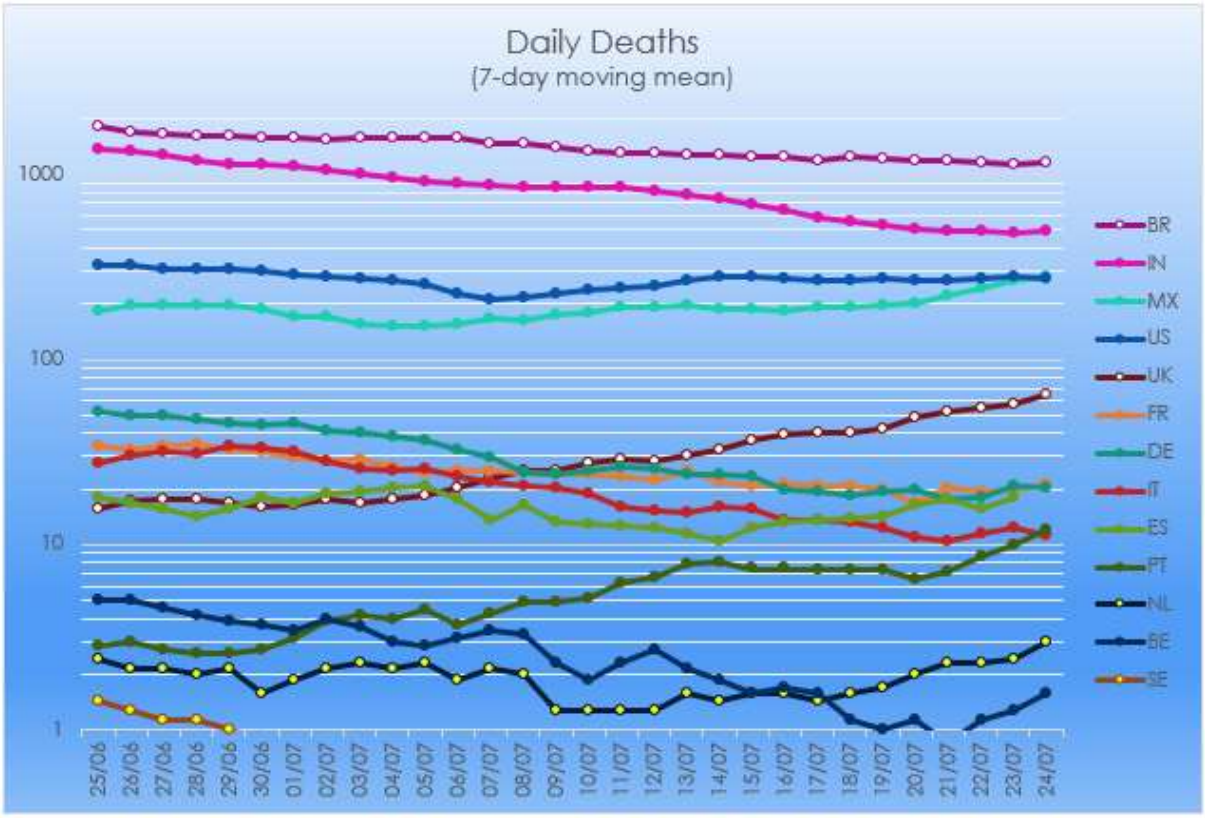
Moving left: BW, IQ, MY, ZW, CU, AF, MM, VE, BD, MW, KH, TH, UG & MZ. (again)

National comparisons (selected countries)
Here is the evolution in daily deaths rates (7-day moving mean) since each country's "Day0" [1]:



(Log y scale!)

Daily death rates (7-day moving mean) for the last 30 days:



(Log y scale!)

Comments apply to both of the above graphs:

- Falling death rates: BR, IN & IT (but the latter is now static).
- Static rates: US, FR & DE (SE off scale because less than 1/day for weeks)

- Rising death rates: MX, UK, PT, NL & BR.
- The UK rate has, in particular, been rising systematically for the past month.

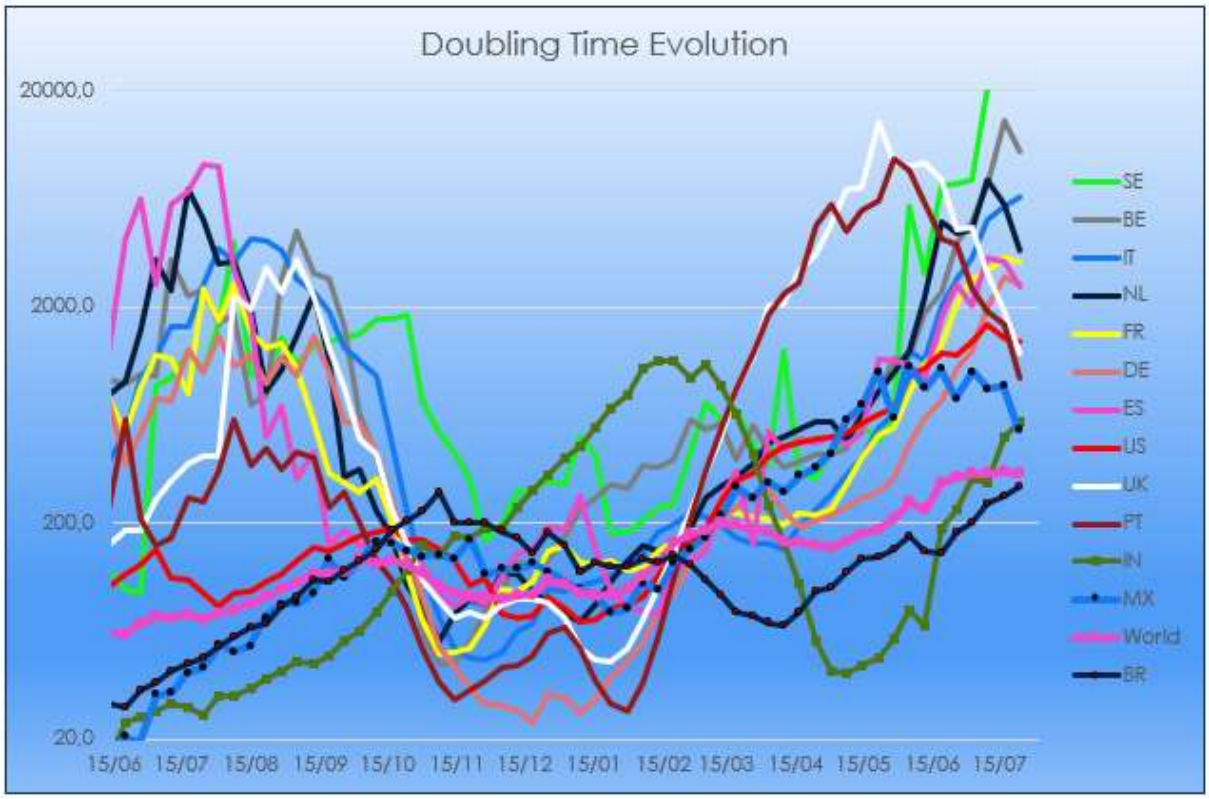
Tendencies: Comparison of time scales [2]

Double digits, triple+shortening, triple, quadruple

Country	1st death	Days since 1st death	"Day0"	Days since "Day0"	Doubling time (7-day fits)		
					24 Jul	17 Jul	10 Jul
IT	21 Feb	519	02 Mar	509	6414 days	5837 days	5018 days
FR	15 Feb	525	11 Mar	500	3231 days	3357 days	2906 days
ES	03 Mar	508	11 Mar	500	2499 days	3240 days	3352 days
US	29 Feb	511	13 Mar	498	1370 days	1452 days	1641 days
UK	05 Mar	506	16 Mar	495	1216 days	1907 days	2872 days
NL	06 Mar	505	17 Mar	494	3672 days	5987 days	7660 days
DE	09 Mar	502	19 Mar	492	2535 days	2729 days	2008 days
BE	11 Mar	500	20 Mar	491	10412 days	14388 days	7297 days
SE	11 Mar	500	24 Mar	487			20249 days
BR	17 Mar	494	24 Mar	487	297 days	269 days	245 days
PT	16 Mar	495	25 Mar	486	935 days	1642 days	1900 days
IN	12 Mar	499	26 Mar	485	589 days	505 days	310 days
MX	19 Mar	492	31 Mar	480	543 days	860 days	832 days
World	11 Jan	560	25 Jan	546	340 days	345 days	338 days

- Nine countries green. (No new data for SE for last 12 days)
- IN & BR improving slowly. MX deteriorating again.

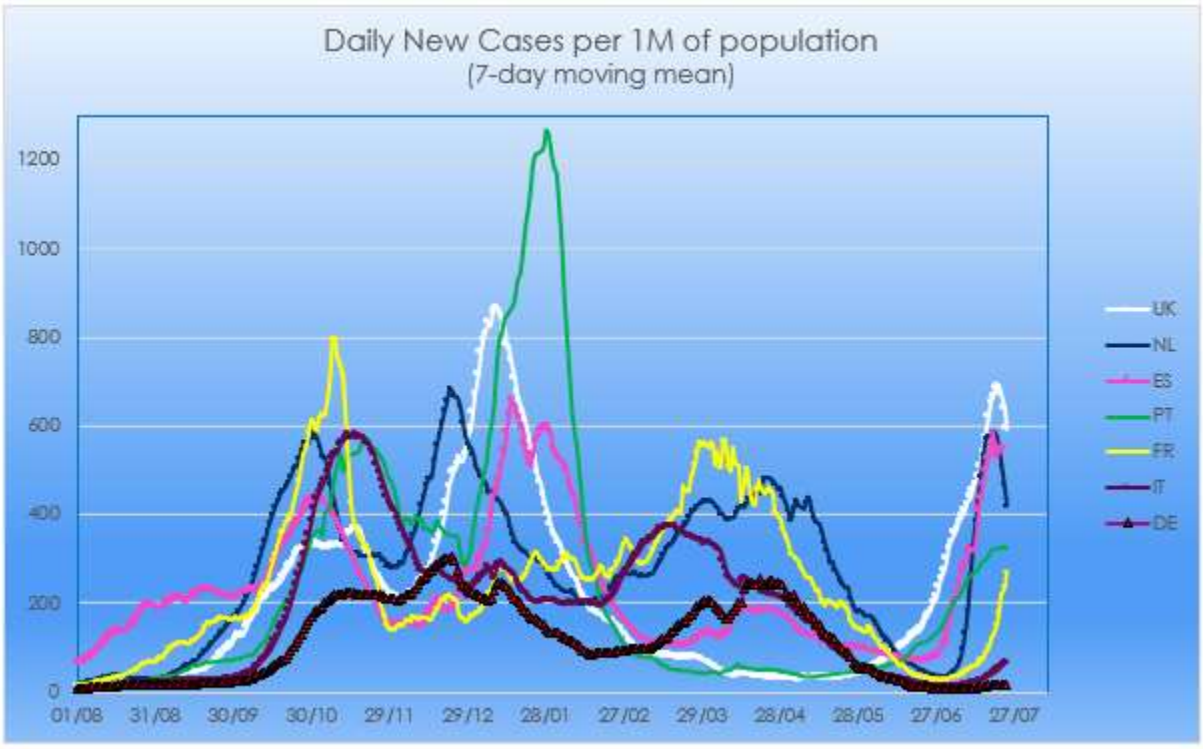
This is how doubling times have been evolving since mid-June last year:



(Log y scale. Remember: Shorter doubling times equate to a faster evolution of the disease.)
UK & PT have been dropping sharply for the past two months.

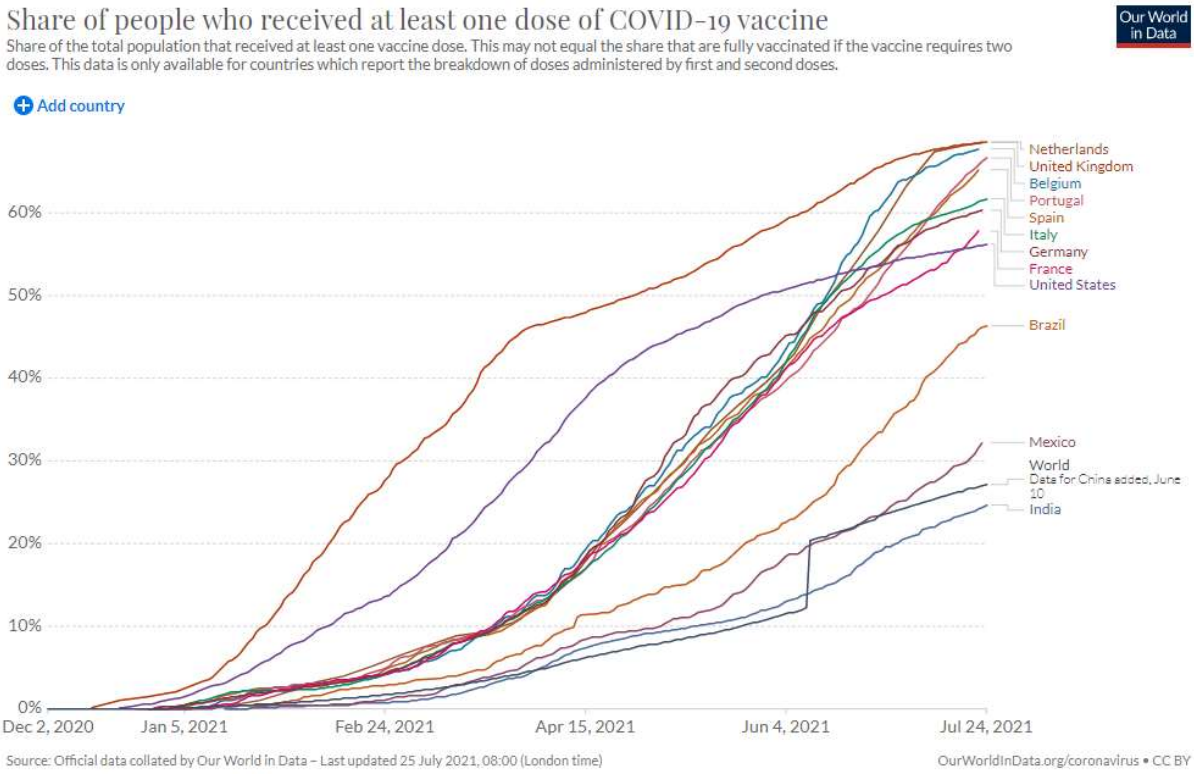
EU Test Comparisons

Warning: National data on testing are not really comparable between countries, but do reveal trends in individual countries [6].

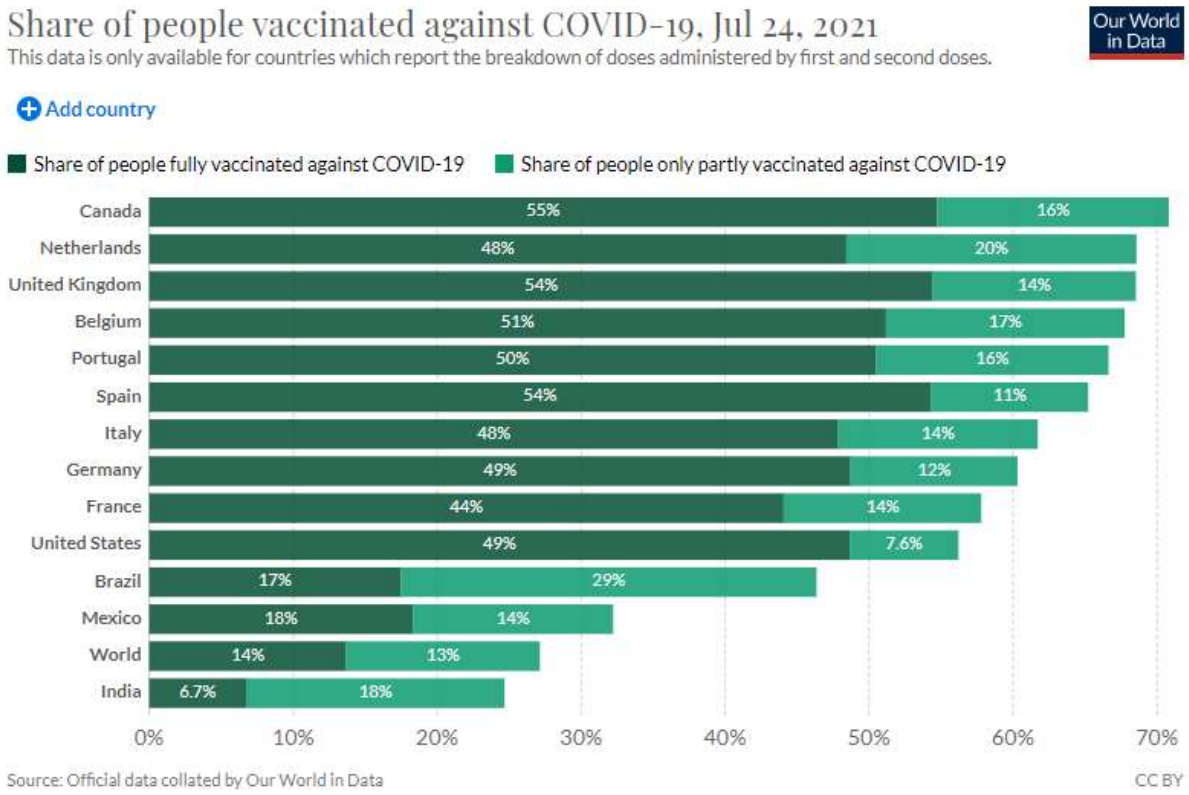


(Log plot!)
UK & NL have turned over, maybe ES, too.
FR has started rising very rapidly.

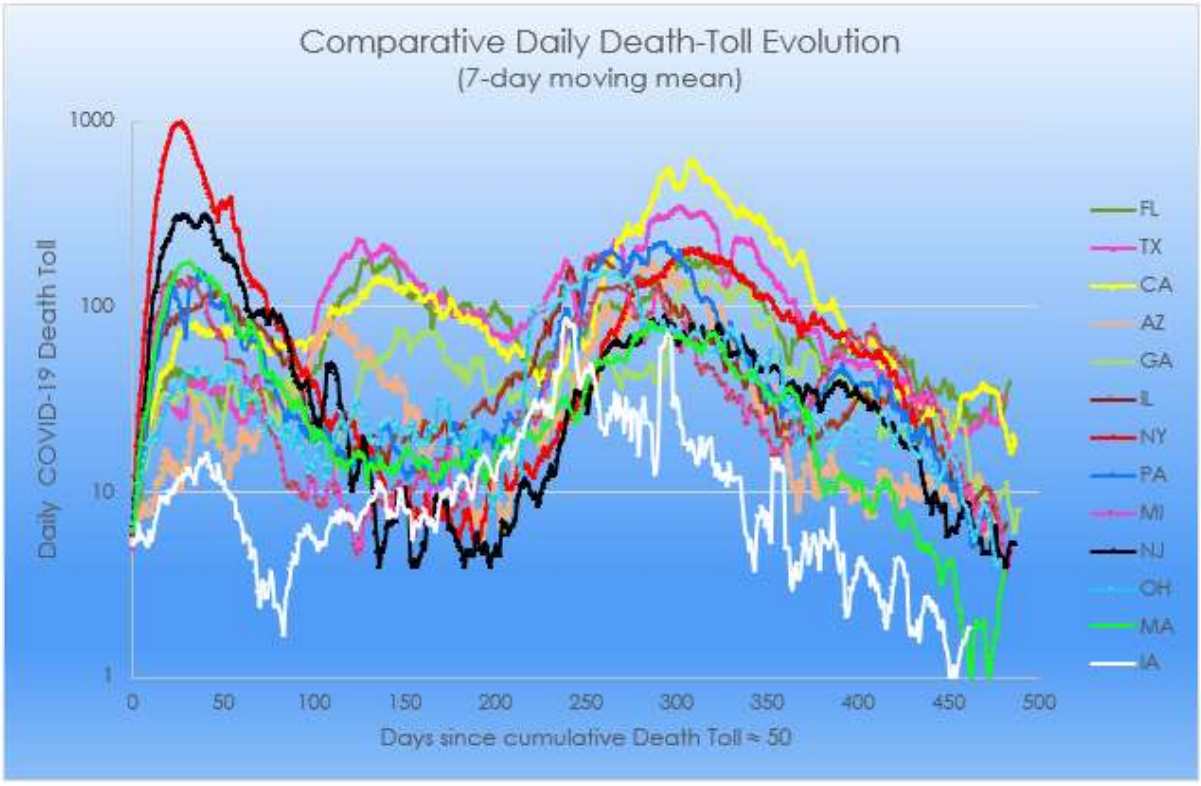
Vaccinations against COVID-19 [4]



NL has caught up with UK.
BE & PT also doing well, and FR has picked up a little recently.
US lagging more & more behind.

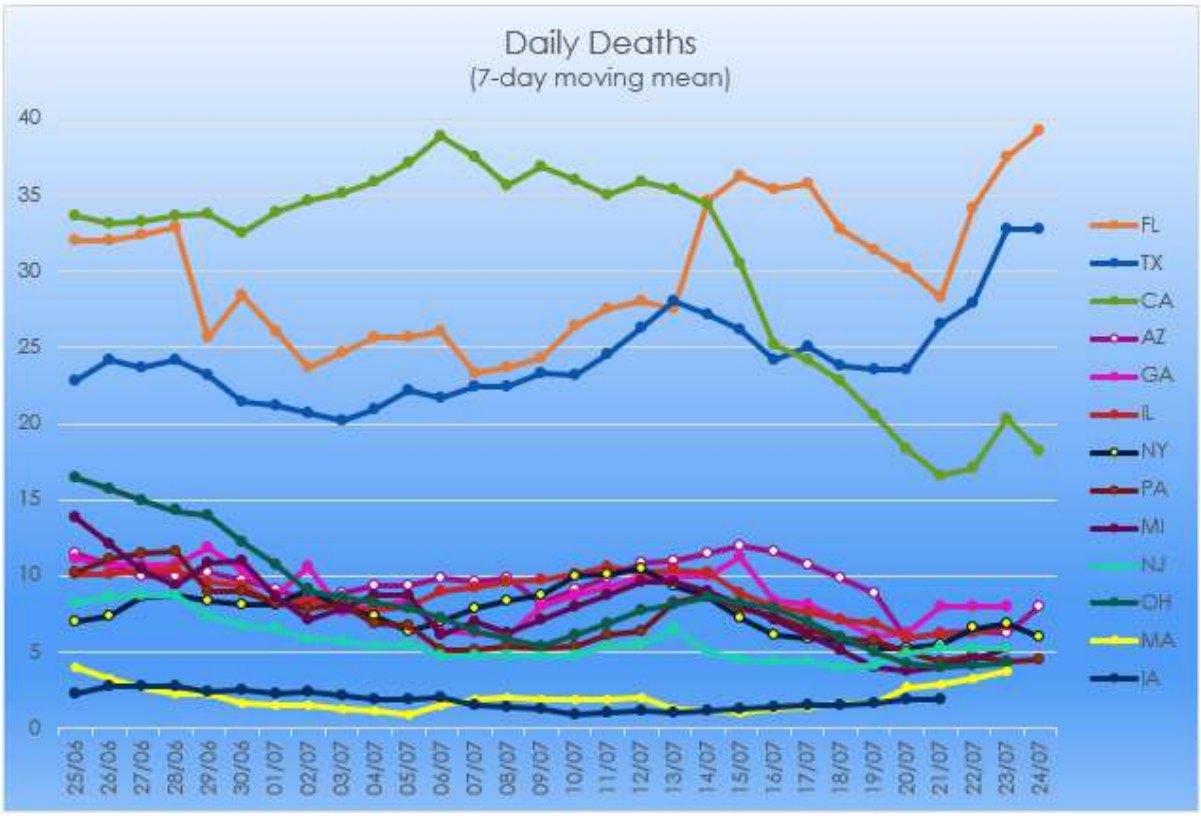


<u>US States Focus</u> (selected states)
Comparative Daily Death Toll evolution since each state's Day0 [1].



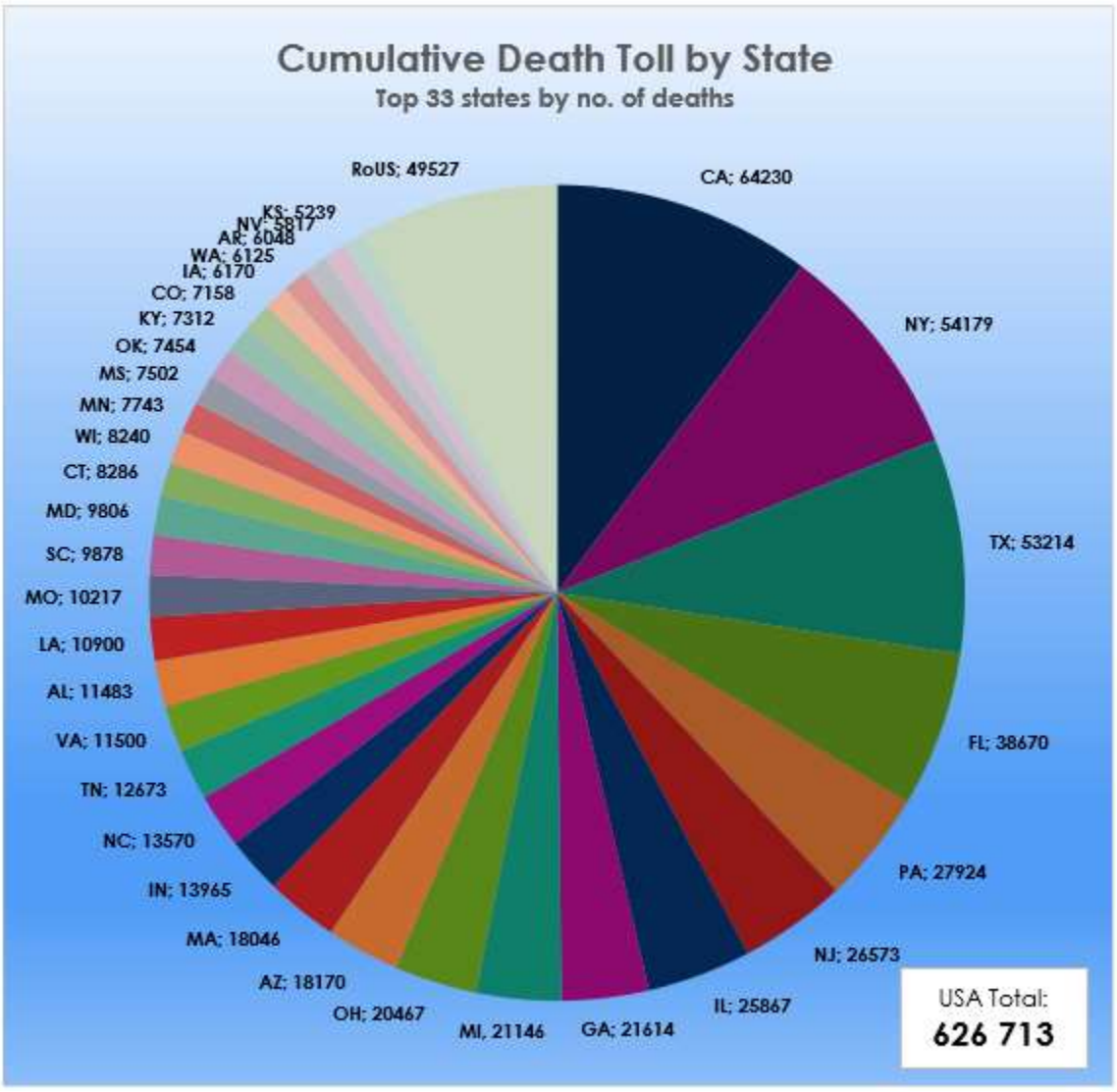
(Log scale!)

Comparative Daily Death Toll evolution over the past 30 days:

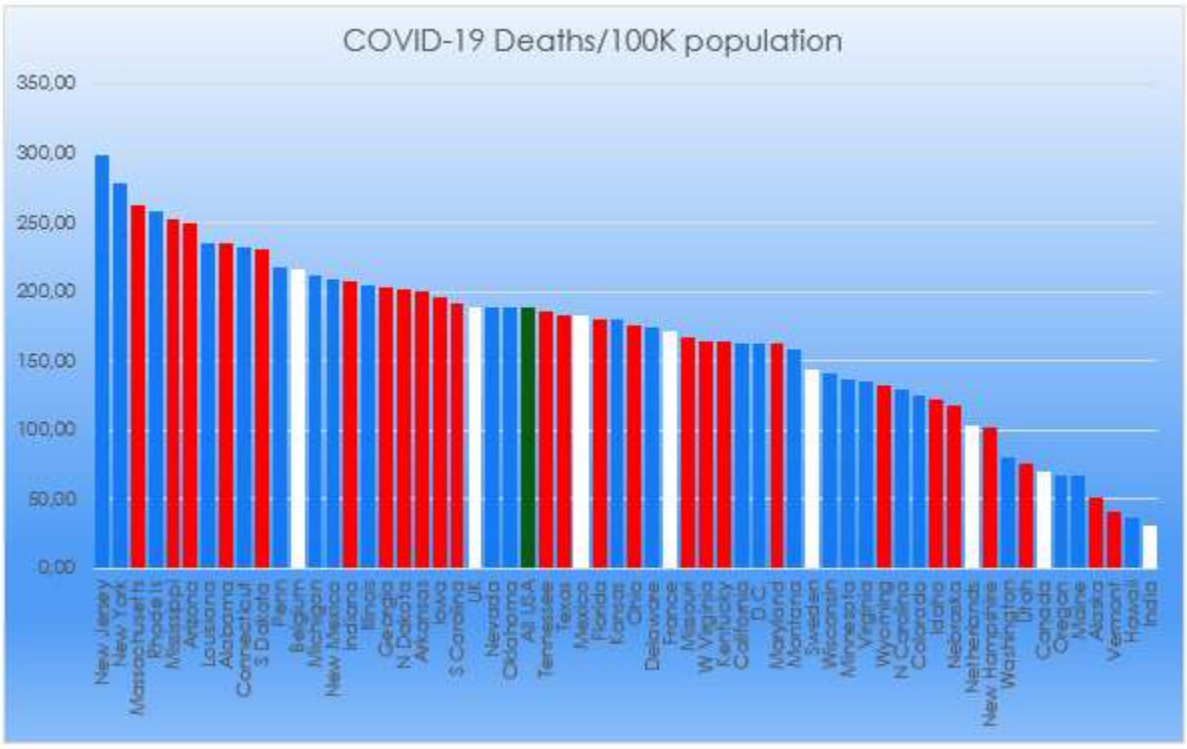


(Linear y scale)
Comments apply to both of the above graphs.
FL, TX & CA remain stubbornly high in comparison to the other states (all with <10 deaths/day).
FL & TX rising again recently.

Cumulative death toll for the top 33 US states:
No changes in ranking.



Per capita (for all 50 states):



Moving left: LA (again), NV & CA.

Tendencies: Comparison of time scales [2]

Double digits, triple+shortening, triple, quadruple

State	1st death	Days since 1st death	"Day0"	Days since "Day0"	Doubling time (7-day fits)		
					24 Jul	17 Jul	10 Jul
AZ	20 Mar	491	04 Apr	476	1511 days	1154 days	1633 days
CA	04 Mar	507	24 Mar	487	2144 days	1877 days	1276 days
FL	06 Mar	505	27 Mar	484	553 days	756 days	1123 days
GA	14 Mar	497	20 Mar	491	1326 days	1680 days	1161 days
IA	24 Mar	487	15 Apr	465	2137 days	4267 days	3874 days
IL	17 Mar	494	28 Mar	483	2715 days	2436 days	2001 days
MA	20 Mar	491	29 Mar	482	2589 days	6724 days	3566 days
MI	18 Mar	493	25 Mar	486	2489 days	2737 days	1849 days
NJ	10 Mar	501	24 Mar	487	3325 days	4723 days	3725 days
NY	14 Mar	497	20 Mar	491	6449 days	8336 days	4180 days
OH	18 Mar	493	31 Mar	480	2902 days	1974 days	2642 days
PA	18 Mar	493	30 Mar	481	3635 days	2760 days	3234 days
TX	16 Mar	495	30 Mar	481	998 days	1490 days	1387 days

Confirmation of the deterioration seen for FL & TX.

This is how doubling times have been evolving since mid-June:

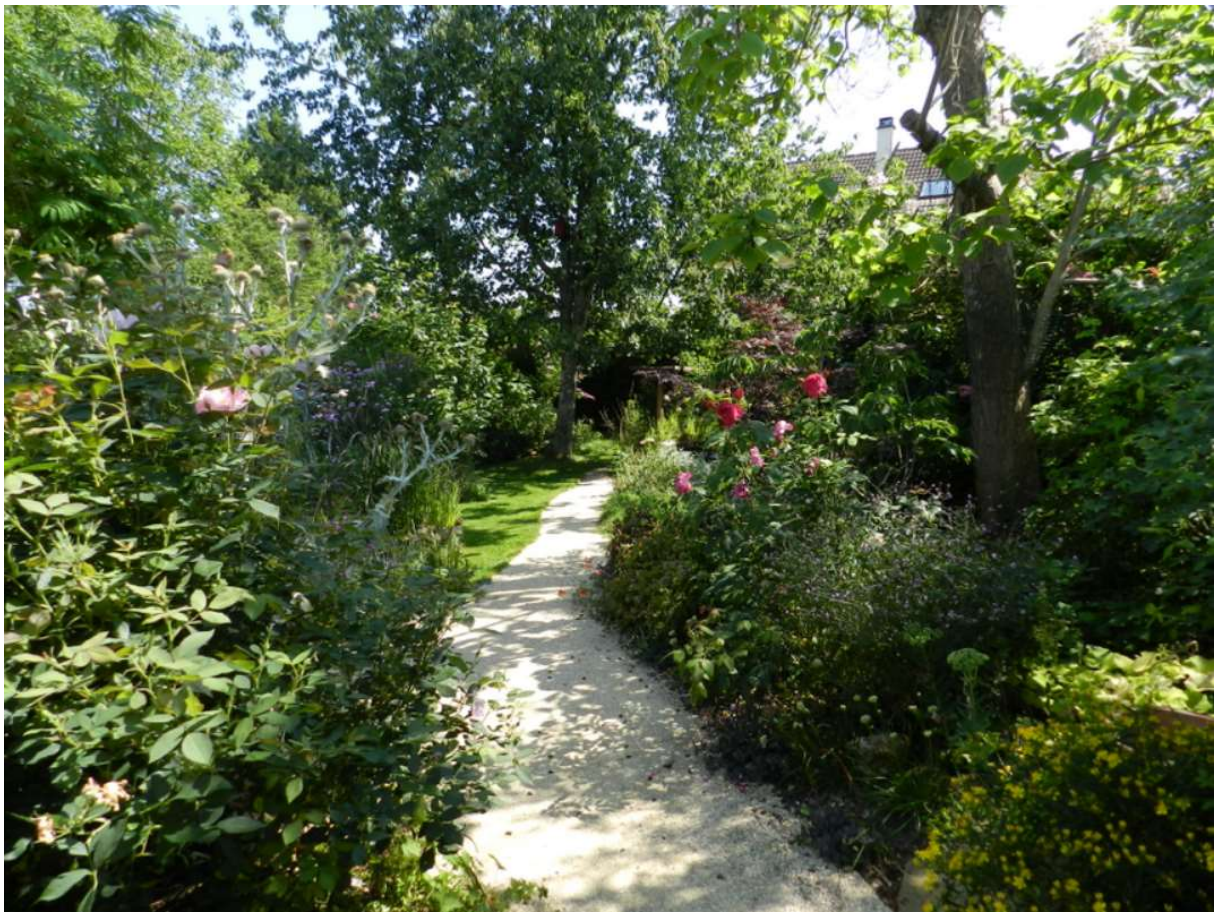
(Log plot! – Remember longer doubling times are preferable.)

Next update in two weeks' time!

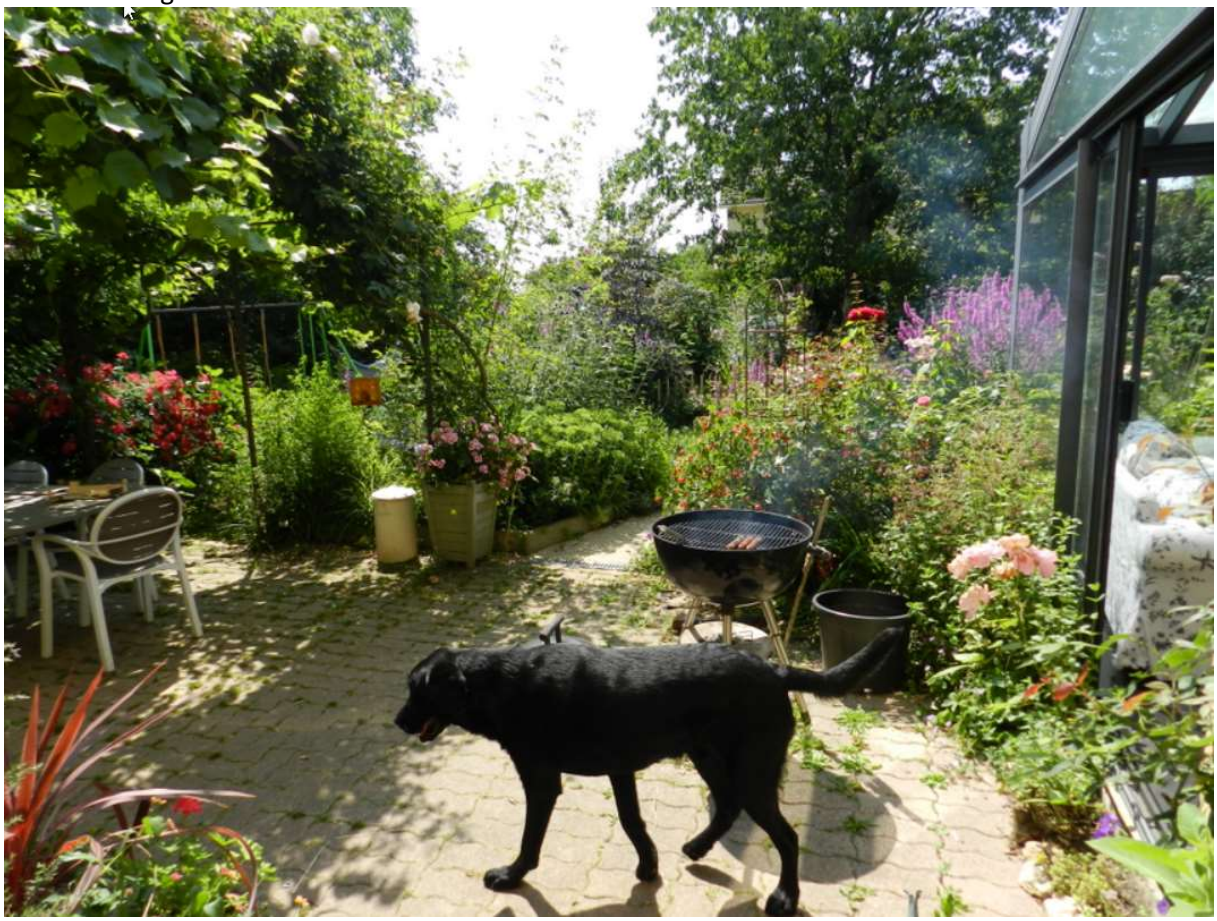
Keep well & keep safe!

David

Today's images: …taken from our garden earlier this week (when the sun was shining):
Very green with all the rain we've had in June & July…



Lunch cooking…



Rafale & Mambo finding comfortable places to sleep on the terrace…

The back garden…

The ponds…

Please keep sending me your images for this space…

Notes

[0] The national COVID-19 data are taken from the worldometer website which reproduces the data collected from Official Websites of Ministries of Health of other Governmental Institutions and Government authorities' social media accounts.

- Different countries use different criteria in recording COVID-19 deaths, often distinguishing between *probable* and *confirmed* cause of death.

- Belgium appears to have the loosest criterion attributing any death to COVID-19 if there is any suspicion that COVID-19 could have been the cause.
- The UK recently changed the definition: death occurring within 28 days of a positive test for COVID-19. (If the patient dies 29 days after the test, it wasn't officially caused by COVID-19.)
- China has only reported a single COVID-19 death since 17th May 2020! This occurred on 14th January 2021.

- Some countries, notably Sweden & Spain, regularly update the entire set of historical data provided to the website. Other counties, e.g., UK & USA, do the same but more rarely.

ISO two-letter country codes used in this Update									
All	World	CO	Columbia	IN	India	MX	Mexico	SI	Slovenia
AE	UAE	CR	Costa Rica	IQ	Iraq	MY	Malaysia	SK	Slovakia
AF	Afghanistan	CU	Cuba	IR	Iran	MZ	Mozambique	SN	Senegal
AL	Albania	CZ	Czechia	IT	Italy	NA	Namibia	SV	El Salvador
AM	Armenia	DE	Germany	JM	Jamaica	NL	Netherlands	SY	Syria
AR	Argentina	DK	Denmark	JO	Jordan	NO	Norway	TH	Thailand
AT	Austria	DO	Dominican Rep.	JP	Japan	NP	Nepal	TN	Tunisia
AZ	Azerbaijan	DZ	Algeria	KE	Kenya	OM	Oman	TR	Turkey
BA	Bosnia Herzegovina	EC	Ecuador	KG	Kyrgyzstan	PA	Panama	TT	Trinidad & Tobago
BD	Bangladesh	EE	Estonia	KH	Cambodia	PE	Peru	UA	Ukraine
BE	Belgium	EG	Egypt	KR	Rep. Of Korea	PH	Philippines	UG	Uganda
BG	Bulgaria	ES	Spain	KW	Kuwait	PK	Pakistan	UK	UK
BH	Bahrain	ET	Ethiopia	LB	Lebanon	PL	Poland	US	USA
BO	Bolivia	FI	Finland	LK	Sri Lanka	PS	Palestine	UY	Uruguay
BR	Brazil	FR	France	LT	Lithuania	PT	Portugal	VE	Venezuela
BW	Botswana	GE	Georgia	LV	Latvia	PY	Paraguay	YE	Yemen
BY	Belarus	GR	Greece	LY	Libya	RO	Romania	ZA	South Africa
CA	Canada	GT	Guatemala	MA	Morocco	RoW	Rest of World	ZM	Zambia
CD	Dem. Rep. Of Congo	HR	Croatia	MD	Moldova	RS	Serbia	ZW	Zimbabwe
CH	Switzerland	HU	Hungary	ME	Montenegro	RU	Russia		
CL	Chile	IE	Ireland	MK	North Macedonia	SA	Saudi Arabia		
CM	Cameroon	IL	Israel	MM	Myanmar	SD	Sudan		
CN	China	ID	Indonesia	MW	Malawi	SE	Sweden		

US States									
AL	Alabama	HI	Hawaii	ME	Maine	NJ	New Jersey	SD	South Dakota
AK	Alaska	IA	Iowa	MI	Michigan	NM	New Mexico	TN	Tennessee
AR	Arkansas	ID	Idaho	MN	Minnesota	NV	Nevada	TX	Texas
AZ	Arizona	IL	Illinois	MO	Missouri	NY	New York	UT	Utah
CA	California	IN	Indiana	MS	Mississippi	OH	Ohio	VA	Virginia
CO	Colorado	KS	Kansas	MT	Montana	OK	Oklahoma	VT	Vermont
CT	Connecticut	KY	Kentucky	NC	North Carolina	OR	Oregon	WA	Washington
DE	Delaware	LA	Louisiana	ND	North Dakota	PA	Pennsylvania	WI	Wisconsin
FL	Florida	MA	Massachusetts	NE	Nebraska	RI	Rhode Island	WV	West Virginia
GA	Georgia	MD	Maryland	NH	New Hampshire	SC	South Carolina	WY	Wyoming
DC	District of Columbia								

[1] For comparison purposes, the data of individual countries have been shifted horizontally so that a synchronization occurs at the same point on the horizontal (time) axis which I denote "Day0".
Day0 has been chosen to be the date on which the cumulative number of deaths was closest to **50** for the country concerned.

[2] The doubling time is a characteristic of exponential growth. It is the period of time over which the number of cases double, and is an inverse measure of the gradient of the curve. A doubling time makes sense when the curve is close to an exponential, i.e., a straight line on a semi-logarithmic graph. For this reason. in order to follow the evolution in the number of cumulative deaths per

country, I fit an exponential to the data at the end of the curve (7 days' data) and extract from this a "doubling time".
The doubling time means what it says: If the exponential tendency persists unchanged, the numbers of deaths at the end of the doubling time will be double the current number.
Example based on US data: On 29/08/2020 no. deaths was 188 900 and doubling time was 116 days. This implies no. deaths on 23/12/2020 (116 days later) will have doubled – to 377 800.
The actual number on that date was 339 422, which reveals that there was a decline in the exponential tendency – but not by that much.
Clearly, long doubling times are good; short ones are bad.

[3] One of the characteristics of the exponential function is that the gradient (or rate of change), is proportional to the value of the function.
(For those who remember their calculus, the solution of $df(t)/dt = k\, f(t)$ is $f(t) = e^{kt}$.)
By plotting the change (number of deaths in a given period) on the y-axis against the total number of deaths on the x-axis, an exponential gives a straight line on a log-log graph. When the mortality rate stops being exponential, the country curve plummets down from the main sequence.
The points represent values on a succession of days, the end point being yesterday. The more closely spaced are the points (days), the slower the evolution; the greater the distance between points, the faster the evolution.
To give a clearer meaning to the y-axis data, we plot the average no. of deaths in the past 7 days vs. the cumulative no. of deaths on the x-axis.
This analysis was proposed by **Dr Aatish Bhatia**. An animated version of this graph can be viewed on his website. (Use the panel on the right to configure for *Reported Deaths* and select the countries to be viewed.)
An entertaining video explaining this presentation of the data can be found here.

[4] **Vaccinations against COVID-19**: These data are collected from official reports by the ***Our World in Data*** team and can be found here.

[5] The sources of the NYC & Long Island data are not the same as the one used for national data:
Source for the 5 boroughs:
https://github.com/nychealth/coronavirus-data/blob/master/totals/by-boro.csv
Source for Nassau & Suffolk counties:
https://coronavirus.smartnews.com/us/new-york/

[6] **Testing policies vary widely & unpredictably both regionally and in time.**