



# **Estamos encaminhando para imunidade comunitária?**

**Sobre um possível indicador da evolução da pandemia por Covid-19**

**Maurício Garcia**

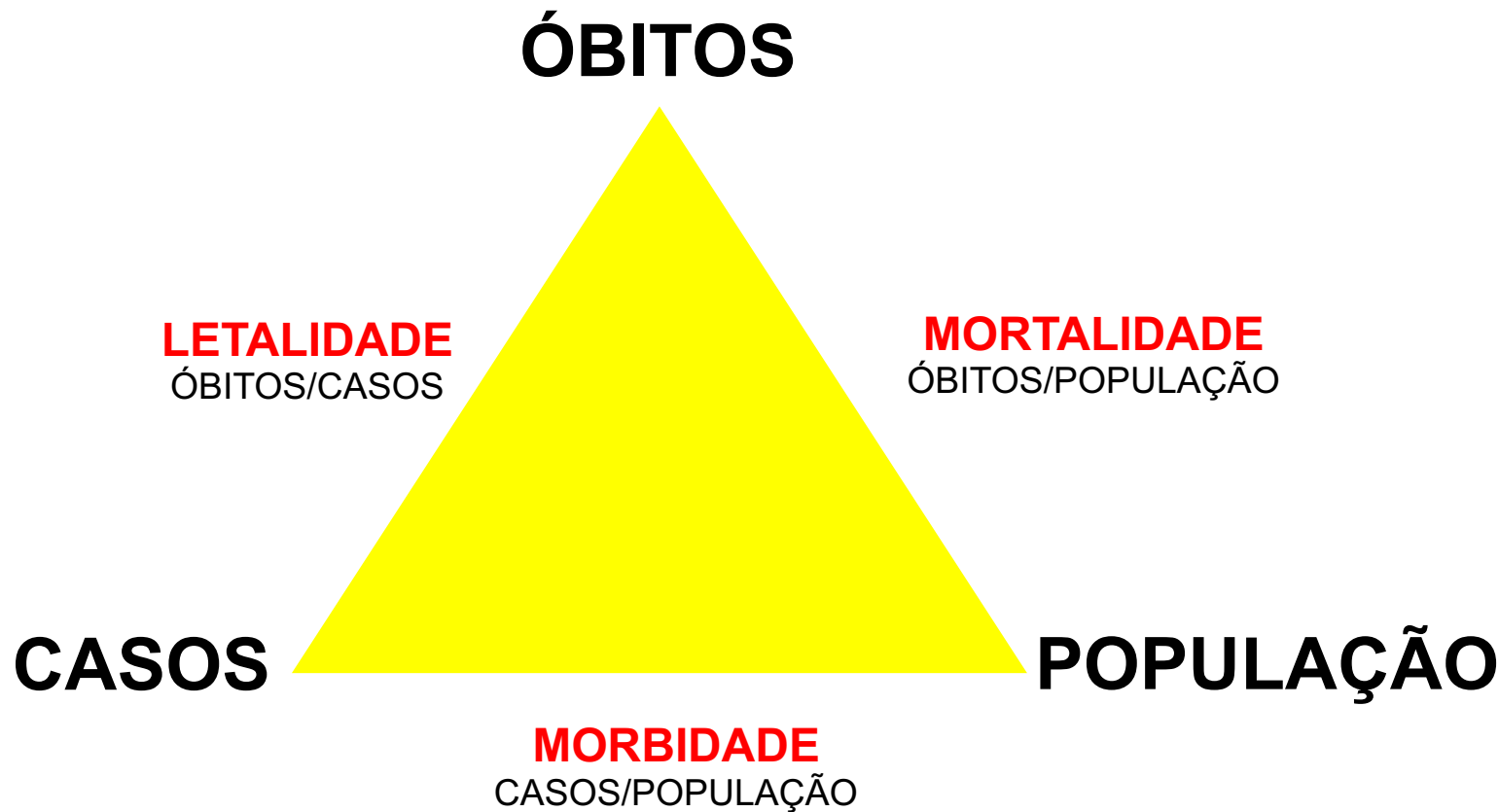
**20/07/2020**



# Mensagens principais

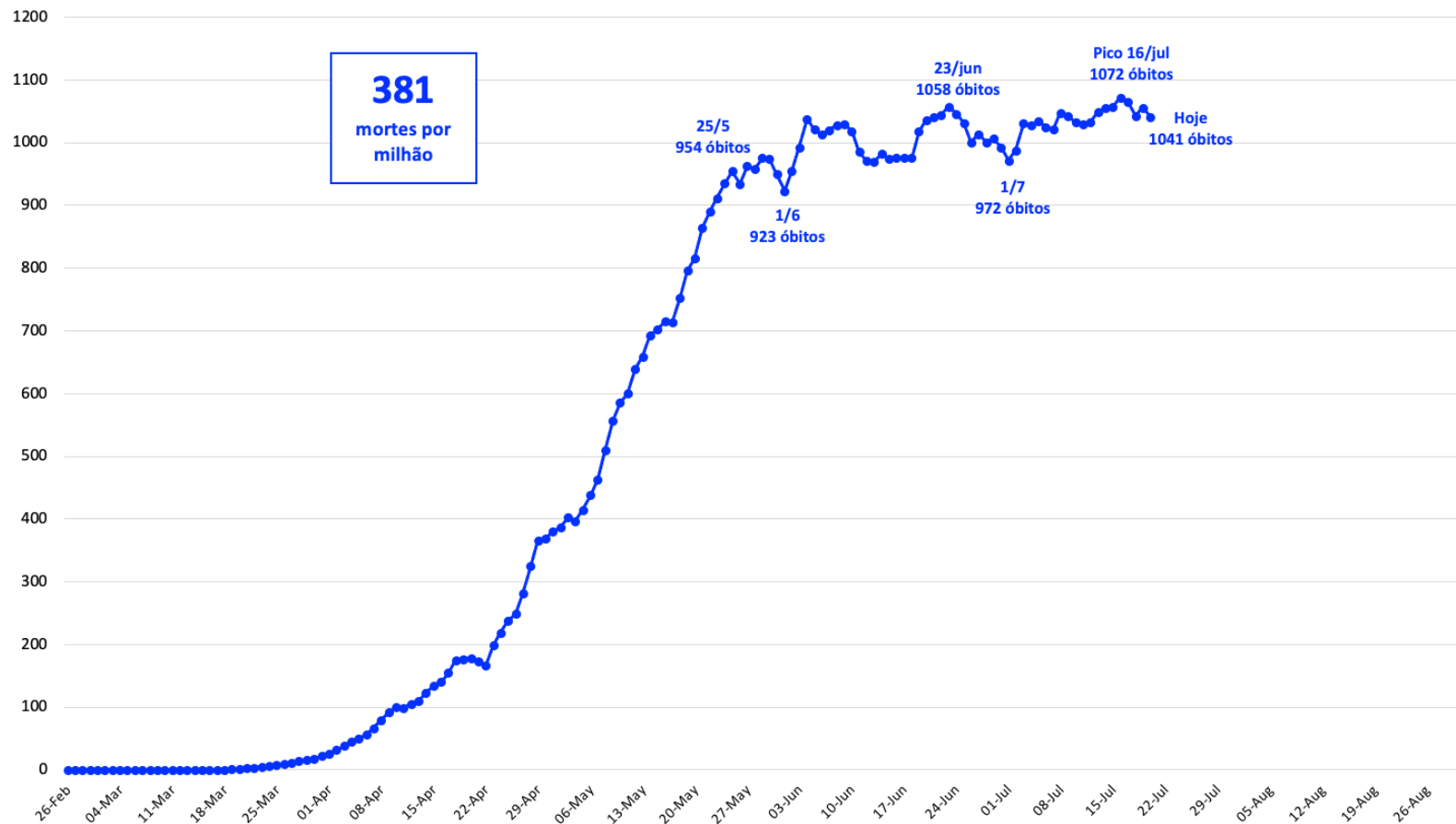
A **taxa de mortalidade** pode ser um indicador para estratégias frente à pandemia

**400 MM** (mortes por milhão) parece ser um ponto de corte importante



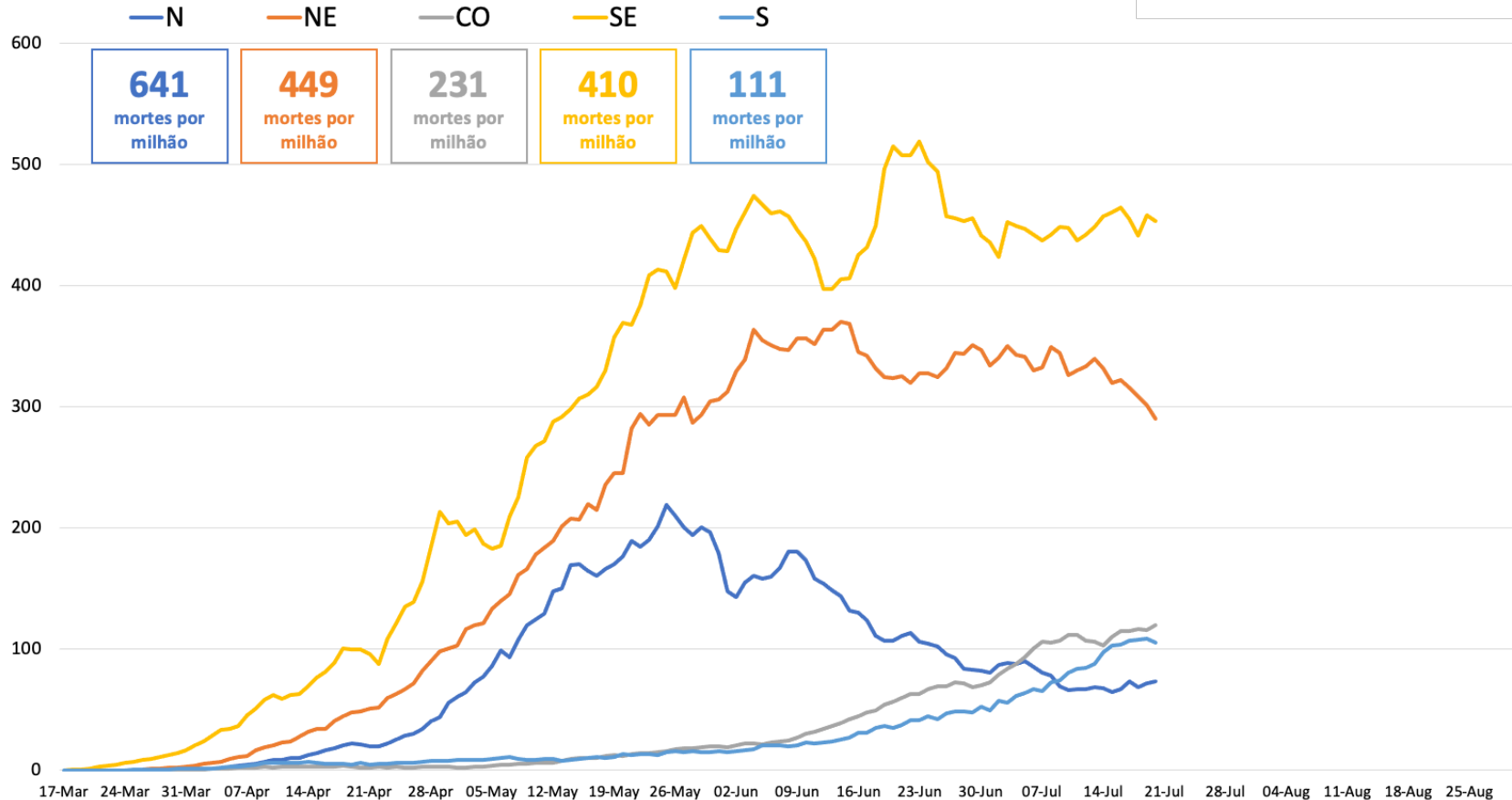
# Média semanal de óbitos diários no Brasil por Covid-19

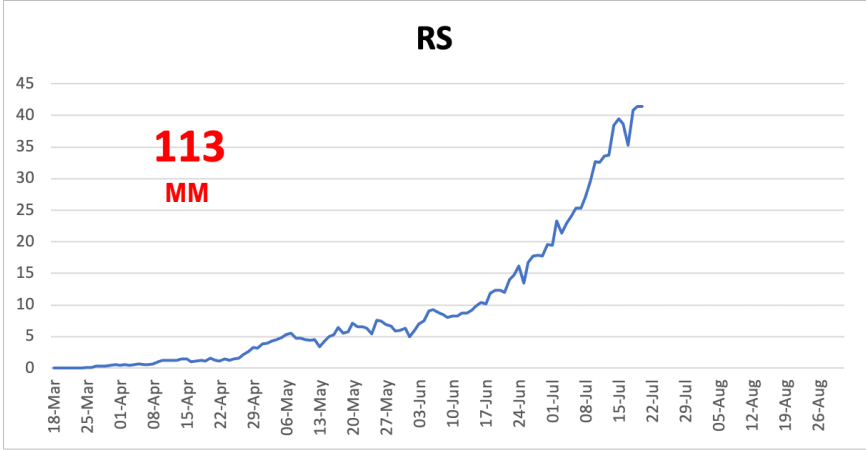
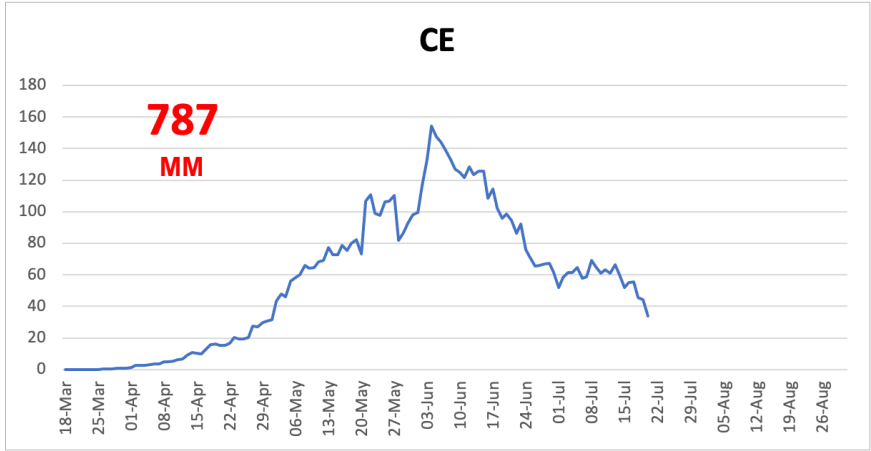
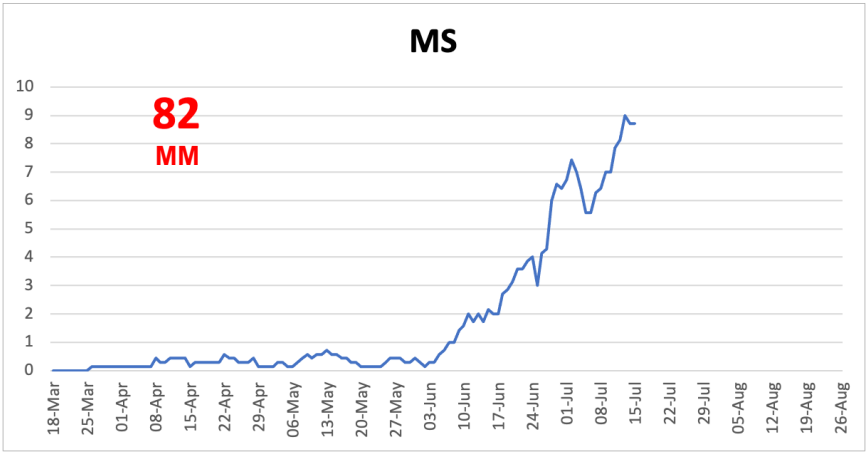
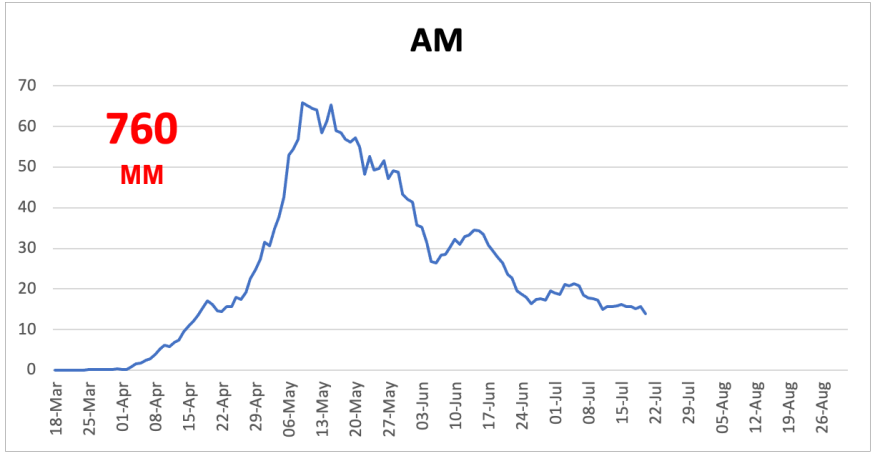
Maurício Garcia



# Média semanal de óbitos diários por Covid-19 por região

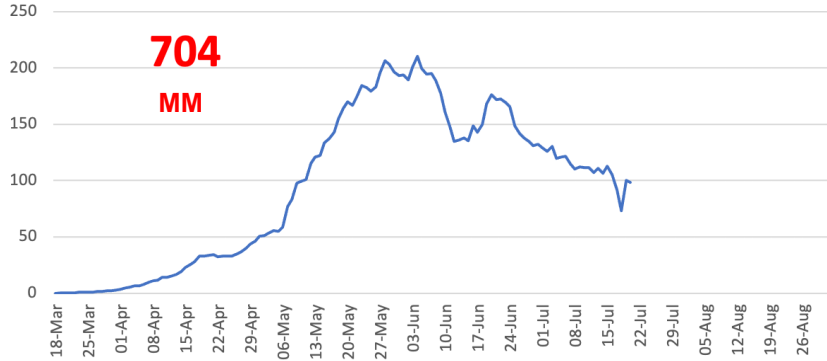
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### RJ



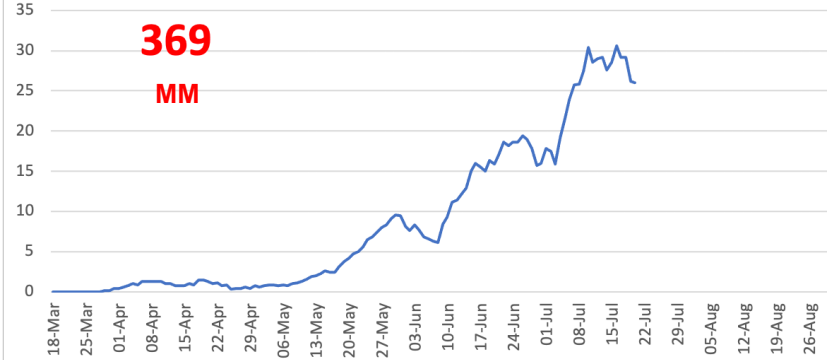
### SP



### PE

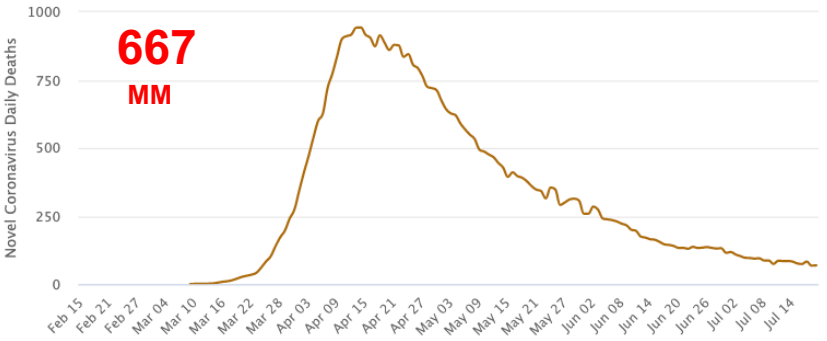


### DF



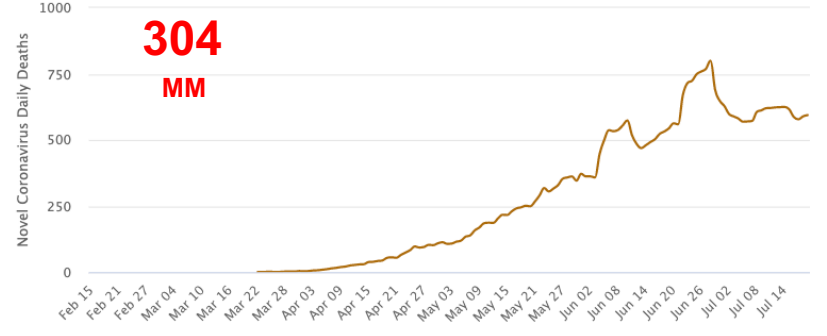
# United Kingdom

Daily Deaths  
Deaths per Day  
Data as of 0:00 GMT+8



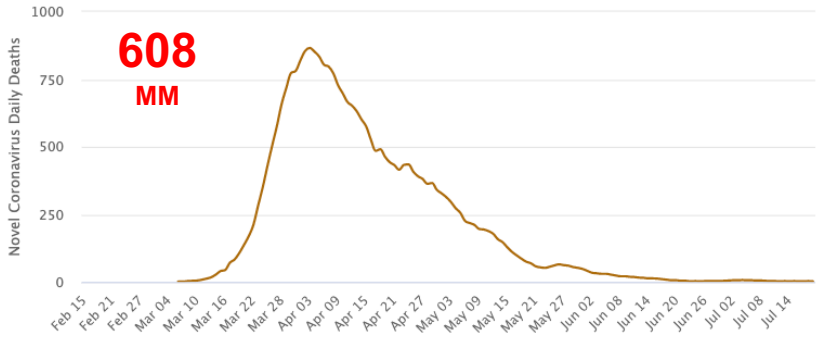
# Mexico

Daily Deaths  
Deaths per Day  
Data as of 0:00 GMT+8



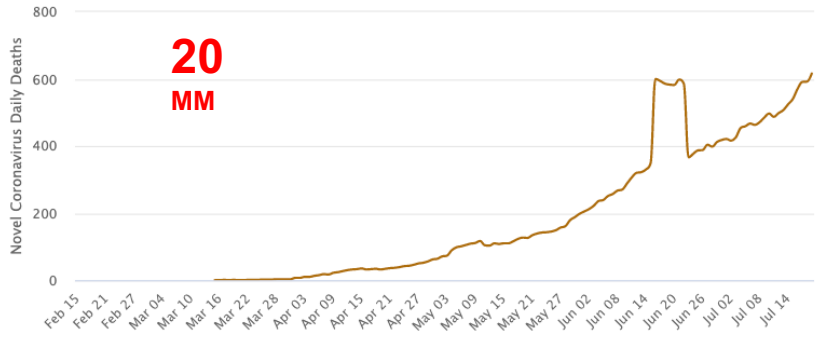
# Spain

Daily Deaths  
Deaths per Day  
Data as of 0:00 GMT+8



# India

Daily Deaths  
Deaths per Day  
Data as of 0:00 GMT+8





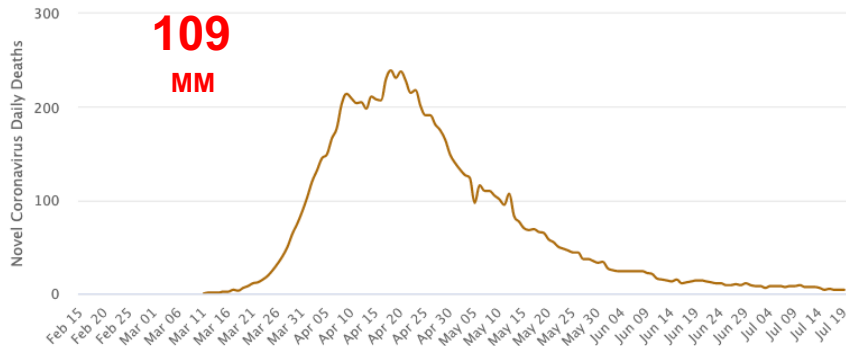
# Iran

Daily Deaths  
Deaths per Day  
Data as of 0:00 GMT+8



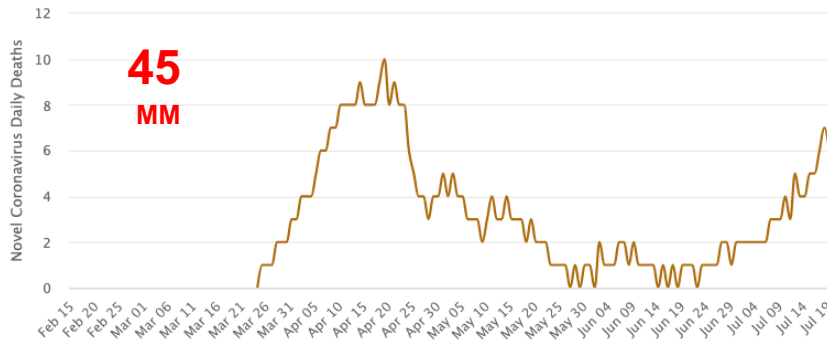
# Germany

Daily Deaths  
Deaths per Day  
Data as of 0:00 GMT+8



# Israel

Daily Deaths  
Deaths per Day  
Data as of 0:00 GMT+8



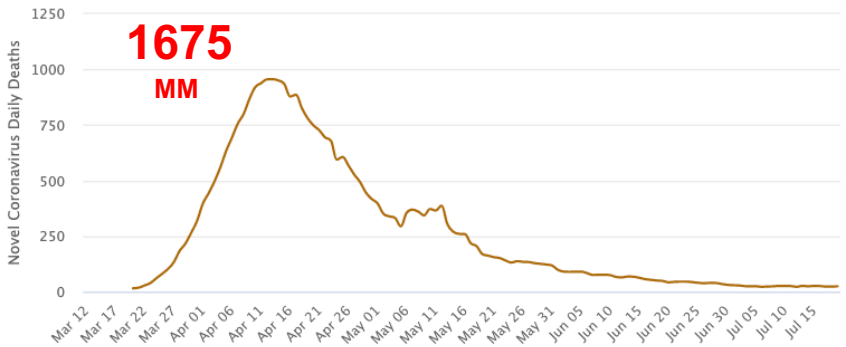
# Argentina

Daily Deaths  
Deaths per Day  
Data as of 0:00 GMT+8



# New York

Daily Deaths  
Deaths per Day  
Data as of 0:00 GMT+8



# Texas

Daily Deaths  
Deaths per Day  
Data as of 0:00 GMT+8



# Massachusetts

Daily Deaths  
Deaths per Day  
Data as of 0:00 GMT+8



# Florida

Daily Deaths  
Deaths per Day  
Data as of 0:00 GMT+8



# O que devemos reconsiderar quanto à imunidade comunitária:

- 1) Sensibilidade dos testes sorológicos
- 2) Queda do nível de anticorpos após 60 dias
- 3) Outros tipos de imunidade (células T)
- 4) Heterogeneidade na suscetibilidade

Science Contents News Careers Journals

SHARE REPORT

A mathematical model reveals the influence of population heterogeneity on herd immunity to SARS-CoV-2

Tom Britton<sup>1\*</sup>, Frank Ball<sup>2</sup>, Pieter Trapman<sup>1</sup>

+ See all authors and affiliations

Science 23 Jun 2020; eabc6810  
DOI: 10.1126/science.abc6810

23/06/2020

Stockholm Univ

<https://bit.ly/2ZMqgEk>

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CSH Cold Spring Harbor Laboratory BMJ Yale

Longitudinal evaluation and decline of antibody responses in SARS-CoV-2 infection

Jeffrey Seow, Carl Graham, Blair Merrick, Sam Acors, Kathryn J.A. Steel, Oliver Hemmings, Aoife O'Bryne, Neophytos Kouphou, Suzanne Pickering, Rui Galao, Gilberto Betancor, Harry D Wilson, Adrian W Signell, Helena Winstone, Claire Kerridge, Nigel Temperton, Luke Snell, Karen Bisnauthsing, Amelia Moore, Adrian Green, Lauren Martinez, Brielle Stokes, Johanna Honey, Alba Izquierdo-Barras, Gill Arbane, Amita Patel, Lorcan O'Connell, Geraldine O'Hara, Eithne MacMahon, Sam Douthwaite, Gaia Nebbia, Rahul Batra, Rocio Martinez-Nunez, Jonathan D. Edgeworth, Stuart J.D. Neil, Michael H. Malim, Katie Doores

Maurício Garcia



09/07/2020

<https://bit.ly/2ZMx9Fr>

London King's College

CSH Cold Spring Harbor Laboratory bioRxiv THE PREPRINT SERVER FOR BIOLOGY

New Results Comments (15)

Robust T cell immunity in convalescent individuals with asymptomatic or mild COVID-19

Takuya Sekine, André Perez-Potti, Olga Rivera-Ballesteros, Kristoffer Strålin, Jean-Baptiste Gorin, Annika Olsson, Sian Llewellyn-Lacey, Habiba Kamal, Gordana Bogdanovic, Sandra Muschio, David J. Wullimann, Tobias Kammann, Johanna Emgård, Tiphaine Parrot, Elin Folkesson, Olav Rooyackers, Lars I. Eriksson, Anders Sonnerborg, Tobias Allander, Jan Albert, Morten Nielsen, Jonas Klingström, Sara Gredmark-Russ, Niklas K. Björkstöm, Johan K. Sandberg, David A. Price, Hans-Gustaf Ljunggren, Soo Aleman, Marcus Buggert, Karolinska COVID-19 Study Group

29/06/2020

<https://bit.ly/2WfK0fq>

Karolinska Univ

nature <https://doi.org/10.1038/s41586-020-2550-z>

Accelerated Article Preview

SARS-CoV-2-specific T cell immunity in cases of COVID-19 and SARS, and uninfected controls

Received: 20 May 2020 Accepted: 7 July 2020 Accelerated Article Preview Published online 15 July 2020

Nina Le Bert, Anthony T. Tan, Kamini Kunesegaran, Christine Y. L. Tham, Morfeza Hafez, Adeline Chia, Melissa Hul Yen Chng, Meiyin Lin, Nicole Tan, Martin Lünster, Wan Ni Chia, Mark I-Cheng Chen, Lin Fa Wang, Eng Eong Ooi, Shirin Källemäkinen, Paul Anantharajal Tambyah, Jenny Quek-Hong Low, Yee-Joo Tan & Antonio Bertoletti

15/07/2020

<https://go.nature.com/3hlJ5nO>

Singapura Univ



# Cenário mundial

	<b>Pandemia sob controle satisfatório</b>	<b>Pandemia com controle insatisfatório</b>
<b>Exemplos</b>	China, Coreia do Sul, Japão, Alemanha, Noruega, Austrália, Nova Zelândia	Espanha, Reino Unido, França, Itália, Suécia, EUA, Brasil, México, Argentina, Índia
<b>Ponto positivo</b>	Poucas mortes	Imunidade comunitária
<b>Ponto negativo</b>	Risco de 2a. onda	Muitas mortes

# África?

## 15 mil mortes totais



#	Country, Other	Total Cases	New Cases	Total Deaths	New Deaths	Total Recovered	Active Cases	Serious, Critical	Tot Cases/ 1M pop	Deaths/ 1M pop
1	<a href="#">Mayotte</a>	2,808		38		2,591	179	3	10,281	139
2	<a href="#">South Africa</a>	373,628		5,173		194,865	173,590	539	6,296	87
3	<a href="#">Sao Tome and Principe</a>	746		14		536	196		3,401	64
4	<a href="#">Djibouti</a>	5,020		56		4,868	96		5,077	57
5	<a href="#">Egypt</a>	88,402		4,352		28,924	55,126	41	863	42
6	<a href="#">Cabo Verde</a>	2,071		21		1,063	987		3,723	38
7	<a href="#">Equatorial Guinea</a>	3,071		51		842	2,178		2,186	36
8	<a href="#">Mauritania</a>	5,923		155		3,632	2,136	8	1,272	33
9	<a href="#">Algeria</a>	23,691		1,087		16,400	6,204	64	540	25
10	<a href="#">Gabon</a>	6,433		46		4,034	2,353	11	2,887	21

# MATRIZ ESTRATÉGICA COVID-19

Maurício Garcia



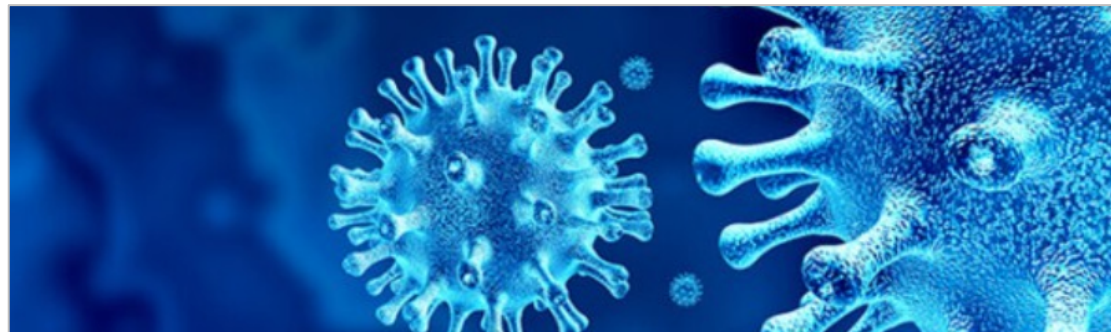
<b>EVOLUÇÃO</b>	DESCENDO	<b>Super vigilância</b>  China, Coreia do Sul, Austrália, Alemanha	<b>Relaxamento com cautela</b>  Itália, Espanha, Reino Unido, EUA AM, PA, CE, PE, RJ, SP (Capital)	
	SUBINDO	<b>Muito chão pela frente</b>  Índia, Rússia, Argentina, Israel, Irã, Egito RS, SC, PR, MG, MS, GO	<b>Quase lá</b>  Brasil, México, Equador, Peru SP (Interior), MA, MT, DF	
		BAIXA	400MM	ALTA
		<b>MORTALIDADE</b>		

Artigo completo

06/07/2020



<https://bit.ly/2ZZhhys>

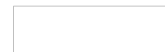


## Estamos encaminhando para imunidade de rebanho? (sobre um possível indicador da evolução da pandemia por Covid-19)

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**Maurício Garcia**  
Digital Scientist in Education



Maurício Garcia

@mgarlabx



mauricio@solvertank.com