Twitter Thread by Dr. Jorge A. Caballero stands with ■■

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@DataDrivenMD

It's been a while since I've read a COVID19 preprint worth highlighting. I found one today that is *fascinating*

The study compares Delta vs. Omicron in terms of symptoms + rapid test results. Data was collected at a walk-up community testing site in San Francisco

Strap in. 1/n

They collected data from a HUGE study population— 63,277 persons over the course of 1 year (Jan 2021 to Jan 2022)

The other neat thing is that the testing site used the same eligibility criteria throughout and the same rapid test the entire time. 2/n

Another neat thing: the community testing site was located in a part of San Francisco that is predominantly Hispanic.

Yet another neat thing: they collected vaccination status.

Here's a link to the study for anyone who wants to follow along. 3/n
https://t.co/aFNJZRlSDt

They found that symptomatic COVID-19 cases due to Omicron tended to experience cough (67%) and/or a sore throat (43%) and/or congestion (39%).

They also found that *fewer* persons reported fever and/or loss of smell/taste as compared to the Delta wave.

Another fascinating finding: fevers and body aches were *less* common among persons that had received boosters compared to those who received 0, 1, or 2 doses. 5/n

OK, here's one of the most interesting findings, that I haven't seen reported anywhere else: the rate of "congestion" was highest among boosted persons. Yes, *higher*

Now, that may seem bad and counter-intuitive but it's great and makes perfect sense. Allow me to explain...
6/n

2 years in, we now know that SARS-CoV-2, the virus that causes COVID-19 invades our body by latching onto proteins on the surface of the cells that line our respiratory tract— these are known as ACE2 receptors and they're found in our nose, all they way down into our lungs

The key piece to note is that ACE2 receptors are not present in equal amounts throughout our respiratory tract— there are more of these proteins in our nose than our lungs

There's another thing to consider to understand how boosted persons might end up w/ *more* congestion

8/n

The other piece of the puzzle is Omicron's *much, much* higher transmissibility. That's due, in part, to Omicron's ability to *partially* evade immunity from vaccination and/or prior infection. 9/n

source: https://t.co/P8Wj0BBcMf

So, what *seems* to be going on, is that the immune system of persons who were boosted were able to respond more quickly to the first sign of an Omicron infection— in the nose. The congestion is the body's way of slowing down the infection— it's flooding the virus in sludge 10/n

If that fails, the virus migrates down to your throat where it causes a sore throat, a cough, or croup in the case of young children.

If that fails, then it makes it further, into the lungs, where it triggers a different kind of "congestion" that causes collateral damage 11/n

Somewhere between a sore throat and a pneumonia, the body responds by raising your body temperature— a fever. And by mobilizing other parts of your immune system, a process that causes lymph nodes to swell...the swelling stretches surrounding tissue— those are body aches. 12/n

So, putting it all together: although Omicron is able to partially evade our vaccines, the immune system of persons who were boosted responded earlier and more robustly. Sparing millions of persons from developing worse symptoms.
13/n

Another way to say it: many people had at least a little immunity after Delta. This explains, in part, why many (not all!) Omicron cases have been "mild" thus far. And, why boosted persons experienced even *milder* symptoms, like congestion.
14/n

https://t.co/FrfLrMWuzi

■ Here's the data that, IMO, really drives home the point that our vaccines helped to make Omicron "mild"— check out that *massive* jump in the % of persons that were boosted between the Delta vs. Omicron surges

3% boosted during Delta ➡■ 25% boosted during Omicron ■■■

15/n

Here's why I'm really excited by this study: it makes perfect sense in the context of the next big breakthrough. @VirusesImmunity is working on a nasal vaccine that could actually end this pandemic— by stopping the virus as soon as it enters the nose

16/n
https://t.co/G3GiceIQhP

Another reason why I'm really excited: it underscores the fact that we have *very* powerful tools to bring the pandemic to a crawl *right now*— high-quality masks, ventilation, and air filtration.

These, in combination with our vaccines, can extend the time between surges. 17/n

This study also underscores *why* it is necessary to keep boosting using our current vaccines + masking up, while *simultaneously* developing the next generation of vaccines. These charts show that it takes up to 2 weeks to fully clear an Omicron infection

18/n

And it doesn't matter how you define it. It can take up to 2 weeks for a rapid test to go back to negative (-) and/or symptoms to resolve.

The kicker: while boosters keep symptoms mild (great), they neither shorten the duration of symptoms nor test positivity (not great)

19/n

Anywho, there's a lot more in this study that I'd like to discuss but this thread is long enough and I've other work to do right now. The upshot is: get boosted + mask up *and* there's a glimmer of light at the end of the tunnel— nasal vaccines.

20/20