

THREE THINGS: BREATHING, THINKING, MATING AND COVID-19

[NB: Check the byline, thanks. /~Rayne]

Breathing, thinking, mating.

At least one of these three things are important to you, no matter your age. COVID-19 can affect one or more of them, and we don't yet know to what extent.

More importantly, it's not getting through to the general public that COVID-19 can affect one or more of infected persons' lungs, brain, and reproductive organs even if they are young, not to mention their heart and vascular system.

And by young I mean students in school, whether K-12 or tertiary (college/university) education.

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But first, let's talk about bad assumptions and biases.

We've heard since the earliest media reports from China that COVID-19 affected the lungs. It was characterized as a "pneumonia-like illness," and unfortunately this characterization limited the public's earliest perceptions of the disease.

"Pneumonia-like illness" allowed misinformation and disinformation to flourish – it's just another flu, the propagandists propelled, ignoring the much greater mortality rate and the insufficient data about SARS-CoV-2's transmissibility.

The health care system geared itself toward treating a "pneumonia-like illness," demanding ventilators when ventilators might be fine for pneumonia, but might pose new risks with a disease like COVID-19. Health care workers performing endotracheal intubation, extubation, noninvasive ventilation were and are exposed to

aerosolized virus material, requiring much greater rigor in personal protection due to these aerosol-generating procedures and the volume of virus they are exposed to each shift.

Even with increasing awareness that personal protection must be stepped up for COVID-19 as compared to influenza, hospitals still don't have a handle on infection control. The Wall Street Journal reported:

“...Researchers at University of Nebraska Medical Center found the coronavirus in hallway air outside negative-pressure Covid-19 rooms. The Omaha hospital revamped its ventilation system to protect people in hallways by creating negative air flow there, too. ...”

Existing negative air pressure rooms – Airborne Infection Isolation Rooms (AIIR) – might have been enough for influenza. It's clearly not when 5,000 cases of COVID-19 may be related to inadequate infection controls in hospital settings in spite of like that used in dedicated COVID-19 treatment rooms. Hospitals would have changed their infection control protocols long ago had they seen nosocomial transmission of flu within hospitals approaching the rate of transmission with COVID-19, but perhaps the health care system has relied too heavily on annual flu vaccinations. Perhaps nosocomial transmission of flu and other pneumonia-like illness would have been much higher without vaccinations, revealing how flawed existing infection controls have been.

Our health care systems too slowly recognized COVID-19 isn't like influenza or a pneumonia-like illness. It's far more insidious. It's now cost at least 600 health care workers their lives.

In addition to flawed assumptions, bias has also screwed up screening for COVID-19. Many of our community members know of people who were denied tests for COVID-19 because they didn't meet

certain criteria; one of the early criteria was whether the subject had traveled to China or been in contact with anyone who had been to China. Trump and his xenophobic followers have continued to exacerbate bias with racist framing of COVID-19.

Except that many cases of COVID-19 can be traced to Europe. It can be seen in the emergence and dominance of the G-lineage of the virus versus the D-lineage which was first common along the west coast. Everyone who had any one of the symptoms identified by China should have been tested for COVID-19, no matter where they had been or with whom they had been in contact.

I can't begin to think about the number of lives which could have been saved had this country launched effective testing more widely, in concert with quarantine. But we didn't in no small part because of limited, faulty thinking about COVID-19.

What other biases have similarly shaped our ability to address COVID-19 effectively?

The racist, ageist, ableist bias which informs inaction because it only negatively affects *those people*?

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We still don't know what the repercussions are for recovered COVID-19 patients, including those who were asymptomatic.

Lung damage, which initially shaped health care professionals' treatment as if COVID-19 was a pneumonia-like illness, appears to be long term.

Drillinger, M., Chesak, J. (fact checker) (2020, June 22). Lifelong Lung Damage: A Serious COVID-19 Complication. Retrieved July 27, 2020, from <https://www.healthline.com/health-news/lifelong-lung-damage-the-serious-covid-19-complication-that-can-hit-people-in-their-20s>

Damage was also seen in lungs of infected individuals who appeared to be asymptomatic or only mildly ill with COVID-19.

Prevalence of Asymptomatic SARS-CoV-2 Infection
Daniel P. Oran and Eric J. Topol
Annals of Internal Medicine, Reviews 3
Jun 2020
<https://doi.org/10.7326/M20-3012>

But it's not just patients' lungs affected; more than 36% of COVID-19 patients had neurological impairment.

Mao L, Jin H, Wang M, et al. Neurologic Manifestations of Hospitalized Patients With Coronavirus Disease 2019 in Wuhan, China. *JAMA Neurol.* 2020;77(6):683–690.
<https://jamanetwork.com/journals/jamaneurology/fullarticle/2764549>

Delirium, brain inflammation, stroke, and nerve damage occurred as well as a rare condition, acute disseminated encephalomyelitis (ADEM) – an inflammatory disorder which is sometimes fatal.

R W Paterson, R L Brown, L Benjamin et al, The emerging spectrum of COVID-19 neurology: clinical, radiological and laboratory findings, *Brain*, awaa240, Published: 08 July 2020
<https://doi.org/10.1093/brain/awaa240>
<https://academic.oup.com/brain/article/doi/10.1093/brain/awaa240/5868408>

The virus causes heart damage, even in patients who had no pre-existing cardiac disease:

In this global survey, cardiac abnormalities were observed in half of all COVID-19 patients undergoing echocardiography. Abnormalities were often unheralded or severe, and imaging changed management in one-third of patients.

Marc R Dweck, Anda Bularga, Rebecca T Hahn, Rong Bing, Kuan Ken Lee, Andrew R Chapman, Audrey White, Giovanni Di Salvo, Leyla Elif Sade, Keith Pearce, David E Newby, Bogdan A Popescu, Erwan Donal, Bernard Cosyns, Thor Edvardsen, Nicholas L Mills, Kristina Haugaa, Global evaluation of echocardiography in patients with COVID-19, European Heart Journal – Cardiovascular Imaging, , jeaa178, <https://doi.org/10.1093/ehjci/jeaa178>

Abnormalities found included myocardial infarction (heart attack), myocarditis (inflammation of heart tissue), takotsubo cardiomyopathy (temporary deformation of heart chamber), as well as elevated natriuretic peptides and cardiac troponin.

Scientific American published an article this weekend which offered even more anecdotal evidence of cardiac damage from COVID-19 even in asymptomatic persons.

Autopsies of COVID-19 victims showed damage to testicles:

Yang M, et al. Pathological Findings in the Testes of COVID-19 Patients: Clinical Implications. Eur Urol Focus (2020), <https://doi.org/10.1016/j.euf.2020.05.009>
<https://www.sciencedirect.com/science/article/pii/S2405456920301449>

Based on findings, not only should kidney function and hormone levels be monitored but younger men should receive fertility counseling for family planning:

Wang, S., Zhou, X., Zhang, T. et al. The need for urogenital tract monitoring in COVID-19. Nat Rev Urol 17, 314–315 (2020). Published 20 April 2020 Issue Date June 2020

<https://doi.org/10.1038/s41585-020-0319-7>
<https://www.nature.com/articles/s41585-020-0319-7>

There have been many anecdotes of patients with sequelae lasting months after their initial illness. A large enough number exist for them to form groups in social media to compare notes about their experience. As the underlying SARS-CoV-2 virus is novel, we don't have years of experience to look back upon for trends. We can't yet predict whether there will be lifelong disability though many patients have reported development of diabetes, kidney dysfunction, heart disease, neurological impairment which have lasted months after they were technically deemed recovered. Studies on COVID-19's long term effects have only recently begun and may last months to years.

We also don't know how long any immunity post-infection will last, let alone whether most individuals can expect not to be re-infected within a year of their first infection. Brazil's President Jair Bolsonaro is a recent obvious case raising questions about immunity; he tested positive for COVID-19 a third time two weeks after testing positive the first time.

So much for Bolsonaro's faith in hydroxychloroquine as a therapy for COVID-19.

A British study showed immunity dropping within three months after recovery:

... In the first longitudinal study of its kind, scientists analysed the immune response of more than 90 patients and healthcare workers at Guy's and St Thomas' NHS foundation trust and found levels of antibodies that can destroy the virus peaked about three weeks after the onset of symptoms then swiftly declined.

Blood tests revealed that while 60% of people marshalled a "potent" antibody

response at the height of their battle with the virus, only 17% retained the same potency three months later. Antibody levels fell as much as 23-fold over the period. In some cases, they became undetectable. ...

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

J Seow, C Graham, B Merrick, et al

medRxiv 2020.07.09.20148429; doi:

<https://doi.org/10.1101/2020.07.09.20148429>

<https://www.medrxiv.org/content/10.1101/2020.07.09.20148429v1>

We've now seen cases where persons have recovered from COVID-19 only to be reinfected and sickened by a different strain. In a Hong Kong patient who had recovered in March but was reinfected during later travel to Spain, we see the problem of making assumptions based on bias about the "China flu." COVID-19 isn't just a single coronavirus strain originating in China.

The possibility of reinfection with different strains combined with decreasing immunity over time means reliance on "herd immunity" is foolhardy, and vaccines may not work as long as intended. Mitigating the spread of the disease remains crucial until a safe, effective, and durable vaccine has been developed, tested, and prepared for global distribution.

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If hearts and lungs, neurological and reproductive systems are permanently affected by COVID-19 even in younger patients who may remain asymptomatic, why risk exposing children and college-age students to COVID-19 by returning them back to in-classroom schooling?

You'd think white nationalists would clue in that their precious ideal of a white power future is threatened by this virus, literally

neutered by testicular damage, but no – they insist students must return to school.

Worse, they insist on sports, demanding college football right now, even though athletes have been infected, sickened, suffered heart damage, and died from COVID-19 in spite of their youth and health.

Why are we even allowing in-classroom schooling at all when there has been zero effort to fund and implement modifications to HVAC systems though we have known for months now that aerosolized exhalation in poorly-ventilated enclosed spaces is the greatest risk factor to mass infection?

The only answer seems to be in the lack of any answer at all – the choice to do nothing is a choice.

And the choice the Trump administration, GOP legislators and state governors have made is to maim and kill more Americans.

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There's an incredibly stupid tweet making the rounds, published by Students for Trump. They share a photo of Trump standing before burned-out buildings in Kenosha, Wisconsin. The tweet reads, "*President @realDonaldTrump tours what Biden will do to America.*"

Most tweeters who comment remark on the idiocy of this projection: Trump stands before the wreckage he helped spur during the waning election year cycle as he runs for re-election.

I can't help wonder if the stupidity of the tweet is a reflection of the damage exposure to COVID-19 may have already wrought on Students for Trump.

This is the future of the Republican Party: too brain damaged to recognize their reflection in the mirror.

Too impaired to recognize the self-inflicted injury, too messed up to save themselves and

their future.

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This is an open thread, though COVID-19 content is preferred.