

Hi All:

New data are being published in scientific and medical journals, and then reported to the lay public. Some of the reporting is accurate, some is not. When in doubt, trust Anthony Fauci when you see him on TV, and follow his recommendations. I saw on today's White House briefing that Dr. Fauci is distancing by 6 feet much of the time, which is good for the country because we need him...

I'm receiving lots of good questions from my last post, and have tried to answer all of them. I thought it might be helpful to post a few things so all of us can make informed decisions based on data wherever possible. This will be my last super-long post. Going forward, the bulk of the posts will be short and will provide links to a temporary site I set up on my lab website at: <https://med.stanford.edu/utzlab/coronavirus-resource-page.html>. This site also includes pdfs of primary publications containing the data. I am in the process of transitioning the website to the official Stanford Medicine site. Please note that everything in my list serve posts and website represent my personal interpretation of data and does not represent Stanford Medicine's views. I don't think anything I have written contradicts the CDC or Stanford, but if I learn that something I have written conflicts, I will post this.

- **Potential medications for prevention and treatment of COVID-19.** A ton of research is going on, at various stages of progress. These include (i.) using existing datasets and publications to identify new drug targets; (ii.) attempting to prevent infection or kill infected cells growing in culture, using drugs marketed to prevent or treat other diseases. These sorts of experiments are done in very highly-specialized labs that are authorized to handle the virus, and the studies will take time to complete; (iii.) rapidly developing new drugs, including small molecules and identifying inhibitory antibodies from people who have recovered, or from animal models; and (iv.) performing clinical trials of existing or newly developed medicines - as of this morning there are 81 different COVID-related clinical trials reported at the government repository for trials: <https://clinicaltrials.gov/ct2/results?cond=covid&term=&cntry=&state=&city=&dist=>. Many of the studies being reported in the literature are case reports or small "open label" observational trials that are very hard to interpret (and frankly are easy to misinterpret). The most dependable studies are those that are large, well designed, and have a placebo arm. Many such studies are ongoing but will take weeks to months to complete and interpret. If an important discovery is made that affects those of us who are sheltering in place and asymptomatic, I will post something. Many of the studies are aimed at trying to help severely ill, hospitalized patients given the urgency to try to help them.
- **Vaccines.** These will take at least a year and probably longer. When study subjects are needed for clinical trials, I will post on the web for those who may be interested in participating. I've been a volunteer in 2 flu vaccine trials and it was not very hard or time consuming.
- **Specific recommendations about medications you may already be taking or considering taking.**
 - o Don't add or stop any of your medications based on anything you see in the news. Consult your health care team before making any changes. And keep in mind that health care workers are swamped and we should only contact them if really needed. Adding new meds can interact with other meds or cause other problems. Stopping meds can also be a problem.
 - o If a clinical trial is enrolling and you are eligible, consider participating.
 - o Don't assume a big coronavirus medication breakthrough is imminent. Research takes time. Some of the new studies going on in academia and industry are incredibly cool. You should follow these studies because they are so innovative

and exciting. We should expect some bigger ongoing trials to report results beginning in April.

- Make sure you get your prescriptions filled early because shortages may occur.
- By far, the most important thing we all can do now is to **STAY HOME**.

Evidence-based advice on routine activities while we are sheltered in place. Effective shelter in place guidelines have already been shared in many posts and should be rigorously followed. The most common activities other than exercise that many of us still have to do are fueling cars, shopping for food, picking up medications, getting take out food, and delivering things to high-risk people. A paper was published in the New England Journal of Medicine (available from the above temporary site) that carefully studied how long the virus can survive on various surfaces. Data on key surfaces is below:

Copper - no viable COVID-19 after 4 hours

Cardboard - no viable COVID-19 after 24 hours

Stainless steel - no viable COVID-19 after 48 hours

Plastic - no viable COVID-19 after 72 hours

Not tested - glass, rubber, clothing, carpeting, tile, wood, stone, paper, and foods. No documented food transmission, cooked or uncooked, has been reported to my knowledge.

It is important to understand several things about these numbers:

- The virus decay over time is “exponential”.
 - This means that half of the virus on stainless steel is dead after 5.6 hours, and half of virus on plastic is dead after 6.8 hours.
 - So for stainless steel at 24 hours, only about 5% is still alive. For plastic at 24 hours only about 10% is still alive. That’s not much. With hand washing and not touching eyes, ears or nose, my personal interpretation for typical exposure out in the community is that there is not much to worry about.
- The studies were done under very controlled conditions - room temperature and 40% humidity.
- There is no way to know what happens in fridges and freezers.
- It is thought that warmer weather and sunlight make it harder for viruses like this to survive.
- The data on cardboard was “noisy”, that is was more variable, and should be interpreted with caution.

Practical advice on how to use these data to make decisions when out in the community:

- Assume public surfaces could be contaminated. Wipe down surfaces, like door handles, gas pumps, and keyboards. Use Purell, wash hands frequently, and don’t touch your eyes, nose or mouth unless you have washed your hands. Gloves are really not needed in the community. Healthcare workers on the front lines need gloves way more than any of us. Our risks are extremely low if we follow the guidance.
- Assume the virus can be aerosolized (the length of time in air is still being studied and is very hard to estimate given all of the variables in the community). Minimizing time in closed spaces with others in the public, and staying 6 feet apart is good practice and reduces this risk greatly. Personally, I only used an N95 mask once last week in a massively overcrowded grocery store. The mask I used was from my garage that I have used for years when sanding my decks. Again, healthcare workers on the front lines need masks way more than any of us. Moreover, unless properly trained, the masks don’t work and can even increase your risk if in a high-risk environment like a hospital ICU (but not uncrowded places like stores - these are low risk places). The same with gloves - most people don’t know how to properly put them on and take them off, potentially increasing the risk of getting the virus to aerosolize. MGH sent out an email this morning about this topic. They described how to use masks if on the front lines,

and how to clean them in the event there is a shortage (a worrisome message). The take home point is that we don't need masks, but our caregivers and first responders do. Donate unused masks if asked. The MGH video is here: https://www.youtube.com/watch?v=lfTVPCDami4&feature=emb_logo&mkt_tok=eyJpIjoiTVdabE1ERmhPVFV5TURFdyIsInQiOiJQOWNSZFJaTjBRNHYZWk01cUphbmEzRVNScXVtWG1FMmZsUEZQWUtJT25NTEs2RmdBVzEyS3ZHdTlVS1h5VFNETzFpalo1U0h3V1wvOWxRQjdNVElSVUpFNFMrZE1MdU5MdVhYYTFoemhydW9rK2FJb3ROWnlaaFdCUFpYOGJ0cFQifQ%3D%3D

- There have not been any documented cases of food transmission. We should assume for now that we should be washing fresh food as usual, and preparing food hygienically.
- Based on available data, I personally am doing the following (again, this is not a recommendation, just a description of my approach):
 - **At grocery stores.** I try to get in and out as quickly as I can. I used to go to our local store almost daily, but now go every 4-5 days to buy for several households. This means going in with a list of only what is needed. I keep my 6 foot distancing. I don't wear gloves or mask. I go alone and if I had kids I'd not bring them in the store (yes, I still am seeing this happen - parents should STOP). If the store is crowded, I come back when it is not crowded. I pay with a credit card and not cash. After shopping I take the cart out to the car and then load into my own canvas bags myself. (Note some stores in our area are now banning customers bringing in their own bags). I bring the groceries home and unload them on the porch (that is, I don't bring the bags in the house and I don't place them on my kitchen floor like I used to do). I deliver to some at risk relatives and friends and just leave the bags on the front porch and text them to grab them. When I am done unpacking groceries, I leave the bags out in the sun and consider them OK to use again when I shop again 4-5 days later.
 - **At restaurants.** I am now starting to get take out again regularly. The businesses clearly need the business. I distance myself, pay with a credit card, carry to my car, unload like I do for groceries, and I transfer food to plates (ie I don't eat from containers).
 - **Delivery.** Many people are using delivery services which is one way to cut exposure at grocery stores and restaurants completely, and to provide income to drivers.
 - **When returning home from work or these rare outings.**
 - We have always had a "no shoe rule" in our home because we work in hospitals and have no idea what is on the floor.
 - For those who do wear shoes in the house - based on the data in the NEJM paper, it seems unlikely that enough virus would land on the floor, then get transmitted to shoes, then somehow make it to the mouth, eyes or nose and cause an infection. Since carpeting has not been tested in studies yet, there is no way to know for sure.
 - For days where we are in the clinics or in a crowded grocery store only, we change clothes and shower when we get home out of an abundance of caution. How long the virus can remain in clothing, and whether it is transmissible, is not known and is hard to study. Follow the CDC guidelines: <https://www.cdc.gov/coronavirus/2019-ncov/prepare/cleaning-disinfection.html>.
 - We wash hands regularly, and particularly after unloading new purchases. And before, during and after preparing and eating food.
 - We wipe down cell phones, and we use speaker phone wherever possible so we don't get the cell phone close to our face.

- And to end with some levity, we don't bite our nails, apply cosmetics while pumping gas (I observed this last week, I kid you not), pick our noses, or pick other people's noses.

Thanks, and please don't respond unless you have a specific question to cut down on email traffic. Feel free to forward this.

STAY HOME!

PJ Utz