

Virtual Telepresence

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Surreal, unprecedented, historic, epic, chaotic, transformative--these are some of the adjectives used to describe the year 2020 and the whole pandemic. Other words that I never thought I would be using so much before the public health emergency are virtual, remote, and social distancing. The words "Zoom" and "MS Teams" are now in my daily vocabulary. Before the pandemic, Zoom was the 1970's PBS kids show I used to watch along with Sesame Street and the Electric Company. Pre-pandemic, I used the Zoom conferencing platform twice over a period of 2 years, once while giving a talk to an audience in Dallas, TX and a year later to an audience in Memphis, TN, both in the comfort of my office in Eureka. It was pretty novel back then.

The need for social distancing and virtually seeing people brought to mind my middle school days of reading Isaac Asimov's science fiction books *The Caves of Steel* and *The Naked Sun*. It was through these books that I was introduced to Solaria, a planet inhabited by modified humans who left Earth (called Spacers). Spacers colonized several planets and each planet had very different cultures. As a rule, Spacers had more advanced technology than "Earthlings" and used robots extensively. They tended to live longer than Earthpeople but because the planets they lived on were pathogen free, they had very weak immune systems--lending credence to the hygiene hypothesis. I guess growing up in a not-so-clean environment where you're exposed to multiple antigenic challenges may not be so bad.

Solaria doesn't exist yet, because according to Asimov's Foundation series, it wasn't settled until 4627 AD (long after I'm dead)--strange to be describing this in the past tense when the events really haven't

happened. Robots outnumbered Spacers and all manual labor was performed by robots. The population of Solaria was strictly controlled by regulating birth and immigration from other planets. With a population of about 20,000 for the entire planet, people were pretty socially distanced. In fact, Solarians avoided physical contact ("seeing" someone) and interacted with each other via holographic telepresence ("viewing" someone). The Solarians were on to something. Any potential outbreaks of infectious disease could be easily contained by their culture of social distancing. Their only physical contact was with robots--machines that are poor hosts for pathogens and don't get sick.

Asimov conceived the culture of Solaria and its technologies in the 1950's. Amazing how even then, there was a clear understanding of social distancing as a means of avoiding transmission of disease in a fictional society far more advanced than planet Earth. Interestingly, 70 years later, we still lack the technology to transmit live holographic images that are realistic enough to mimic face to face interaction. The technology to produce holographic images exists, but it is very expensive and time consuming to create. The quality of moving holographic images is still very crude (resembling Princess Leah's projection from R2D2).

So we have to settle for the computer screen. It's not really immersive, although I've fantasized about having large flat screens in all four corners of my office (kind of like the parlor walls and Mildred's virtual family in *Fahrenheit 451*--published in 1953).

My pandemic era workday starts with a morning huddle on MS Teams where I meet with all members of the department at around 8:15. Then at 8:30, I join another

MS Teams meeting with my radiation oncology colleagues to discuss simulations for the day (new patients undergoing radiation treatment planning). On Tuesday mornings, I have an 8:00 MS Teams meeting with the medical oncology department to discuss patients getting both chemotherapy and radiation. Wednesdays at lunch, there's tumor board conference where new and tough cancer cases are discussed in a multidisciplinary fashion. Scattered throughout the month are additional MS Teams and Zoom meetings with the various committees I serve on and telemedicine visits with patients who prefer to stay away from the clinic. Zoom meetings with patients have allowed me to virtually visit their homes and see their home environment. And it's during these meetings that I regularly hear and use the phrases, "You're on mute", "Can you see my screen?", and "Can you hear me?" Of course, this all occurs on a flat screen, although holographic images of meeting attendees in my office would be kind of cool.

My kids have gotten used to the routine of attending class through Zoom. The challenge is to keep them from watching Star Wars YouTube videos while they're supposed to be paying attention to their Zoom class. They now take their piano and violin lessons through Zoom--which has saved me a lot of gas. But school orchestra has been a challenge. Teleconferencing technology doesn't allow for equally synchronized internet speeds to allow for groups of musicians to play together simultaneously. The time lag from some computers when several people are logged in trying to play together generates some

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unpleasant caucophony.

Virtual meetings have advantages. I have an easier time participating in those tough 7 AM meetings. I used to be late for all of them. Now I can join these meetings right on time from the comfort of my bed via smart phone as I slowly shake off the drowsiness. I can put my phone on speaker and listen in while brushing my teeth, making sure to stay ever attentive so I can quickly unmute and say something when I hear, "What do you think, Join?"

I'm struggling to press the unmute button with my wet toothpaste/drool soaked fingers.

"Join?--are you there?" I hit the cup and water is spilled everywhere. "Well I guess Join isn't here." "Uh..sorry everybody, I was on mute!" Those whose cameras are turned on are frowning. I'm breathless and my heart rate jumps 50 bpm--so stressful.

There are important rules you've already heard that are worth repeating with virtual meetings. If you are going to take a shower during your meeting and you take your smart phone with you, PLEASE make sure your camera is OFF. I once had the shock of being in on a meeting where one of the participants left their camera on while showering. I couldn't believe my eyes, but I was even more shocked that none of the 20+ people in the meeting said anything. Then again, what are you supposed to do? Nobody wanted to be the first to say anything, because if we did, that means we looked. The entire meeting went on without anything regarding the rogue camera being mentioned. Nevertheless, I will never mention anything if I ever encounter this person. The images will stay with me and the 20+ people that were there--a heavy lifetime psychological burden for all involved.

The other rule is that if your camera is on, you must wear pants (or something to cover your underwear). You can skip the shoes, but the visual trauma to your colleagues will never be forgotten when you

are looking prim and proper from waist up with a shirt and tie, and then expose your underwear and hairy legs as soon as you get up to use the bathroom. Always mute if you're going to eat during a meeting. I found out the hard way that I was driving people crazy when munching on potato chips. If you are logged into the meeting through your computer and you are also calling in by phone for better sound, please mute your computer both ways to avoid feedback. If you want to send a message via chat to one attendee at the meeting, make sure your message is directed to that one person and not to everyone in the meeting. Some pretty embarrassing personal messages have been viewed by all when the sender didn't select the recipient. If you have a wireless headset that lets you walk away from your computer and listen into the meeting while still using the bathroom, make sure your microphone is muted, particularly if you don't want to transmit the sound of micturition followed by a flushing toilet (my microphone once did this with excellent sound quality). If you're going to multitask on your computer during a meeting (ie, surfing the web), make sure you are NOT sharing your screen. Strongly consider using a virtual background for your meetings if there's a good chance one of your kids in various stages of getting dressed will be prancing back and forth behind you. And finally, if you anticipate dozing off during a meeting, don't leave the camera on while pointed at your nostrils.

I recently attended a Zoom birthday party and although it was great meeting people from all over who wouldn't have been able to make an in-person party, the enthusiasm waned after 30 minutes--no dancing, free food, or alcohol. When attending the annual meeting of the American Society for Radiation Oncology (ASTRO) last fall on a virtual platform, and "walking" through the exhibit hall, I was annoyed at getting 6 simultaneous private messages from vendor reps asking if they could answer any questions. That scenario would

never happen in the flesh (or on Solaria), since the reps would clearly be able to see someone was already talking to me. In a real meeting, I can chat with 2-3 people selectively in a room of 100 people, but I haven't figured out a way to do that on Zoom or MS Teams. You either chat with one person or everybody, unless you have figured out the Zoom breakout groups. The cool thing about the breakout rooms is that time limits can be imposed--Zoom will stop an ongoing conversation mid-sentence when time runs out (great for controlling those with diarrhea of the mouth without offending anyone--blame Zoom).

The ASTRO virtual meeting was also my first experience with Zoom bombing. While participating in a small QA session on artificial intelligence led by my buddy and former co-resident C. David Fuller MD, PhD (now at MD Anderson), we were startled with the sudden sound of loud hip hop music and what was clearly triple X-rated imagery. After what seemed like an eternity, Dave was able to shut down the Zoom conference and we were able to use the meeting platform's chat function to continue a less interactive discussion. Dave called me right after the session for some therapeutic debriefing. Maybe it's good we don't have holographic telepresence yet. I don't think Isaac Asimov considered the possibility of holograph-bombing among Solarians. And yes, Dave granted me permission via text to write about this. Read his Twitter thread about this traumatic event here--https://twitter.com/cd_fuller/status/1321182493001850890.

Virtual meetings have opened some doors. The Northern California Radiation Oncology Society (NorCROS) always held their meetings in San Francisco on a week-night. Pre-pandemic, I had only attended 1 in-person meeting. They never had an option to call into their meetings. Well, since the pandemic, they were forced to get on Zoom,

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and I've been able to attend every meeting. Nobody complains about bad breath (or other aerosolized odors). I've been able to do what would have been impossible pre-pandemic—be at 2 meetings simultaneously. The California Medical Association's 2020 House of Delegates meeting (Los Angeles) overlapped on the same weekend of the ASTRO 2020 meeting (Miami). Of course, you can't lead 2 meetings at once but imagine the luxury of being able to virtually walk into a room at LA Live, catching what you want to hear, and then hopping over to an auditorium at the Miami Convention Center. Pre-pandemic, I had planned on cutting my CMA meeting short, then taking a red eye flight to Miami to catch the remainder of the ASTRO meeting, high on caffeine. Thanks to COVID, I avoided a night of restless shallow sleep in an uncomfortable Economy Plus seat. Remote meetings, though, have made it hard on international attendees who usually adjusted to the time difference by being physically at the meeting site, maybe getting there a couple days early. A radiation oncology colleague in Australia had to present his abstract at 3 AM Melbourne time. I don't think he pretended to be in Miami the day before his presentation to get ready for his one presentation.

Telemedicine and videoconferencing are here to stay, although there will always be value in face to face meetings. Haptic technology has not matured to the point to where we can conduct a virtual physical exam. Palpating enlarged lymph nodes and doing surgery just have to be done in person. But we will definitely be more selective about meetings we will attend in person. I'll sign onto Skype for Sutter Coast Hospital tumor board in Crescent City, but I will jump at any opportunity to zip down to Los Angeles (for Korean barbeque and kabobs) and Texas (for Texas barbeque, Tex-Mex cuisine, and a decent glazed doughnut). Some things just can't be enjoyed virtually. I'm going to sign off—have to jump on another meeting. §

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ize the best classroom settings. The word “doctor” is derived from the Classical Latin *docere*: “to show, to teach or to cause to know.” We are teachers as much as we are healers, and one of the primary functions of the medical visit, even if it is via ZOOM, is teaching patients about their health.

However, people can only learn at their own maximal rate, and, for most of us, that rate doesn't fit into the framework of the scheduled fifteen minute visit. What makes this worse is that although most office visits are scheduled for fifteen minutes, numerous studies show that the average office visit actually lasts only seven minutes.^(3,4) This is a situation that was forced on physicians by publicly traded HMOs, when they began restricting the doctors in their employ to an average seven-minute “encounter” with each customer. This apparently kept shareholders happy. Since then the time restriction has spread to almost all employed physicians.⁽⁵⁾

In medicine, each patient is an individual that requires individual, “customized” care. This holds true whether we're treating a strep throat, or trying to convince someone why it's important that they take their blood pressure pills regularly.

If we want good medicine, we must value the human element of patient care, and that especially extends to medical education.

I worry because today's medical students and residents are very much into bite-sized information, the Twitter feed level of discourse. When I mentor younger physicians, and I ask for case presentations they just give me a bare bones synopsis of the issue. I spend countless minutes prying out the full story from the young physician. They are under such time constraints that they have to “cut to the chase” in their patient encounters. Young primary care doctors are relegated to assembly line clinics; their patients pass through as widgets, not as individuals with complex inner lives, wrought family structures, varied spiritual and cultural beliefs — not to mention their individual capacities

to understand and deal with their medical symptoms, diagnoses, multiple medications, and their own hopes and fears.

Today's young physicians are not used to narratives and stories. But, they are conscious that they don't have the skills of our generation, and they want them.⁽⁶⁾ When students come to me, their first request when I ask them what they expect to get from their experience with me is that they wish to learn more about engaging in dialog with patients. We have an obligation to impart those skills to them. When I mentor students or residents, that's exactly what I do, I focus on narrative and its importance.

A vital accompaniment of narrative is the actual “laying on of hands;” actually, touching a patient with hands and stethoscope. This is truly where therapeutic touch comes into play. Danielle Ofri, MD, writes:

“Countless times, I have found that it is only during the physical exam that patients reveal what is truly on their mind. Whether it is the cough that they are reminded of now that I am listening to their lungs, or whether it is the domestic violence, the eating disorder or the genital symptoms that they feel comfortable revealing once we are in a more intimate setting — there is something about touch that changes the dynamic.

“So while the utility of the physical exam for diagnosing illness may not be quite as refined as it once was (though certainly still quite useful), it has become a tool of a different sort, a refuge from the intrusion of technology, a moment of only touching and talking. In the medical world — as in the world at large — there are precious few moments left of just touching and talking. As a diagnostic and therapeutic tool, it is irreplaceable.”⁽⁷⁾

Narrative and physical exam are the concrete manifestations of the mystical

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