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## After the deluge or never after the deluge



This Inklings was conceived while pondering the future of reproductive medicine after the COVID-19 pandemic. Just a few months ago, multiple vaccines were being distributed, cases were falling, mask mandates fading, and the world, or at least the United States, was opening up with expanded travel and increased unmasked mass events. Like Noah's flood, which ended after 40 days and nights, and World War II, which for the United States ended after less than 4 years, there appeared to be a clear end to this pandemic in sight. Even the mother of all viral pandemics, the 1918 Spanish Flu pandemic ended after three waves in 1919. We are now entering the fourth or fifth wave (depending on who is counting) of the COVID-19 pandemic with rising rates and mortality, new and more contagious variants, concerns about diminished vaccine efficacy, reinstated mask mandates, and talks regarding the need for booster doses. Furthermore, there is no end in sight, with doubts about ever achieving herd immunity because of a constantly mutating virus and a large portion of the world refusing the vaccine or lacking access to it.

The 21st century is not the 20th century. In this century, struggles never end. The United States war in Afghanistan is now in its 20th (and possibly final year) with no claims of victory, and in fact, the opposite appears likely. Unlike the 1918 pandemic, which trumped by World War I exigencies, was often ignored in the press or relegated to the back pages, every new twist or spike of this pandemic rushes to the masthead of every outlet and sends our devices a-pinging. The individual stories of triumph or more commonly tragedy, especially among anti-vaxxers with deathbed conversions to vaccine belief, resonate with us. We are fixated on it. There are plenty of Greek letters left for new variants, and if not COVID-19, there will be new pandemics from other pathogens. This constant infectious threat and its changing guidelines are the new norm. What does this mean for reproductive medicine?

**Masking in health facilities will remain.** The beneficial effects from masking on slowing the spread of COVID-19, not to mention the flu and common cold, over the last 18 months is undisputed. If we are going to invest in expensive air filtration systems to protect embryos in the laboratory, why would we not adapt a simple method to prevent the acquisition of airborne pathogens for the most medically vulnerable who populate our clinics and hospitals? We have seen long before the pandemic a greater emphasis on hand washing, glove-wearing during any patient contact, loss of long white coat fomites, etc. We would certainly make the ghosts of Semmelweis and Lister happy if we add mask-wearing to this list, though they would likely question why it took so long.

**Telehealth will become a cornerstone of reproductive medicine.** Building on the last item, currently, the only time I see the couples' faces and can read their responses, and vice versa for them with me, is during a telehealth session. In the clinic, we are not only masked but separated by a gulf of at least 6 feet. Perhaps the see-through mask technology will persevere,

but a mask is a mask. At least when using telehealth, we are free of facial objects that impede communication.

However, the greatest benefit is the efficiency in which the work-up can be initiated, such that subsequent in-person visits can be coupled with imaging tests followed by immediate treatment recommendations. This would involve less time commuting and more efficient mask-to-mask time with the provider. In our experience, these new patient telehealth visits can be shorter than in-person visits which decreases patient access time. Telehealth visits are also efficient for follow-up visits to discuss results, treatment, change in treatment, etc. Even if reimbursed at a lower rate than in-person visits, the benefits to patients (and patient satisfaction) will encourage its use. Finally, fewer in-person visits to the clinic will result in fewer exposures to pathogens and decreased staffing needs in a time of acute staffing shortages nationwide.

**Molecular diagnostic methods will only expand.** The key to developing mRNA vaccines for COVID-19 was knowing the sequence of the virus, and for developing the boosters, the sequence of its variants. As wave after wave of this pandemic broke, we were criticized in the United States, for not sequencing the variants more extensively, as practiced in other countries. It is also difficult to imagine that we can perform contact tracing in the future without sequencing variants in affected individuals. We are comforted not only by knowing the genetic sequence of our invaders but also by our own and future loved ones. The use of preimplantation genetic testing for aneuploidy will only increase, regardless of the scientific efficacy or cost efficiency of the practice, because of the reassurance that it provides. It is, like electronic fetal monitoring with all its limitations, here to stay. Similarly, we will see a greater use of DNA sequences to diagnose reproductive disorders, because this has become routine for recurrent pregnancy loss and to select cancer therapies.

**The ongoing declining US (and developed world) birth rate is a major threat to reproductive medicine.** While we may all be basking in an uptick in volume in our practices, it is still too soon to say whether this might just be backlog from our shut-downs and/or initial patient reluctance to pursue pregnancy in the face of an unknown pathogen. However, as the denominator of women seeking pregnancy goes down, with COVID-19 likely adding to the slope, the numerator seeking fertility care is likely to follow. The pandemic has made this the worst time to be a parent in the history of the United States. This sandwich generation has been challenged by both the care of children and parents while holding down full-time jobs. Assuming that daycare or schools are even open, there is the ever-present risk of exposure and infection, and certainly, more stringent guidelines for shutting down or sending children home have emerged. Access to qualified, in-home daycare is limited by the lack of a talent pool willing to accept the wage scale and conditions of child care or the loss of parents or older relatives either because of COVID-19 or fears of exposure and infection before the vaccine rollout. With apologies to our children, I do not see myself or anyone willfully

heading to a nursing home in the future, given the fate of so many of their denizens to die or be socially isolated during this pandemic. There are fates worse than death.

The meat in the sandwich cannot match the increasing thickness of the slice above and below it. We must also acknowledge that at least on the obstetrics and gynecology side of reproductive medicine, most of our providers are women, and although the situation is evolving, women still bear the brunt of primary care for their children and parents. If there is one thing we can do, it is to reengineer our practices to cover this generation of parents. It is a well-proven battle strategy to keep troops in reserve to plug the gap or continue the assault when the front line is exhausted or unable to perform. We are in the midst of a never-ending battle now. I find it increasingly necessary to have a backup plan for providers in our department so that unexpected absences can be

covered. These absences are to be expected and supported. This is but a small step. Further innovations both in our practices for our providers and in society for our patients will be necessary to encourage human reproduction and facilitate parenting.

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