

Now we all know how it felt to be an astronaut on Apollo 13

The first quarter of 2020 may well be the greatest peacetime effort in innovative thinking the US, and the world has ever seen. The global coronavirus pandemic has affected everyone from teachers learning how to use e-learning full-time to everyone in the service industry learning how to work in isolation.

The healthcare industry has been affected on a whole different level. Every healthcare system is faced with the dichotomy of needing to care for their regular patient census, many of whom are immunocompromised, and a pending influx of COVID-19 patients. The healthcare system is bringing together the two populations everyone else is trying to keep separate.

So, what is a hospital to do? First, I am reminded every time I read about the “novel” coronavirus that this virus, SARS-CoV-2, is new. We are starting with the assumption that this new virus behaves the same as other viruses that we’re familiar with; meanwhile, we are continuing to learn more and more about the specifics of SARS-CoV-2.

First and foremost, hospitals need to remain flexible. The current thinking within the scientific community is that SARS-CoV-2 transmits on water droplets until it lands on a surface. Once on a surface, it can live there for several days. Luckily, healthcare workers have been dealing with germs, viruses, and other soiled material for decades and already have procedures in place for material handling and disinfecting that seem to work well against coronavirus. But what about the issue of separation?

The two primary considerations are the amount of outside air and room pressurization. Ideally, the supply air is 100% outdoor with no recirculation, which also requires all of the air to be exhausted to the exterior.

This accomplishes two things. First, it isolates the patient as much as possible, protecting the other patient populations and medical staff working in the hospital. Second, it provides the maximum amount of clean air possible. Most hospitals are not prepared to implement this kind of solution on a large scale.

As of now, BSA LifeStructures has consulted with several clients to help them identify the measures they need to take to make this possible. A thorough analysis of their systems capabilities, including supply and return fan capacities, heating and cooling capacities, ductwork sizing, the impacts of exhausting a virus to the exterior, among other things, is required to adequately understand actions that need to be taken.

Since the pandemic started with little warning and not enough prep time, hospitals are forced to implement changes with whatever they have on hand. I’m reminded of the scene in the movie Apollo 13 in which the NASA engineers work with the limited material available on the space shuttle to devise a fix. Perhaps the efforts we’re putting forth aren’t quite as dramatic, but the limitations are similar. Hospitals are facing an imminent influx of COVID-19 patients and need solutions implemented immediately. Since most of the necessary material cannot be delivered on time, facilities are forced to work with what they have on hand. BSA partners with hospital facilities and systems to find creative ways to exhaust air, create negative pressure rooms, and provide 100% outdoor air to the patient rooms.

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