TOM BARTLETT IDEAS 03.06.2020 01:29 PM

Wash Your Hands—but Beware the Electric Hand Dryer

"Electric towels" were supposed to prevent the spread of contagious disease. What if they've been doing the opposite?

The spread of Covid-19 has turned us into a nation of hand-washing obsessives, citizens who vigorously interlace our fingers and circle-scrub our thumbs with an exacting, anxiety-fueled intensity. But it's not over when you flip off the faucet: Drying your hands matters too, because damp skin provides a hospitable environment for microorganisms and, as a result, might increase the likelihood that you'll pass on pathogens.

So now, as we confront what could be a society-altering disease outbreak, it seems worth taking a hard look at the widely reviled yet seemingly ubiquitous electric hand dryer. Are they more hygienic than paper towels, as their manufacturers claim, or are they, as some people suspect, essentially air-blasting virus fountains?

The earliest pitches for hand dryers played up their supposed ability when it comes to "preventing the spread of contagious disease," as a 1924 newspaper ad for the Airdry Electric Towel put it. More recently, Dyson, whose Airblade hand dryer promises—threatens?—to "scrape water from hands like a windshield wiper," has bragged that its HEPA air filter captures particles as tiny as .3 microns in diameter, much like the N95 face masks that are now selling for AirPod Pro–equivalent prices on Amazon.

But the quality of the intake filter doesn't address whether blowing air at 420 mph—the actual purported airspeed of one Airblade model, according to the company's website—is a smart idea given that it's sending droplets and particles from your just-washed hands flying rapidly every which way. When you dig into the science on hand dryers, you'll come across reason to be concerned. A study published in 1989 found that gentler, old-style hand dryers blew bacteria over a three-foot radius and onto the user's clothes, which considering the era was probably an acid-washed jean jacket.

A 2018 study produced even more troubling results, finding that "potential pathogens and spores" could be "dispersed throughout buildings and deposited on hands by hand dryers." It tested models with and without filters and determined that the filters "most likely reduce the number of potentially pathogenic bacteria with the potential

to colonize hands but do not eliminate the risk entirely." A 2015 study found that super-aggro hand-dryers, like the ones made by Dyson, "produced significantly greater aerosolization of virus on the hands" than the traditional kind. Paper towels, meanwhile, were found to be more hygienic than either type of machine.

A 2012 analysis of 12 studies over four decades published in *Mayo Clinic Proceedings* concluded that "[f]rom a hygiene viewpoint, paper towels are superior to electric air dryers" and that they should be used in "locations in which hygiene is paramount, such as hospitals and clinics." Though it could be argued that hygiene should be paramount in the restroom of, say, your neighborhood Panera Bread, too.

So does that tell us anything about whether hand dryers could spread a virus like the one that causes Covid-19? I called Peter Setlow, a biochemist at the University of Connecticut and one of the authors of that 2018 study. Setlow is a "spore guy" not an infectious disease expert, but he nonetheless came away from that research with a deep and abiding distrust of hand dryers regardless of the model. "Sorry, hand-dryer industry," he told me. "My personal opinion is that they shouldn't be used."

There's been understandable blowback from the hand-dryer industry, which notes that certain studies pegging hand dryers as disease vectors were carried out by researchers who had worked as consultants for paper-towel manufacturers. This is true in some, though not all, cases. Dyson got in on the game by funding a study, published last April, that found—surprise!—hands dried with the company's own Airblade harbored fewer bacteria than those dried with paper towels.

There's reason to be more than a tad skeptical of that paper. In the study, subjects "slowly" moved their hands in and out of the machine for a full minute, something no normal human is ever going to do. Besides, Dyson says elsewhere that the model dries hands satisfactorily in a mere 12 seconds, so which is it? More importantly, that study only looked at the bacteria left behind on hands post-drying, not whether particles might have been blown onto your clothes in gale-force winds while you're standing there slowly moving your hands up and down like a crazy person.

It's not just a matter of public health: There are fortunes at stake in the science war between the paper-towel and hand-dryer industries. Multifold paper towels, the kind commonly used in bathrooms, are a several-billion-dollar-a-year behemoth, and one recent estimate of the global market for hand dryers puts the number at a shade under $800 million, and growing. This is big money and obviously no company wants their products to be viewed as more likely to make people sick. Somewhat curiously, Dyson has made the case that, while other brands of hand dryers might spread disease, its products are perfectly safe even in hospitals.

Yet it's hard to read the scientific papers without concluding that, well, paper is the way to go. If the science leans in that direction, though, why have electric dryers continued to claim more and more tiled territory? For starters, they do have undeniable upsides. Unlike paper towels, hand dryers don't create waste and they're drastically cheaper over time. The annual cost for paper towels in a public restroom can easily top a thousand dollars, while the electricity required to run a hand dryer costs about a fifth of that, according to one estimate.

But focusing on paper towel prices seems a little ridiculous when epidemiologists are calculating death rates. We're at a moment when hand-washing must be taken very seriously. The same is true for hand-drying. Electric hand dryers appear to be a modern, more responsible solution to an everyday problem—but one that fails to live up to its billing. Plus there's reason to be concerned that, as manufacturers ratchet up the already jet-engine-level blowing power of their devices, they're only making the situation worse. "I don't use them at all, ever," Setlow, the biochemist, told me. "I'll just wipe my hands on my pants."