

New pandemic advice from the New York Times: Practicing good hygiene may be worse than COVID-19

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The title of a puzzling opinion piece published recently in the *New York Times*, written by author Markham Heid, asks: “Can we learn to live with germs again?” The subtitle proceeds to answer the curious question by suggesting that our health depends on resuming our pre-pandemic “lifestyles that expose us to bacteria, despite the risks” posed by the coronavirus. In short, the entire article promotes, in a virulent form of the not-so-subtle and unscientific construct, “the cure can’t be worse than the disease,” taken to its extreme and bizarre conclusions that good hygiene is worse than COVID-19.

The author of this piece, Markham Heid, who the *Times* describes as “a longtime health and science journalist who has written extensively about the microbiome,” is, in fact, no such expert. He received his bachelor’s degree from the University of Michigan in English (2005), and his master’s in journalism from Northwestern University (2009). He is a freelance writer, a title that in this case signifies that he writes about many things about which he does not know very much.

In his LinkedIn profile, he wrote, “I’m a regular contributor at TIME, Medium, and Food & Wine. My work has appeared in Playboy, Popular Mechanics, Everyday Health, Sports Illustrated, and elsewhere. I’ve received reporting awards from the Society of Professional Journalists and the Maryland, Delaware, and D.C. Press Association. I’m always open to new opportunities.”

Armed with these dubious credentials, Heid sets out—with the endorsement of the *New York Times*—to mislead and miseducate his readers.

After introducing a video commissioned by United Airlines that demonstrates how breakthrough technology was being employed to clean air cabins, Heid questions these “drastic” measures. He claims that a century of accumulated scientific understanding of germs and disease has led to the misconception that only sterile environments are safe ones. The deception lies entirely with Mr. Heid and the *Times* in their attempt to pawn off their pseudo-scientific rationale. In short, they are attempting to assert that the measures employed to mitigate community transmission are doing more harm than good.

The article, which received a significant showing in the *Times*, provocatively opens with disgusting glossy close-up photos of filthy fingernails caressing the brow of a child with reddened eyes, a grime-ridden door handle clasped with dirty hands, and another showing snot dripping into a child’s saliva-soaked open mouth whose face is covered with crayon markings.

Later in the piece, another photo shows “macaroni and cheese” splattered onto a child’s hands and sleeves. And still another, a near-empty bottle of milk clasped with filthy hands, presumably being drunk directly out of the container.

Aside from their shock value, the images are intended to browbeat the

reader into accepting the conclusions that these unhygienic practices are essential for enhancing our immunity and well-being. Exposure to these friendly pathogens, the article asserts, is vital to boost the immune system appropriately, and “our obsession” with cleanliness and sterility, avoidance of “hugging and kissing” each other during the pandemic could hazardously impact our bodies’ “microbiomes” and subsequent health.

Heid goes on to add, “Despite the now consensus recognition that air transmission, not surface spread, is more important, most pandemic sanitation practices have continued. We continue to annihilate every microbe in our midst, even though most are harmless.” After citing New York City’s efforts to keep subways clean, as well as surveys that indicate commuters were appreciative of these measures, he added, “But some health experts are watching this ongoing onslaught with a mounting sense of dread. They fear that many of the measures we’ve employed to stop the virus, even some that are helpful and necessary, may pose a threat to human health in the long run if they continue.”

Heid then enters the discussion in the barely understood world of human microbiomes, the microscopic environments of our guts, skin and oral membranes, where trillions of bacteria live in a symbiotic relationship with all living animals, including humans. Allusions are then made to recent associations between the changes in a person’s microbiome and diseases such as asthma or obesity to defend this stance.

It is understood that some diseases of gynecologic (bacterial vaginosis) or gastrointestinal (*Clostridium difficile* colitis) origin have been linked to bacterial overgrowth. It has also become clear that misuse of antibiotics can promote the development of antibiotic-resistant strains of bacteria. Some researchers have hypothesized that there may be correlations between the development of early-onset autoimmune diseases and the dominance of certain bacteria in the gut microbiome. However, these assertions have far from been established. Heid’s equating these diseases to hygienic practices and the field of microbiomes is an attempt to mislead.

In a 2018 article published in *Nature Medicine*, Dr. Jack Gilbert and colleagues, after reviewing the current understanding of the human microbiome, conclude, “There remains much that we do not understand about human microbiomes. The sources of bacteria that colonize an infant include the mother and other caregivers (even one-day-old pre-term infants have unique microbiomes that differ from each other and from the mother but possibly derived from their mothers), and human genetics shapes microbiome-immune interaction.”

They added, “The human microbiome is highly personalized. Understanding the relevance of the differing microbiota between individuals is confounded by the uniqueness of an individual’s microbiome.” The microbiome of every individual is unique to the person, making a generalization about their impact on the promotion of disease

difficult.

Indeed, the study of human microbiomes is fascinating and novel, and over time may provide important insight into the dynamics of human diseases and health. However, as the authors note, present investigations have failed to establish firm conclusions and instead only raise critical questions. Many of these studies have been broad-based observational studies or animal models that lack sufficient context to justify shifts in public health practices.

However, with regards to the COVID-19 pandemic, which has, in a short period, infected over 150 million people worldwide, killing, at a minimum, 3.2 million people, how does the concern raised over the impact of hygienic standards and the impact of the microbiome even compare to the scale of this global crisis? This is a preposterous and dangerous insinuation on the part of Mr. Heid and the *Times*.

He attempts to defend this position by citing a paper published in the *Proceedings of the National Academy of Sciences (PNAS)* in January, titled, “The hygiene hypothesis, the COVID pandemic, and consequences for the humane microbiome.” What becomes immediately clear upon reading the *PNAS* paper is that the position being forwarded by Heid and the *Times* is incongruent with the subject of the article he cites.

In no uncertain terms, the authors wrote, “We want to be clear: Preventing COVID-19 transmission is necessary, and the hygienic transformations of the past 100 years have resulted in major reductions in mortality from infectious diseases.” Their foray into the world of microbiomes and COVID-19 is posed as a question: “What microbial functions might we lose as a result of COVID-19 prevention efforts? What are the consequences as humans continue to encounter nutritional and immune challenges in future generations, and what can be done to mitigate them?” They respond to their query, “This pandemic presents a significant opportunity to study, in real-time, the relationship between an infectious agent, the microbiome, precipitous and uneven social and economic changes, and their combined effects on health and disease.”

The hygiene hypothesis, first put forth by Dr. David Strachan in the late 1980s, states that early childhood exposure to various microorganisms, specifically from the gut flora and parasites, possibly aid in bolstering a young person’s immune system. More precisely, the lack of exposure is thought to lead to a deficiency in immune tolerance, which predisposes environmental allergies.

However, this hypothesis has been erroneously interpreted as an attack on personal cleanliness, although there is no indication that any excesses on that score have impacted allergies and immune disorders and they have not been known to increase the risks of infections. On the contrary, hygienic standards have been critical for protecting vulnerable populations and have been the first line of defense in preventing the spread of antibiotic-resistant organisms and emerging infectious diseases such as COVID-19.

The authors of the *PNAS* article explained that the “loss of microbial diversity,” which has accelerated over the last century, is a byproduct of increased urbanization, overuse of antibiotics, and other medications. Additionally, they cite changes in birth and infant feeding practices, intensified hygienic practices, and the reduced diversity of global diet, specifically the decreased intake of dietary fiber and increased consumption of processed foods, to the development of disease. Compounding these have been the widespread use of tobacco, alcohol and other drugs.

They theorized that the decline in these essential healthy microbes, a result of a shift in the globalization of food manufacturing to higher caloric and cheaper sources, has led to the rise in rates of chronic diseases such as obesity, diabetes, asthma and autoimmune disease. They write, “This process of microbial diversity loss is occurring unevenly across the planet. Clean water, soap, and sanitation are not equally distributed to all people; access to and use of antibiotics is widespread in low- and middle-

income countries, constituting a ‘quick fix infrastructure,’ even for the poorest population. Moreover, multiple vulnerable populations—urban residents, racial and ethnic minorities, migrants, low-income earners—disproportionately suffer from certain chronic diseases linked to altered microbial functionality.”

Though they acknowledge up front that there is little direct evidence of interactions between human microbiomes and COVID-19 disease, the fundamental purpose of their perspective was to recognize the observations that susceptibility to the SARS-CoV-2 is linked to biological determinants that are impacted by demographic and socioeconomic factors “that render the elderly, racial and ethnic minorities, and those with lower socioeconomic status more likely to suffer worse outcomes from COVID-19 infection; these same groups have existing pathologies that correlate with dysbiosis [imbalance between the types of organisms present in a person’s natural microflora] of gut microbiota.”

The concerns raised by the *PNAS* article are far more urgent than those being discussed by Heid’s article, which is entirely out of touch with the lives of millions of people whose lives and livelihoods have been upended by the economic upheaval and health ramifications created by the COVID-19 pandemic.

It is worth noting that the coupling of hand washing to disease prevention is only a recent observation in the annals of medical history. In 1848, a Hungarian doctor, Ignaz Semmelweis, while working at a Viennese hospital, observed that the high maternal deaths they were encountering were a byproduct of a potential pathogen acquired when training physicians were called away during cadaver dissections to deliver an expecting mother without washing their hands. At the time, there was no clear understanding of bacterial or viral infections.

To test his hypothesis, he ordered physicians to wash their hands and instruments in a chlorine solution. After implementing a hand hygiene protocol, there was a dramatic decline in maternal mortality from 18 to 1 percent. However, Dr. Semmelweis met with resistance from his colleagues, offended by the notion that they were the source of the maternal infections. Dr. Nancy Tomes, a professor of history at Stony Brook University, New York, explained, “The majority of doctors in Vienna at this time were from middle- or upper-class families, and they thought of themselves as very clean people compared with the working-class poor. He was insulting them when he said their hands could be dirty.”

Dr. Semmelweis would lose his position and eventually was committed to a psychiatric institution, where he died at 47. Still, the following decades proved to be decisive in the field of infectious disease. Louise Pasteur brought awareness to pathogens and how to kill them using heat. Joseph Lister, a British surgeon, introduced antiseptic surgery, which included hand washing, which, Tomes noted, “moved from being something doctors did to something everybody had been told to do.” Potentially, a breakthrough in the study of microbiomes can provide critical links between social determinants of health and disease. These discoveries in the 19th century were crucial to the advancement of medicine and public health disciplines.

Despite our appreciation of the relationship between unsanitary conditions and disease, these basics in maintaining community hygienic practices are impossible for most countries. According to the World Health Organization and UNICEF’s Joint Monitoring Program for Water Supply, Sanitation, and Hygiene, over 60 percent of the world’s population, or 4.5 billion people, lack access to safe sanitation. One in three people on the planet cannot receive safe drinking water. Two billion people use water sources that have been contaminated with feces.

In 2007, the readers of the *British Medical Journal* voted sanitation as the most important medical milestone since 1840. Ten percent of the global burden of disease is associated with poor sanitation conditions. These predominate in the densely populated urban centers of Africa, Asia

and Latin America. Diarrheal disease caused by fecal-oral contamination kills 1.6 million to 2.5 million each year, many under the age of five years, living in developing countries. Adequate sanitation, well-maintained sewage systems and water treatment plants can dramatically reduce the burden of such diseases.

The *Times* article is an exercise in obfuscation and deceit. Heid deliberately attempts to equate the problem created by issues such as excessive use of antibiotics with hygienic measures essential to stop the spread of COVID-19. To imply that cleaning subways, washing hands, etc., will deprive humans of necessary contact with microbes (such as those we have in our gut) is absurd. One might just as well make the same argument about sanitizing hospitals. But as is well known, the transmission of bacteria and other germs is among the most significant problems confronting doctors and their patients in health facilities.

Heid's commentary is aimed at delegitimizing hygienic measures whose implementation might subtract from the corporate bottom line. This is a variant of the "don't let the cure be worse than the disease."

Moreover, the article completely ignores the fact that lack of adequate sanitation is, on a global scale, very possibly the greatest threat to health.

If the ignorant Heid is taken seriously, the conclusion to be drawn from his unappetizing piece is: Whenever you enter an office or store, make a point of licking the doorknobs.



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