

Masks, Miasma, and Masuk Angin

By Daniel J. Bressler, MD, FACP

I HAVE THE GOOD FORTUNE OF WALKING TO THE office every weekday. During that walk I see many people outside sporting masks even when distantly separated from others. I see masked joggers, bikers, and drivers alone in their cars. I see masked neighbors on their front porches or mowing their lawns. Many of my patients tell me that they wear masks when outside from a sincere belief that they are protecting themselves. This reminds me of an experience I had over 40 years ago.

In Indonesia, where I lived and taught English in my 20s, there is a strong folk practice of avoiding exposure to the wind based on the belief that it carries disease. *Masuk angin* is the Indonesia phrase for “the wind enters.” The fear of *masuk angin* led my host family to insist that I always wear pajamas even on the hottest of tropical nights. It was why passengers on packed busses would insist that the windows stayed closed despite blazing temperatures and saturating humidity. The same general idea also leads parents across many cultures to warn their children to avoid cold breezes out of fear that it will lead them to “catch a cold.”

Before the modern science-based explanation for infectious diseases, prevailing theories were built on both instinct and empirical protoscience. In Europe from the mid 1200s until the mid 1800s, the most prominent explanation for infections — called the miasma theory — was akin to *masuk angin*. *Miasma* comes from the Greek word for foul-smelling fumes. Feverish conditions were thought to be fostered in swamps and carried on the wind. The miasma theory led “plague doctors” (like one in the illustration) to wear large bird masks that held sweet-smelling spices that were thought to counteract the foul miasma. It was also the theory that guided Florence Nightingale and her band of nurses during the Crimean War in the 1850s to sanitize the stench of the tent-hospitals holding injured British soldiers. Like so often in the history of medicine, she was doing the right thing for the wrong reason. The word “miasma” is carried into modern medicine as “malaria.” As its name suggests, the specific tropical disease of malaria was formerly believed to be the product of the “bad air” of swamps.

In the 1800s the miasma theory of infection competed with the *contagion* theory (contagion from the Latin “to touch together with”) which held that infectious diseases were transmitted



principally through direct contact. As it turns out, both of these theories had merit to them. Respiratory infections are spread via the air. Other infections such as staphylococcus are spread through touch. We have learned that the causative agents in infectious diseases are microscopic organisms whose mode of dissemination is determined by

the properties of both pathogen and host. It was this germ theory championed in the late 19th and early 20th centuries that has been accepted as the scientific explanation for the transmission of infectious diseases.

In early January of 2020, we concluded that the lethal outbreak that began in Wuhan, China, was caused



by a novel betacoronavirus related to the one that caused SARS in 2003. In a matter of days its gene was sequenced and the three-dimensional structure of its proteins determined. Yet, despite these lightning-quick scientific breakthroughs, the clinical management of SARS-CoV-2 has proceeded slowly. Even to this day (in mid-June) we have no proven specific therapeutic or preventive medicines. Vaccines are still in the early testing phase. And so, like the doctors of centuries past, we are relying on public health measures to try and reduce the impact of the disease.

Chief among the public health measures has been the wearing of masks. Mask use has been based on a

reasonable set of assumptions and observations: This is a respiratory virus; a mask can absorb the droplets from an infectious person; decreasing airborne scattering of droplets will lead to reduced disease spread. There is presumptive evidence that broad public mask use is effective. The countries where mask wearing has been most widely adopted (Hong Kong, Japan, Singapore) have had among the lowest rates of spread. That said, there are other probable contributing explanations for these countries' success besides mask use, including social distancing, business lockdowns, early testing, and aggressive case-identification with isolation. There are likely other social and genetic factors at play as well.

Modern medicine is scientifically based but socially practiced. Getting the science right isn't enough. We also have to address the fact that people will interpret the science through a range of instinct, culture, family lore, media headlines, and political affiliations. This is especially true in a country as diverse as ours. The current science indicates that masks are effective at reducing the spread of COVID-19 in certain settings but not others. The confusion regarding the use of a mask is partly a consequence of the mixed messages we've been getting from WHO, CDC, and others. Because of this confusion, many people fall back on their instinctive and cultural responses to the COVID-19 threat. They are attempting to protect themselves from miasma, malaria, and *masuk angin*. An insistence on unjustified mask wearing can lead to cynicism about *all* mask wearing. We have to take into account that we are living in a society where science, human instincts, and cultural beliefs coexist and often conflict. By clearly and consistently explaining what masks can and cannot do, we in medicine can provide a much-needed message that will contribute to the control of this terrible disease. **SDP**



Dr. Bressler, SDCMS-CMA member since 1988, is former chair of the Biomedical Ethics Committee at Scripps Mercy Hospital and a longtime contributing writer to San Diego Physician.