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Chimney Sweeps' Cancer in the 18th Century or the 21st Century Covid-19 Pandemic: How Hand-washing Has Been, Is, and Will Be the Simplest Epidemiological Intervention

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Abstract

This brief article details how hand-washing became the simplest epidemiological mitigation strategy through the ages, including through the Covid-19 pandemic. It also includes an illustration depicting hand-washing through the ages.

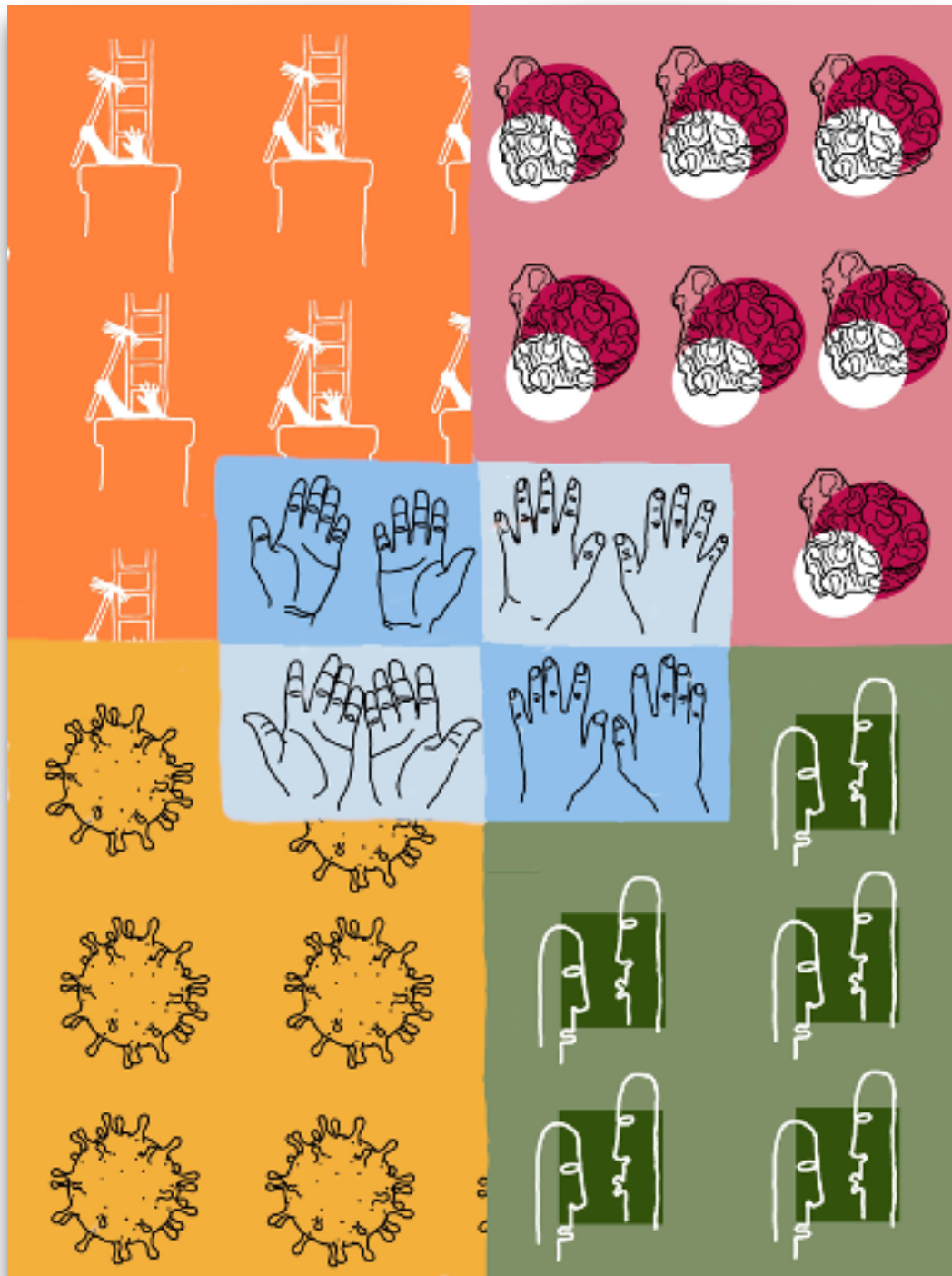
Scrotal Cancers

Scrotal cancer was widely prevalent in 18th-century European chimney sweepers and was therefore referred to as "chimney sweeps' cancer." At the time, young boys and orphans from poor families were employed to climb up the chimneys and brush them, likely because they were small and could easily fit through the narrow chimney flues. They would often climb up these chimneys naked, bereft of any protection from the soot. Additionally, the boys' poor hygiene practices meant their skin was exposed to the carcinogens in the chimney soot for prolonged periods of time.¹

In 1775, Percivall Pott, an English surgeon, published an account of chimney sweeps' cancer in his *Chirurgical Observations*,² cited as the first description of occupational cancer.¹ He hypothesized that chimney sweeps' cancer seemed to derive its origins from the lodgment of soot under the scrotal rugae. Pott wrote that the fate of these young chimney sweep boys was "singularly hard," because as children they endured the harsh conditions under which they had to work and, when they reached puberty, they became particularly liable to a "noisome, painful and fatal disease"—scrotal cancer. In the 1900s, a high incidence of a similar scrotal cancer was reported in cotton mule spinners. It was thought that the mineral oils, especially shale oil, used by the mule spinners to lubricate the spindles were carcinogenic.¹ When running, the spindles threw out a mist of oil that splashed anyone that was piecing an end. And, once again, poor hygiene and lack of protective clothing put the cotton mule spinners at greater risk of developing squamous cell carcinoma of the scrotum from exposure to the carcinogens in the mineral oil.

Hand-washing, Then and Now

One of the more immediate impacts of Percivall Pott's description of chimney sweeps' cancer was the institution of better hygiene practices as well as protective clothing.¹ Additionally, his identification of the cancer of the scrotum among chimney sweeps opened new areas of epidemiological investigation. In 1847, Ignaz Semmelweis improved maternal health by documenting the cause of maternal mortality in a maternity ward (ie, puerperal fever) and identifying lack of hand-washing by medical doctors as the culprit. These pioneers set the stage for advances in infectious disease, noncommunicable disease, occupational and women's health, and social epidemiology.

Hand-washing Through the Ages, by Sukriti Banthiya

In the figure created using *Digital Illustration*, the top-left panel depicts 18th-century chimney workers, and the top-right panel depicts these workers being afflicted by scrotal cancer. Similarly, the bottom-right panel depicts the spread of Covid-19 in the 21st century through close contact, and the lower-left panel, the SARS-CoV-2 virus. The central panel depicts the washing of hands, the common epidemiological intervention across the ages

Today, in the age of artificial intelligence and gene therapy, it is wondrous that hand-washing remains one of our most valuable medical interventions in the midst of the COVID-19 pandemic. Through our interactions with objects and people in the environment, we are constantly at risk of being exposed to the SARS-CoV-2 virus. Absentmindedly touching one's nose, mouth, and eyes—a habit that one study suggests recurs every two-and-a-half minutes³—increases the risk of contracting and spreading SARS-CoV-2. Hand hygiene is one simple practice that can mitigate this risk in the population as well as protect immunocompromised individuals, such as those receiving treatment for cancer, who are particularly susceptible to infection by the virus.⁴ Hand-washing was, is, and will be the simplest epidemiological intervention.

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Conflicts of interest

There are no conflicts of interest.

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