

# Social Inequality in Times of Pandemics

WE SHOULD NOT EXPECT COVID-19 TO BEHAVE IN THE SAME WAY AS HISTORICAL PANDEMICS OF PLAGUE. BUT BOTH SHOW HOW INEQUALITIES EXACERBATE MORTALITY OUTCOMES.

By Sharon N. DeWitte

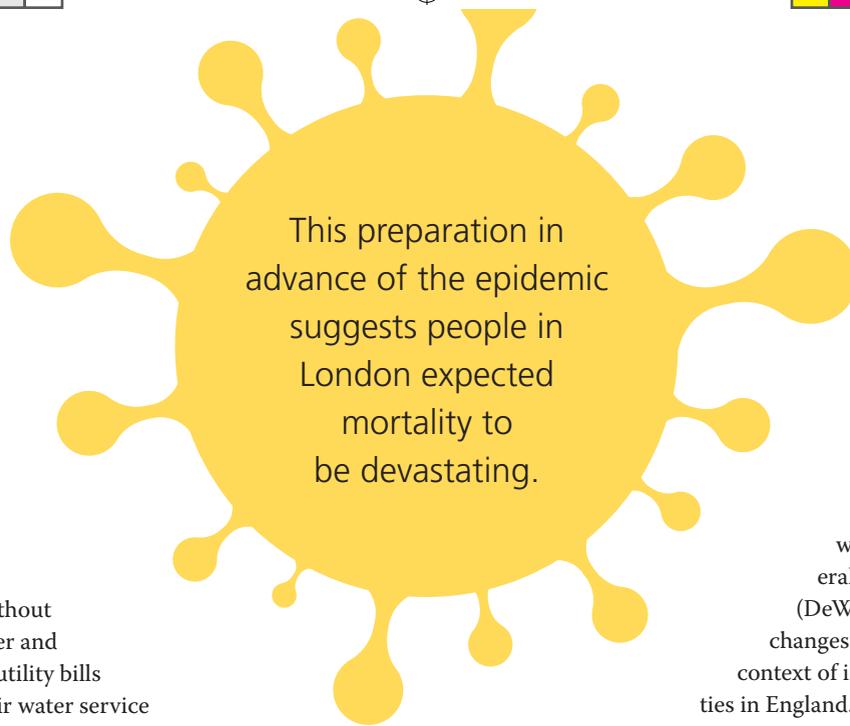
It's a gorgeous, warm day in London, in the summer of 2003. I get off the London Underground at Tower Hill Station, and slowly inch forward through a crowd of people eager to make their way toward the many tourist destinations in the area. As I exit the station, directly across the street in front of me is the Tower of London—beautiful and imposing and definitely worth a visit. But that's not what I'm here for today. I turn away from the Tower, get a bit lost, and then finally, less than one block away from the station, I find a symbol of what brought me to the city: halfway up a brick wall is the sign for East Smithfield. This sign marks a road that is currently occupied by nondescript, modern buildings housing banks, hotels, a hair salon, and other businesses, with cars and black cabs and double-decker buses whizzing by. But nearly 700 years ago it was the boundary of a cemetery on the outskirts of London that was used to bury over 2,000 victims of the Black Death. The majority of those plague victims remain interred under the buildings that stand there today, but some of them were excavated in the 1980s. I was in London to study those people, to examine their skeletons for clues about their lives before they ultimately died in one of the worst epidemics in human history.

In past weeks, innumerable false comparisons have been made between COVID-19 and the Black Death. Let me be clear, there is no direct analogy between the fourteenth-century plague and the current and worsening COVID-19 pandemic. There are many differences between their causative pathogens, pathophysiology, and social and medical contexts. As with everything else that anthropologists study, context is crucial to understanding the experience and outcomes of disease, and we should not expect COVID-19 to behave

in the same way as historical pandemics of plague. But one parallel that should be drawn between the two is the role that social inequality can play in worsening the outcomes of a pandemic.

As noted in the *New York Times*, *Time*, and elsewhere, social distancing and self-isolation are less likely to be possible for lower-income people, putting them at higher risk of exposure to COVID-19 (see Blow 2020; Vesoulis 2020). People with lower incomes are also more likely to suffer from the underlying health conditions (for

example, diabetes, obesity, cardiovascular disease, and respiratory disease) that elevate risks of severe illness and mortality from COVID-19 (see Miranda et al. 2019). The terrible effects of structural racism are evident, for example, in the dramatically disproportionate deaths of Black and Latinx Americans and BAME (Black, Asian, and minority ethnic groups) in the United Kingdom (see for example, Pirtle 2020; Forrest 2020; Lerner 2020). Studies indicate that air pollution is associated with elevated risks of death from COVID-19



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(Wu et al. 2020; Con-ticini, Frediani, and Caro 2020), and poor communities are more likely to be exposed to higher concentrations of air pollution compared to wealthier communities (Hajat, Hsia, and O'Neill 2015). Homeless people without regular access to clean water and people unable to pay their utility bills and who have thus had their water service turned off are unable to wash their hands frequently, preventing them from engaging in one of the main measures recommended by health experts to prevent the spread of the disease. The current pandemic is making obvious on an alarming scale the disastrous effects inequalities have on health, but this interaction between pan-demics and inequality is not new.

For over 15 years, I have studied demography and health before, during, and after the fourteenth-century Black Death, a pandemic that was caused by the bubonic plague bacterium *Yersinia pestis* (Haensch et al. 2010). The Black Death swept across Afro-Eurasia in the 1340s and killed an estimated 30–60 percent of affected populations. This high level of mortality is even more shocking when you consider that the pandemic only lasted a few years in total and was even more short-lived at the local level; in London the Black Death lasted for less than two years, ca. 1349–1350. This devastatingly high overall mortality rate likely reflects an even higher underlying (but currently inestimable) case fatality rate.

Some of my work focuses on people who lived and died in the centuries before the Black Death, all of whom were buried in a handful of cemeteries (St. Nicholas Shambles, St. Mary Spital, Guildhall Yard) that were located within a square mile of each other in the heart of London. Some of these people were born and raised in London, but many were immigrants from rural areas of England or farther afield. I don't know the identity of any of the people I study, but based on contempo-

rary records, I know that there are rich and poor people, monks and lay people, and individuals of all ages and sexes in these cemeteries. In the Centre for Human Bioarchaeology at the Museum of London, seated at a table surrounded by the carefully curated remains of approximately 20,000 people who died in England over the course of more than two millennia, I looked at the skeletal remains of hundreds of medieval Londoners, evaluating size and shape variants that allow me to estimate their ages at death and sex. I also examine their teeth and bones for signs of exposure to stress during childhood, such as bands of thinner enamel on the teeth (linear enamel hypoplasia) or leg bones that are shorter than average. These skeletal stress markers can reflect episodes of malnutrition or infectious disease that interfered with growth and development, and which would have potentially made those people more susceptible to disease later in life.

By analyzing these data, I've found that fewer people survived to late adult ages

and more people had signs of developmental stress in the thirteenth century compared to their predecessors in the eleventh to twelfth centuries—this points to worsening health, in general, prior to the Black Death (DeWitte 2018; 2015). These changes in health occurred in the context of increasing social inequalities in England. Population growth prior to the Black Death outpaced agricultural production, and by the end of the thirteenth century, an estimated 70 percent of the English population was living at or below the poverty line (Campbell 2016). Conditions for poorer households were made worse by recurrent famines, including the Great Famine of 1315 to 1317. Increasing numbers of people likely experienced severe malnutrition before the Black Death, and given the powerful effects of nutritional status on health, this likely negatively affected health for the majority of the English population. Deterioration in health, which is reflected by the pathologies and decreasing life expectancies in the skeletal remains I examined, might have exacerbated mortality outcomes during the Black Death, making it deadlier than it would have been if more people had enjoyed access to adequate food and better health before the epidemic.

I have also studied the remains of people who died during the Black Death in London and were buried in the East Smithfield cemetery located near the Tower of London. The cemetery was established before the epidemic began in London in response to reports of its effects elsewhere in Europe and news of its arrival on the southern coast of England in 1348. This preparation in advance of the epidemic suggests people in London expected mortality to be devastating and beyond the capacities of existing cemeteries. East Smithfield was only used during the Black Death, and by the end of the epidemic in the City, approximately 2,400 people had been buried there in individual graves or in long





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trenches containing hundreds of individuals stacked on top of each other. Regardless of the burial type, everyone was treated with apparent care and respect, nearly all laid to rest following medieval Christian convention—supine, wrapped in a shroud without worldly possessions, and their heads oriented west. Some of the people buried in East Smithfield were missing limbs (i.e., were in advanced stages of decomposition) at the time of burial, which indicates that they had been left in their homes or on streets for days after dying, as the staggering number of daily deaths overwhelmed the resources for proper burials. Even those people were afforded the same kind of burial as everyone else, and this, more than anything else I know about East Smithfield, emphasizes the humanity of the people buried there and of those charged with their burial.

By examining risks of mortality and patterns of skeletal pathologies among people from East Smithfield, I found evidence of variation in risk of mortality during the Black Death and that health status prior to the epidemic affected risks of death during the epidemic itself. Importantly, some of the variation in health status prior to the Black Death might have been mediated by social status or wealth inequality. People with enamel hypoplasia and short stature, both of which might reflect the nutritional consequences of poverty, were more likely to die during the Black Death compared to people of the same age without such developmental stress markers (see DeWitte and Wood 2008; DeWitte and Hughes-Morey 2012). The link between poverty and mortality during the Black Death and later medieval plague outbreaks is also supported by some documentary evidence (see for example, Alfani and Bonetti 2018; Cummins, Kelly, and Ó Gráda 2016; Galanaud et al. 2020).

The Black Death has fascinated people from the time it occurred, and in addi-

tion to receiving scholarly attention, it is represented or referenced in works of art, novels, films, and other media. Studying a disease pandemic that intrigues so many people puts Black Death scholars in a position to divert some of the interest in the fourteenth-century plague toward research and education about diseases that persist, are emerging now, and will threaten us in the future. I hope that if a critical mass of people, globally, understands infectious disease causation and transmission; the extent to which diseases threaten us and shape our lives, economies, and biology; and how human behavior can powerfully affect their outcomes, then we can succeed at building greater capacities to avoid at least some of the devastating effects of diseases like COVID-19.

I am often asked if I think a pandemic as terrible as the Black Death will occur in the



future. Emerging and reemerging diseases such as the Black Death and COVID-19 are a persistent problem for a variety of reasons, including the scale and speed of global transportation. But I don't think that the outcomes observed for the Black Death are unavoidable. We have a much better understanding today of what causes diseases and how they spread, we have tools for studying pathogens, we have the ability to produce effective vaccines or drug therapies, and we have the capacity to swiftly disseminate information about disease prevention. However, we will continue to see an appallingly and inexcusably high number of preventable deaths during the COVID-19 pandemic and outbreaks in the future if there aren't extraordinary (what might be viewed by some as revolutionary) changes in wealth inequality, resource distribution, and access to quality health care and education.

The social and economic factors affecting disease and death at the time of the Black Death, and currently in the context of COVID-19, are largely exogenous to the individual body, and thus it is theoretically possible to prevent or change them. We should be driven to reduce the negative consequences of inequality and to prioritize the health of all people rather than the excessive wealth of a few. Spain is taking steps to implement permanent basic income in response to the social and economic impact of the pandemic. Whether these and other measures elsewhere are sufficiently widespread, effective, and sustained over the long term remains to be seen. ☺

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