

ORIGINAL ARTICLE

A pandemic of metrics

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Abstract

The COVID-19 pandemic prompted critical attention to the performative power of metrics. We suggest that the existential capacities of metrics as a means of pandemic living warrant further consideration. We describe how the COVID-19 pandemic that came into existence as a public health and political event could only have occurred because of the anticipatory metrical practices that were used to transform SARS-COV-2 into a matter of global health concern. By exploring the affective potencies of COVID-19 metrics we show their abilities to engage the public in ways that cannot be contained; in detailing the narrative arcs created through metrics we show their opportunities, misdirections, and erasures. A pandemic way of life persists: a pandemic of metrics.

KEYWORDS

affective publics, Covid-19, global health, metrics, pandemics

In short, models and simulations cut across boundaries of pure categories we accept in science, and sometimes politics. Some people might be tempted to see the compromises that models make — between the domains of the theoretical and the material, between their uses as pragmatic and representational objects, between different goals — as unsatisfactory, to see it as simple inconsistency or imperfection. But we might choose instead to see models and simulations as monsters necessary to mediate between worlds that cannot stand on their own, or that are unmanageable.

– Sergio Sismondo, 1999

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INTRODUCTION

The experience of COVID-19 got many ethnographers thinking and writing in new ways about the metrics and the metrical infrastructures that animate public health interventions (e.g., Anderson, 2021; Block et al., 2020; Bermant & Ssorin-Chaikov, 2020; Breslin et al., 2022; Christin, 2020; Jones & Helmrieck, 2020). This was, in no small part, because the work of rendering the COVID-19 pandemic visible far exceeded the rationalities of quantitative calculation. The proliferation of metrics within a situation of radical contingency turned many into amateur epidemiologists, looking to “the numbers” to provide a compass to social and professional engagements, and to calculate the chances for their survival and those of loved ones. Numbers presented in graphs, tables, and maps as metrical figurations also created footholds for finding fault with political systems and for imagining collective economic futures. It is precisely because the metrics in these moments were so salient—because so many reached for them desperately—that their promise and power continues to demand scrutiny. Here, we offer a critical reflection on the way metrics co-created the COVID pandemic and its afterlives, asking: How did metrics, as artifacts with peculiar and particular capacities, transform a virus into what might be called a *pandemic of metrics*?

Long before SARS-CoV-2, metrical figurations were quietly creating the conditions for the distillation of uncertain biological phenomena into *pandemics*. The scale and pace of infectious disease outbreaks are a feature of our contemporary predicament. Environmental degradation, rapid urbanization, mass migration, and climate change have created the conditions for viruses and bacteria to mutate, jump species, and amplify within human populations (Brown & Kelly, 2014). Predictive epidemiological and infectious disease sciences have rendered those crescendos of pathogenic interactivity as “wave-like” (Jones & Helmrieck, 2020), offering prophetic messages about the inevitability of “the next one” (Caduff, 2015). Metrics have also set in motion a looming recursivity in which viruses like SARS-CoV-2 are sutured to market-driven preparedness agendas and reinvigorated protectionist policies, creating crises we can never really shake off (Erikson, 2015; Wraith & Stephenson, 2009). “Like infectious agents on an agar plate,” Greene and Vargha write, pandemics “colonize our social lives and force us to learn to live with them, in some way or another, for the foreseeable future” (2020, 22). We would add that this power is animated by metrics and their capacity to create a new calculus of vulnerabilities, as clusters of socioeconomic precarity emerge and endure (Benton, 2015; Ticktin, 2020).

The term “metrics” is used in population health to denote a wide variety of calculative devices, quantitative measures and processes of emplotment. Metrics are never simply available in the “real” world; they have to be composed using available means of quantitatively “reading” the world. They can be many different things, from standard measures and benchmarks to big data sets, models, and actuarial estimates, all performing different operations in different epistemic spaces. Metrics carry performative power, derived in part from their ability to help experts manage the unknown in ways that are (at least statistically) reliable. Metrical practices do this by stabilizing the complexity of lived social worlds, turning transient and situationally contingent phenomena into obdurate, reductive, and comparable data through modes of counting, modeling practices, algorithmic emplotment, and statistical evaluations. Various represented in graphs, charts, equations and diagrams, metrics are potent because they are scalar (able to move from small samples to populations, for instance) and because they can be tested for validity.

It is precisely these powers that compel anthropological critique. In this effort, we join scholars who have revealed the stakes of metrical reasoning and praxis, showing how metrics can distort perceptions of the world both by excluding information and by constituting new realities through commodifying, objectifying and essentializing social realities (e.g., Adams, 2016; Erikson, 2019; Greene, 2009; Reubi, 2018; Sangaramoorthy & Benton, 2012; Treichler, 2020). We also build upon recent social scientific critiques concerned with the social contingencies of mathematical models and how these quantitative operations themselves can generate novel forms of sociality (e.g., Brown, 2020; Richardson, 2020; Rhodes & Lancaster, 2020). Our goal here is to extend those insights to the metrical assemblage of

pandemic life. To that end, we examine how the pandemic of metrics in relation to COVID-19 in the United States and the United Kingdom worked in at least three ways: (1) as technological enactments that conjured a once in a century pandemic; (2) as affective events that produced a manageable, and then an unmanageable, public; and (3) as instruments that mediated social worlds, even as they closed down opportunities for political accountability.

Undertaking this analysis is not without risks. As conspiracy theories continue to roil government responses to large scale public health crises across the globe, an analysis of the compromises and fetishisms attendant to such quantification could seem inappropriate and inopportune. Still, knowing that metrics are unstable, black-boxed, provisional, and capable of doing harm neither forecloses the debate about their utility nor short-circuits the need for social science analysis. As scholars from the United Kingdom and the United States, our engagement is particular and situated, relying on an evidentiary field that arises from these two places during the time when COVID-19 predictions were being rolled out with extreme rapidity. We also share a common ethnographic orientation. In various ways and in distinct contexts, our previous work has grappled with the performativity of metrics, particularly the forms of global health attention and neglect they precipitate. COVID-19 produced in us, as medical anthropologists, a real-time collective sense of critical disorientation. We found ourselves affected by, and caring for, metrics in ways that far exceeded our basic recognition of the gap between lived experience and quantitative representation. By exploring metrics in action, we found ourselves convinced of the need to describe how the various metrics of this virus have travelled as objects with revelatory powers enabling the formation of public health solidarities. What we aim for here is a modest yet resolutely critical stance—one that takes metrics seriously as socially vital technologies, necessary monsters we should not ignore (Sismondo, 1999).

METRICAL COHESION OF THE PANDEMIC BEFORE IT WAS

To tell the story of COVID-19's metrical existence, one could start with mid-20th century efforts to map viral and bacterial outbreaks (Lakoff & Collier, 2008). In the US, this history begins in 1951, when the newly formed Centers for Disease Control (CDC) deployed a team of epidemiologists to find the cause behind case reports of headaches, nausea and fatal hemorrhage among American troops in Korea (Duhigg, 2020). Their success—tracing the outbreak to rat feces, and not a bioterrorist plot (as initially suspected)—led to the institutionalization of epidemiology as a special division at the CDC, the Epidemic Intelligence Service (EIS), replicating for public health what had been created for geopolitical security in the US federal government's Central Intelligence Agency.

The fortunes of the EIS waxed and waned over the second half of the 20th century, but its power was bolstered in the 1990s, as the HIV/AIDS pandemic prompted a shift in funds from primary health care back toward infectious disease control—a move that, as Treichler (2020) suggests, built upon and entrenched dominant discourses of risk and blame. In 1996, The CDC created a surveillance system called BioSense to detect emerging epidemics, largely focused on the United States and Europe (Fearnley, 2008). BioSense inaugurated a new paradigm in public health, one directed towards deciphering syndromic patterns (respiratory and gastrointestinal arrays of symptoms) and detecting alterations, augmentations, and explosions of those patterns, rather than simply counting infection rates and deaths. Its purpose was to create a predictive apparatus that could see outbreaks coming. Narratives of “the coming pandemic” were also strengthened by popular accounts that traced the progression from HIV and multi-drug-resistant tuberculosis to socio-political and environmental changes occurring on a global scale (e.g., Garrett, 1994).

In first two decades of the new millennium—the global health era—the emergence of Ebola, SARS and MERS along with increasingly potent strains of influenza (Swine Flu, H1N1) granted greater authoritative weight to models that could predict the path of outbreaks. Treatment and mitigation efforts increasingly gave way to strategies of prophylaxis, drawing resources away from public health

infrastructure and pouring it into surveillance technologies, vaccines, and forecasting (Lakoff, 2008, 2015; Porter, 2016). At large European and UK institutions, the focus was on stockpiling antiviral drugs, heightening regulation of laboratories, building surveillance technologies, and planning and conducting preparedness exercises (Bingham & Hinchliffe, 2008; Kirchhelle et al., 2020; Rosner & Markowitz, 2006). In other places, massive populations of livestock and poultry were summarily culled to prevent possibility of viral spread (Hickler, 2010). The move away from identifiable pathogenic risks to anticipated pathogenic potentials further entailed collapsing temporal fields of operation: bringing the future to the present (Adams et al., 2009), while also augmenting the militarization of public health (Masco, 2014).

The shift to prediction fostered new communities of inquiry in global health. Infectious disease MDs, pathologists, virologists, and zoonosis experts teamed up with emergency responsiveness experts, financial analysts and epidemiologists to map the viral future using ever more sophisticated metrics. These new metrics focused less on case data (evidence of what was already known) and more on the designation of sentinel figures (devices, animals, early human cases) that signaled risky futures prior to actual outbreaks, as well as on the rationales for investment (financial risk, win-win scenarios and cost effectiveness strategies) (Erikson & Johnson, 2020; Lachenal, 2015; Lakoff, 2015). In 2005, the WHO called upon its Emergency Committee to create a centralized governance infrastructure for coordinating epidemic response with “sole power to declare the beginnings and endings of Public Health Emergencies of International Concern (PHEIC)” (Greene & Vargha, 2020). In the United States, virologist Dennis Carroll formed a pandemic-threats unit at the U.S. Agency for International Development called PREDICT “to support discovery of potentially dangerous new viruses before they spill over into humans” (Quammen, 2020). As experts liked to say in high profile venues from Davos to TED talks (in words echoed by politicians), it was not a matter of *if*, but rather *when*, the next pandemic outbreak would appear (e.g., Cooper, 2006; Lakoff, 2008, 34; Osterholm et al., 2015). This certainty was grounded in metrical knowledge.

One metric used by the Institute for Health Metrics Evaluation (IHME), was built from templates designed at Imperial College London for modeling infectious disease outbreak and spread as well as predictive mortality. These so-called “SIR-type” instruments took into account Suspected, Infected and Recovered (SIR) population metrics along with country-specific data, including social distancing policies, hospitalization rates, and death rates, to forecast the dynamics of outbreaks in their nascent (pre-pandemic) stages complete with early indicators of numbers of infections and deaths (Fuller, 2020; Walker et al., 2020). The IHME used the SIR design to craft its own modeling system, extrapolating curves from previous SIR models to create a “curve fitting model” for a range of hypothetical viruses, and to predict their progress in a population over time (Fuller, 2020).

So how, specifically, did these metrical practices bring the COVID-19 pandemic to life? On December 2019, in a now familiar story, the spark of recognition of a potential pandemic materialized when a merchant who worked in a local wet-market presented with SARS-like symptoms to a clinic in Wuhan, China. Over the next weeks, laboratory experts would decipher from this man’s sputum, and a cluster of other sputum samples from other Chinese patients, evidence of a novel coronavirus, 2019-nCoV, now known as SARS-CoV-2, which causes the disease now colloquially known as COVID-19.

China’s viral experts, who had been trained by US pandemic experts, were in communication with the US CDC about the outbreak. Information about the novel virus moved quickly into the airways of pandemic preparedness (Wu & McGoogan, 2020). Public and academic accounts of the events establish the following timeline: one week after China’s experts sequenced the novel virus, a Seattle-based, EIS trained infectious disease expert named Francis Reido was alerted to a 35-year-old male patient who arrived at an urgent care clinic with a 4 day-old cough and fever (Duhigg, 2020; Holshue et al., 2020). His case might have been unremarkable (indeed he was sent home after leaving some swab samples), but for one thing: he had just returned to Seattle from visiting relatives in Wuhan. The patient reported that he had seen the US CDC’s health alert about the outbreak in China and thus felt he should go to

the clinic. This disclosure prompted his physician to call to Reido, who immediately alerted his team of EIS-trained colleagues around the world.

Reido guessed that the virus might already be more widely spread. To test his hunch, he randomly selected and tested two other patients in the Seattle area who had similar symptoms. One tested positive as a match for SARS-CoV-2. Reido raised alarm bells about this second case because it was someone who had no recent history of travel to China nor obvious connection to anyone with such a history. His colleagues then turned up an additional 14 cases of SARS-CoV-2 seropositivity in the United States, some with full blown symptoms of Covid-19 (Duhigg, 2020). Samples of the novel virus were sent to global institutions in Hong Kong, Berlin, Atlanta, and Hamburg, where scientists developed various diagnostic tools that could be used to detect it (Wu et al., 2020). By January 30, 9976 cases were ascertained in 21 countries, including China and the United States (Holshue et al., 2020).

It is worth noting that the mere identification of a novel coronavirus was not enough, in and of itself, to establish a pandemic. New viruses emerge all the time and spread globally at rates higher than those of SARS-CoV-2 at the time these data were collected. Yet only a few weeks later, when Italy had experienced only one death from COVID-19 and Iran only 10, Bill Gates was already publicly calling COVID-19 a “once in a century pandemic” (Gates, 2020). What motivated this description was not the high infection or disease counts, but rather the predictions that IHME’s algorithms were generating. The IHME models painted a very frightening picture, affirming that SARS-CoV-2 would indeed cause a “once in a century” pandemic that, if their metrical figuring was correct, would swiftly overwhelm hospitals and kill multitudes.

The facts about SARS-CoV-2 had their own agency, but they also needed to be catapulted from empirical platforms into public circulation. They needed footholds to propel them forward. They required “once-in a century” metrical figuring—the kind offered by IMHE—that could weigh in and cut through the competing and tension-filled debates over how dangerous the virus really was. Projections of how the virus was likely to behave varied among competing models and the sociopolitical contingencies that made some models more likely to be taken seriously than others (see Satelli et al. 2020). The IHME model settled that mystery over contagion and turned SARS-CoV-2 into a public health emergency of international concern, boot-strapping an archipelago of cases into an anticipated global explosion of infection that demanded mass mobilization and response in the present.

We do not mean to suggest that the viral risk was not acutely real. COVID-19 caused (and indeed, continues to cause) tremendous suffering and death, undoubtedly more than has been actually counted (Sun & Achenbach, 2020). Had nations not responded with the measures they did, mortality might likely have been immeasurably greater. What we are saying is that the COVID-19 pandemic that came into existence as a public health and political event could only have occurred because of the anticipatory metrical practices that were used to transform SARS-CoV-2 from a viral possibility into a matter of global health concern, and further that this configuration of a pathogenic problem delimits a very narrow and singular set of responses, experiences and potential solutions under the sign of the “once in a century pandemic.”

ALGORITHMS MAKE AFFECTED PUBLICS AND THEN DISPERSE THEM

COVID-19’s “once in a century” trajectory was brought forth through algorithms. An algorithm is a pre-defined operation to answer a specific problem—in the mathematical lexicon, it is an *effective* method. Through arithmetic rules and finite parameters, algorithms speak to the future, projecting scenarios that tether an eventuality to concrete actions and actualities, “clos[ing] down unknowns into a governable present” and setting up a direction for action (Rhodes et al., 2020).

That power to adjudicate decisions, to intervene, to *effect* lives and livelihoods, is fueled by a heady combination of objectivity and obscurity (Dixon & Chandler, 2019; Erikson, 2015; Kolkman & Kemper, 2017; Ziewitz, 2016). In situations of crisis, where conventional forms of expertise and governance are

stretched and where data is thin on the ground, algorithmic analyses offer a way to manage uncertainty, through axiomatic, if not highly imaginative, metrical thinking. The COVID-19 pandemic was called a “Black swan event,” an event that demands speculative and creative modes of response—a way of thinking forward, according to Osterholm et al. (2015), “which is ultimately aimed at securing our collective future.” The power of algorithms like those used by the IHME or the SIR models is not simply in their ability to harness predictable certainty from a series of unknowns, but also in their ability to shape affective responses. These affective powers reside in the way images of algorithmic predictions can be presented as graphs, charts, and tables that render a certainty out of a sea of competing facts. As Michelle Murphy suggests, such visual simplifications “purposely push aside complex reactivity” (Murphy, 2017, 495).

Over and above their empirical basis, graphic presentations of algorithmic models have a visceral appeal, particularly when conveyed in easily readable form. The unique communicative power of the epidemic curve is a graphical referent for the anticipated experience of disaster. For COVID-19, the most commonly seen algorithmic projections were “hockey-stick” projections—borrowing from the grammar of climate science (Demeritt, 2006). They indexed exponential growth, irreversible acceleration from disparate points of contagious contingency. A iconic form of “pandemic prophecy,” these projections articulated an eschatological structure of feeling—the nightmare of wild and unfettered contagion capable of catalyzing global response (Caduff, 2015; Sampson, 2012).

The gradient of COVID’s curve commanded this kind of negative aesthetic charisma (Lorimer, 2007). As Neil Ferguson, a prominent Imperial College London epidemiologist who would become a central figure in the UK COVID-19 response, put it: the images help us “...to wake up the world and say that this could be really bad if we don’t do anything” (The Economist, 2015). The fact that predictions could be off by millions (as some were, for instance, with the 2014–2016 West African Ebola Outbreak), or not yet actual (as in the case of COVID-19), did not undercut the authority of the hockey stick image. The curve belongs to the future anterior. Its appalling upward slope communicates what we need to do to avert the disaster it foretells: flattening the upward climb into a rounded curve downward.

In the early days of the COVID-19 outbreak in the United Kingdom, the algorithmically derived curve functioned in this way—an epidemiological prophecy that by igniting panic, animated new publics seeing themselves reflected in and subjected to viral communicability (Briggs 2022). “This is a national endeavor,” Matt Hancock, then the embattled UK Heath Secretary, told the United Kingdom public during one daily Covid briefing. “And whatever the headwinds, as a country we can’t let up on this. We are past the peak. We’re flattening the curve. We protected the NHS and the number of deaths is falling. We must keep our resolve” (West Bridgford Wire, 2020). It was not without some irony that this briefing built around metrical persuasion coincided with the day that Public Health England stopped performing contact tracing as infections overwhelmed surveillance capacities (Figure 1).

To reduce the gradient from hockey stick to gently-sloping rise and fall, the public would have to be motivated—indeed impassioned—to play their role. And yet, the dissonance between the clarion call for civic spirit and the graphic form that patriotism took under COVID-19 was jarring, not just for the political content of the message but for its imaginative leap in transforming individual compliance into collective sentiment—an expression of belonging, compassion, and concern anchored in the figurative power of the curve. Tantamount to what David Spiegelhalter, the UK Government’s chief advisory statistician, termed “number theatre,” the Prime Minister’s daily coronavirus briefings did not operate within the province of fact; with unreliable diagnostics, uncertain case definitions and an overwhelmed contact tracing system that had ground to a halt, pronouncements about the precise scale or scope of transmission could only ever be graphically gestural. The infographics conveyed, if not statistical reason, a form of policy rationale: a cruel kind of optimism, in Berlant’s (2011) terms, making sense of the price we must pay to secure our hopes for a normal future.

Those hopes were played upon and played out in a series of infographics, which smoothed the curve’s charisma into a gentle downward slope to normalcy. Fueled by fears about the future, the curve served as an idiom for collective distress and a rationale for personal sacrifice and social (in)action. But as the

Profile of the epidemic under different approaches

Illustrative impact of social and behavioural interventions lasting several months on a Reasonable Worst Case epidemic

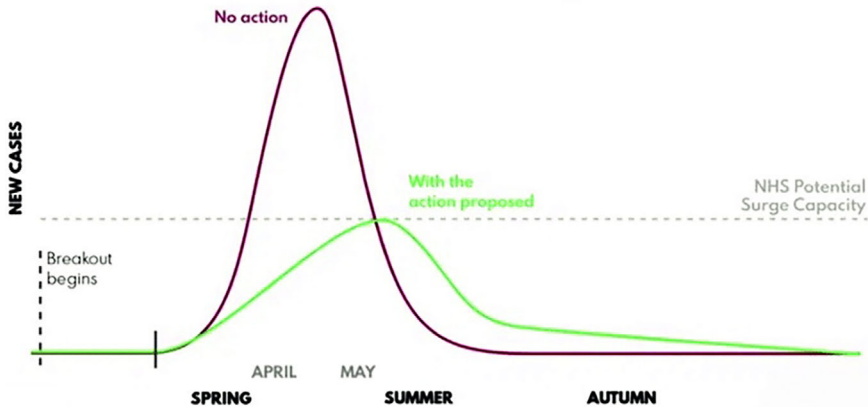


FIGURE 1 Number theater.

[This figure appears in color in the online issue]

Source: HM Government, Press Briefing, 10 Downing Street, March 12, 2020.

<https://www.gov.uk/government/speeches/pm-statement-on-coronavirus-12-march-2020>

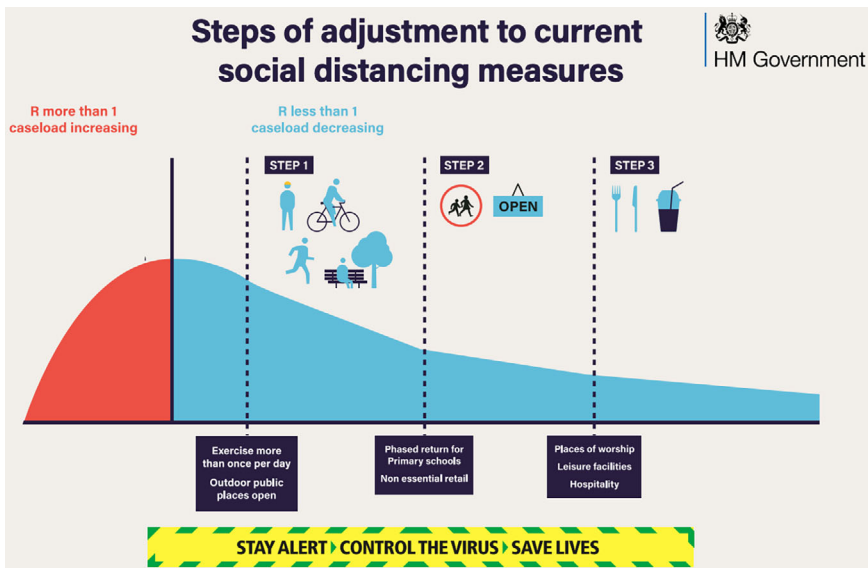


FIGURE 2 Curve lifestyles and logics.

[This figure appears in color in the online issue]

Source: HM Government, Press Briefing, 10 Downing Street, May 11, 2020.

<https://www.gov.uk/government/speeches/pm-statement-on-coronavirus-11-may-2020>

pandemic progressed, the variety of experiences of living with and through COVID-19 departed from and competed with the singular narrative the curve relayed. Many people were simply overwhelmed by the ubiquity of metrics, as numbers proliferated with an intensity and many developed an infectious sense of obligation to watch and read them, to calibrate upticks and downticks to personal logics of risk, when to travel, whom to see, whether or not to wear masks (Figure 2).

The metrics themselves became messy and contradictory, with curves, surges, and scales that became difficult to pay attention to, let alone to comprehend (Bickerstraff & Simmons, 2004; Jones & Helmrieck 2020; Lenzer & Brownlee, 2020). They did not settle, and as experts engaged in public arguments over how to count, predict and mitigate COVID-19, public suspicion, cynicism, and doubt grew. Debates between epidemiologists and infectious disease experts produced different modes of representing the viral threat, with one focusing on infectivity and spread and the other on how to count morbidities and deaths (and when not to count them as COVID deaths). Clinical epidemiologists like John Ioannidis (2020), argued against the hockey stick models on that grounds that they were not evidence-based. According to Ioannidis, even though quarantine measures were advisable, the assumption of an unprecedented high mortality pandemic was putting the cart before the horse (Fuller, 2020). Mechanistic models were set against forecasting models, with one side focusing on predictions based on mechanisms of spread and pathology and the other on projections based on previous epidemic outbreaks (Holmdahl & Buckee, 2020). Different kinds of futures were proposed from country to country, with different countries using different metrical tactics to calibrate national concerns. The IHME models used in the United States were designed specifically to forecast death rates and hospitalization demand, but they did not take into account variation in mechanisms of transmission or how these mechanisms would alter rates, as the more mechanistic UK models did (Eker, 2020).

The metrics of COVID-19 were presented to publics in the form of predictive trends, counts of deaths and morbidity rates, and maps of danger zones. Such presentations, however provisional, conjured a continuity between the metrical images (the hockey sticks and flattened curves) and the public. These presentations assumed that the public could be counted on to act with obedience, to move between the contagious crowd—the immunogenic herd—and the responsive political collective (Mazzarella, 2010, see also Napier, 2020). Here, too, the passage point that would allow the metrics to be transformed into public responsiveness was affect; metrics forged a common perception among publics who could move that behavioral wave. The problem, however, was that, as Mazzarella (2010) notes, the public was not a crowd; it was a multitude—a vital multiplicity of autonomously responsive beings, not a lifeless, mediated collective. The publics who were watching those curves were neither uniform nor uniformly affected by the beauty or horror of these representational practices, nor did they respond homogeneously.

As the authority of epidemiological forecasting wobbled under the diversity of those experiences, agonistic public sentiment, both in the United Kingdom and the United States, increasingly revealed itself as a force in pandemic reckoning. As case fatalities increased the rhetoric of “flattening the curve” lost its moral force—attenuated by the blatant disregard of it on the part of government officials and technocrats who flouted the rules that algorithms had been used to put in place. Rather than a probable future, algorithms were used to reflect those failures, providing a counterfactual account of the present, based on projections of what could have occurred in the past. In his testimony before Parliament after the first wave, Ferguson reprised his reliance on the prophetic powers of the algorithm, now as Cassandra: “the epidemic was doubling every three to four days before lockdown interventions were introduced. So had we introduced lockdown measures a week earlier, we would have then reduced the final death toll by at least a half”.¹

Algorithmic metrics are propelled by this paradox: if the projection is heeded, then the event-as-forecasted does not come to be. As an artefact of government failure, the curve would summon anger. Rather than provide fuel for a future that might materialize, the curve generated mourning for a situation that might never have occurred. Public feelings drove complex and contradictory responses to algorithmic predictions, creating feedback loops inside the metrics themselves, as publics became increasingly skeptical of containment measures, influencing transmission trajectories. In her analysis of online COVID conspiracy theories, Renee DiResta (2020) pointed to the powers of social media platforms to facilitate questionable content promotion, facilitate rumors and spread misinformation. The sheer volume of social media content breeds what she has termed “inadvertent algorithmic amplification” or “infodemics” that recursively fed upon their own logics, forging connections that eluded and confounded efforts at regulation (see also, Cinelli et al., 2020; DiResta, 2020; Stalcup, 2020). An overreliance on the metrics, coupled with a failure to communicate their limitations, had the effect of generating

mistrust among members of the public. Increasingly rarefied disciplinary debates over which transmission models were *more accurate* had the effect of discounting all models and thereby the very real risks of infection.

As new contours of viral effects were being mapped, displacing older models of morbidity and mortality, few questioned the fact that none of these models could be tested, even by their own standards. An accurate assessment of the reliability of models demands an understanding of the true prevalence of the virus—a fact that was (and remains) unknown because of the prevalence of asymptomatic cases and the broad limits of testing and reporting. That epistemic uncertainty, utterly fundamental to the metrical appearance of the COVID-19 pandemic, was persistently overlooked. Regardless, the pandemic was affirmed over and over again by the metrics because the metrics had already become the means by which the pandemic was made “real.” Public audiences conferred on the metrics their power to do/or make what the audiences (and planners) wanted or needed through forms of biomediatization (Briggs and Briggs, 2016).

Unreported cases of COVID-19 continued to hover at the edges of epidemiological accounting, not only because some nations did not count their cases, but also because even in places where counting was happening, reporting was not mandatory, making any statistical management of the virus problematic. We will never know COVID-19’s deadliness in relation to its infectivity rate, because we cannot account for the many people who actually had the virus and recovered without reporting it, even when it was symptomatic. Such obvious gaps in knowledge made the numbers untrustworthy even to lay observers, weakening the ability of the metrics to govern uniform public responses.

Metrics, in other words, in their unruliness and uncertainty, brought about a pandemic that could not be affectively contained. The surplus feeling generated by metrical practices displaced the ability of public health efforts to accomplish their primary goals of generating safe responses. These might be called “viral” potencies of the metrics in the sense that their real effects spread of their own accord, whether in motivating commitment to vaccines and masking or, conversely, supporting refusal of these practices on grounds that were untrustworthy. These unanticipated effects were a consequence of the excesses of metrical representations as much as they were an effect of the metrics’ rationality.

METRICAL ERASURES

Descriptive metrics used to count case loads and death rates of COVID-19, along with the predictive metrics that warned of mass mortalities, distilled the story of the pandemic into one about a deadly virus on the move. This viral narrative, however, effaced other stories that offered a more complex accounting of COVID-19’s pathology. SARS-CoV-2 was not an indiscriminate agent. As many anthropologists have noted (Manderson et al., 2021; Oliveira & Aguiar Arantes, 2020), some communities were more at risk of both contracting and dying from it than others. Moreover, the metrics that focused on viral movements had a hard time tracking those aspects of SARS-CoV-2 that did not behave like a typical virus, including those whose experience of COVID-19 persisted. What stories might have been told had the metrics focused on, or included, these confounding factors?

Consider the non-story of New York City—which for many weeks in the northern spring of 2020 was the epicenter of the global pandemic. In that city, as elsewhere across the country, a chronically high and maldistributed burden of comorbidities shaped viral outcomes. Yet, as SARS-CoV-2 became the overwhelming object of epidemiological focus, any accounting for the complexity of multimorbidity and its underlying web of causation was foreclosed. The viral agent took over as the lead actor because in the pandemic narrative, all excess mortality was tied to the spread of the novel viral pathogen. What was effaced in this narrative was the story about the production of co-morbidities that actually underpinned higher death rates, the toxic foods and chemical exposures, the racism baked into the US health care system at every level—all of which have contributed to a long and steady state of debilitation and slow death (Livingston, 2020). Rising slowly, creeping up over so many decades, the counting of co-

morbidities and their causes became normalized as static variables rather than as causal of morbidity in and of themselves (Adams, 2020; Caduff, 2020).

The organization of data into globally and regionally comparative sets meant to signal rising and falling rates of peril and burdens of loss in a given city, province, or nation formed scalar operations that effaced the hierarchies of risk and disposability within any given population. Risk factors that were tied to social inequalities remained largely invisible in the daily accounting of morbidity and deaths that circulated as policy-making instruments. For example, the daily accounted figure of hospital deaths through which New York was compared to Chicago or Little Rock or Milan, obscured the maldistribution of hospital mortality within the city. Some chronically under-resourced hospitals in neighborhoods that were home to disproportionate numbers of “essential workers” had much higher mortality rates than more capitalized hospitals in wealthier neighborhoods. In the publicly reported metrics, morbidities of so-called “essential workers” who were unable to quarantine were lumped in with those whose morbidities were a consequence of other risk exposures (Livingston, 2022). What if the numbers had focused on how these subpopulations were over-exposed to the virus in relation to basic social inequalities of labor and wealth? How might our ability to understand the pandemic, and to generate effective responses, have been different if our counting practices had offered more subtle distinctions based on the social contours of risk that precede and outlive the virus?

It is true that eventually some efforts were made to locate high risk populations in residential institutions. Specifically, nursing home cases and deaths were counted alongside those in city jails and state prisons. A portion of the pandemic was now metrically and materially sealed off from the general public in these institutions. Visiting was suspended to either kind of institution, and relatives worried from a distance, imagining worst case stories spun from the metrics. Despite their radically different positions vis a vis one another, staff and elderly nursing home residents; guards and incarcerated persons, shared in the high rates of infection and carried the taint of social death (Cf Cohen, 2020). The sealing off of metrics into institutional sub-epidemics here glossed crass questions and equally crass answers. Once we had the numbers, did this counting lead to efforts to improve conditions of living at such places? No. They too were wrapped around the narrative of viral exposure, and questions about whether a death in a nursing home *counted* the same as death among the “general” public.

Epidemiologists did eventually try to isolate key variables or expressions for quantification, to examine factors in isolation and then in modeled, abstract combinations. But the modeling of the pandemic as singular *event*, albeit a highly complex and multifactorial one built out of big, dynamic, and complex data sets, bounded the story of the pandemic from the bigger story of disaster in which it sat. Suspended from the narrative, or relegated to its margins, was the refugee crisis that months before SARS-CoV-2 had been the subject of much metricization, even as the pandemic demonstrated that it was the air travel of the wealthy and not the rubber boats of the poor and displaced that spread disease and economic turmoil. The fires, the hurricanes, the plastic-choked oceans, and the sixth extinction were held off stage as causal relations of the pandemic death march. The viral narrative could not hold simultaneously damning evidence of bleach, the cleaning chemicals, the thousands upon thousands of tons of disposable everything whose availability was suddenly all the more important for safety than harm, metricized as proxies for political efficacy. The stock market ticker tape and the metrics of death and devastation continued to diverge, lurching forward toward the uptick in corporate profits on the mere premise (with no actual evidence) that technical tools like vaccines were just around the corner.

The metrics of COVID-19 thus operated as instruments that concealed some realities while conjuring others as acts of artifice, driving forward the industrial complex of free-market competitors perched to “rescue” populations under the rubric of emergency spending and social lockdowns, while simultaneously making it harder to see how transmission dovetailed with pre-existing health and existential risk. What was missed in all this counting, however, were the emerging realities that did not fit the disaster-event narrative form. Consider the multitudes of those whose symptoms of COVID-19 lingered, whose experience of the virus was chronic rather than acute.

For those with what became named “long COVID,” navigating their illness required wading through metrical indicators that were most often shown as either cases or deaths, initially leaving

such patients unaccounted. The quest for “true” numbers required deciphering uncertainties produced through testing technologies, sampling strategies and attribution of fatalities to the virus. Though abstract, population level statistical data were instructive to individuals with symptoms hoping to understand and anticipate the effects of the virus as an embodied experience. What did it mean to become a “case,” and how might one anticipate becoming a “death”? The conferring of a disease label, traditionally understood to enable access to both information—about the trajectory and ways to manage a disease—and treatment, were confounded by the sea of metrics that circulated already. The first challenge for many with symptoms was in accessing such a disease label, not only because the testing rules were uncertain but also because testing was unreliable, especially for those whose illness exceeded the 14-day expected symptom window. Symptomatic people were consistently turned away by health care services, left without the information or treatment they hoped to receive (see Callard, 2020).

The self-diagnosed soon became a sizable proportion of COVID-19 “cases,” joining those with official diagnoses in turning to social media to decipher their experience and produce collective knowledge, including metricized data, in a manner familiar from patient experiences of other “contested illnesses” (Dumes, 2020; Murphy, 2006; Rogers, 2022). Online forums for people experiencing COVID-19 appeared on Facebook, Slack and other online community platforms early on in the pandemic and quickly accumulated thousands of members from all around the world. Reports of alarming pulmonary, heart, and neurological symptoms, among other things, began to float across the internet as people with symptoms tried to make sense of their altered bodies and lives. The COVID-19 Body Politic Slack Group (2020), for instance, polled 640 respondents at the end of April 2020 at a point when symptoms for most respondents were ongoing, averaging 40 days according to its survey. Sharing experiences to cross-check their own status, to seek reassurance and gain support for deciphering medical systems, members collectively formulated a metrical image of the disease that differed from those offered by medical experts. Members crowd-sourced data to create their own epidemiological analyses of the nature and trajectories of symptoms. Both of these dimensions—visceral and temporal—were notably encountered, narrated, and calibrated through crowdsourced metrics.

Here too, we call attention to the way that the viral narrative that circulating alongside metrics of COVID morbidity and mortality—one that presented it as a once in a century event that would be conquered by vaccines and good behavior—made it hard to hear those whose experience of the disease did not fit the mold of the time-limited event. Like the chronic morbidities that were treated as “static” in the figuration of the virus’s ebb and flow but not really counted, those whose experience of COVID-19 did not subside after the prescribed prognosis found themselves neglected. In order to be seen, they had to bootstrap their own metrics and force their experiences into public visibility. The metrics, too, co-constituted the pandemic and the experience of it.

CODA

On May 5, 2023, the World Health Organization declared an end to the Global Public Health Emergency, 3 years after the SARS-COV-2 virus appeared on the radar of epidemiologists, and even though the death toll of nearly 7 million people continued its (now slower) rise. Looking back, it would be hard to deny that the COVID-19 pandemic was a once-in-a-century event. To what degree that exceptionality was a feature of the virus’s trajectory across populations and place and to what extent it was an artifact of the metrical storm through which the pandemic made landfall is now impossible to decipher. The coronavirus remains a total social fact—a tangled nexus of metrical and viral information, of political calculation and public affect, organizing and orchestrating new global realities.

Here we have reflected on some of the metrics of COVID-19 in relation to their affective potencies and their narrative opportunities, misdirections, and erasures. In doing so, we have tried to focus how metrics co-constituted the pandemic in conversation with the virus as well as the capacity of metrics to engage the public in ways that cannot be contained, and their forging of narrative arcs that tell some

stories while excluding others. Our hope is that by interrogating the pandemic in this way, we have also added more to the anthropological analysis of how metrics work in our pandemic times. Pandemic metrics persist, haunting the present, waiting to offer prognostications of return or of an altogether new outbreak. At a minimum, we suggest that a critical interrogation of the metrics at work in the COVID-19 pandemic makes it clear that the experience of COVID-19 was as much an experience of the metrics as it was of the virus.

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ENDNOTE

¹ Evidence given at the House of Lords Science and Technology Committee, 10 am on Tuesday June 2, 2020 on the role of modelling in the UK Response. For full session see: <https://www.parliament.uk/business/lords/media-centre/house-of-lords-media-notices/2020/may-20/covid19-the-role-of-modelling-in-uk-response-/> <https://www.parliamentlive.tv/Search?Keywords=Niel+Ferguson&Member=&MemberId=&House=&Business=&Start=05%2F06%2F20207amp;End=11%2F06%2F2020>

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