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Discrimination, stigmatization, and surveillance: COVID-19 and social sorting

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ABSTRACT

The unprecedented global public health crisis posed by the COVID-19 pandemic has caused mass upheaval of social, educational, financial, health, and justice systems around the world. Technological and other responses at the national, regional, and international level, designed to contain the spread of COVID-19, have also significantly interrupted the way that we live, work, and interact. This article explores the implications of these response efforts, and their impact on human rights, existing inequalities, and entrenched forms of discrimination. In particular, the article explores the implications of using mass surveillance and registration measures to detect, surveil, and control populations and their movements within and across borders as part of public health responses. The use of digital health credentials in automated social sorting processes and other mass surveillance and registration measures in response to the COVID-19 pandemic sets an alarming precedent for future responses to global public health crises.


KEYWORDS

Public health; COVID-19; social sorting; emergency; mass surveillance; mass registration

Introduction

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) disease (COVID-19) continues to cause catastrophic harm around the world. As of June 27, 2022, not only has this infectious disease caused more than 6.3 million deaths, but it has also infected more than 540 million of the world's population.¹ This is not the first-time countries worldwide have faced a transnational public health crisis of this kind. Countries worldwide have struggled to contain the spread of infectious diseases in the past, such as severe acute respiratory syndrome (SARS), Middle East Respiratory Syndrome (MERS), H1N1, H5N1, and Ebola (to name a few). However, the virulence and the magnitude of harm caused by COVID-19 far exceeds the effects of the aforementioned infectious diseases.

Responses to COVID-19 are variously determined at the local, national, and regional level. Globally, the expansive range of response and prevention measures include

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¹See WHO Coronavirus (COVID-19), 'Dashboard for updated information about COVID-19,' <<https://covid19.who.int>> accessed 27 June 2022.

quarantine, isolation, border closures, lockdowns, curfews, banning/severely restricting travel, banning/limiting social gatherings, mandatory social distancing, testing, protective clothing (i.e. masks), and vaccination (including mandatory vaccination in some jurisdictions),² as well as the mass registration and surveillance of populations. The latter two measures seek to collect, store, analyse, monitor, make available, and/or share information about persons with governments and in some instances private sector entities to identify possible and confirmed COVID-19 infections and high-risk individuals, and to control, monitor, and even limit their movements. These mass registration and surveillance measures illustrate a global push towards the universal registration and surveillance of people within, across, and outside of borders to socially sort individuals based on various criteria, including health status. This article critically examines this process of social sorting by looking at emergency responses to COVID-19, digital health credentials and the use of technology for tracking purposes, the sorting of populations based on health status, and the adverse, cascading, and disproportionate effects of the COVID-19 pandemic and social sorting on certain groups.

Emergency response to COVID-19: the permanence of the temporary

In response to the COVID-19 pandemic, over 100 countries officially declared a 'state of emergency' or made other forms of emergency declarations or decrees.³ While there is no universally accepted definition of a state of emergency, there are common elements that have been identified in government, legislative, and scholarly definitions:⁴ A state of emergency only applies to temporary, real or imminent 'grave and exceptional threats' where a 'state's sovereignty is at risk.'⁵ An emergency 'must be informed by notions of temporal duration and exceptional danger.'⁶ While there is no doubt that COVID-19 posed, and continues to pose, an exceptional danger, its duration is currently unknown given continued transmission and the identification and spread of new strains in and across various regions of the world. Given that no one knows how long the COVID-19 pandemic will last, it is questionable whether it can continue to be described as an emergency. Gross observes that 'for normalcy to be "normal," it has to

²E.g., in November 2021, Austria announced that vaccinations would be mandatory from February 1, 2022, with exemptions for those who are unable to be vaccinated on medical grounds. Philip Oltermann, 'Austria plans compulsory covid vaccinations for all' *The Guardian* (19 November 2021) <<https://www.theguardian.com/world/2021/nov/19/austria-plans-compulsory-covid-vaccination-for-all>> accessed 26 June 2022. Also in November 2021, the Greek Prime Minister announced that vaccines would be mandatory for those over the age of 60. Lefteris Papadimas, 'Greece to make vaccinations for persons over 60 mandatory, PM says' *Kathimerini* (30 November 2021) <<https://www.ekathimerini.com/news/1172785/greece-to-make-vaccinations-for-persons-over-60-mandatory-pm-says/>> accessed 26 June 2022. In several other countries vaccines are mandated for workers in specific sectors. See, for example: Reuters, 'French lawmakers approve bill to tackle fourth wave of coronavirus,' *Reuters* (25 July 2021) <<https://www.reuters.com/world/europe/french-lawmakers-approve-bill-tackle-fourth-wave-coronavirus-2021-07-25/>> accessed 24 June 2022. In December 2021, the European Commission President advised that the EU should consider compulsory vaccination, as a response to the Omicron variant. Daniel Boffey and Helena Smith, 'EU must consider mandatory Covid jabs, says Von der Leyen' *The Guardian* (1 December 2021) <<https://www.theguardian.com/world/2021/dec/01/eu-must-consider-mandatory-covid-jabs-says-von-der-leyen>> accessed 24 June 2022.

³For information about government responses to COVID-19 see, International Center for Non-Profit Law (ICNL), 'COVID-19 Civic Freedom Tracker' <

⁴Emmanuel Gross, 'How to Justify an Emergency Regime and Preserve Civil Liberties in Times of Terrorism' (2008) 5 South Carolina Journal of International Law and Business 1, 7–8.

⁵ibid 8–10.

⁶Oren Gross, 'What emergency regime?' (2006) 13 Constellations 74.

be the general rule, the ordinary state of affairs, whereas [an] emergency must constitute no more than an exception to the rule.⁷ Due to the ongoing nature of the COVID-19 pandemic,⁸ it can no longer be reasonably considered an ‘exception’ because it has become part of the ordinary state of affairs – that which is now widely described as ‘the new normal.’ The same could be said about many of the emergency measures implemented in response to COVID-19. The persistence of these measures means that they can no longer be considered exceptional or temporary departures from a status quo to which we can reasonably expect to return.

International human rights treaties have provisions that enable states to derogate from some of their obligations during times of emergencies (or crises) and prescribe required actions and the limits of derogation. These provisions are, for example, included in Article 4 of the International Covenant on Civil and Political Rights of 1966, Article 15 of the European Convention on Human Rights of 1950, and Articles 27 – 31 of the American Convention on Human Rights of 1969. During the COVID-19 pandemic, some parties to these international human rights instruments have utilized these provisions to derogate from their international obligations.⁹ Other countries have relied on constitutional provisions to declare a state of emergency.¹⁰ In some jurisdictions, formal changes to national law have been initiated through the introduction of Bills¹¹ or Referenda.¹² The majority of countries, however, have relied on national decrees, proclamations, declarations, presidential orders, and regulations to evoke emergency powers.¹³

While the use of emergency powers should be conditional and guided by principles ‘of necessity, proportionality, exigency ... , temporality[,] and ... commitment to human rights,’¹⁴ emergency powers have often not met these conditions and respected these principles. The field of counterterrorism offers an illustration of the adverse effects of

⁷Oren Gross, ‘Chaos and rules: should responses to violent crises always be constitutional’ 112 *The Yale Law Journal* 1011, 1071.

⁸The COVID-19 pandemic has been ongoing since March 11, 2020, when the WHO declared it as a global pandemic. WHO, ‘WHO Director-General’s opening remarks at the media briefing on COVID-19’ (11 March 2020) <<https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19--11-march-2020>> accessed 27 June 2022.

⁹Joelle Grogan, ‘States of Emergency: Analysing Global Use of Emergency Powers in Response to COVID-19’ (2020) 4 *European Journal of Law Reform* 338, 338–354.

¹⁰*ibid*; ICNL, ‘COVID-19 Civic Freedom Tracker’ (n 3).

¹¹In December 2021, the Parliament of Victoria became the first Australian state to introduce specific legislation in response to the pandemic. The Bill had attracted intense public and legal scrutiny. The new legislation contains a series of safeguards to prevent overreach on the part of the state, including the requirement that any public health orders adhere to the State’s human rights charter; that the Ombudsman has the power to investigate complaints; that the duration of the pandemic is time-limited (but extendable); and the law be subjected to independent review 18 months after coming into force. Josh Gordon and Sumeyya Ilanbey, ‘Pandemic laws contain most rigorous safeguards in nation, say experts’ *The Age* (1 December 2021) <<https://www.theage.com.au/politics/victoria/pandemic-laws-contain-most-rigorous-safeguards-in-nation-say-experts-20211201-p59dxe.html>> accessed 27 June 2022. Sumeyya Ilanbey and Marta Pascual Juanola, ‘Pandemic laws pass upper house: Premier and Minister to take charge of health response’ *The Age* (2 December 2021) <<https://www.theage.com.au/politics/victoria/pandemic-laws-moments-away-from-passing-premier-and-minister-to-be-in-charge-of-health-response-20211202-p59e2b.html>> accessed 27 June 2022.

¹²In November 2021, Swiss voters supported the continuation of legislation already in force that provides for a pandemic recovery package, and the Covid Pass, which mandates that only persons who are vaccinated, recovered, or have tested negative can attend public events and gatherings. Agence France-Presse in Geneva, ‘Swiss voters back law behind Covid vaccine certificate’ *The Guardian* (28 November 2021) <<https://www.theguardian.com/world/2021/nov/28/tensions-swiss-vote-covid-vaccine-certificate-law>> accessed 27 June 2022.

¹³Grogan, ‘States of Emergency: Analysing Global Use of Emergency Powers in Response to COVID-19’ (n 9); ICNL, ‘COVID-19 Civic Freedom Tracker’ (n 3).

¹⁴Martin Scheinin, ‘Covid-19 Symposium: To Derogate or Not to Derogate?’ *Opinio Juris* (6 April 2020) <<https://opiniojuris.org/2020/04/06/covid-19-symposium-to-derogate-or-not-to-derogate/>> accessed 27 June 2022.

the enduring and expansive measures that were initially implemented as an exceptional response to an emergency situation.¹⁵ Research on the use of emergency powers in worldwide responses to terrorism has demonstrated this by highlighting counterterrorism measures that violate the rule of law and human rights, such as indefinite detention, house demolitions, blockades, and mass surveillance (to name a few).¹⁶ In the context of the COVID-19 pandemic, some states have implemented measures that may constitute an interference with the rule of law and international human rights obligations. In 2020, the Hungarian Prime Minister was granted emergency powers in the form of authority to indefinitely 'rule by decree' (i.e. the ability to make decisions without the need to consult lawmakers) during the COVID-19 pandemic.¹⁷ This obviates the need for legislative approval over executive decisions, and, among other things, enables the Hungarian government to imprison, for a maximum of 5 years, those who are perceived as interfering with government responses to COVID-19 and spreading misinformation.¹⁸ Other countries have similarly prosecuted and sentenced individuals for spreading COVID-19 misinformation.¹⁹

At the global level, there is increasing attention to the COVID-19 pandemic as presenting risks for democracy and the rule of law. Alexandre Zouev, UN Assistant Secretary-General for Rule of Law and Security Institutions, has expressed concern about the use of emergency powers during the pandemic, with particular attention to increased security services and the risks associated with executive overreach:

Where governments respond with an expanded role and the forceful presence of police and other security actors, challenges can emerge, including perceptions of bias, disproportionate use of force, and other human rights issues. There is also a risk that some states may utilize emergency powers to consolidate executive authority at the expense of the rule of law, suppressing dissent and undermining democratic institutions, especially where court and other oversight bodies struggle to perform due to COVID-related restrictions.²⁰

One of the main concerns with the use of emergency powers in response to transnational threats, like infectious diseases, is that the so-called emergency measures may gain permanence and, concomitantly, that populations endure the adverse impacts of these measures well after the threat has dissipated. Legitimate public health considerations about COVID-19 variants of concern (i.e. Alpha, Beta, Gamma, Delta, and

¹⁵For detailed overview of these emergency measures, see: Chapter 6, Marie-Helen Maras, *Counterterrorism* (Jones and Bartlett 2012).

¹⁶For detailed overview of these measures and their impact, see: Maras, *Counterterrorism*, *ibid.*

¹⁷Silvia Amaro, 'Hungary's nationalist leader Viktor Orban is ruling by decree indefinitely amid coronavirus' *CNBC*, (31 March 2020) <<https://www.cnn.com/2020/03/31/coronavirus-in-hungary-viktor-orban-rules-by-decree-indefinitely.html>> accessed 27 June 2022; Benjamin Novak and Patrick Kingsley, 'Hungary's Leader Grabbed Powers to Fight the Virus. Some Fear Other Motives' *New York Times* (New York, 5 April 2020) <<https://www.nytimes.com/2020/04/05/world/europe/viktor-orban-coronavirus.html>> accessed 27 June 2022.

¹⁸Iana Fremer, 'Hungary: National Assembly Adopts Act Giving Government Special Powers during Coronavirus Pandemic' *Global Legal Monitor* (26 May 2020) <<https://www.loc.gov/law/foreign-news/article/hungary-national-assembly-adopts-act-giving-government-special-powers-during-coronavirus-pandemic/>> accessed 27 June 2022.

¹⁹Jennifer L. Pomeranz and Aaron R. Schwid, 'Governmental actions to address COVID-19 misinformation' (2021) 42 *Journal of Public Health Policy* 201–210; U.S. Law Library, Library of Congress, 'Freedom of Expression during COVID-19' (September 2020) <<https://tile.loc.gov/storage-services/service/ll/llgldr/2020714999/2020714999.pdf>> accessed 20 June 2022; Human Rights Watch, 'Covid-19 Triggers Wave of Free Speech Abuse: Scores of Countries Target Media, Activists, Medics, Political Opponents' (11 February 2021) <<https://www.hrw.org/news/2021/02/11/covid-19-triggers-wave-free-speech-abuse#>> accessed 21 June 2022.

²⁰Alexandre Zouev, 'COVID and the Rule of Law: A Dangerous Balancing Act' *United Nations* <<https://www.un.org/en/coronavirus/covid-and-rule-law-dangerous-balancing-act>> accessed 22 June 2022.

Omicron),²¹ combined with concerns about vaccination rates, vaccine efficacy, and possible vaccine side effects, coalesce to form a multi-faceted justification for the continued use of emergency powers. These powers are used, *inter alia*, to authorize and enforce measures such as school closures; restrictions on the operation of non-essential retail stores, restaurants and tourism; the compulsory wearing of masks; as well as the limitations on the freedom of movement of citizens through border closures, lockdowns, curfews and ‘exercise perimeters’.²² Successive iterations of such restrictions have been imposed in many jurisdictions in an effort to mitigate the potential harms of exponential transmission of the virus. In some cases, members of the community have taken to the streets to protest these measures as inconsistent with constitutional protections,²³ civil liberties, or human rights.²⁴ Among the concerns articulated by community members and civil liberties groups is that emergency measures – like mass registration and surveillance measures – may gain permanence, and the intended and unintended impacts of these measures will continue after the pandemic ends.²⁵ As the next sections demonstrate, these concerns are not unwarranted.

COVID-19 mass registration and surveillance measures: normalizing digital health credentials and the use of technology for tracking purposes

The COVID-19 pandemic has led to sweeping measures impacting the functioning of society and the lives of the public in ways that have engaged individual rights to

²¹WHO, ‘Tracking SARS-CoV-2 variants’ <<https://www.who.int/en/activities/tracking-SARS-CoV-2-variants/>> accessed 22 June 2022.

²²At various stages throughout the pandemic exercise perimeters have been implemented in several jurisdictions, including parts of Australia, France, Ireland, Malaysia, Spain, South Africa, and Thailand. In this context, a range of websites have emerged that use geolocation data to provide personalised information about the exercise perimeter relative to a user’s home address. These sites variously rely on the manual entry of address or postcode, pin drop, or activation of location services. Some sites offer the additional service of monitoring an individual’s movements. In France, for example, the website covidradius.info tracks the user and includes an alert function that causes the individual’s phone to vibrate if they breach the exercise perimeter. The site also times the individual’s outing, and offers a visual display that progresses from green, to orange, and red as the permitted hour of exercise is consumed. While this particular site promises that user data is deleted immediately after each use, it is prudent to consider that the ostensible convenience of these services may conceal possible risks of breaches of privacy and sharing of data. Selma Daddi, ‘Covid-19: Map shows 1km exercise perimeter’ *The Connexion* (27 November 2020) <<https://www.connexionfrance.com/French-news/Covid-19-in-France-Map-shows-1km-exercise-perimeter>> accessed 25 June 2022.

²³In the United States, for example, COVID-19 restrictions have sparked legal scrutiny about possible interference with the First Amendment right to freedom of expression and assembly. In the case of *Ramsek v. Beshear*, (2020) in the U.S. State of Kentucky, the court found that “a blanket prohibition on gathering in large groups to express constitutionally protected speech is unconstitutional.” *Tony Ramsek v. Andrew Beshear*, Civil No. 3:20-cv-00036-GFVT (Opinion & Order) (U.S. District Court, Eastern District of Kentucky, June 24, 2020); See also Geoffrey Stone, ‘The First Amendment and Protests over COVID-19 Shutdowns’ *American Constitution Society* (23 April 2020) <<https://www.acslaw.org/expertforum/protesting-the-shutdowns/>> accessed 25 June 2022.

²⁴For example, in November 2021, simultaneous rallies were held in several Australian cities in protest of various measures related to COVID-19, including the mandating of vaccines for work in certain sectors. Protestors indicated discontent with what they perceived to be excessive use of power by the state and federal governments. Among the concerns voiced are the possibility of inter-generational effects of current measures, with one protester stating “[w]e have got to implement protections for our children.” Tom Cowie and Ashleigh McMillan, “Freedom” rally fills Melbourne’s streets again to protest vaccine mandates’ *The Age* (Melbourne, 27 November 2021) <<https://www.theage.com.au/national/victoria/freedom-rally-fills-melbourne-s-streets-again-to-protest-vaccine-mandates-20211127-p59cq3.html>> accessed 25 June 2022; That same month, in Austria, protests occurred following the implementation of a nationwide lockdown for unvaccinated persons, with the exception of those recently recovered from COVID-19. Geir Moulson, ‘Austria locks down the unvaccinated amid a surge of COVID-19’ *The Associated Press* (15 November 2021) <<https://apnews.com/article/coronavirus-pandemic-europe-austria-health-328073e5652a6b639123db72e985a201>> accessed 26 June 2022.

²⁵Conor Friedersdorf, ‘How to Protect Civil Liberties in a Pandemic’ *The Atlantic* (24 April 2020). <<https://www.theatlantic.com/ideas/archive/2020/04/civil-libertarians-coronavirus/610624/>> accessed 24 June 2022.

privacy and freedom of movement. Measures of mass registration and surveillance have played a particular role in this. One mass registration and surveillance measure implemented by governments and facilitated by private companies is contact tracing. Contact tracing was introduced to identify suspected and confirmed cases of COVID-19, as well as to monitor, and, in certain countries, restrict the movements of those who came into contact with, or were believed to have come into contact with, people suspected or confirmed to be infected with COVID-19. Contact tracing is made possible by smartphones and apps (as well as wristbands in certain jurisdictions).²⁶ States now have the power to obtain hitherto personal information about individuals – including where they have been, who they have associated with, and how long they were in the company of others. This power has been extended to the private sector as well, where individuals must provide personally identifiable information (e.g. name, home address, telephone number, and/or email address) and in some jurisdictions identification (i.e. national ID, driver's license, or passport), to access or be seated inside buildings (restaurants, cafes, and other establishments) and enjoy a good or service that is offered. Adequate limits to the data collected, shared, and used for contact tracing have not been set in the public sectors in most jurisdictions, least of all the private sectors within and outside of these jurisdictions.

There is considerable variation in practice between and within jurisdictions but, in general terms, individuals who wish – or need – to physically access services outside their own homes, have little choice but to submit to a continuous slew of requests for personal information from public and private bodies. The mechanisms for such requests include government-led initiatives that, in some jurisdictions, make entry to premises contingent on the scanning of a QR code, via an app, that registers their personal data, and their health status. The individual users of this app are unlikely to be aware of the uses to which their data may be put, and/or the extent to which private sector (commercial) actors and interests may be involved. In addition to concerns about the systematized (centralized) collection of data and the risk of possible sharing and monetization of these data, individuals may be asked to share their health/identifying data directly with private citizens and commercial entities. In the absence of assurances about the regulations for the collection, retention, sharing and use of these data – it is disconcerting that the pandemic now means that café patrons can now have their passports and health credentials collected by service staff – including through the photography of these documents on personal smartphones.

While the public health gains of increased testing and vaccination that have been achieved in some jurisdictions have allowed for the resumption of at least some freedom of movement and access to services, it is important to note that these gains have not necessarily been accompanied by a reduction in the mandatory collection of personal data. In many jurisdictions, access to commercial premises is still contingent on the presentation of personal health data (attestation of vaccination, recovery, or a negative PCR or rapid antigen test). In the context of the protracted exigencies of the COVID-19 public health crisis, the increasingly routine requests for personal data have the potential to jeopardize the recognition of health data as sensitive, personal data.

²⁶e.g., China, Singapore, South Korea, etc.

In many countries, health data is defined legislatively as sensitive personal data.²⁷ Protections of this kind also operate at the regional level. For example, health data and biometric data are defined as sensitive data by the European Commission, with specific conditions in place for the processing of these data.²⁸ Successive decisions of the European Court of Human Rights have found that health data is a particularly sensitive facet of a person's private life.²⁹ Although porous, these protections in statute and jurisprudence are an important recognition of the privacy risks associated with the sharing or misuse of sensitive personal information, such as health data.³⁰ There is, additionally, an extensive literature that documents concerns about the implications of the increasing digitalization of sensitive health information as part of an interlinked network of identifiable data that can be accessed by companies, including health insurance companies, to create behavioural and health profiles for individuals and groups.³¹ These concerns, and others, are given renewed focus in the context of the digital data drive of the COVID-19 pandemic.³²

National, regional, and global initiatives have also focused on the creation of digital health credentials and apps to provide testing, vaccination, and/or COVID-19 recovery information, and to perform contact tracing.³³ Pursuant to the creation of digital health identities, digital vaccines cards, passports, or passes serve as credentials to verify the health status of the carrier regarding immunization, testing of, and/or recovery from COVID-19. These credentials are available in digital format, such as a quick response (QR) code or some other form of digital artifact and are made available using a smartphone or tablet app.³⁴ The European Commission's Digital COVID Certificate is an example of one such initiative. This measure captures and stores the certificate holder's name, date of birth, the state where certificate was issued, and unique certificate identifier, and sensitive health information about: vaccinations (i.e. type, manufacturer, date, and number of doses of vaccine); testing (i.e. type, date, time, and result of testing, and the name of the testing facility); and/or COVID-19 recovery (i.e. date of positive result of COVID-19 testing, and date when and agency where certificate was issued).³⁵ The Digital COVID Certificate calls for 'interoperable, secure, and verifiable' certificates

²⁷Christophe Olivier Schneble, Bernice Simone Elger, and David Martin Shaw, 'All Our Data Will Be Health Data One Day: The Need for Universal Data Protection and Comprehensive Consent' [2020] 22(5) *Journal of Medical Internet Research* <<https://www.jmir.org/2020/5/e16879/>> accessed 27 June 2022; Björg Thorarensen, 'The Processing of Health Information- protecting the Individual Right to Privacy through Effective Legal Remedies' (2017) 7 *Health and Technology* 401–417.

²⁸Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data and repealing Directive 95/46/EC (General Data Protection Regulation) [2016] OJ L 119/1.

²⁹*P.T. v. the Republic of Moldova* App no 1122/12 (ECHR, 26 August 2020); *L.H. v. Latvia* App no 52019/07 (ECHR, 29 April 2014).

³⁰Thorarensen (n 27).

³¹Schneble, Elger, and Shaw (n 27); Julie Myers, Thomas R. Frieden, Kamal M. Bherwani, and Kelly J Henning, 'Privacy and Public Health at Risk: Public Health Confidentiality in the Digital Age,' (2008) 98 *American Journal of Public Health* 793–801.

³²Natalie Kofler and Françoise Baylis, 'Ten reasons why immunity passports are a bad idea,' *Nature* (21 May 2020) <<https://www.nature.com/articles/d41586-020-01451-0>> accessed 28 June 2022.

³³Hannah Brandler, 'Vaccine passports - a guide to the different options' *Business Traveler* (27 July 2021) <<https://www.businessstraveller.com/features/vaccine-passports-a-guide/>> accessed 28 June 2022.

³⁴Depending on the digital technology, digital health credentials may be accessible via websites using a computer in lieu of smartphone or tablet app access.

³⁵European Commission, 'Questions and Answers – Digital Green Certificate' (17 March 2021). <https://ec.europa.eu/commission/presscorner/detail/en/qanda_21_1187>.

across jurisdictions through the identification of technical standards and the minimum required types of data to be included in these certificates.³⁶ While interoperability is integral to the efficient and effective deployment of digital health credentials, there are currently no common standards informing the development of health credentials and, globally, there is considerable variability in approach.³⁷

While health credentials are not a new phenomenon, the digitization of these credentials at the scale envisioned is unprecedented and warrants critical review. Under an initiative that pre-dates the COVID-19 pandemic, travellers can carry what is known as an 'International Certificate of Vaccination or Prophylaxis.'³⁸ This certificate, a small yellow World Health Organization (WHO) booklet contained in Appendix 6 of the International Health Regulations (2005), includes information about vaccines the traveller has received (with stamps next to vaccinations for verification purposes). The certificate 'is valid only if the vaccine or prophylaxis used has been approved by the World Health Organization.'³⁹ According to the International Health Regulations (2005), the 'only disease ... for which proof of vaccination may be required as a condition of entry to a [s]tate party ... is yellow fever.'⁴⁰ The World Health Organization is currently considering a digital health credential known as the 'smart vaccination certificate.' This certificate will store vaccination information that can be accessed from a smartphone app or barcode on a paper vaccination card.⁴¹ At the time of writing, while COVID-19 vaccinations are not mandated for travel, COVID-19 testing is.

Digital health credentials have been banned in certain jurisdictions. A case in point is the United States where several U.S. states have outright banned the creation of these digital health credentials.⁴² For example, the Governor of Florida passed an executive order⁴³ prohibiting 'any government entity from issuing vaccine passports,'⁴⁴ holding that '[n]o Florida government entity, or its subdivisions, agents, or assigns, shall be permitted to issue vaccine passports, vaccine passes, or other standardized documentation

³⁶European Commission, (2021). 'Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on a framework for the issuance, verification and acceptance of interoperable certificates on vaccination, testing and recovery to third-country nationals legally staying or legally residing in the territories of Member States during the COVID-19 pandemic (Digital Green Certificate)' COM (2021) 140 final.

³⁷Lori Aratani, 'Digital health passports promise to simplify travel, but come with a lack of standards' *The Washington Post* (26 February 2021) <https://www.washingtonpost.com/local/trafficandcommuting/digital-health-passports/2021/02/26/d498fdb8-709c-11eb-85fa-e0ccb3660358_story.html> accessed 27 June 2022; Clothilde Goujard, 'Europe risks another tech tangle with vaccine passports' *Politico* (13 April 2021) <<https://www.politico.eu/article/vaccine-passports-echo-coronavirus-app-failures/>> accessed 28 June 2022.

³⁸Government of Canada, 'International Certificate of Vaccination or Prophylaxis' <<https://travel.gc.ca/travelling/documents/vaccination>> accessed 25 June 2022. This certificate replaced the "International Certificate of Vaccination or Revaccination against yellow fever" in Appendix 2 of the 1969 International Health Regulations. WHO, 'Strengthening health security by implementing the International Health Regulations (2005)' <https://www.who.int/ihr/ports_airports/icvp/en/> accessed 23 June 2022.

³⁹WHO, 'International Health Regulations (2005)' 3rd edition <<https://apps.who.int/iris/bitstream/handle/10665/246107/9789241580496-eng.pdf>> accessed 26 June 2022.

⁴⁰ibid.

⁴¹WHO, 'Interim guidance for developing a Smart Vaccination Certificate' (19 March 2021) <https://cdn.who.int/media/docs/default-source/documents/interim-guidance-svc_20210319_final.pdf?sfvrsn=b95db77d_11&download=true> accessed 25 June 2022.

⁴²For information about which states have banned the use of vaccine passports, see: Elliott Davis Jr., 'These states have banned vaccine passports' *U.S. News* (1 June 2021) <<https://www.usnews.com/news/best-states/articles/which-states-have-banned-vaccine-passports>> accessed 27 June 2022.

⁴³Kelly Murray and Gregory Lemos, 'Florida governor bans Covid-19 "vaccine passports"' *CNN* (3 April 2021) <<https://www.cnn.com/2021/04/03/us/florida-covid-vaccine-passport-ban/index.html>> accessed 26 June 2022.

⁴⁴State of Florida, Office of the Governor 'Executive Order Number 21-81' (prohibiting CCOVID-19 Vaccine Passports) <<https://www.figov.com/wp-content/uploads/2021/04/EO-21-81.pdf>> accessed 25 June 2022.

for the purpose of certifying and individual's COVID-19 vaccination status to a third party, or otherwise publish or share any individual's COVID-19 vaccination record or similar health information.⁴⁵ While measures like this ostensibly seek to protect the privacy of individual health data, the lack of a harmonized approach to digital health credentials in the United States has the potential to restrict the free movement of persons across borders, and impede access to places and services requiring these credentials. These issues are explored in further detail in the next section on social sorting.

States (and private companies) already utilize an array of technologies at border crossings to collect, store, and share vast quantities of data about travellers. Some of the proposed initiatives seek to enhance these efforts at the borders by deploying new technologies that provide medical information about travellers. The International Air Transport Association (IATA) deployed a Travel Pass (now decommissioned), which enabled users to store and manage their travel information and documentation and '[e]nable[d] passengers to (1) create a "digital passport," (2) verify their test/vaccination meets the regulations ... [and] (3) share ... test or vaccination certificates with authorities to facilitate travel.'⁴⁶ Other digital technologies, like the Health Pass provided by Clear, a U.S.-based biometric security company, are designed to link users' biometric identifiers to COVID-19 related health data.⁴⁷

Digital technologies implemented in response to COVID-19 and the ubiquitous digital health identification schemes created by them may persist well beyond the emergency. While certain measures (e.g. the EU Digital COVID Certificate) have so-called sunset clauses, whereby measures implemented in response to the COVID-19 pandemic will be suspended after the pandemic ends,⁴⁸ these measures also include provisions for reactivation in the event of another public health emergency.⁴⁹ Other countries, like China, have already announced that elements of their technological responses to COVID-19, such as their 'QR-code tracking system are likely to remain in place after the pandemic ends.'⁵⁰

Additional concerns relate to the risk of mission (or function) creep with COVID-19 measures, whereby the measures and/or data derived from these measures are used in ways that exceed their originally intended purpose. Particularly, the data collected by the COVID-19 contact tracing apps could possibly be used for purposes other than contact tracing. This concern was raised in Australia with the introduction of the COVID-Safe app.⁵¹ Specifically, the concern was that the data collected by this app could be used for law enforcement purposes. In response to this, and other privacy and data protection concerns raised about Australia's contact tracing app, the Privacy Amendment (Public

⁴⁵ibid section 1.

⁴⁶International Air Transport Association (IATA). 'IATA Travel Pass Initiative' <https://www.iata.org/en/programs/passenger/travel-pass/>.

⁴⁷Kif Leswing, 'CLEAR is poised to lead the multibillion-dollar biometric screening race for the coronavirus' *CNBC*, (17 June 2020) <<https://www.cnbc.com/2020/06/17/clear-poised-to-lead-biometric-screening-race-for-coronavirus.html>> accessed 29 June 2022.

⁴⁸European Commission, 'Questions and Answers – Digital Green Certificate' (n 35). Kofler and Baylis, 'Ten reasons why immunity passports are a bad idea' (n 32).

⁴⁹European Commission, 'Questions and Answers – Digital Green Certificate' (n 35).

⁵⁰Kofler and Baylis, *supra* note 32.

⁵¹Norton Rose Fulbright, 'Contact Tracing apps in Australia' (1 December 2020) <<https://www.nortonrosefulbright.com/-/media/files/nrf/nrfweb/contact-tracing/australia-contact-tracing.pdf?revision=9f35a88a-4124-4c48-b38f-68e86a187050&la=en-fr>> accessed 28 June 2022.

Health Contact Information) Act of 2020 was passed, which proscribed the use of contact tracing data for purposes other than contact tracing. Nevertheless, concerns of function creep for these apps are warranted in countries without similar legislation in place. For instance, in Singapore, it was revealed almost a year following the adoption of the contact tracing app, TraceTogether, that data from the app and tokens were made available to and shared with law enforcement agencies.⁵² In the United States, where identity data is monetized, there is no guarantee that the data collected will not be sold to marketers and other third parties. In fact, a contact tracing app used in North Dakota was found to share a user's unique identifier, location, and other data with private third parties (e.g. Foursquare and Google).⁵³

Social sorting

Mass registration and surveillance measures have been likened to Jeremy Bentham's prison design – the 'panopticon.' This prison design is circular, has a central guard in the centre of the prison and prison cells along the circumference of the prison structure.⁵⁴ The placement of the tower enables guards to observe every cell in the prison without being seen. The purpose of this prison design is to control inmate behaviour by giving the impression of continuous surveillance. Inmates believe that they are continuously monitored, as they cannot verify the presence or absence of the guards in the central tower. They therefore avoid undesirable behaviour and behave as if they are constantly being watched. Panoptic measures thus monitor all to compel conformity and compliance.

Digital technologies have been deployed in response to COVID-19 to monitor the entire population. This monitoring enables both public and private sector entities to manage the population. Oscar Gandy used the term 'panoptic sort' to describe the process whereby individuals of the population are sorted on the basis of their perceived political, economic, or social worth or value.⁵⁵ Building upon the notions of the panopticon and the 'panoptic sort,' David Lyon proposed that the ultimate goal of surveillance is classification. Surveillance technologies are designed to identify, assess, classify, and sort members of the population into defined categories or groups according to predetermined criteria, a process described as 'social sorting.'⁵⁶ Social sorting seeks to manage, govern, and influence behaviour based on categorizations.⁵⁷ These categories are thus formal mechanisms used to socially control groups and induce their conformity. The categories created because of social sorting and the persons within these categories can shift over time, especially when the boundaries of the categories are redefined.

⁵²Andreas Illmer, 'Singapore reveals Covid privacy data available to police' *CNN* (5 January 2021). <<https://www.bbc.com/news/world-asia-55541001>> accessed 27 June 2022.

⁵³Isobel Asher Hamilton, 'Researchers found North Dakota's contact-tracing app covertly sending location and advertising data to third parties' *Business Insider* (22 May 2020) <<https://www.businessinsider.com/north-dakota-contact-tracing-app-violating-privacy-policy-2020-5>> accessed 29 June 2022.

⁵⁴Janet Semple, *Bentham's Prison: A Study of the Panopticon Penitentiary* (Clarendon Press 1993).

⁵⁵Oscar H. Gandy Jr., *The Panoptic Sort: A Political Economy of Personal Information* (*Critical Studies in Communication and in the Cultural Industries*) (Westview Press 1993).

⁵⁶David Lyon (ed), *Surveillance as Social Sorting: Privacy, risk, and digital discrimination* (Routledge 2003).

⁵⁷David Lyon, 'Why Where You are Matters: Mundane Mobilities, Transparent Technologies, and Digital Discrimination' in Torin Monahan (ed), *Surveillance and Security: technological Politics and Power in Everyday Life* (Routledge 2006).

Social sorting can discriminate against some individuals, while privileging others.⁵⁸ Digital tools that allow for mass data collection, surveillance and automated decisions have played a particularly powerful role in deepening inequalities of discriminatory public policy. Virginia Eubanks writes that '[p]eople of colour, migrants, unpopular religious groups, sexual minorities, the poor, and other oppressed and exploited populations bear a much higher burden of monitoring and tracing than advantaged groups.'⁵⁹ The consequences of these surveillance, sorting, and automated decision-making processes are largely concealed from public view, which creates the 'ethical distance' that allows for 'inhuman choices' about access to public services.⁶⁰ While the digital processes for this sorting are largely inscrutable, the categories created through social sorting lead to overtly differential treatment of those sorted, with adverse material impacts on their life choices and opportunities, including compromised access to education, employment, travel, leisure and other activities and services.

These extant digital social sorting practices have been both expanded and exacerbated in the context of the COVID-19 response. For example, China, which does not require the consent of users to collect and use data from COVID-19 measures,⁶¹ requires its citizens to install the Health Code app (or AliPay and WeChat alternatives) on their smartphones.⁶² The app provides information about the status of individuals in the form of a colour code (green, yellow or red), with associated restrictions based on the colour: green, no restriction; yellow, at risk, 7-day quarantine; red, high risk, 14-day quarantine.⁶³ These health codes are designed to control and monitor the movements of populations in China. To gain access to public spaces and commercial sectors, including shopping malls, transportation systems, residences, and office buildings, individuals must verify their COVID-19 health status through the app. In some places in China, it is virtually impossible to move through areas and into public and private spaces without it.⁶⁴ Not only can access to certain premises be blocked by the app, but also the freedom to exit premises. In particular, in certain areas in China, a user's smartphone QR code must be scanned before exiting apartment complexes. Accordingly, if a user has been assigned a yellow or red QR code they will be prevented from leaving their home.⁶⁵ Other countries have developed similar apps that use digital health codes (QR codes) as access control mechanisms (e.g. a Turkey's 'Hayat Eve Siğar' contact tracing app).⁶⁶ These surveillance

⁵⁸Nancy Lewis, 'Expanding surveillance: connecting biometric information systems to international police cooperation' in Elia Zureik and Mark B. Salter (eds), *Global Policing and Surveillance: Borders, Security, Identity* (Willan 2005).

⁵⁹Virginia Eubanks, *Automating Inequality: How High-Tech Tools Profile, Police and Punish the Poor* (St. Martin's Press 2017) 6.

⁶⁰ibid 13.

⁶¹Norton Rose Fulbright, 'Contact Tracing Apps in China' (11 May 2020) <<https://www.nortonrosefulbright.com/-/media/files/nrf/nrfweb/contact-tracing/china-contact-tracing.pdf?revision=249d55f4-eb9a-49dd-8491-b8c9c7626691&la=en-fr>> accessed 27 June 2022.

⁶²Paul Mozur, Raymond Zhong, and Aaron Krolik, 'In Coronavirus Fight, China Gives Citizens a Color Code, With Red Flags' *New York Times* (1 March 2020, updated 28 January 2021) <<https://www.nytimes.com/2020/03/01/business/china-coronavirus-surveillance.html>> accessed 28 June 2022; Norton Rose Fulbright, 'Contact Tracing Apps in China' (n 61).

⁶³Helen Davidson, 'China's coronavirus health code apps raise concerns over privacy' *The Guardian* (1 April 2020) <<https://www.theguardian.com/world/2020/apr/01/chinas-coronavirus-health-code-apps-raise-concerns-over-privacy>> accessed 26 June 2022.

⁶⁴Mozur, Zhong, and Krolik, 'In Coronavirus Fight, China Gives Citizens a Color Code, With Red Flags' (n 62).

⁶⁵Norton Rose Fulbright, 'Contact Tracing Apps in China' (n 61).

⁶⁶Norton Rose Fulbright, 'Contact Tracing Apps in Turkey' (21 January 2021) <<https://www.nortonrosefulbright.com/-/media/files/nrf/nrfweb/contact-tracing/turkey-contact-tracing.pdf?revision=8ab8149f-9e69-4a7f-a3ab-4b814fa96848&la=en-fr>> accessed 29 June 2022.

technologies interfere with right to freedom of movement enshrined in international and regional human rights instruments, such as in Article 13 of the Universal Declaration on Human Rights of 1948, Article 2 of Protocol No. 4 to the European Convention on Human Rights of 1950, Article 12 of International Covenant on Civil and Political Rights of 1966, Article 22 of the American Convention on Human Rights of 1969, Article 12 of the African Charter on Human and Peoples Rights of 1981, Article 39 of the International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families of 1990, and Article 18 of the United Nations Convention on the Rights of Persons with Disabilities of 2006.

Within the broader framework of considerations about freedom of movement, it is important that careful consideration be given to the carceral implications of technologies that have the potential to confine persons to their homes. In jurisdictions where the response to the COVID-19 pandemic has seen the convergence of the mandatory provision of personal health data and the mandatory use of technology, we are witnessing the adoption (and potential naturalization) of new modes of authority in regulating private space, and/or the liminal space/s between the private and public spheres. While public health and security have been the dominant paradigms for response to the COVID-19 pandemic, it is essential that we apply a critical interpretive lens to ensure full consideration of the moral, ethical, and human rights dimensions of measures that may encroach ever further on personal freedoms, including freedom of movement. These considerations are not straight-forward, and involve balancing a range of human rights, including the right to health.

One area in which the balancing of human rights is particularly challenging is in the collection of personal data, including health data, in association with movement within and across borders. There is an international obligation for States to cooperate, within available resources, to achieve full realization of the right to health.⁶⁷ The COVID-19 pandemic has offered particular challenges for States in fulfilling this obligation in a manner that avoids interference with other human rights such as freedom of movement,⁶⁸ and freedom from arbitrary interference with privacy.⁶⁹

The COVID-19 pandemic has seen a rapid expansion of existing cooperation between states regarding the collection of personal data at border crossing points. Border technologies determine the conditions for access and exclusion and seek to regulate entry and exit, and sort individuals into categories for exclusion or inclusion.⁷⁰ Specifically, borders discriminate between safe or unsafe (or low-risk or high-risk) travellers. The mobility of those considered high-risk is slowed, while those considered low-risk experience

⁶⁷Convention on the Rights of the Child (1990). Art 24(4); International Covenant on Economic, Social and Cultural Rights (adopted 16 December 1966, entered into force 3 January 1976) UNGA Res 220A (XXI) art 2(1). See also John William Tobin, *The Right to Health in International Law* (Oxford University Press 2011).

⁶⁸International Covenant on Civil and Political Rights (adopted 16 December 1966, entered into force 23 March 1976) 999 UNTS 171 (ICCPR) art 12. It is important to note that this is not an absolute right. Article 12 (3) indicates that freedom of movement, *inter alia*, "shall not be subject to any restrictions except those which are provided by law, are necessary to protect national security, public order (*ordre public*), public health or morals or the rights and freedoms of others, and are consistent with the other rights recognized in the present Covenant."

⁶⁹As with the right to freedom of movement, the right to freedom from arbitrary interference with privacy is not an absolute right. Article 17(1) of the International Covenant on Civil and Political Rights of 1966 holds that "No one shall be subjected to *arbitrary or unlawful interference* with his privacy, family, home or correspondence, nor to unlawful attacks on his honour and reputation" (emphasis added).

⁷⁰Mark B. Salter, 'At the threshold of security: a theory of international borders' in Elia Zureik and Mark B. Salter (eds) *Global Policing and Surveillance: Borders, Security, Identity* (Willan 2005).

faster mobility.⁷¹ Health data, along with other data obtained from different databases, are used at borders to create and share profiles about travellers. What has been observed is the ‘informatization of border’ in which information systems at the border are connected to numerous other databases that contain personally identifiable information.⁷²

The digital health credentials based on data obtained from these interconnected databases are designed to monitor and ultimately sort individuals by creating digital profiles (or digital health identities) based on COVID-19 health status. The ‘new’ categories created through social sorting include ‘vaccinated’/‘non-vaccinated’ based on vaccination status and vaccine brand and ‘antibodies’/‘no antibodies’ and ‘infected’/‘not infected’ based on COVID-19 diagnostic screening. The new social sorting categories created because of COVID-19 are used to discriminate between persons based on health status.

Digital health credentials are also used to socially sort the population by serving as a mechanism to block or gain access to facilities and services and facilitate movement. The digital identity created as a response to COVID-19 based on immunization, testing, and/or recovery information normalizes the use of digital health credentials as an access control measure. As an access control measure, this digital identity is used to manage access to places, people, facilities, and services of populations. In the United States, in New York City, in mid-August 2021, proof of vaccinations served as a form of access control for indoor dining, fitness and entertainment (e.g. gyms, museums, movie theatres, restaurants, etc.); other U.S. cities have adopted similar policies as well.⁷³ In Europe, certain countries have similarly mandated vaccinations for places with indoor seating (e.g. Greece and France).⁷⁴ Digital health credentials, therefore, serve as a token of eligibility and the database where this information is stored facilitates and permits sorting and classification based on immunization, testing, and recovery status. These credentials, and other COVID-19 related digital technologies, are designed to restrict individuals’ choices and movements to force behavioural change. Ultimately, these technologies normalize social sorting of populations based on health status.

The cascading and disproportionate effects of the COVID-19 pandemic and social sorting: vaccine access inequality, the digital divide, and stigmatization

The COVID-19 pandemic has deepened existing forms of discrimination and inequality, disproportionately impacting certain populations – the poor, women, racial minorities, and migrants, who were already disproportionately disadvantaged pre-pandemic. In

⁷¹ibid.

⁷²Irma van der Ploeg, ‘Borderline identities: the enrollment of bodies in technological reconstructions of borders’ in Torin Monahan (ed) *Surveillance and Security: technological Politics and Power in Everyday Life* (Routledge 2006).

⁷³Bobby Caina Calvan, ‘No shot, no proof, no service: NYC businesses begin checks’ *Associated Press* (17 August 2021) <<https://apnews.com/article/lifestyle-business-health-coronavirus-pandemic-0c94e94960b9150668e37599aed3872f>> accessed 30 June 2022; Emily Alpert Reyes and Luke Money, ‘L.A. moves toward vaccine requirement for indoor restaurants, stores, gyms, bars’ *Los Angeles Times* (11 August 2021) <<https://www.latimes.com/california/story/2021-08-11/l-a-moves-toward-vaccine-requirement-for-restaurants-stores-gyms>> accessed 30 June 2022; City of New York, ‘Vaccination Proof for Indoor Activities (Key to NYC)’ <<https://www1.nyc.gov/site/doh/covid/covid-19-vaccines-keytonyc.page>> accessed 30 June 2022.

⁷⁴Elena Becatoros, ‘European nations impose incentives, penalties to boost shots’ *Associated Press* (17 July 2021) <<https://apnews.com/article/lifestyle-europe-business-health-government-and-politics-e2de01c25697dead365ae76b86aa6a7b>> accessed 30 June 2022.

the early stages of the pandemic data emerged in the United States that showed a disproportionate rate of COVID-19 related infections and deaths among minority racial/ethnic groups.⁷⁵ Subsequent studies confirmed these findings both for the United States and other jurisdictions. In Europe, COVID-19 has disproportionately impacted racialized communities.⁷⁶ In England and Wales, ethnic minorities have a greater risk of death from COVID-19 than those of white ethnicity.⁷⁷ In Brazil, a disproportionate number of Black Brazilians have died from COVID-19.⁷⁸ In the United States, the COVID Racial Data Tracker revealed greater death rates from COVID-19 for African-Americans, American Indians, Alaskan Natives, Hispanics, and Native Hawaiian and other Pacific Islanders.⁷⁹ In May 2020, the Navajo Nation in the United States had higher COVID-19 infection rates and hospitalization rates than U.S. states, such as New York and New Jersey.⁸⁰ African Americans and Hispanics have also had high infection and hospitalization rates with respect to their proportion within state populations.⁸¹ At the global level, the United Nations Office of the High Commissioner for Human Rights (OHCHR) has expressed concern about the 'devastating health consequences of COVID-19 for people of African descent and certain national or ethnic minorities' citing this as highlighting 'underlying structural inequalities and fundamental problems in various areas of social, economic, civil and political life, and exacerbating racism and racial discrimination, which exist in many parts of the world.'⁸²

⁷⁵Samrachana Adhikari and others, 'Assessment of Community-Level Disparities in Coronavirus Disease 2019 (COVID-19) Infections and Deaths in Large US Metropolitan Areas' *JAMA Network Open* (28 July 2020) <<https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2768723>> accessed 28 June 2022; UK Office for National Statistics, 'Why Have Black and South Asian People Been Hit Hardest by COVID-19?' (14 December 2020) <<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/articles/whyhaveblackandsouthasianpeoplebeenhithardestbycovid19/2020-12-14>> accessed 25 June 2022; Raghavendra Tirupathi and others, 'COVID-19 disparity among racial and ethnic minorities in the US: A cross sectional analysis' (2020) 38 *Travel Medicine and Infectious Disease* 101904 <<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7603979/pdf/main.pdf>> 23 June 2022; Gbenga Ogedegbe and others, 'Assessment of Racial/Ethnic Disparities in Hospitalization and Mortality in Patients With COVID-19 in New York City' (2020) 3(12) *JAMA Network Open*, 1–14; Centers for Disease Control and Prevention (CDC), 'Health Equity Considerations & Racial & Ethnic Minority Groups' (30 November 2021) <<https://www.cdc.gov/coronavirus/2019-ncov/community/health-equity/race-ethnicity.html>> accessed 22 June 2022.

⁷⁶The European Network Against Racism (ENAR) created an interactive map that identified the impact of COVID-19 on racialized communities and the countries where these communities are located. European Network Against Racism (ENAR), 'COVID-19 impact on racialised communities: interactive EU-wide map' <<https://www.enar-eu.org/COVID-19-impact-on-racialised-communities-interactive-EU-wide-map>> accessed 23 June 2022.

⁷⁷UK Office of National Statistics, 'Coronavirus (COVID-19) related deaths by ethnic group, England and Wales: 2 March 2020–10 April 2020' <<https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/articles/coronavirusrelateddeathsbyethnicgroupenglandandwales/2march2020to10april2020>> accessed 26 June 2022.

⁷⁸Dom Phillips, 'Enormous disparities': coronavirus death rates expose Brazil's deep racial inequalities' *The Guardian* (9 June 2020) <<https://www.theguardian.com/world/2020/jun/09/enormous-disparities-coronavirus-death-rates-expose-brazils-deep-racial-inequalities>> accessed 27 June 2022.

⁷⁹COVID Racial Data Tracker (data collected up until May 7, 2021): <https://covidtracking.com/race>.

⁸⁰Hollie Silverman, Konstantin Toropin, and Sara Sidner, 'Navajo Nation surpasses New York state for the highest Covid-19 infection rate in the US' *CNN* (18 May 2020) <<https://www.cnn.com/2020/05/18/us/navajo-nation-infection-rate-trnd/index.html>> accessed 28 June 2022; Elizabeth Warren and Deb Haaland, 'Opinion: The federal government fiddles as covid-19 ravages Native Americans' *The Washington Post* (26 May 2020) <<https://www.washingtonpost.com/opinions/2020/05/26/federal-government-fiddles-covid-19-ravages-native-americans/>> accessed 28 June 2022; Liz Mineo, 'For Native Americans, COVID-19 is "the worst of both worlds at the same time"' *The Harvard Gazette* (8 May 2020) <<https://news.harvard.edu/gazette/story/2020/05/the-impact-of-covid-19-on-native-american-communities/>> accessed 26 June 2022.

⁸¹Pinar Karaca-Mandic, Archelle Georgiou, and Soumya Sen, 'Assessment of COVID-19 Hospitalizations by Race/Ethnicity in 12 States' (2020) 181(1) *JAMA Internal Medicine* 131–134; CDC, 'Health Equity Considerations & Racial & Ethnic Minority Groups' (n 75).

⁸²UN OHCHR, 'Racial Discrimination in the Context of the Covid-19 Crisis' (22 June 2020) <https://www.ohchr.org/sites/default/files/Documents/Issues/Racism/COVID-19_and_Racial_Discrimination.pdf> accessed 23 June 2022.

Pandemic-related inequality is not only reflected in infection and death rates, but also with respect to employment. OHCHR reports that people of African descent, people of Asian descent and Roma 'represent a significant percentage of frontline workers – the nursing personnel; health aides; care workers; grocery and delivery staff; bus and transport drivers, who are more exposed to the risk of contamination, and have been making up the large numbers of contaminations and deaths in the current pandemic.'⁸³ In addition to the increased health risks faced by frontline workers, global data show that racialized groups and migrants are over-represented in the precarious or informal employment arrangements that have been disproportionately impacted by job and income losses during the pandemic.⁸⁴ According to the International Labour Organization (ILO), '[i]n total, there were unprecedented global employment losses in 2020 of 114 million jobs relative to 2019,'⁸⁵ with low paid and low skilled workers disproportionately impacted by job loss.⁸⁶ Data from the ILO also revealed that '[i]n relative terms, employment losses were higher for women (5.0 per cent) than for men.'⁸⁷ In 2020, women were also more likely than men to drop out of the workforce.⁸⁸ Moreover, women with children were disproportionately affected by the pandemic because childcare facilities closed and women had to shoulder the burden of childcare and the education of their children through home schooling.⁸⁹ It is no surprise, therefore, that 2020 was described as a 'shecession.'⁹⁰

Pandemic-related inequality was also reflected in opportunities to work from home during the COVID-19 pandemic. The poor, women, racial and ethnic minorities, and migrant workers often work in positions that were considered as 'essential work' during the pandemic.⁹¹ Essential workers work in healthcare, childcare, retail, trade industries, agriculture and food production, transportation, and social services, among other sectors.⁹² By nature of the work, essential workers had limited remote work opportunities. Data from 2017 revealed that 5% of U.S. workers (approximately 7.6 million) were unauthorized migrant workers, many of whom worked in essential jobs and/or sectors where jobs could not viably be performed

⁸³ *ibid.*

⁸⁴ *ibid.*

⁸⁵ International Labour Organization (ILO), 'ILO Monitor: COVID-19 and the world of work' Seventh edition (25 January 2021), p. 2 <https://www.ilo.org/wcmsp5/groups/public/@dgreports/@dcomm/documents/briefingnote/wcms_767028.pdf> accessed 21 June 2022.

⁸⁶ *ibid.* 9.

⁸⁷ *ibid.* 2.

⁸⁸ *ibid.* 9.

⁸⁹ Marguerite Ward, 'The pandemic is set to shutter 40% of US childcare centers — and it could prove catastrophic for the careers of American women' *Business Insider* (30 July 2020) <<https://www.businessinsider.com/pandemic-child-care-closures-could-be-terrible-for-womens-careers-2020-5>> accessed 23 June 2022; Alicia Sasser Modestino, 'Coronavirus child-care crisis will set women back a generation' *The Washington Post* (29 July 2020) <<https://www.washingtonpost.com/us-policy/2020/07/29/childcare-remote-learning-women-employment/>> accessed 23 June 2022; Alexandra Olson and Cathy Bussewitz, 'Child care crisis pushes US mothers out of the labor force' *Associated Press* (4 September 2020) <<https://apnews.com/article/virus-outbreak-ap-top-news-lifestyle-ga-state-wire-business-ad57cb9e16746df766215301163a4f08>> 23 June 2022.

⁹⁰ Alisha H. Gupta, 'Why Some Women Call this Recession a "Shecession"' *New York Times* (9 May 2020, updated 13 May 2020) <<https://www.nytimes.com/2020/05/09/us/unemployment-coronavirus-women.html>> accessed 24 June 2022.

⁹¹ Catherine Powell, 'A Year on, the "Color of Covid" Still Matters' *CNN* (26 March 2021) <<https://www.cnn.com/2021/03/26/opinions/color-of-covid-biden-administration-powell/index.html>> accessed 25 June 2022; CDC, 'Health Equity Considerations & Racial & Ethnic Minority Groups' (n 75).

⁹² Centers for Disease Control and Prevention, 'Interim List of Categories of Essential Workers Mapped to Standardized Industry Codes and Titles' <<https://www.cdc.gov/vaccines/covid-19/categories-essential-workers.html>> accessed 28 June 2022.

remotely.⁹³ Similarly, in the European Union, migrant workers predominately worked in essential sectors where remote work could not be performed.⁹⁴ To keep their jobs during the pandemic, these workers had to report to work in person, despite the associated risks. Non-essential workers, however, had opportunities to isolate and work from home, reducing their chances of infection. Even after the pandemic, remote work opportunities will remain. This 'temporary' measure for some industries has become permanent. Remote work thus continues to remain out of reach for certain members of the population.

Likewise, the mass surveillance and registration measures implemented in response to COVID-19 are hardly class, race, ethnicity, and gender neutral. It is well-documented that, even prior to the COVID-19 pandemic, marginalized groups have been subjected to disproportionate levels of both embodied and digital forms of surveillance and data collection.⁹⁵ In what Virginia Eubanks describes as 'a feedback loop of injustice' marginalized groups are subjected to ever-intensified levels of surveillance, which then reinforces marginality, including by informing automated and embodied decisions about access to essential services.⁹⁶ From this vastly inequitable playing field, the widespread use of surveillance and registration measures during the COVID-19 pandemic has the potential to deepen discrimination against already marginalized groups.⁹⁷ The digital sorting processes mobilized in the field of public health, for example, rely on algorithms that operate according to the discriminatory bias of big data.⁹⁸ While these challenges are widely recognized within the field of machine learning,⁹⁹ there is not yet any formal global agreement on ethical practice in the field of artificial intelligence (AI), including within healthcare settings.¹⁰⁰ Furthermore, scholars have documented the ethical and practical limitations of efforts to ensure fairness solutions with healthcare machine learning.¹⁰¹ In the context of these well-documented challenges, it is clear that '[u]ncritically deploying AI in the fight against [COVID]-19 thus risks amplifying the pandemic's adverse effects on vulnerable groups, exacerbating health inequality.'¹⁰²

Despite these well-documented risks, in many countries the pandemic response has involved the use of automated decision-making tools to determine an individual's eligibility for access to healthcare, vaccines, financial support, social protection services, and education, as well as the freedom to enter premises and cross borders. These measures

⁹³Jens Manuel Krogstad, Mark Hugo Lopez, and Jeffrey S. Passel, 'A majority of Americans say immigrants mostly fill jobs U.S. citizens do not want' *Pew Research Center* (10 June 2020) <<https://www.pewresearch.org/fact-tank/2020/06/10/a-majority-of-americans-say-immigrants-mostly-fill-jobs-u-s-citizens-do-not-want/>> accessed 27 June 2022.

⁹⁴Francesco Fasani and Jacopo Mazza, 'A Vulnerable Workforce: Migrant Workers in the COVID-19 Pandemic' (Publications Office of the European Union 2020); Liam Patuzzi, 'Taking the Long View: Options for inclusive post-pandemic labour markets' *Migration Policy Institute Europe* (August 2021) <https://www.migrationpolicy.org/sites/default/files/publications/mpie_integration-futures_immigrants-econ-recovery_final.pdf> accessed 26 June 2022.

⁹⁵Andrew Clarke, Cameron Parsell, and Nahar Lata, 'Surveilling the marginalised: How manual, embodied and territorialised surveillance persists in the age of "dataveillance"' (2021) 69(2) *The Sociological Review* 396–413.

⁹⁶Eubanks, *Automating Inequality* (n 59) 7.

⁹⁷OHCHR, *supra* note 82.

⁹⁸David Leslie and others, 'Does "AI" stand for augmenting inequality in the era of covid-19 healthcare?' (2021) 372 *BMJ* 304, 1–5.

⁹⁹Trishan Panch, Heather Mattie, and Rifat Atun, 'Artificial intelligence and algorithmic bias: implications for health systems' (2019) 9(2) *Journal of Global Health* 1–5; Jenna Wiens, W. Nicholson Price II, and Michael W. Sjoding, 'Diagnosing bias in data-driven algorithms for healthcare' (2020) 26 *Nature Medicine* 25–26.

¹⁰⁰Anna Jobin, Marcello Ienca, and Effy Vayena, 'The global landscape of AI ethics guidelines' (2019) 1 *Nature Machine Intelligence* 389–399.

¹⁰¹Melissa D. McCradden, Shalmali Joshi, Mjaye Mazwi, and James A. Anderson, 'Ethical limitations of algorithmic fairness solutions in health care machine learning' (2020) 2(5) *The Lancet* 221–223.

¹⁰²Leslie and others, 'Does "AI" stand for augmenting inequality in the era of covid-19 healthcare?' (n 98).

are both blind to the structural inequalities in societies, while also driven and informed by methodologies of data collection and analysis that deepen such inequalities. The adverse consequences of this dynamic are particularly acute in the context of the COVID-19 pandemic because the stakes are so high – access to emergency healthcare and vaccines is literally a matter of life and death. The consequences of inequitable public policy are also deeply felt because these materially inform access to services across all aspects of life, including: access to healthcare, access to education, access to employment; access to social services including housing and social protection services. The cumulative effect of discriminatory public health policy is profound for the individuals and groups that face discrimination and injustice at each of these access points. Against this unacceptable context of persistent and deepening inequality and discrimination, the pandemic has sparked criticism about public policy approaches that are blind to existing forms of inequality.¹⁰³ This criticism has been accompanied by calls for an investment in gender-sensitive and inclusive public policy, and budgeting, to ensure an equitable basis for policy decisions in respect of the current and future public health crises.¹⁰⁴

Social sorting, an outcome of mass surveillance and registration measures, has cascading, disproportionate effects on populations and deepens pre-pandemic discrimination and inequality in violation of human rights. Even though the core human rights principle and substantive right to non-discrimination is enshrined in several international and regional human rights instruments,¹⁰⁵ populations continue to experience the adverse impacts of discrimination as manifested by inequitable vaccine access, the deepening of the digital divide, and stigmatization (each of these are explored individually below).

Inequitable access to the COVID-19 vaccine

A key aspect in which the COVID-19 pandemic has significantly exacerbated existing inequalities relates to the inequitable access to preventive medicine such as vaccines. The COVID-19 vaccine is considered as a social good. Social goods can be either public, common, private or club goods:¹⁰⁶ public goods are goods that are non-excludable

¹⁰³Report of the Special Rapporteur on violence against women, its causes and consequences, Dubravka Šimonović, 'Intersection between the coronavirus disease (COVID-19) pandemic and the pandemic of gender-based violence against women, with a focus on domestic violence and the "peace in the home" initiative' (24 July 2020) A/75/144; Farah Naz, Muhammad Ahmad, and Asad Umair, 'COVID-19 and inequalities: the need for inclusive policy response' (2021) 43(3) History and Philosophy of the Life Sciences 86.

¹⁰⁴UN Women, 'COVID-19 and Fiscal Policy: Applying Gender-Responsive Budgeting in Support and Recovery Measures' Policy Brief No. 21 <<https://www.unwomen.org/sites/default/files/Headquarters/Attachments/Sections/Library/Publications/2021/Policy-brief-COVID-19-and-fiscal-policy-en.pdf>> 25 June 2022; OECD, 'Towards gender-inclusive recovery' (19 May 2021) <https://read.oecd-ilibrary.org/view/?ref=1094_1094692-vsm1fncha&title=Towards-gender-inclusive-recovery> accessed 26 June 2022; Esmé Berkhout and others, 'The Inequality Virus: Bringing together a world torn apart by coronavirus' Oxfam (January 2021) <<https://oxfamlibrary.openrepository.com/bitstream/handle/10546/621149/bp-the-inequality-virus-250121-en.pdf>> accessed 30 June 2022.

¹⁰⁵E.g., Universal Declaration of Human Rights (adopted 10 December 1948 UNGA Res 217 A(III) (UDHR) art 2 and 7; Convention for the Protection of Human Rights and Fundamental Freedoms (European Convention on Human Rights, as amended) (ECHR) art 14; International Covenant on Civil and Political Rights (adopted 16 December 1966, entered into force 23 March 1976) 999 UNTS 171 (ICCPR) art 2(1) and 26; International Covenant on Economic, Social and Cultural Rights (adopted 16 December 1966, entered into force 3 January 1976) UNGA Res 220A (XXI) art 2(2); American Convention on Human Rights (adopted 22 November 1969, entered into force 18 July 1978) Organization of American States (OAS) art 1 and 24; African Charter on Human and Peoples' Rights (adopted 27 June 1981, entered into force 21 October 1986) (1982) 21 ILM 58 (African Charter) art 2 and 18(3); and Convention on the Rights of Persons with Disabilities (adopted 13 December 2006, entered into force 3 May 2008) art 5.

¹⁰⁶Marie-Helen Maras, *Transnational Security* (CRC Press 2014). Hella Engerera, 'Security as a Public, Private, or Club Good: Some Fundamental Considerations' (2011) 22(2) Defence and Peace Economics, Special Issue: The Economics of

(available to all) and non-rival (greater consumption does not change supply); common goods are those that are non-excludable and rival (consumption reduces availability of good for others); private goods are excludable (availability is restricted) and rival; and club goods are excludable (availability of goods restricted to defined set of users) and non-rival. At the Global Vaccine Summit, held on June 4, 2020, the UN Secretary-General António Guterres stated that 'a COVID-19 vaccine must be seen as a global public good, a people's vaccine.'¹⁰⁷ Tedros Adhanom Ghebreyesus, the Director-General of the World Health Organization, has also emphasized the vaccine as a global public good, stating that vaccine equity is 'not rocket science, or charity. It is smart public health and in everyone's best interest.'¹⁰⁸ The United Nations High Commissioner on Human Rights, Michelle Bachelet, has also said that access to vaccines is a human right, and must be a global public good.¹⁰⁹

While the population benefits of the vaccine (i.e. extensive immunization or herd immunity) can be considered as a public good, the vaccine itself is a private good as it is excludable and rival. The approach to the manufacture and distribution of vaccines is constrained by competitive market forces and geopolitical complexities, tensions, and entrenched inequities within and between countries. Indeed, in the context of the prevailing capitalist model of crisis response and recovery, decisions about vaccine distribution are shaped not by theories of public good, but rather by the same divisive and forces of competition, discrimination, and social sorting that have long produced inequitable access to healthcare.

Accordingly, the vaccine has been inequitably distributed across nations. According to UNAIDS, as of March of 2021, while wealthier nations vaccinated an average of one person per second, the majority of persons in the poorest nations had yet to receive the first COVID-19 vaccine dose.¹¹⁰ The COVAX initiative, 'co-led by Gavi, the Coalition for Epidemic Preparedness Innovations (CEPI) and WHO,' 'aim[s] ... to accelerate the development and manufacture of COVID-19 vaccines, and to guarantee fair and equitable access for every country in the world.'¹¹¹ Even with this initiative in place, vaccine distribution has been uneven.¹¹² Buy-in from countries regarding this initiative, and hoarding have slowed vaccine distribution to poorer nations.¹¹³ Waves of COVID-19 infections in

Security: A European Perspective 379–404; Elke Krahnmann, 'Security: Collective Good or Commodity?' (2008) 14(3) *European Journal of International Relations* 135–145.

¹⁰⁷UN Secretary-General, 'Press Release: Everyone, Everywhere Must Have Access to Eventual COVID-19 Immunization, Secretary-General Says in Video Message for Global Vaccine Summit' SG/SM/20108. <<https://www.un.org/press/en/2020/sgsm20108.doc.htm>> accessed 21 June 2022.

¹⁰⁸United Nations, 'COVID vaccines: Widening inequality and millions vulnerable' *UN News* (19 September 2021) <<https://news.un.org/en/story/2021/09/1100192>> accessed 28 June 2022.

¹⁰⁹Pokuua Oduro-Bonsrah and Michelle Bachelet, 'Access to vaccines is a human right and must be a global public good. *Geneva Solutions*' (7 July 2021) <<https://genesolutions.news/global-health/michelle-bachelet-access-to-vaccines-is-a-human-right-and-must-be-a-global-public-good>> accessed 28 June 2022.

¹¹⁰UNAIDS, 'Rich nations vaccinating one person every second while majority of the poorest nations are yet to give a single dose' <https://www.unaids.org/en/resources/presscentre/featurestories/2021/march/20210310_covid19-vaccines> accessed 29 June 2022.

¹¹¹WHO, 'Generating acceptance and demand for COVID-19 vaccines' <<https://www.who.int/initiatives/act-accelerator/covax/covid-19-vaccine-country-readiness-and-delivery/acceptance-and-demand>> accessed 27 June 2022.

¹¹²Anne Soy, 'Africa's Long Wait for the COVID-19 Vaccine' *CNN* (22 January 2021) <<https://www.bbc.com/news/world-africa-55751714>> accessed 20 June 2022; Alice Cuddy, 'Coronavirus vaccines: Will any countries get left out?' *CNN* (22 November 2020) <<https://www.bbc.com/news/world-54961045>> accessed 20 June 2022.

¹¹³Sam Meredith, 'Poor countries set to miss out on Covid vaccines as wealthier nations hoard doses, campaigners warn' *CNBC* (9 December 2020) <<https://www.cnbc.com/2020/12/09/covid-vaccines-rich-nations-accused-of-hoarding-doses.html>> accessed 21 June 2022; France 24, 'Amnesty International condemns rich countries for hoarding Covid-19

locations where vaccines are being manufactured (e.g. India) also interfered with COVAX efforts, leaving over 60 poorer countries that rely on the COVAX initiative to be without the vaccines and/or with fewer vaccines than anticipated.¹¹⁴ As of May 9, 2021, certain countries were labelled in the news as ‘vaccine deserts’ because they were last in line to receive vaccines and had yet to receive any vaccines for their populations (Burkina Faso, Burundi, Chad, etc.).¹¹⁵

Vaccine patents are a formidable obstacle to the equitable distribution of vaccines. As a solution to the uneven vaccine distribution, India and South Africa made a request to the World Trade Organization to waive intellectual property rights for the patent rights of COVID-19 related drugs and products under the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). Supporters of patent waivers argue that patent rights limit vaccine accessibility in poorer countries and prevent these countries from producing vaccines to provide to their populations and prepare for future infectious disease outbreaks and pandemics.¹¹⁶ Opponents of the patent waivers argue that the current limitation to the manufacturing of vaccines and their provision to vaccine-deficient countries is not patents, but infrastructure, export restrictions, and other supply chain issues, production capabilities, and the scaling up of production capacities while also maintaining high quality standards.¹¹⁷ Even if patents rights were waived, the pharmaceutical companies’ technical knowledge for vaccine production, which may, at least in part, be protected as a trade secret, and the human, financial, and technical resources (i.e. qualified personnel, raw materials, equipment, and technology) needed to manufacture vaccines and manage their distribution are largely lacking in poorer nations.¹¹⁸ While some countries could obtain the technical knowledge and resources needed to manufacture COVID-19 vaccines, the production of these vaccines would take time. In view of that, these countries would still have to rely on importing the vaccine from other countries. Nonetheless, the ongoing pandemic, variants of COVID-19, and past infectious disease outbreaks and pandemics underscore the need to expand the capacity of poorer and/

vaccines’ (7 April 2021) <<https://www.france24.com/en/europe/20210407-amnesty-condemns-rich-countries-for-hoarding-covid-19-vaccines>> 24 June 2022.

¹¹⁴Neil Jerome Morales and Sangmi Cha, ‘Asian countries seek vaccine supplies after India export curbs hit COVAX’ *Reuters* (30 March 2021) <<https://www.reuters.com/business/healthcare-pharmaceuticals/asian-countries-scramble-vaccine-supplies-after-india-export-curbs-2021-03-30/>> accessed 25 June 2022; Sangmi Cha, ‘S. Korea pays price for reliance on COVAX, scrambles for vaccines’ *Reuters* (1 April 2021) <<https://www.reuters.com/article/us-health-coronavirus-southkorea-vaccine/s-korea-pays-price-for-reliance-on-covax-scrambles-for-vaccines-idUSKBN2BO5BZ>> accessed 26 June 2022.

¹¹⁵Krista Larson, ‘Vaccine deserts: Some countries have no COVID-19 jabs at all’ *Associated Press* (9 May 2021) <<https://apnews.com/article/africa-coronavirus-vaccine-coronavirus-pandemic-business-government-and-politics-2d5eab50c1ef8bd63b1a48331f4c3025>> accessed 26 June 2022.

¹¹⁶Salla Sariola, ‘Intellectual property rights need to be subverted to ensure global vaccine access’ (2021) 6 *BMJ Global Health*, e005656. https://reliefweb.int/sites/reliefweb.int/files/resources/e005656.full_.pdf; It’s time to consider a patent reprieve for COVID vaccines, 592 *Nature* 7 (2021), <https://www.nature.com/articles/d41586-021-00863-w>.

¹¹⁷BBC News, ‘Covid: Germany rejects US-backed proposal to waive vaccine patents’ (6 May 2021) <<https://www.bbc.com/news/world-europe-57013096>> accessed 24 June 2022; Sam Meredith, ‘Rich countries are refusing to waive the rights on Covid vaccines as global cases hit record levels’ *CNBC* (22 April 2021) <<https://www.cnbc.com/2021/04/22/covid-rich-countries-are-refusing-to-waive-ip-rights-on-vaccines.html>> accessed 25 June 2022; Erin Hannah and others, ‘TRIPS waiver: US support is a major step but no guarantee of COVID-19 vaccine equity’ *The Conversation* (12 May 2021) <<https://theconversation.com/trips-waiver-us-support-is-a-major-step-but-no-guarantee-of-covid-19-vaccine-equity-160638>> accessed 26 June 2022; Ashleigh Furlong, ‘US shift on vaccines embarrasses Europe before India summit’ *Politico* (6 May 2021) <<https://www.politico.eu/article/coronavirus-vaccine-patent-europe-united-states-joe-biden-india-summit/>> accessed 27 June 2022.

¹¹⁸Matthew M. Kavanagh, Lawrence O. Gostin, and Madhavi Sunder, ‘Sharing Technology and Vaccine Doses to Address Global Vaccine Inequity and End the COVID-19 Pandemic’ (2021) 326(3) *JAMA* 219–220.

or least developed countries to better prepare for pandemics in the future. Furthermore, the Office of the United Nations High Commissioner for Human Rights (OHCHR) stated that 'affordable, non-discriminatory access to the vaccine is a human right.'¹¹⁹ The right to health (i.e. the 'right of everyone to the enjoyment of the highest attainable standard of physical and mental health') is recognized in Article 12 of the International Covenant on Economic, Social and Cultural Rights of 1966. The UN Committee on Economic, Social and Cultural Rights (CESCR) held that 'States ... have a duty to prevent intellectual property and patent legal regimes from undermining the enjoyment of economic, social and cultural rights through, for example, making critical public goods such as vaccines or medicines inaccessible to developing countries or impoverished communities due to unreasonable cost structures.'¹²⁰

Vaccine production monopolies create vaccine inequality along the dual vectors of access and price (reduced access, increased vaccine prices). The prices for the vaccine also vary by country, driven, at least in part, by the intermediaries that manufacture these vaccines and offer them for different prices to low-, middle-, and high-income countries.¹²¹ One such intermediary, the Serum Institute of India, which manufactures the Oxford-AstraZeneca vaccine, sells the vaccine to poorer and medium wealth nations at an equal or higher cost than wealthier nations and/or sales made directly by the company to other countries and regions. In particular, pricing figures from 2020 and 2021 revealed that Oxford-AstraZeneca sold the vaccine directly to the United States and the European Union for approximately USD \$4 and \$2.15 per dose, respectively, whereas the Serum Institute of India sold the same vaccine dose for an estimated USD \$4 to Bangladesh, USD \$5 to Brazil, and USD \$5.25 to South Africa and Saudi Arabia.¹²² The costs of the vaccines do not include the costs that have been added to the prices per dose by distributors of the vaccine. In 2020, in Bangladesh, for instance, Beximco added approximately USD \$1 to the costs per dose for distributing the vaccine.¹²³

Discriminatory access to vaccines has the potential to interfere with the right to freedom of movement. As of December 2021, some Member States within the European Union accept travellers from countries that use COVID-19 vaccines that are approved by the European Medicines Agency (i.e. Pfizer-BioNTech, Moderna, Oxford-AstraZeneca, and

¹¹⁹OHCHR, 'Human Rights and Access to Covid-19 Vaccines. Topics in Focus: Access to Covid-19 Vaccines' (17 December 2020), 1 <https://www.ohchr.org/Documents/Events/COVID-19_AccessVaccines_Guidance.pdf> accessed 28 June 2022.

¹²⁰See UN Committee on Economic, Social and Cultural Rights, General Comment No. 17 (2006) 'The right of everyone to benefit from the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he or she is the author' para 35; UN Committee on Economic, Social and Cultural Rights, Statement on universal and equitable access to vaccines for COVID-19, 'Statement by the Committee on Economic, Social and Cultural Rights' (27 November 2020) para. 6, E/C.12/2020/2.

¹²¹For information about worldwide pricing, see UNICEF's COVID-19 Vaccine Market Dashboard: UNICEF. COVID-19 Vaccine Market Dashboard <<https://www.unicef.org/supply/covid-19-vaccine-market-dashboard>> accessed 30 June 2022.

¹²²Krishna N. Das, 'Exclusive: Saudi Arabia to get three million AstraZeneca shots in about a week from India' *Reuters* (25 January 2021) <<https://www.reuters.com/article/health-coronavirus-india-saudi/exclusive-saudi-arabia-to-get-three-million-astrazeneca-shots-in-about-a-week-from-india-idUSKBN29V0A9>> accessed 21 June 2022; Bill Bostock, 'A politician tweeted a list showing how much the EU has agreed to pay for the leading vaccines, confirming rumors of Moderna's sky-high price' *Business Insider* (19 December 2020) <<https://www.businessinsider.com/cost-pfizer-astrazeneca-moderna-vaccine-eu-revealed-belgian-mp-2020-12>> accessed 21 June 2022.

¹²³Ershad Kamol, 'Bangladesh to pay Tk 260cr extra to buy COVID-19 vaccine from India' *New Age Bangladesh*, (30 November 2020) <<https://www.newagebd.net/article/122976/bangladesh-to-pay-tk-260cr-extra-to-buy-covid-19-vaccine-from-india>> accessed 22 June 2022.

Johnson & Johnson/Janssen), while others accept travellers with proof of vaccination with vaccines beyond those currently approved for use in the European Union (e.g. Sinopharm and Sinovac).¹²⁴ Up until December 2021, the WHO has approved the following vaccinations: Pfizer-BioNTech (BNT162b2); Moderna (mRNA-1273); Oxford/AstraZeneca (AZD1222); Serum Institute of India (Covishield); Johnson & Johnson/Janssen (Ad26.COVS.2.S); Serum Institute of India (COVOVAX); Bharat Biotech (Covaxin); Sinopharm (BBIBP-CorV); and Sinovac (CoronaVac).¹²⁵ While Russia's Sputnik V vaccine has been authorized for use in over 60 countries, the World Health Organization and the European Medicines Agency have not yet authorized its use.¹²⁶ In view of that, making travel contingent on type of vaccination limits freedom of movement for those without access to specific vaccines. For this reason, many countries have offered travellers the option of presenting proof of vaccination, or a negative COVID-19 test within 72 hours of travel. The United States and the European Union are working on a universal health pass based on the specifications of the EU Digital COVID Certificate that includes vaccination and COVID-19 testing information to facilitate travel. In the interim, bilateral agreements were used in the summer of 2021 to facilitate travel between countries and regions, by requiring either a COVID-19 vaccination and/or proof of a negative COVID-19 test no later than 72 hours before boarding a flight to the traveller's destination. To facilitate tourism, bilateral agreements between specific countries have enabled the movement of vaccinated persons between the respective countries without the need for quarantine or a COVID-19 test. Several countries have restricted travel to only vaccinated individuals.¹²⁷ This means that both unvaccinated individuals are denied entry, as are individuals who have received vaccinations that are unrecognized by the WHO and/or by the destination country.

Digital divide

The mass surveillance and registration measures were hastily implemented in response to COVID-19 to manage, contain, and prevent the spread of COVID-19. And yet, the overreliance on technological solutions to the COVID-19 pandemic further deepened existing inequalities by exacerbating the digital divide – the gap between those with and without access to information and communication technology (ICT). A distinction can be made between the digital divide between states (i.e. disparity in ICT access between developed and least developed countries) and the digital divide within states (i.e. disparity of ICT access based on demographic/socioeconomic factors, such as age, gender,

¹²⁴For a look at the vaccines accepted in countries within and outside the European Union, see the Covid Vaccine Checker for Travelling Abroad, at: <https://visaguide.world/news/vaccine-checker-proof-of-immunity-for-travel/>.

¹²⁵WHO, 'WHO lists additional COVID-19 vaccine for emergency use and issues interim policy recommendations' (7 May 2021) <<https://www.who.int/news/item/07-05-2021-who-lists-additional-covid-19-vaccine-for-emergency-use-and-issues-interim-policy-recommendations>> accessed 22 June 2022.

¹²⁶Vivienne Walt and David Meyer, 'Even as nearly 60 countries sign on, big questions still hang over Russia's Sputnik V COVID vaccine' *Fortune* (14 April 2021) <<https://fortune.com/2021/04/14/even-as-nearly-60-countries-sign-on-big-questions-still-hang-over-russias-sputnik-v-covid-vaccine/>> accessed 22 June 2022; Kevin Connolly, 'Sputnik V: How Russia's Covid vaccine is dividing Europe' *BBC News* (17 April 2021) <<https://www.bbc.com/news/world-europe-56735931>> accessed 22 June 2022.

¹²⁷Vaccine requirement information is listed under each country's page at: Centers for Disease Control and Prevention, 'Travelers Health: Complete List of Destinations' <<https://wwwnc.cdc.gov/travel/destinations/list>> accessed 23 June 2022.

race, ethnicity, class, income, and disability).¹²⁸ Globally and nationally, ICT is unevenly distributed, available, and accessible due to insufficient or lack of financial resources and/or resilient infrastructure to support Internet access and ICT use. Estimates reveal that more than 3.6 billion individuals own smartphones and more than 4.6 billion are active online worldwide.¹²⁹ Accordingly, less than half of the world's population owns a smartphone and approximately three-fifths of the world's population are active Internet users. Nonetheless, many COVID-19 responses predominately relied on the use of ICT. The digital technologies rapidly deployed in response to COVID-19 did not consider both the global and national digital divide.

The COVID-19 pandemic highlighted inequalities resulting from the digital divide and inequalities perpetuated by the digital divide, which impeded socioeconomic opportunities for some, such as upward socioeconomic mobility and socioeconomic equality through, for example, equitable access to education.¹³⁰ The right to education is enshrined in international and regional human rights instruments. At the international level, these provisions include Article 26 of the Universal Declaration on Human Rights of 1948; Article 13 of the International Covenant on Economic, Social and Cultural Rights of 1966; Article 22 of the United Nations Refugee Convention of 1951; Article 14 of the UN Declaration on the Rights of Indigenous People of 1970; Articles 10 and 14(2)(d) of the UN Convention on the Elimination of All Forms of Discrimination against Women of 1979; Article 28 of the United Nations Convention on the Rights of a Child of 1989; and Articles 30 and 43(1)(a) of the UN Convention on the Protection of the Rights of all Migrant Workers and Members of their Families of 1990. At the regional level, the right to education is enshrined in Article 2 of Protocol No. 1 to the European Convention on Human Rights of 1950; Article 14 of the Charter of Fundamental Rights of the European Union of 2000; Article 17 of the African Charter on Human and Peoples' Rights of 1981; and Article 49 of the Charter of the Organization of American States of 1948. Nonetheless, the COVID-19 pandemic denied access to education for many children in developed and developing countries.

Globally, this lack of access to education was disproportionately experienced by developing countries and within both developing and developed countries by socioeconomically disadvantaged and marginalized populations.¹³¹ In 2020, UNICEF reported that about one third of the children in school worldwide (an estimated 463 million) did not have the resources and infrastructure needed to access and engage in remote, virtual learning.¹³² According to UNICEF (2021), some countries closed schools and did not re-

¹²⁸UN General Assembly, 'Nearly Half of World's Population Excluded from "Benefits of Digitalization," Speaker Stresses as Second Committee Debates Information Technology for Development' Second Committee, Seventy-Fourth Session, 17th and 18th Meetings (18 October 2019). <<https://www.un.org/press/en/2019/gaef3523.doc.htm>> accessed 23 June 2022; Nicole S. Goedhart and others, 'Just having a computer doesn't make sense': The digital divide from the perspective of mothers with a low socio-economic position' (2019) 21(11–12) *New Media & Society* 2347–2365.

¹²⁹S. O'Dea, 'Number of smartphone users worldwide from 2016 to 2023' *Statista* (6 August 2021) <<https://www.statista.com/statistics/330695/number-of-smartphone-users-worldwide/>> accessed 24 June 2022; Joseph Johnson, 'Worldwide digital population as of January 2021' (10 September 2021) <<https://www.statista.com/statistics/617136/digital-population-worldwide/>> accessed 24 June 2022.

¹³⁰UNCTAD, 'Least developed countries suffer digital divide in mobile connectivity' (1 April 2021) <<https://unctad.org/topic/least-developed-countries/chart-april-2021>> accessed 24 June 2022; Michelle W.L. Fong, 'The Digital Divide: The Case of Developing Countries' (2009) 6 *Issues in Informing Science and Information Technology* 472.

¹³¹Robin Lake and Alvin Makori, 'The Digital Divide Among Students During COVID-19: Who Has Access? Who Doesn't? Center on Reinventing Public Education' (June 2020) <<https://www.crpe.org/thelens/digital-divide-among-students-during-covid-19-who-has-access-who-doesnt>> accessed 25 June 2022.

open them for about a year, affecting the pre-primary, primary and secondary education of millions of children.¹³³ As of November 2021, in Latin America and the Caribbean alone, 71 million children continued to be affected by these closures.¹³⁴ In East Asia and the Pacific, 80 million children did not have access to any kind of learning during lockdowns in 2020.¹³⁵ In response to school closures and the prohibiting of in-person classes due to lockdowns and other COVID-19 safety precautions, other countries shifted classes to an online format. To participate, students required Internet access and digital technologies to access and view the lessons, speak to teachers, and complete assignments.

In both developing and developed countries there are reports that the COVID-19 pandemic has contributed to a deepening digital divide along existing lines of exclusion. Scholarship that analyzes the link between poverty and childhood digital exclusion in the United Kingdom, for example, indicates that children who do not have access to the Internet digital devices are now left even further behind.¹³⁶ UNICEF observes that the gendered dimensions of the digital divide should not be underestimated, as gendered norms mean that girls often have less access to the internet than boys.¹³⁷ The effects of the deepening digital divide, and the deepening digital skills gap indicates the importance of understanding pandemic social sorting as a serious child rights issue.¹³⁸

The COVID-19 responses, including mass surveillance and registration measures, rely on ICT to facilitate participation in personal and professional activities, free movement, and access to goods and services. Individuals without this access and/or with insufficient access could not participate in these activities or obtain these goods and services, at least not in the same way as those with sufficient access. In addition to ICT access issues, the lack of sufficient Internet literacy and information technology (IT) skills serve as an obstacle to the use of COVID-19 related digital technologies. In fact, the COVID-19 pandemic forced familiar and unfamiliar users to access the Internet and utilize digital technology, wherever such access was available, to perform activities and obtain services previously conducted predominately offline. In some countries, failure to adequately utilize the ICT solutions the government implemented to trace and control the spread of COVID-19 (e.g. contact tracing) resulted in economic fines to users. For example, in 2020, in Russia, a two-week quarantine period was mandated for any adult or child that exhibited COVID-19 symptoms or tested positive for COVID-19, as well as other

¹³²UNICEF, 'COVID-19: Are children able to continue learning during school closures?' (August 2020) <<https://data.unicef.org/resources/remote-learning-reachability-factsheet/>> accessed 26 June 2022; UNICEF, 'COVID-19: At least a third of the world's schoolchildren unable to access remote learning during school closures, new report says' (26 August 2020) <<https://www.unicef.org/press-releases/covid-19-least-third-worlds-schoolchildren-unable-access-remote-learning-during>> accessed 26 June 2022.

¹³³UNICEF, 'COVID-19: Schools for more than 168 million children globally have been completely closed for almost a full year, says UNICEF' (2 March 2021) <<https://www.unicef.org/press-releases/schools-more-168-million-children-globally-have-been-completely-closed>> accessed 25 June 2022.

¹³⁴ibid; UNICEF, 'Only half of children in Latin America and the Caribbean are back in the classroom' (18 November 2021) <<https://www.unicef.org/lac/en/press-releases/only-half-children-latin-america-and-caribbean-are-back-classroom>> accessed 27 June 2022; UNESCO, 'Pandemic-related disruptions to schooling and impacts on learning proficiency indicators: A focus on the early grades' (March 2021) <http://gaml.uis.unesco.org/wp-content/uploads/sites/2/2021/03/UIS_COVID-19-interruptions-to-learning_EN.pdf> accessed 27 June 2022.

¹³⁵Karin Hulshof, 'Bridging the digital divide for Children and Adolescents in East Asia and Pacific' *UNICEF* <<https://www.unicef.org/eap/bridging-digital-divide-children-and-adolescents-east-asia-and-pacific>> accessed 28 June 2022.

¹³⁶Hannah Holmes and Gemma Burgess, 'Pay the wi-fi or feed the children': Coronavirus has intensified the UK's digital divide' *University of Cambridge* <<https://www.cam.ac.uk/stories/digitaldivide>> accessed 27 June 2022.

¹³⁷Hulshof, 'Bridging the digital divide for Children and Adolescents in East Asia and Pacific' (n 135).

¹³⁸United Nations, 'Don't let the digital divide become "the new face of inequality."' UN deputy chief' *UN News* (27 April 2021) <<https://news.un.org/en/story/2021/04/1090712>> accessed 28 June 2022.

members of the household. In Moscow, residents were required to download a government app. Individuals who were unable to successfully download the app or did not follow the instructions of the app in the time allotted were fined. Complaints were made by Moscow residents who claimed that they were unjustly fined for being unable to properly use the app and/or being able to comply with the requests for apps in the limited time allotted for compliance.¹³⁹ In Greece, for several months during the pandemic, residents were required to request and receive authorization via text message to leave their homes during lockdown.¹⁴⁰ An alternative system was not in place for those in Russia and Greece without technology and/or who could not use mobile phones without assistance. Individuals disproportionately impacted by these technological responses to COVID-19 are the poor, elderly, and disabled, among other vulnerable populations. These technological responses further exacerbated already existing inequalities and exclusions of those without Internet literacy, IT skills, and access or sufficient access to ICT.

Stigmatization: 'othering' based on infection and vaccination status

Beyond exacerbating inequalities and furthering the digital divide, COVID-19 responses have led to the stigmatization of members of the population based on infection status, ethnicity, race, and vaccination status. Erving Goffman (1963) defined the term 'stigma' as 'an attribute that links a person to an undesirable stereotype, leading other people to reduce the bearer from a whole and usual person to a tainted, discounted one.'¹⁴¹ The term is used to refer to the 'situation of the individual who is disqualified from full social acceptance.'¹⁴² Populations viewed as the possible source for the infectious disease are viewed as 'others.' These 'others' are the targets of prejudice or other negative or discriminatory attitudes, beliefs, judgments, and reactions and even violence (e.g. irrational fear of contagion, scapegoating, hatred, ostracism, refusing services, and assault).¹⁴³

Stigmatization for perceived or actual infections with infectious disease is not a new phenomenon. For example, stigmatization has been observed during infectious disease epidemics, outbreaks, and pandemics, such as HIV (human immunodeficiency virus)/AIDS (acquired immunodeficiency syndrome), SARS, MERS, and Ebola. The Joint United Nations Programme on HIV/AIDS (UNAIDS) describes HIV/AIDS stigma 'as a "process of devaluation" of people either living with or associated with HIV/AIDS.'¹⁴⁴ During the HIV/AIDS epidemic, individuals with HIV were stigmatized, so too were other marginalized

¹³⁹Human Rights Watch, 'Russia: Intrusive Tracking App Wrongly Fines Muscovites' (21 May 2020) <<https://www.hrw.org/news/2020/05/21/russia-intrusive-tracking-app-wrongly-fines-muscovites#>> accessed 29 June 2022.

¹⁴⁰Aisha Zahid, 'Coronavirus: Greece reintroduce SMS authorisation for movement as country enters second lockdown' *Sky News* (7 November 2020) <<https://news.sky.com/story/coronavirus-greece-reintroduce-sms-authorisation-for-movement-as-country-enters-second-lockdown-12126181>> accessed 29 June 2022.

¹⁴¹Goffman Erving, *Stigma: Notes on the management of spoiled identity* (Penguin 1963) 11.

¹⁴²*ibid.*

¹⁴³Mariam Davtyan, Brandon Brown, and Morenike Oluwatoyin, 'Addressing Ebola-related Stigma: Lessons Learned from HIV/AIDS' (2014) 7(1) *Global Health Action* 1–4; Fahimeh Saeed and others, 'A Narrative Review of Stigma Related to Infectious Disease Outbreaks: What Can Be Learned in the Face of the Covid-19 Pandemic?' (2020) 11 *Frontiers in Psychiatry* 1–8.

¹⁴⁴UNAIDS, 'Stigma and Discrimination' (December 2003) <https://data.unaids.org/publications/fact-sheets03/fs_stigma_discrimination_en.pdf> accessed 30 June 2022.

populations, such as homosexuals, sex workers, and drug users.¹⁴⁵ During the SARS outbreak, Asian communities were stigmatized around the world because the infectious disease first appeared in China in 2002, spreading to over 30 countries by mid 2003.¹⁴⁶ During the MERS outbreak, individuals within and from Middle Eastern countries where the virus originated, and healthcare professionals working with MERS-infected patients experienced social prejudice and stigmatization.¹⁴⁷ During the Ebola outbreaks, poor Africans and African immigrants were stigmatized.¹⁴⁸ The people stigmatized experienced social and economic harm. Ebola virus survivors, for example, experienced 'evictions, intimate partnership dissolution, termination of employment, abandonment, and physical violence.'¹⁴⁹

More recently, during the COVID-19 pandemic, Asian communities were stigmatized, and experienced discrimination based on race and national origin.¹⁵⁰ This discrimination was further exacerbated by racist rhetoric and derogatory remarks by the media (predominately in the beginning of 2020) and political leaders concerning China, the Chinese, and the handling of COVID-19 by China, as well as references to COVID-19 as the 'Chinese coronavirus,' 'China virus,' and 'Wuhan virus.'¹⁵¹ Stigmatizing language reinforces negative stereotypes, bias, prejudice, and discriminatory beliefs. The stigmatizing language used during the COVID-19 pandemic influences individuals' attitudes, beliefs, and reactions to those perceived to be connected to the infectious disease in some way.¹⁵² During the COVID-19 pandemic, the stigmatizing language focused on highlighting the originating location of the infectious disease leading to the stigmatization of Asians. As Human Rights Watch observed, '[i]ncreases in racist rhetoric have coincided with increases in racist attacks.'¹⁵³ During the COVID-19 pandemic, a significant rise in Asian hate crimes was recorded in the United States. Specifically, in 2021, the Stop AAPI (Asian American Pacific Islander) Hate reporting centre received 3,795 reports of hate

¹⁴⁵Peter J. Smit and others, 'HIV-related stigma within communities of gay men: A literature review' (2012) 24(3–4) *AIDS Care* 405–412; Gregory M. Herek and John P. Capitanio, 'AIDS stigma and sexual prejudice' (1999) 42(7) *American Behavioral Scientist* 1130–1147; Davtyan, Brown, and Folayan, 'Addressing Ebola-related Stigma: Lessons Learned from HIV/AIDS' (n 143); Allanise Cloete and others, 'Stigma and discrimination experiences of HIV-positive men who have sex with men in Cape Town, South Africa' (2008) 20(9) *AIDS Care* 1105–1110.

¹⁴⁶Judy Yuen-man Siu, 'The SARS-associated stigma of SARS victims in the post-SARS era of Hong Kong' (2008) 18(6) *Qualitative Health Research* 729–738; Bobbie Person and others, 'Fear and Stigma: The Epidemic within the SARS Outbreak' (2004) 10(2) *Emerging Infectious Diseases* 358–363.

¹⁴⁷Elmoubasher Farag and others, 'The hidden epidemic: MERS-CoV-related stigma observations from the field, Qatar 2012–2015' (2016) 45 *International Journal of Infectious Diseases* 332; Adel F. Almutairi and others, "'It feels like I'm the dirtiest person in the world": Exploring the experiences of healthcare providers who survived MERS-CoV in Saudi Arabia' (2018) 11 *Journal of Infection and Public Health* 187–191; Ji-Seon Park and others, 'Mental Health of Nurses Working at a Government-designated Hospital During a MERS-CoV Outbreak: A Cross-sectional Study' (2018) 32 *Archives of Psychiatric Nursing* 2–6.

¹⁴⁸Davtyan, Brown, and Folayan, 'Addressing Ebola-related Stigma: Lessons Learned from HIV/AIDS' (n 143).

¹⁴⁹Luc Overholt and others, 'Stigma and Ebola survivorship in Liberia: Results from a longitudinal cohort study' (2018) 13 (11) *PLoS One*, 1–13; see also Peter Bai James and others, 'An assessment of Ebola-related stigma and its association with informal healthcare utilisation among Ebola survivors in Sierra Leone: a cross-sectional study' (2020) 20(182) *BMC Public Health* 1–12.

¹⁵⁰U.S. Equal Employment Opportunity Commission, 'Message From EEOC Chair Janet Dhillon on National Origin and Race Discrimination During the COVID-19 Outbreak' <<https://www.eeoc.gov/wysk/message-eeoc-chair-janet-dhillon-national-origin-and-race-discrimination-during-covid-19>> accessed 29 June 2022; U.S. Equal Employment Opportunity Commission, 'Coronavirus and COVID-19' <<https://www.eeoc.gov/coronavirus>> accessed 29 June 2022.

¹⁵¹Human Rights Watch, 'Covid-19 Fueling Anti-Asian Racism and Xenophobia Worldwide' (12 May 2020) <<https://www.hrw.org/news/2020/05/12/covid-19-fueling-anti-asian-racism-and-xenophobia-worldwide>> accessed 30 June 2022.

¹⁵²See, for example, Sean Darling-Hammond and others, 'After "The China Virus" Went Viral: Racially Charged Coronavirus Coverage and Trends in Bias Against Asian Americans' (2020) 47(6) *Health Education & Behavior* 870–879.

¹⁵³Human Rights Watch, 'Covid-19 Fueling Anti-Asian Racism and Xenophobia Worldwide' (n 151).

crimes between March 19, 2020 and February 28, 2021.¹⁵⁴ During this period, Asians were assaulted, verbally abused, harassed, shunned, and experienced rights violations (e.g. denial of services and transportation).¹⁵⁵ Asians experienced verbal abuse and physical violence in Australia, Brazil, Ethiopia, France, Kenya, Russia, South Africa, and the United Kingdom, among other countries.¹⁵⁶ Other marginalized populations were also stigmatized during the COVID-19 pandemic, particularly refugees, immigrants, and foreign workers in Europe, the Middle East, and other regions.¹⁵⁷

Unvaccinated populations may be stigmatized and discriminated against by others as well. Vaccination databases have been and continue to be developed in countries worldwide. Access to the data within these databases can be used to stigmatize portions of the population who have not been vaccinated. In Spain, in 2020, the Spanish Health Minister, Salvador Illa, stated 'that the country will create a database of people who refuse to be vaccinated' and share this information with other European partners.¹⁵⁸ While he did say that the data would not be publicly available or accessible to employers,¹⁵⁹ the existence of this database is troubling. The data within this database can be misused, accessed unlawfully, and made available to the public through data breaches and leaks.

Conclusion

There is no question that the national, regional, and international efforts to respond to the COVID-19 global public health crisis are warranted. Without measures to contain the transmission of disease, the loss of life, globally, would certainly be greater, and the hardships faced by marginalized populations would likely be even more deeply felt. The COVID-19 pandemic is indeed an ongoing crisis and, of course, it is unrealistic to expect equilibrium, or business as usual, during a crisis. Yet within the context of this crisis, it is important to ensure that measures to secure public health do not deepen existing inequalities or constitute an undue erosion of rights and civil liberties on other fronts. While the measures implemented in response to COVID-19 have sought to manage, control, and prevent the spread of this infectious disease, they have largely been blind to existing inequalities and structural discrimination.

As we now reflect on more than two years of measures to contain the COVID-19 pandemic, it is crucial that we ask whether the response might have been handled differently – in ways that uphold human rights, promote equality and social inclusion, and enhance prevention and response readiness for future public health emergencies. Crisis management is not successful if it works for only certain portions of the global

¹⁵⁴Stop AAPI Hate, '2020–2021 National Report' (16 March 2021) <<https://stopaapihate.org/2020-2021-national-report/>> accessed 30 June 2022.

¹⁵⁵Aggie J. Yellow Horse, 'Stop AAPI Hate National Report (March 19, 2020 – June 30, 2021)' <<https://stopaapihate.org/wp-content/uploads/2021/08/Stop-AAPI-Hate-Report-National-v2-210830.pdf>> accessed 30 June 2022.

¹⁵⁶Simone Villa and others, 'Stigma at the time of the COVID-19 pandemic' (2020) 26(11) *Clinical Microbiology and Infection* 1450–1452.

¹⁵⁷Human Rights Watch, 'Covid-19 Fueling Anti-Asian Racism and Xenophobia Worldwide' (n 151).

¹⁵⁸Ashifa Kassam, 'Spain will register people who refuse Covid vaccine, says health minister' *The Guardian* (29 December 2020) <<https://www.theguardian.com/world/2020/dec/29/spain-to-keep-registry-of-people-who-refuse-covid-vaccine>> 30 June 2022; Al Goodman, 'Spain will keep a register of those who refuse the coronavirus vaccine' *CNN* (29 December 2020) <<https://www.cnn.com/2020/12/29/europe/spain-vaccine-covid-registry-intl/index.html>> accessed 28 June 2022.

¹⁵⁹BBC News, 'Coronavirus: Spain to keep register of those who refuse Covid vaccine' (29 December 2020) <<https://www.bbc.com/news/world-europe-55471282>> accessed 30 June 2022.

population. The public health crisis posed by COVID-19 has not been averted, or mitigated, if we see the simultaneous deepening of parallel crises in gender inequality, racial discrimination, and compromised access to education, decent work, and preventive health care for individuals and groups that are already largely excluded from public health and social protection services. The privileging of private and commercial interests in the pandemic response, as per the protection of vaccines as a 'private good,' is antithetical to a 'public' health response that will meet the needs and rights of all.

This article has focused, in large part, on the ways in which technologies have been used to expand existing social sorting measures in ways that exacerbate existing lines of discrimination and pose the risk of permanence. To date, the measures implemented in response to COVID-19 have socially sorted populations based on perceived and actual infection and vaccination status, controlled access to spaces and services based on health status, monitored populations and their movements, restricted human rights, and exacerbated existing structural inequalities. As the COVID-19 pandemic now enters a third year, it is time to question whether the overreliance on mass surveillance and registration measures signals a 'new normal' for responses to public health crises – one that relies on the perpetual surveillance, control, and sorting of the populations, which has adverse, cascading, and disproportionate effects on the global population.

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