Governing AI in Public Health: Advancing the Right to Health Through an Intersectional Lens

Hannah van Kolfschooten

Abstract Governments across Europe are increasingly deploying artificial intelligence (AI) tools to fulfil their obligations under the right to health and advance the core functions of public health: prevention, promotion, and protection. Yet despite their promise, these technologies risk reinforcing health inequities, especially for those marginalized by intersecting forms of disadvantage such as race, gender, disability, migration status, and class. This chapter applies an intersectional lens to examine how AI-driven public health interventions affect states' legal duties under international and European human rights law. It analyses how AI is transforming public health governance and assesses whether current EU regulatory frameworks, particularly the Artificial Intelligence Act, can safeguard the right to health. Focusing on use cases such as population cancer screening, health chatbots, and epidemic surveillance, the chapter shows how algorithmic systems often replicate structural exclusions and undermine the principles of availability, accessibility, acceptability, and quality (AAAQ). It concludes by proposing legal and policy tools to align AI governance with intersectional health justice.

1 Introduction

In recent years, artificial intelligence (AI) has emerged as a powerful tool in the field of public health.[1] In the European Union (EU) and beyond, governments and public institutions increasingly rely on AI technologies to manage health systems more efficiently, monitor populations, and design interventions aimed at promoting healthier behaviours. From early warning systems that predict disease outbreaks[2] to

[1] del Castillo (2024), Bharel et al. (2024), Olawade et al. (2023) and Kamyabi et al. (2024).

[2] El Morr et al. (2024).

H. van Kolfschooten (✉)
Centre for Life Sciences Law, University of Basel, Basel, Switzerland
e-mail: hannah.vankolfschooten@unibas.ch

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chatbots that personalize advice on healthy lifestyles,[3] AI is becoming embedded in the infrastructure of public health governance. These developments are often framed as efforts to fulfil state obligations under the right to health, enhancing the availability and accessibility of services, particularly in under-resourced or underserved areas.

Yet as AI systems assume a more prominent role in public health, they also raise fundamental questions about how bodies are known, governed, and acted upon. Public health has always treated the body not only as a subject of care but also as an object of intervention to protect the society at large.[4] AI technologies amplify this dynamic by transforming bodies into data points within systems of optimization, profiling, and behavioural influence.[5] In this context, the human body becomes both a source of information and a target of algorithmic action.[6]

This chapter examines the tension at the heart of AI-driven public health: while these technologies are deployed in the name of promoting the right to health, they may also undermine the very principles that this right is meant to protect. AI tools risk reinforcing existing inequities in access, autonomy, and dignity, especially for those already marginalized on the basis of race, gender, class, disability, or migration status.[7] They often rely on opaque decision-making processes, raise concerns about consent and manipulation, and may perpetuate biases embedded in the data and systems on which they depend.[8]

To understand how these harms arise and how they can be addressed, this chapter applies an intersectional lens to the legal framework of the right to health. Intersectionality, developed by Black feminist scholars and activists, provides a way of understanding how multiple and overlapping systems of disadvantage shape people's experiences of power and exclusion.[9] Rather than asking whether a given policy discriminates on the basis of gender or race, an intersectional approach asks how factors such as gender, disability, migration status, and language combine to structure who is visible in data, who defines risk, and who benefits or suffers from algorithmic interventions.[10] In the context of public health, where population-level decisions affect access to healthcare, this approach is especially urgent.[11]

While scholars have examined the human rights risks of AI in healthcare, the key literature tends to focus on clinical care settings[12] and less so on the domain of public health, particularly within the EU context. Although a growing body of legal scholarship addresses non-discrimination under the EU's main regulatory framework

[3] Abroms et al. (2025) and van Kolfschooten et al. (2025).

[4] Lupton (1995).

[5] Pedersen and Iliadis (2020).

[6] Ball et al. (2016).

[7] Leslie et al. (2021) and van Kolfschooten (2023).

[8] Bentley et al. (2023), Broussard (2023), Browne et al. (2023), Ciston (2019), Collett and Dillon (2019) and Toupin (2024).

[9] Crenshaw (1989).

[10] Crenshaw and HoSang (2023).

[11] Sekalala et al. (2021).

[12] See for example: van Kolfschooten (2025), Solaiman and Cohen (2024).

on AI—the EU AI Act—most analyses focus on isolated factors of discrimination, such as gender,[13] age,[14] and race.[15] One recent article has explored the EU AI Act through an intersectional lens,[16] yet the health-related implications remain significantly understudied. At the same time, the broader regulatory discourse surrounding AI in the EU often prioritizes innovation and economic competitiveness, while concerns about structural inequity remain underdeveloped.[17] This chapter contributes to bridging these gaps by focusing on AI in public health, a domain where individual and collective rights intersect. In particular, this chapter focuses on the EU as a key site for AI integration in public health governance.

The research question guiding this chapter is: How does the growing use of AI in public health affect states' obligations under the right to health, and how do current EU regulatory responses address these challenges? By foregrounding the right to health and applying an intersectional framework, the chapter offers a novel legal analysis of how AI is reshaping public health governance. Section 2 explores how AI is currently used across the three core functions of public health, promotion, prevention, and protection, and identifies emerging patterns of AI public health interventions. Section 3 examines why these developments matter from a human rights perspective, analysing how the deployment of AI in public health affects states' obligations under the right to health, particularly when viewed through an intersectional lens. Section 4 turns to the EU AI Act, critically assessing its capacity to safeguard the right to health in AI-driven public health systems. The chapter concludes by outlining three legal and policy pathways that can help align AI governance with the principles of intersectional health justice.

2 AI and the Three Ps of Public Health

AI is increasingly embedded in the infrastructure of public health, with governments and public bodies relying on algorithmic tools to enhance surveillance, tailor health interventions, and optimize resource distribution. While often framed as innovations that help fulfil the right to health, these technologies are transforming how health risks are assessed and managed at the population level. This section presents three key use cases of AI in public health, offering an overview of how these technologies are currently being deployed.

[13] Lütz (2024).
[14] van Kolfschooten (2023).
[15] Hupont et al. (2022).
[16] Karagianni (2025).
[17] Ulnicane (2024).

2.1 Prevention: AI-Assisted Population Cancer Screening

One of the most widespread preventive uses of AI in public health is its integration into population-level screening programs. In countries such as the United Kingdom, Sweden, and the Netherlands, AI models are increasingly used to assist in the early detection of diseases such as breast and cervical cancer.[18] These systems analyse large datasets, including imaging and clinical records, to stratify individuals by risk level and guide decisions about screening frequency or follow-up. Public health authorities often adopt such tools to improve accuracy, reduce the burden on human experts, and expand the reach of preventive care. By predicting who is most likely to develop the disease, AI systems promise to make screening more cost-effective and targeted. In public health settings, these tools do not merely assist clinical decision-making but shape who is selected for prevention in the first place.[19]

2.2 Promotion: AI-Driven Healthy Lifestyle Chatbots

Another significant use of AI in public health is the deployment of algorithmically tailored messaging to influence individual and collective behaviour. Governments and international organizations increasingly rely on AI-enhanced platforms to promote vaccination uptake, healthy eating, smoking cessation, and pandemic-related behavioural changes. These interventions use recommender systems, AI chatbots, and behavioural analytics to deliver personalized content across digital platforms. For example, during the COVID-19 pandemic, various countries employed AI tools to tailor vaccination messages on social media, using behavioural insights to increase uptake.[20] The World Health Organization's AI-powered chatbot S.A.R.A.H. and similar national initiatives illustrate the global shift toward digital health promotion via conversational agents. These tools are often designed to increase the reach and relevance of public health campaigns by adapting messages to individual users' preferences, behaviours, and concerns.[21] This use of AI promises to make public health messaging more engaging and effective, especially in large and diverse populations. It also reflects a broader trend of integrating behavioural science into public health strategies.

[18] Eisemann et al. (2025), Hernström et al. (2025) and Gentile and Malara (2024).

[19] Hernström et al. (2025).

[20] Aloise et al. (2024).

[21] van Kolfschooten et al. (2025).

2.3 Protection: Predictive Analytics in Epidemic Control

Another field of AI applications in public health is the use of predictive analytics to identify and monitor disease outbreaks. Governments have turned to AI systems to detect early warning signs of epidemics by analysing large volumes of data, including mobility patterns, climate conditions, social media activity, and health records.[22] Tools like BlueDot and HealthMap exemplify how AI is used to forecast virus spread and allocate public health resources. These systems are often developed in collaboration with private companies or academic institutions, and their data sources may include both traditional epidemiological data and more novel data streams.[23] The goal is to enable faster and more targeted interventions to control outbreaks and allocate resources more efficiently. In this way, predictive analytics serves the protective function of public health: guarding populations against emerging threats through early detection and rapid response.

These three use cases illustrate how AI is becoming integral to the practice of public health. From forecasting epidemics and targeting health communication to allocating scarce resources, AI technologies are reshaping how public health authorities understand and act upon population health needs. In the following sections, this chapter will analyse their implications for the protection and promotion of the right to health in the EU.

3 The Right to Health Through an Intersectional Lens

3.1 The Right to Health and State Obligations

The right to the highest attainable standard of physical and mental health is enshrined in international and regional human rights law.[24] Article 12 of the International Covenant on Economic, Social and Cultural Rights (ICESCR) recognizes 'the right of everyone to the enjoyment of the highest attainable standard of physical and mental health'. This right is elaborated in General Comment No. 14 of the UN Committee on Economic, Social and Cultural Rights, which outlines the core obligations of states to respect, protect, and fulfil the right to health. The World Health Organization (WHO) similarly defines health as 'not merely as the absence of disease, but as a state of complete physical, mental, and social well-being'. In light of this holistic understanding of health, the state's obligation to *respect*, *protect* and *fulfil* the right to health introduces a set of duties that extend well beyond healthcare to include the social, political, and environmental determinants of health.[25]

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[22] El Morr et al. (2024).

[23] Tripathi and Rathore (2025) and Adeoye et al. (2025).

[24] Toebes (2001).

[25] Toebes and Stronks (2016).

The obligation to respect the right to health requires states to refrain from interfering with the enjoyment of health rights. The obligation to protect mandates that states prevent third parties, including private actors such as technology companies, from infringing on health rights.[26] The obligation to fulfil requires proactive measures to ensure access to healthcare, as well as the conditions necessary for good health, such as clean water, safe housing, adequate nutrition, and health-related education. Importantly, these obligations are both individual and collective in nature. States must ensure that health systems are responsive to the needs of diverse populations and address underlying inequalities that affect health outcomes.[27]

In the context of digital public health, these obligations take on new dimensions. States that use AI tools for public health surveillance, behavioural interventions, or resource allocation must ensure that such technologies do not undermine the availability, accessibility, acceptability, or quality (AAAQ) of health services. These four essential elements, articulated in General Comment No. 14, serve as a benchmark for evaluating public health systems. In a digital context, availability requires that technological health interventions are sufficiently resourced and functional. Accessibility entails both physical and digital access, including for persons with disabilities, linguistic minorities, and those in rural or low-income settings. Acceptability refers to the cultural and ethical appropriateness of digital interventions, including issues of consent, privacy, and trust. Quality demands that AI tools be evidence-based, reliable, and sensitive to social and cultural contexts.[28]

As AI-driven public health policy often operates at the level of populations rather than individuals, this creates tensions between collective goals and individual rights. For instance, AI systems that predict disease outbreaks or allocate health resources may optimize for efficiency at the expense of inclusivity or fairness. Such systems risk excluding or misrepresenting communities with limited digital access or historically underrepresented data profiles.[29] Public health interventions premised on algorithmic logics may also reshape understandings of responsibility and eligibility, shifting the focus from structural determinants of health to individualized risk scores and behavioural metrics. The shift toward algorithmic governance in public health thus raises critical questions about how state obligations under the right to health are being reshaped in practice, particularly in ways that are less transparent or accountable to those most affected.[30]

[26] Ó Cathaoir (2022).

[27] Toebes (2020).

[28] Ó Cathaoir (2022) and Murphy (2009).

[29] Fletcher et al. (2021).

[30] Cochlin et al. (2024).

3.2 Intersectionality and the Right to Health

An important aspect of the right to health is the objective of health equity.[31] The WHO defines health equity as 'the absence of unfair, avoidable or remediable [*health*] differences among groups of people, whether those groups are defined socially, economically, demographically, or geographically or by other dimensions of inequality (e.g. sex, gender, ethnicity, disability, or sexual orientation)'.[32] As explained by Amartya Sen, the concept of health equity has to be regarded as multidimensional. It extends much further than the distribution of good health (natural biological differences) or access to appropriate healthcare alone.[33] Health equity is not only about health outcomes but also involves health capabilities—the equal opportunity to achieve one's full health potential.[34] Part of health inequity is caused by unequal distribution of 'social determinants of health', such as income, gender, and geographical location. In other words, especially those people who are part of already marginalized groups are affected by health inequity. Indeed, as health is among the most important conditions of human life, it is also an issue of social justice.

In response to the wider emergence of feminist legal theory in human rights law scholarship, more recent scholarship on health and human rights calls for an *intersectional* approach. Instead of studying the social determinants of health in 'silos' (e.g. the effects of race on health outcomes *or* the effects of gender on health outcomes), it is argued that health inequity emerges at the intersection of various individual characteristics.[35] Crenshaw, inspired by other black feminists before her,[36] first introduced the term 'intersectionality' in legal theory in 1989 in reaction to dominant feminist approaches to law.[37] She describes how various individual characteristics (e.g. race, gender, age, socioeconomic status) overlap and 'intersect' and can create varying discrimination for certain individuals or population groups. To illustrate, treating a black woman only as a 'woman' or only as 'black', ignores the varied discrimination experienced by people with both characteristics. A narrow interpretation of discrimination neglects the existence of multiple systems of oppression in parallel.[38]

In the context of health equity, various legal and policy scholars have demonstrated the importance of taking an intersectional approach. Intersectionality promotes the understanding that human health is determined by multi-factor and multi-level intersecting identities.[39] This understanding is especially important in the context of health law and policy research, because insight into the differential impact of health policy on often highly heterogeneous population groups is necessary to develop appropriate

[31] Yamin and Fukuda-Parr (2023).

[32] See the website of the WHO. Emphasis added by author.

[33] Sen (2002).

[34] Sen (2002), pp. 660–661.

[35] Borras (2021).

[36] See for example: The Combahee River Collective (1977).

[37] Crenshaw (1989).

[38] Crenshaw (1989).

[39] Kapilashrami and Aziz (2023).

health responses without forging unfair health outcomes.[40] This chapter advocates for approaching the right to health from an intersectional lens.

The Covid-19 pandemic powerfully illustrates the need for this approach.[41] While the pandemic affected everyone's health and human rights, research shows that, because of specific risk factors, some—already disadvantaged and marginalized groups—had a greater chance of getting ill and experiencing human rights violations than others.[42] The combination and compounding of these factors exacerbate the harm experienced by the individual. For example, globally, the group of frontline healthcare workers (e.g. nurses, midwives, cleaners)—the group most exposed to the infection—disproportionally consisted of women. Within this group, a disproportionate number of people had a migration background.[43] Further, social distancing measures caused the shutdown of work activities involving interpersonal contact, a sector in which most employees are female, causing a lot of job losses amongst women. Simultaneously, this sector consists primarily of low-income and temporary workers, creating an even larger financial impact for these groups.[44] Mortality rates of migrant workers were two times higher than non-migrant workers, especially for those working in high-risk jobs.[45] In addition, school closures disproportionally affected the mental health of children, with a greater chance of having post-traumatic stress. Female children are generally more affected by mental health issues.[46] At the same time, lockdown measures such as quarantine caused a global surge in domestic violence, especially towards women and children.[47] In other words, only focusing on one 'axis' (e.g. gender or socioeconomic status), does not allow us to fully grasp how health risks are distributed throughout society—and how law and policy can respond to health inequity.

Hankivsky and others have promoted an intersectional approach to inform policies and practices to tackle health inequities. In the context of healthcare, they show how an intersectionality approach is important to combat health inequity by giving the example of cardiovascular diseases. Race and sex are well-recognized as determinants of health outcomes of persons living with cardiovascular diseases. However, intersecting identities such as race, gender, and socioeconomic status affect populations differently.[48] For example, black women with a low income are at a higher risk of developing cardiovascular diseases.[49] In the context of public health, the need for an intersectional approach is illustrated by explaining the ineffectiveness of a uniform response to the HIV pandemic, given the enormous heterogeneity in the global group

[40] Dhamoon and Hankivsky (2011).

[41] See for example: Ryan and El Ayadi (2020) and Siller and Aydin (2022).

[42] Olanlesi-Aliu et al. (2024).

[43] Singh and Kaur (2022).

[44] Maestripieri (2021).

[45] Spanikova et al., p. 34.

[46] Spanikova et al., p. 34.

[47] Kourti et al. (2023).

[48] Hankivsky et al. (2017) and Hankivsky (2012).

[49] Baiden et al. (2022).

of persons living with HIV caused by the intersections between sexuality, biological sex, gender, and financial wealth.[50]

In the same vein, Davies and others have highlighted the lack of an intersectional approach to gender inequality in the field of global health.[51] They illustrate the importance of intersectionality in global health policy with the example of maternal health: in the USA, maternal and neonatal mortality is significantly greater among black women than among other ethnic groups, which shows the intersection of race and gender.[52] Sekalala and others have advocated the use of an intersectional human rights approach in deciding on the allocation of COVID-19 vaccines. Instead of basing prioritization of scarce resources on a 'single axis', such as age, they argue that taking an intersectional approach (a model based on various individual health criteria such as age and comorbidities *and* sociodemographic vulnerabilities such as living conditions, gender, occupation, etc.) will lead to more health equity.[53] Other scholars underline the importance of the lens of intersectionality in responding to climate change-induced health inequity.[54]

3.3 The Need for an Intersectional Approach to AI in Public Health

When used in the context of public health AI, an intersectional approach enables a deeper understanding of how algorithmic systems can reproduce and exacerbate existing social inequalities. Applying an intersectional approach to public health AI, therefore, means asking who is included in the data, who benefits from technological interventions, who bears the burdens, and whose voices are represented in policy development and oversight.[55] It also allows for a more nuanced assessment of how the right to health is differentially experienced across social groups. For example, racialized and migrant communities may face structural exclusions from health data systems, while women, transgender individuals, or people with disabilities may be rendered invisible or misrepresented in digital health design and implementation.[56] Moreover, intersectionality is not only descriptive but also normative: it calls for legal and policy frameworks that recognize and respond to the complexity of lived experiences.[57] Without this lens, legal frameworks risk reinforcing the status quo of health inequality under the guise of technological neutrality.

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[50] Hankivsky et al. (2017).

[51] Davies et al. (2019).

[52] Njoku et al. (2023).

[53] Sekalala et al. (2021).

[54] Hefti et al. (2024) and Hefti (2024).

[55] Islam et al. (2023).

[56] Van Kolfschooten (2023).

[57] De Beco (2017).

Importantly, applying an intersectional lens goes beyond identifying algorithmic bias or unequal treatment based on individual characteristics. While anti-discrimination law plays a vital role in flagging differential outcomes, it tends to address protected characteristics, such as race or gender, in isolation.[58] Intersectionality, by contrast, recognizes that health inequities are shaped by interlocking systems of power.[59] It asks how AI technologies reflect and reinforce these systems, not just whether they treat individuals differently. For example, a health AI tool might pass formal fairness tests on race or gender but still disproportionately fail Black women, who face distinctive and intersecting forms of exclusion in healthcare systems.[60] Intersectionality thus enables a shift from formal to substantive equality, and from technical fairness to structural justice. In doing so, it aligns more closely with states' human rights obligations under the right to health, which require not only equal treatment but also equitable outcomes.

The following sections will explore how these challenges manifest in practice and assess how current EU regulatory instruments respond to them.

3.4 Intersectional Legal Analysis of the Use Cases

When viewed through the intersectional lens of the right to health, the AI applications outlined above expose specific legal and ethical tensions between public health innovation and human rights protection. Although each use case aims to improve population health, they can simultaneously undermine the principles of availability, accessibility, acceptability, and quality (AAAQ), and states' obligations to respect, protect, and fulfil the right to health, particularly for historically marginalized populations.[61] An intersectional analysis helps reveal not only who is affected but also which questions are being asked, and which are ignored, when designing and deploying these technologies.

3.4.1 Prevention: AI-Assisted Population Cancer Screening

AI-assisted screening programs raise complex questions about who is seen, who is prioritized, and whose health is valued. Public health tools that predict cancer risk or determine eligibility for early screening rely on large datasets, which often reflect the demographics of populations already well-represented in care. This can result in misclassification or exclusion of groups such as racial minorities, migrants, or persons with disabilities. In the UK and Sweden, for example, breast cancer risk models trained predominantly on data from white women may underperform for other

[58] Atrey (2019).
[59] Karagianni (2025).
[60] Figueroa et al. (2021).
[61] Borras (2021).

racial and ethnic groups, leading to delayed detection or misallocation of screening resources.[62]

From a right to health perspective, this compromises the principle of non-discrimination and the obligation to ensure equitable access to preventive services. If marginalized groups are systematically excluded from high-quality screening due to biased data or inaccessible digital interfaces, the availability and quality of care are affected in a way that violates international human rights norms. Moreover, opaque decision-making can undermine patients' ability to understand or challenge how they are categorized, raising questions about autonomy and informed consent in population health settings.

An intersectional perspective shifts the focus from statistical inclusion to structural visibility. Instead of merely asking whether women and men have equal access to AI screening, it compels public health authorities to ask who is missing from the data, whose diagnostic experiences are normalized, and whose bodies are treated as outliers.[63] For instance, undocumented migrant women or transgender patients may fall outside the reference categories used to train AI models. If the risk logic embedded in these tools does not reflect their lived experiences, these patients are rendered invisible. Intersectionality thus challenges the assumption that algorithmic accuracy is sufficient to ensure justice in public health decision-making.[64]

3.4.2 Promotion: AI-Driven Healthy Lifestyle Chatbots

AI systems are increasingly used in public health promotion to deliver personalized messages aimed at influencing health behaviours such as vaccination uptake, smoking cessation, or dietary change. These tools, often deployed as chatbots, promise to improve public health communication by tailoring content to individual users based on language, behaviour, or demographic data.[65] First, personalized health messaging can blur the line between persuasion and manipulation, especially when users are unaware that they are interacting with an AI system trained to optimize behavioural change. This raises concerns about autonomy, informed consent, and the acceptability of public health interventions.[66] For example, chatbots that use behavioural nudges without disclosing their logic or objectives may undermine the right to make free and informed health decisions. Where AI tools fail to provide culturally appropriate, linguistically inclusive, or accessible content, for instance, for people with disabilities or low digital literacy, public health messaging may be ineffective.[67] Similarly, WHO's S.A.R.A.H. chatbot initially lacked accessibility features for people with disabilities and offered limited multilingual support, weakening its effectiveness

[62] Dratsch et al. (2023).

[63] Bauer and Lizotte (2021).

[64] Buchbinder et al. (2022).

[65] Passanante et al. (2023), Weingott and Parkinson (2025) and Bendotti et al. (2023).

[66] Ienca (2023).

[67] Nadarzynski et al. (2024).

for vulnerable populations.[68] From a legal standpoint, these deficiencies breach the accessibility and acceptability pillars of the right to health, particularly when tools are rolled out as core channels of public communication.

Intersectionality helps reframe how public health promotion is evaluated.[69] While a health equity perspective might ask whether different communities received comparable chatbot engagement or vaccine uptake, an intersectional lens goes further. It asks: whose communication norms are prioritized, whose distrust is pathologized, and what counts as a successful intervention. Instead of measuring efficacy solely by behavioural change, intersectional analysis urges attention to cultural safety, participatory design, and the power dynamics embedded in digital outreach. A chatbot that is technically functional but fails to account for users' linguistic, cultural, or disability-related needs may not only fall short, but it may even exacerbate inequities.

3.4.3 Protection: Predictive Analytics in Epidemic Control

AI systems designed to predict disease outbreaks can support the availability and quality of public health services, fulfilling part of the state's obligation to provide timely and adequate health infrastructure. However, their effectiveness and fairness hinge on the inclusivity and representativeness of the data they use. When predictive tools rely on datasets that exclude undocumented migrants, unhoused individuals, or digitally disconnected communities, the right to accessibility is compromised.[70] During COVID-19, tools like Google's Mobility Reports and ZIP-code-level hotspot prediction in U.S. cities were deployed to inform public health resource allocation. However, their reliance on smartphone data meant that digitally invisible populations were left out of decision-making, violating the obligation to fulfil the right to health in a non-discriminatory and equitable manner.[71] Moreover, in some cases, high predicted risk in racialized communities led not to increased healthcare access but to increased police surveillance, undermining acceptability and raising concerns about coercion.

Intersectionality pushes public health systems to ask: whose movement is monitored, whose health is prioritized, and whose neighbourhoods are flagged for risk without corresponding support. While a traditional approach might focus on geographic coverage or algorithmic accuracy, intersectionality reveals how predictive systems can reproduce stigmatization and neglect.[72] The same algorithm that flags a migrant neighbourhood as a viral hotspot may be blind to its lack of clinics, clean water, or safe housing. Intersectional governance, therefore, requires more than technical improvements. It demands that AI tools be situated within the broader social and political structures that shape health vulnerability.

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[68] van Kolfschooten et al. (2025).

[69] Heard et al. (2020).

[70] Abrar et al. (2023).

[71] Erfani and Frias-Martinez (2023).

[72] Poteat (2021).

4 Governing the Use of AI in Public Health

4.1 The EU Artificial Intelligence Act: Regulatory Gaps in Public Health AI

The EU AI Act, adopted in 2024, is the world's first comprehensive regulation of AI technologies. It takes a risk-based approach that governs AI systems in accordance with their level of risk. Systems that pose unacceptable risks to fundamental rights or safety are prohibited, while high-risk systems are subject to the most stringent requirements, including human oversight, data quality standards, and accountability obligations. Low-risk systems only need to comply with transparency requirements.[73]

In the context of health, the EU AI Act classifies as high-risk any AI system that is a safety component of a medical device governed by the EU Medical Devices Regulation. It also covers certain public sector uses of AI, including those deployed by public authorities to determine eligibility for essential public services, such as healthcare. This opens the door to regulating some public health applications, such as triage systems used in emergency care or algorithms determining access to health benefits, as high-risk systems. These applications must meet several requirements, including a mandatory fundamental rights impact assessment (FRIA) carried out by the public health authority upon first use (Article 27; Recital 96).[74]

The FRIA obligation applies to both public bodies and private actors delivering services of public interest, including public health services. According to Recital 96, the FRIA must identify risks to individuals and groups and propose mitigation measures, addressing not only individual harms but also structural discrimination.[75] Yet while the AI Act establishes a baseline requirement for a fundamental rights impact assessment, it does not provide detailed guidance on how this assessment should be carried out, nor how it should account for the intersecting inequalities that shape both health outcomes and vulnerability to algorithmic harm.

Several other structural limitations undermine the AI Act's capacity to protect the right to health in public health contexts. First, the regulation primarily targets products, not people. Its technical focus overlooks the social and structural harms that AI systems can perpetuate, especially when used on structurally marginalized populations.[76] Second, the Act does not define key terms such as vulnerability and manipulation, despite explicitly prohibiting AI systems that exploit vulnerabilities under Article 5(1)(a). This omission weakens the Act's ability to prevent discriminatory impacts and foresee unintended consequences for certain population groups,

[73] van Kolfschooten and van Oirschot (2024).

[74] van Kolfschooten and van Oirschot (2024).

[75] Mantelero (2024) and Novelli et al. (2023).

[76] van Kolfschooten (2025).

such as people with intersecting forms of disadvantage.[77] Third, the scope of prohibited practices under Article 5 is narrow and includes broad exemptions. For example, manipulative AI is only banned if it causes 'significant harm', and the prohibition does not apply to systems deployed for national security or law enforcement purposes. These exemptions risk covering public health interventions like border screening or pandemic surveillance.[78] Finally, the AI Act's emphasis on high-risk medical devices reflects a clinical rather than public health focus. It frames risk in terms of individual safety, not collective harm.[79]

Taken together, these limitations reveal that the AI Act offers incomplete and uneven protection for individuals affected by AI-driven public health interventions. As currently designed, it fails to safeguard the right to health in contexts where population-level tools interact with individual rights in complex, intersecting ways. The next section explores how legal frameworks can be updated to close these gaps and ensure algorithmic governance in public health advances, rather than undermines, health equity.

4.2 Rethinking Legal Protection for AI in Public Health

The preceding analysis has shown that the EU's current regulatory frameworks for AI, particularly the AI Act, are insufficient to protect the right to health in the digital era, in a manner that meaningfully addresses the intersecting forms of exclusion, discrimination, and marginalisation that shape the impact of AI in public health. This section outlines a practical and normative framework for such an intersectional right to health approach in AI governance.

4.2.1 Beyond Bias Audits: Fundamental Rights Impact Assessment for Health AI (FRIA-H)

As explained in Sect. 4.1, the AI Act does not provide detailed guidance on how the FRIA should be carried out, nor how it should account for structural differences between affected groups. To address this critical gap, we propose the Fundamental Rights Impact Assessment for Health AI (FRIA-H), a sector-specific framework that embeds intersectionality and public health values into every stage of the assessment.

Bias audits, the dominant approach to fairness in AI, are inadequate in healthcare. They tend to treat characteristics like gender or race in isolation, ignoring how intersecting forms of marginalisation (e.g., being a Black woman or a disabled migrant) shape algorithmic harm. They focus on outputs rather than the broader structural context: who is represented in training data, whose values and behaviours

[77] Ćemalović (2024) and Galli and Novelli (2024).

[78] van Kolfschooten (2025).

[79] van Kolfschooten and van Oirschot (2024).

are encoded, and who is involved in the system's design. Moreover, bias audits often reduce fundamental rights to technical metrics, neglecting the normative foundations of public health, such as equality, dignity, consent, access, and redress.

The FRIA-H moves beyond this narrow paradigm. It operationalizes Article 27 in a way that is legally robust and context-sensitive, assessing how AI systems affect structurally marginalised groups and interact with the social determinants of health. Inspired by the Dutch Fundamental Rights and Algorithm Impact Assessment (FRAIA),[80] the FRIA-H is structured around four core components: *Why, What, How,* and *Rights*.

In the proposed FRIA-H, the first component (*Why*) examines the purpose of using AI in a given health-related process, requiring justification for why automation is necessary and whether less intrusive alternatives exist. It considers whether the issue targeted by the AI disproportionately affects excluded groups and risks reinforcing existing distrust or exclusion. *What* focuses on data sources, model design, and anticipated impacts. This includes identifying affected populations and specific risks, using an intersectionality matrix to assess how overlapping disadvantages, such as race, gender, disability, or immigration status, might amplify harm. For example, a digital triage system may perform well overall yet systematically under-assess the needs of women of colour, due to biases embedded in training data.

How addresses implementation, oversight, and redress. The FRIA-H demands not only internal governance mechanisms but also meaningful human oversight, culturally appropriate communication, and accessible complaint procedures. It emphasizes the need for systems that are usable by all affected groups. The final component, *Rights*, brings the assessment together in a legal justification and proportionality analysis. It asks whether infringements on fundamental rights are lawful, necessary, and proportionate, and whether the benefits of the AI system are distributed fairly.

Under Article 27(3), deployers must notify the market surveillance authority once the assessment is complete. The FRIA-H recommends including the intersectional analysis, stakeholder consultation record, and equity-based mitigation measures to ensure transparency and public accountability. The FRIA-H is not merely a best-practice tool; it is a legal mechanism for ensuring that the AI Act's fundamental rights safeguards are meaningful in healthcare settings. It aligns with Recital 96's call for participation of affected groups, civil society, and independent experts. By embedding intersectionality as a core analytical lens, the FRIA-H helps prevent foreseeable harm, promote equitable access, and restore trust in health systems.

4.2.2 Updating Human Rights Frameworks: Digital Health Rights

The growing use of AI in public health exposes not only regulatory gaps but also the inadequacy of existing human rights frameworks to protect individuals in digital health contexts. Core rights such as privacy, non-discrimination, consent, access to care, and participation were shaped in an analogue era and are increasingly strained

[80] Gerards et al. (2022).

by the scale, opacity, and predictive logic of algorithmic systems. Current rights frameworks are ill-equipped to respond to the compounded risks posed by algorithmic profiling, automated decision-making, and data-driven surveillance. The harms involved are often systemic, intersectional, and collective, yet traditional instruments focus on individual violations and linear causality.

What is needed is a new EU framework for the protection of Digital Health Rights: not a replacement of existing rights, but their reinterpretation and expansion to reflect digital realities. This includes protections against algorithmic discrimination; rights to transparency, explainability, and human oversight; the right to contest and seek redress for automated decisions; and the right to equitable access and benefit-sharing in digital health. Such a framework must explicitly embed intersectionality, acknowledging that digital tools are not neutral but shaped by the same structural biases that produce health inequities offline. Such a framework would offer a normative foundation for public health AI that centres human dignity, equity, and human rights.[81]

4.2.3 Collective Redress for Algorithmic Harm in Public Health Interventions

Current legal remedies in Europe remain focused on individual harm and complaints, yet this model fails to capture how AI systems in public health often reproduce structural inequalities. Algorithmic harms are rarely isolated or evenly distributed; they tend to disproportionately affect people at the intersections of race, gender, disability, migration status, and poverty. Misclassification, exclusion from digital services, and invisibility in health data are systemic outcomes of how data and power interact. Individual complaints mechanisms cannot adequately address these collective and intersectional harms. That is why legal frameworks must expand access to collective redress, enabling civil society actors, equality bodies, and grassroots organisations to bring forward claims on behalf of affected groups. Such mechanisms already exist in areas like consumer and environmental law.[82]

The General Data Protection Regulation (GDPR) provides an important legal precedent. Article 80(1) allows individuals to mandate non-profits to pursue data protection claims on their behalf, while Article 80(2) permits Member States to authorise these organisations to act independently in cases of systemic rights violations.[83] Though unevenly implemented across Europe, this provision recognises that digital harms are often diffuse, collective, and difficult to contest individually, especially in contexts involving sensitive health data under Article 9 GDPR.[84] Building on this logic, the AI Act should incorporate equivalent provisions, extending collective standing not only to address data protection violations but also to contest algorithmic

[81] van Kolfschooten (2025).

[82] Hakkarainen (2021).

[83] Federico (2023).

[84] van Kolfschooten (2022, 2024).

discrimination, biased triage, and structural exclusions in digital health systems. These reforms must recognise that intersectional harms often fall through the cracks of existing anti-discrimination frameworks, which are siloed by single grounds such as race or gender. Collective redress, led by actors embedded in affected communities, can surface these layered harms and shift the burden of proof to institutions better placed to produce systemic evidence and implement change.[85]

Effective redress also requires proactive oversight. Regulators must be empowered to investigate algorithmic harms without awaiting individual complaints and to adopt a broader definition of harm, including loss of dignity, algorithmic stigmatisation, and erosion of trust in public health institutions.[86] These harms are harder to quantify but deeply consequential, especially for historically marginalised communities. By embracing collective redress through an intersectional lens, legal systems can begin to evolve from individualised, reactive models of justice toward structural, proactive, and community-driven accountability.[87]

5 Conclusions

Artificial intelligence is transforming public health governance, not only through new tools for surveillance, triage, and prediction, but also by reshaping how health needs are defined, how populations are categorised, and how care is distributed. While often promoted as a means to realise the right to health, AI technologies are also capable of undermining the principles that underpin that right, especially for those situated at the intersection of multiple forms of structural disadvantage. This chapter has argued that public health AI must be governed not only through technical standards, but through legal frameworks that foreground equity. An intersectional interpretation of the right to health reveals how algorithmic systems can reinforce existing inequities in availability, accessibility, acceptability, and quality of care. These are not simply technical failures, but they raise serious legal and ethical concerns tied to states' duties to respect, protect, and fulfil the right to health.

An intersectional approach reveals that digital health cannot be separated from broader systems of inequality, linked to e.g. legal status, race, gender, disability, migration, and socioeconomic precarity. As such, AI governance must move beyond abstract commitments to fairness or transparency and be grounded in a broader social justice agenda. The analysis of the EU AI Act demonstrates that, despite recognising certain risks, the regulation remains largely procedural and technical. It overlooks how AI systems interact with inequalities in public health, and lacks the safeguards to address these dynamics.

To address these challenges, the chapter proposed three complementary interventions. First, a sector-specific Fundamental Rights Impact Assessment for Health AI

[85] Hunter and De Simone (2008).

[86] Busuioc (2021).

[87] Smuha (2021).

(FRIA-H), operationalising Article 27 of the AI Act by embedding intersectional health-specific analysis at every stage of AI deployment, from problem definition to oversight and redress. Second, recognising that algorithmic harms are often collective and relational, it calls for collective redress mechanisms that move beyond the individualised model of justice, drawing on the rationale behind Article 80 GDPR to empower civil society actors to protect affected communities. Third, it argues for the development of a Digital Health Rights framework that reinterprets fundamental rights, such as privacy, equality, and informed consent, for the digital age. Together, these proposals reimagine how law can respond to the risks of health AI. As governments increasingly adopt AI as a tool of public health policy, it is essential to ensure that these systems do not deepen exclusion.

For AI to strengthen rather than weaken the right to health, governance frameworks must adopt an intersectional approach throughout the AI lifecycle. As governments increasingly rely on AI to shape public health interventions, the urgent question is no longer just whether these systems are effective, but whether they are fair, and for whom.

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Dr. Hannah van Kolfschooten is a postdoctoral researcher at the Centre for Life Sciences Law (ZLSR) University of Basel. Previously, she was a lecturer-researcher at the University of Amsterdam. She has been a visiting fellow at Harvard Law School, University of Verona, and Foundation Brocher. She specialises in the intersection of law, health, and technology.