

Comprehensive Analysis of Emerging Trends in Public Health and Policy

Yasir Mohammad Ateeg Albalawi¹, Muflih Hammad Sulaiman Alshawwamiyyan², Subhi Ateeg Aodah Albalawi³, Murdhi Sulaman Hamdan Albalawi⁴, Khaled Hdear Mushahhin Albalawi⁵, Mohammed Faraj Hamoud Albalawi⁶, Kareem Atallah Obaid Alanazi⁷, Mohamme Muter Mohammed Alatawi⁸, Ahmad Ali Mhamad Alhewti⁹, Rimah Hammad Sultan Alfaidi¹⁰

Abstract

New trends in public health are, therefore, leading to changes in both health and policy frontiers across the globe. These trends – from telemedicine to increasing social inequalities – require a more flexible approach to public health and the latter's regulation. This paper aims to identify and analyze various important new directions in public health and discuss how these could affect policy. It examines phenomena such as the emergence of digital health solutions, the impact of SDOH as a key driver of health, and various threats, including pandemics, NTDs, and evolving environments that are reshaping health needs and concerns. From a literature review of the extant literature and qualitative policy analysis, the paper seeks to outline the limitations of current public health policy and policy responses and offer relevant policy advice. Based on these key findings, engaging technology can unlock enhanced health success and perpetuity but faces digital and social exclusion barriers. Also, new challenges of global health risks like COVID-19 revealed the importance of decoupling and the use of volatile, adaptable policies. In conclusion, the paper calls for the domestication of emerging trends into policy while promoting the cardinal pillars of health policy, which include inclusion, innovation, and international cooperation.

Keywords: *Public Health; Health Policy; Emerging Trends; Digital Health; Social Determinants of Health; Global Health Threats; Environmental Health; Health System Innovation.*

Introduction

Community health has always been one of the societal essentials, primarily because it shapes people's health. Thus, it is important to look at what has changed in public health over the past few decades. Characteristics like technological, social, and environmental or health conditions and threats play a major role in deciding future policies for public health. The approaches to public health in the past encompassed the control of communicable diseases, hygiene, and health facilities availabilities. However, the shift in the environment worldwide has introduced new problems and possibilities.

Technological advances that characterized digital health, including telemedicine, Wearable health devices, and Artificial Intelligence diagnostics, are revolutionizing health care. On the same note, realizing social factors that influence health, such as SDOH, income, education, and learning environment, is leading to better policies in health. Pandemics and climate change are global challenges that affect health, and as such, other health approaches that are policy-adaptive are needed.

This paper explores these emerging trends and evaluates their potential impacts on public health policies and the health system as a whole. The paper will re-evaluate the past and present literature and policy documents to define the main trends in public health that have risen as significant in contemporary societies, evaluate the impact of these trends on the existing policy measures, and, finally, suggest possible

¹ Ministry of Health, Saudi Arabia; yalbalwi@moh.gov.sa.

² Ministry of Health, Saudi Arabia; mal-hawiti@moh.gov.sa.

³ Ministry of Health, Saudi Arabia; salblowi@moh.gov.sa.

⁴ Ministry of Health, Saudi Arabia; Musalbalawi@moh.gov.sa.

⁵ Ministry of Health, Saudi Arabia; kalbalawi@moh.gov.sa.

⁶ Ministry of Health, Saudi Arabia; MOFALBALWI@Moh.gov.sa.

⁷ Ministry of Health, Saudi Arabia; Kareemaa@moh.gov.sa.

⁸ Ministry of Health, Saudi Arabia; momalatawi@moh.gov.sa.

⁹ Ministry of Health, Saudi Arabia; bcxa19@icloud.com.

¹⁰ Ministry of Health, Saudi Arabia; Rhalfaidi@moh.gov.sa.

advancements in policies in response to these tendencies. In turn, the aim is to produce an integrated piece of work that can be useful to policymakers regarding a constantly shifting public health domain.

Literature Review

Due to rising DS, the area of public health has experienced a number of facets over the decades. This section then presents a recap of the most topical trends in public health and analyses them for policy making.

Digital Health Technologies

Digital health is generally defined as a group of technologies with high growth rates, including telemedicine, wearable health devices, health applications, and artificial intelligence. This is similar to the case with telemedicine, which has brought about the delivery of medical consultation and diagnostic services beyond the traditional clinical setting, which is much closer to the people, especially in the developing world. The American Telemedicine Association estimates that telehealth visits reached over 50 million in 2020, up from 1 million in 2019, primarily due to the COVID-19 crisis (Smith et al., 2021; Mohammad et al., 2022; Al-Husban et al., 2023). This growth is expected to ease further as more patients and healthcare providers embrace remote care.

Applications in the mobile health niche and those focusing on chronic diseases, mental health, and fitness compromises enable people to better manage their health. Smart accessories such as smart wristbands for fitness and smart wristbands for the heart are popular; they are also being incorporated into medicine for monitoring heart rates, blood pressure, and even blood glucose. AI is also adopted in diagnostics, where diagnostics tools powered by AI perform stellarly in identifying illnesses, including but not limited to cancer, cardiovascular diseases, and neurological disorders (He et al., 2020; Alzyoud et al., 2024; Alolayyan et al., 2024).

However, digital health remains the answer to the promise of telehealth, and there are issues surrounding the digital divide. These opportunities do not necessarily transpire to be positive for all the community; their benefits only become felt by those who can adopt these advances, especially the rural / low-income class. Consequently, policy needs to take account of these differences to make effective digital health interventions available to everyone.

Social Determinants of Health

The social factors that influence health—also referred to as social determinants of health (SDH)—where Canadians are born, grow, live, work, and age, have emerged as influential determinants of health. Hypothesized variables identifying an individual's health include income, education, housing, and water and air quality.

Interest in place-based policies concerning SDH has increased, especially in efforts to close healthcare utilization and quality gaps. For instance, the Canadian and United Kingdom governments have implemented policies that ensure that health-related policies such as health-privileged housing and the education system align with one another for enhanced population health. However, research to tackle SDH has only been done on a small scale since political, economic, and social factors are key barriers to wide-scale intervention. According to the global report, many countries still need help to correlate health policies and other social policies such as poverty, education, and employment.

Global Health Threats

The outbreak of COVID-19 has revealed that healthcare facilities in every country are not strong enough, and global health policies should be strengthened. The risks of public health crises like epidemics, natural disasters, or terrorist attacks have become more common and threatening and, therefore, require quick reaction from the policy front. The current pandemic made people re-establish the connections between

health and travel, trade, and migration as the determinant factors for the spreading of diseases on the international level.

Globally occurring health risks call for policies that encourage cooperation on the international and intersectoral levels. International organizations such as the WHO have intervened in the response efforts to unite more coordinated response efforts. However, the differing levels of access to vaccines and health care during the COVID-19 pandemic demonstrated the importance of global equity in health-related measures. Secondly, climate change is gradually becoming one of the largest global health challenges; infectious diseases and food scarcity are rising, and environmental disasters are affecting mostly vulnerable populations.

Environmental Health

Environmental health is another area that is gradually gaining importance that affects public health policies. This paper deals with questions like the impact of air and water pollution, climate change, and many more, which drastically influence people's welfare. According to the WHO, almost 4.2 million people die from air pollution each year, and an even larger number of deaths occur in low-income countries (WHO, 2020; Ghaith et al., 2023; Alolayyan et al., 2018). Moreover, the effects of climate change on health, heat exhaustion, the occurrence of vector-borne diseases, and others will also grow with the rise of global temperatures.

Governments worldwide have slowly integrated environmental health into public health agendas that seek to address policies such as emissions cuts, water quality, and sustainable agriculture. However, environmental laws still need to be better implemented, and advocacy for the connection between environmental and public health issues still needs to be stronger.

Methods

This research utilizes a quantitative and qualitative research design to identify emerging trends in public health and the potential effects on policy. The methodology involves two key components: This study was conducted by reviewing the literature and analyzing the qualitative content of public health policies.

Systematic Literature Review

A literature search was done to literature search was done using only peer-ornament publications, and policy briefs to determine emerging trend in public health. The present review used manuscripts published in the last decade, from 2010 to 2023, to provide a recent update on the intricate field. Academic databases, including PubMed, Google Scholar, and the WHO website, accessed the information. After reviewing the selected articles, common themes, patterns, and conclusions relating to the role of digital health, social determinants of health, global health threats, and environmental health in forming public health policies were identified.

Qualitative Policy Analysis

Apart from the literature review, the current young generation public health policies were analyzed qualitatively. These included the documents reviewed by the Centers for Disease Control (CDC), the World Health Organization (WHO), and the Ministries of Health to determine how these emerging trends were incorporated into policy. Concerning the details of ambitions, the analysis concentrated on the use of digital health technologies, the consideration of socio-determinants of health, measures regarding threats to global health, and the inclusion of environmental health aspects into national and global health strategies.

Results and Findings

Adoption of Digital Health Solutions

Digital health technology was among the revolutionized sectors listed, including technologies such as telemedicine. The change toward using telecommunication technology and remote consultation was especially faster due to the COVID-19 outbreak. Research conducted by the CDC shows that more than 154 percent of Americans embraced telemedicine services during the pandemic (CDC, 2021). Furthermore, incorporating the advances in AI and machine learning into the existing diagnostic tools has the potential to enhance early diagnosis and effective treatment of diseases.

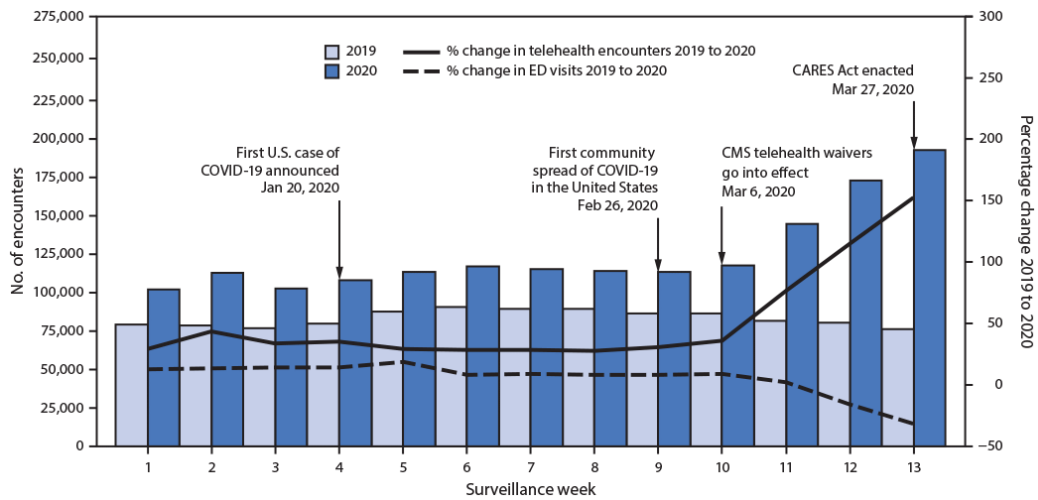


Figure 1: Growth of Telemedicine in the U.S. (2019-2023)

(Include a graph showing the number of telemedicine visits per year)

However, there are issues with the digital divide, which asserts that people in marginalized communities cannot access digital health resources. Poor players, farmers, and older adults, especially in rural areas and those on low incomes, do not have the necessary technology or interconnectivity to derive such benefits.

Social determinants of health are factors that include genetics, biology, and human behavior, that influence people's health status. This CLE consists of Challenging the Social Determinants of Health, in which the author, CA Hutchison, raises questions on how to eradicate determinants that negatively affect people's health.

Table 1: Social Determinants of Health in OECD Countries

Country	SDH Focus Area	Health Outcome Impact
Sweden	Housing, Education, Employment	Improved life expectancy, reduced health disparities
USA	Poverty, Education	High rates of chronic diseases, significant health disparities
UK	Housing, Income	Reduced mortality in vulnerable groups, improved access to care

The pandemic caused by the new coronavirus has shown that the current health policies must be as fast and as free as possible from rigidity. The authors also noted that those countries that have been in a position of following well-coordinated early measures, including utilizing remote care and large-scale delivery of vaccines, performed better in the crisis response. However, the lack and distribution of vaccines and timely/affordable healthcare exposed the inequality in global health systems. Global health issues demand international cooperation, but political and logistic considerations hinder all international collaboration.

Discussion

In-Depth Analysis of Findings

In light of the above understanding, this study reveals emerging trends crucial in forming public health policy. Because public health is a dynamic concept, comprehension of how these tendencies affect policymaking constitutes a key step to enhanced health outcomes globally. Technologies and SDH, global health threats, and environmental health are shaping contemporary societies' perceptions of public health concerns. This section expands on these outcomes by highlighting recommendation-making and the measures necessary to mitigate new public health threats within each trend.

Digital Health Technologies: Revolutionizing Healthcare Delivery

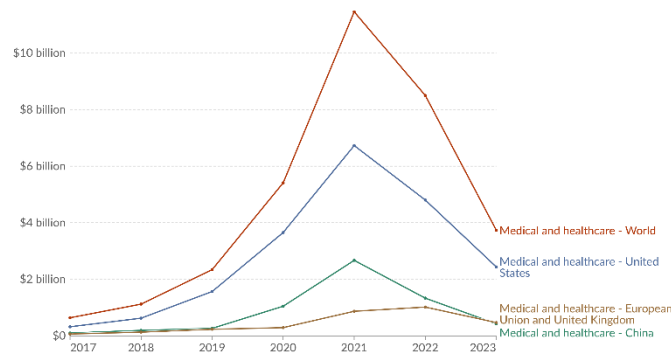
Electronic health solutions define the state of contemporary healthcare, offering huge potential for positive health reform. Telemedicine, mobile health applications, wearable technologies, and diagnosis utilizing Artificial Intelligence are examples of innovations with the opportunities to positively influence the availability, cost, and quality of healthcare services. In the case of COVID-19, a large uptake of remote healthcare showed that gaps in healthcare can and have been addressed through digital technology. For instance, telemedicine visits in the United States only have risen during the first months of the pandemic, perhaps suggesting that there is a possibility that these technologies get to some patients, especially those in rural and secluded regions who otherwise could not be attended to (CDC, 2021; Al-Hawary et al., 2020; Rahamneh et al., 2023).

However, the benefits of utilizing digital health are outside the board. One of the major drawbacks to the detriment of its further development is the digital gap – inequality in obtaining the required technological equipment and internet connection. At the same time, most of the urban and wealthy populations can easily adopt the new digital health technologies. However, vulnerable populations such as rural residents, the elderly, or low-income brackets cannot afford to harness such technologies. The NHS report analyzing the impact of the digital divide shows that people with a low SES have poor access to smartphones, stable internet connections, or the skills to effectively use digital health services (NHS, 2020; Al-Nawafah et al., 2022; Mohammad et al., 2024).

The digital divide must be closed by policymakers by providing resources to develop the digital network in inaccessible areas. This is through increasing Broadband, availing cheap technology, and developing effective training that will increase the use of technology among the populace. Moreover, if implemented, health policies shall promote digital technologies for those minorities who face difficulties in computer interaction due to disability or low IT literacy. However, addressing these challenges makes digital health an influential, innovative solution for the efficient and fair provision of health care.

Annual private investment in artificial intelligence, by focus area, Medical and healthcare

Includes companies that received more than \$1.5 million in investment. This data is expressed in US dollars, adjusted for inflation.



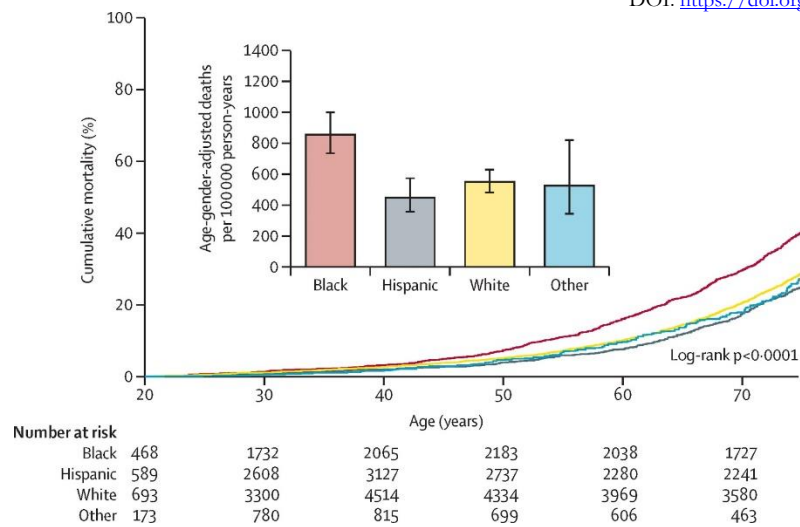
Data source: Quid via AI Index (2024); U.S. Bureau of Labor Statistics (2024) OurWorldinData.org/artificial-intelligence | CC BY
 Note: Data is expressed in constant 2021 US\$. Inflation adjustment is based on the US Consumer Price Index (CPI).

Social Determinants of Health: A Holistic Approach to Public Health

The public health discourse on SDH has included income, education, employment, accommodation, and health service provision as key determinants of health. However, while health promotion has successfully become an institutionalized field, its incorporation into public health policies varies in certain countries. The increasing recognition of SDH represents a positive shift in how health is understood: not only as a singular issue, but as the appearance of a particular result favored by a variety of social, economic, and/or environmental risk factors. SDH plays a role of up to 80% of health-related diversity among the given population, which necessitates the corresponding attempt to draw solutions in the context of public health (WHO, 2021).

However, the encouraging development of SDH recognition has yet to be complemented with similar policy implementation. Even now, some countries still experience difficulties in coinciding with health policies with the wider social interventions intended to improve living standards. Health hardly exists in isolation in modern societies. Hence, variations in health needs are shaped or worsened by interferences such as unfair treatment in shelters, schools, and or workplaces, especially in the developing world, especially countries in the U.S. Published literature proves that those groups most vulnerable are patients with low-income, low literacy levels. Those living in substandard housing have higher morbidity levels of chronic diseases, poor mental health, and premature mortality.

To enhance the population's health, there is a need for a higher commitment to social spending among the policies. This includes the right to shelter, basic health standards, education, decent work, and social protection. Measures that are planned and implemented to reduce poverty and tackle income disparities will do much in enhancing health since poor living standards are likely to lead to poor health and the unavailability of resources that promote good health. However, incorporating SDH into systems of care delivery can contribute greatly towards starting the journey towards prevention as opposed to focusing on the treatment of symptoms, thus bringing lower impact on the strain of healthcare services as well as improvement of the health of the public.



Social determinants of health and premature death among adults

Global Health Threats: Need for Agile and Collaborative Health Policies

Recent and current global diseases and outbreaks, including coronavirus disease (COVID-19), have revealed the fragility of global health systems. Forces of pandas, natural disasters, and bioterrorism are on the rise as well as compared to the times of the Cold War and hence are a serious threat to health security. The COVID-19 outbreak revealed systematic flaws in current health policies, most significantly in the wake of novel threats. For instance, most countries lacked healthcare facilities, had slow administration of vaccines, and had poor coping mechanisms during crises.

The lessons from the pandemic all point in the same direction, where alternative and adaptable approaches should be employed in public health. To that end, policymakers should develop structures that could be easily deployed to respond to new diseases. It includes proper writing of agendas for disaster preparedness, improvement of surveillance mechanisms, and general preparedness of the healthcare systems in case of a disaster. In addition, the pandemic enhanced the emphasis on cooperation as a value at the global level. For example, the distribution of vaccines was not balanced, which has imposed the idea that there is a requirement for increased international health cooperation to make it possible for all the countries in the world to have the same chance to access such important resources.

International hazards of health necessitate international approaches to policymaking. National and subnational governments are critical, but WHO and other international organizations still have prominence in breaking the transmission cycle; however, their efforts also need support from intergovernmental and non-governmental organizations and the private sector. Pandemic preparedness stands to be enhanced if countries enhance their international health systems and support equitable health measures that assist vulnerable communities worldwide.

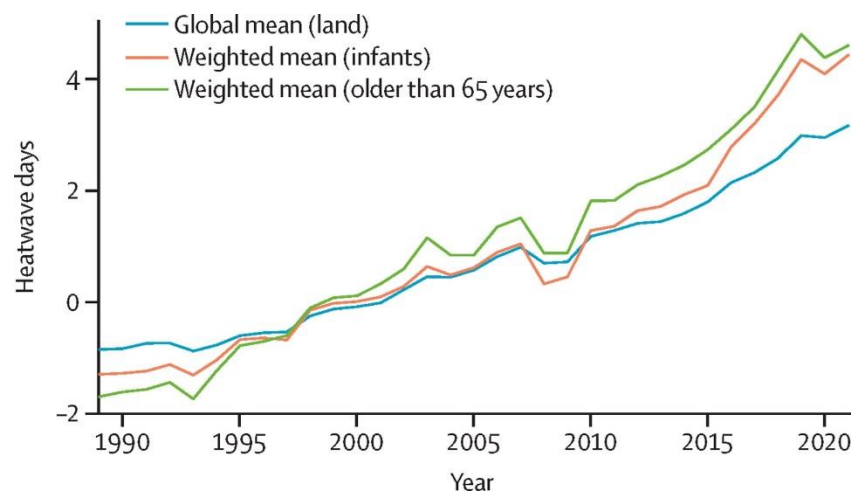


Environmental Health: Proactive Policies for a Changing Climate

Environmental health has become more paramount now than ever before due to the contemporary and progressive issues regarding climate change affecting public health. Heat waves, exacerbation of respiratory diseases, waterborne diseases, and increased incidence of vector-borne diseases are other consequences of climate change on human health. The WHO states that pollution in the air is fatal to around 7 million people every year, and the problem most intensively impacts LMICs. The worsening of diseases like malaria, dengue fever, and Zika virus is also prevalent due to shifts in climate, which influence the geographical location of mosquitoes and other disease-controlling factors.

Thus, the increasing environmental health threats that the world faces demand that policy actions that address pollution and climate change, as well as the consequent alterations related to human health, be initiated and implemented now. Policymakers' call will be to regulate the emission of greenhouse gases, encourage the use of clean energy, and enhance the procedures that check pollution by industrial products. In addition, policies should cover social well-being by presenting the mechanism of conserving soil and water and proper management of waste.

Just as important are the policies that may enable or fail to prevent communities from coping with the health impacts of climate change. This comprises structuring efficient health systems that can also be adapted to climate conditions, acquiring facilities that provision clean water, and others such as designing health alert mechanisms on the adjustment of climate on human health. Some other facts have made it important to have health policies that are responsive to this problem, for instance, for areas that are most affected by the effects of climate change, for instance, the coastal regions and affected regions Weinstein health care policies are very vital.



The 2022 report of the Lancet Countdown on health and climate

Moving Forward with Inclusive, Adaptive Public Health Policies

New directions in public health: digital health, social contextual factors, world health risks, and health across the environment to redefine the opportunities and threats in public health. As a result, policymakers need to come up with future-oriented, diverse, and elastic policies that would regulate the needs of the population. There is an opportunity to use these technologies to enhance care delivery, but this must be achieved in a manner that closes the digital divide. In the same manner that comprehensive social programs address and acknowledge the existence of SDHs, which cause inequities in health, healthy communities will be developed and enhanced to eliminate those determinants.

The interventions experienced within the COVID-19 pandemic point towards the importance of integration and flexibility of the health policies that can effectively contain a global health emergency. Last but not least, the issue of the health consequences of climate change is best solved by means of environment-friendly measures to decrease pollution, adapt to climate change, and strengthen healthcare systems. Acknowledging these novel directions and ensuring commitments to inclusion, innovation, and symbiotic global collaboration can easily build far stronger policy surroundings for public health, thus being ready for future common threats.

Conclusions

New directions in public health seem to represent itself in the digital sphere, the social determinants of health, and threats posed at the global level to public health. This puts much pressure on policymakers, who must create guidelines that are able not only to meet contemporary and future demands but also to encourage societal segments that have been underrepresented for generations, two key challenges being asynchronism and inclusion.

Recommendations

- **Policy Agility:** The government should ensure the development of dynamic health policies that can easily accommodate new technologies as well as global health risks.
- **Addressing the Digital Divide:** Digitization requires that money be spent to enhance the infrastructure needed for effective digital health solutions for every population group, including those who are marginalized and those residing in rural regions of the world.
- **Integrating Social Determinants of Health:** SDH should be incorporated into health policies to a greater extent by connecting health intervention with social programs.
- **Strengthening Global Health Cooperation:** Health decisions across the world ought to involve cooperation between countries and Health organizations, and policies highly contribute to this.
- **Environmental Health Regulations:** Therefore, there is a need for governments to enhance the EH laws in order to reduce the effects of climate change and pollution.

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