



**Laidlaw Scholars Undergraduate Leadership and Research Programme
Research Report**

**Analyzing the Effect of Healthcare System Type and Socioeconomic Status on
Healthcare Access and Results During COVID-19: A Cross-Country Review**

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I. Acknowledgements

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II. Introduction

COVID-19 is far from over. Though most institutions have foregone mask mandates and lockdowns have become a distant memory, the impact of the pandemic has had lasting repercussions on all facets of everyday life. From education systems to social services, COVID-19 shook the world. Arguably, the most impacted systems have been healthcare institutions; grappling first-line COVID-19 testing, second-line treatment and vaccinations, and the reverberating effects of “long COVID,” the world of medicine and public health was under immense strain. The direct impacts of the virus include a lack of supplies including personal protective equipment (PPE), minimal space to accommodate the sheer volume of patients getting infected daily, and staffing shortages due to illness strained healthcare systems, unveiling systemic inequalities in how healthcare is distributed amongst a population.¹ This led to more tangential impacts of the virus, including delays in preventative and elective care that unnecessarily jeopardized many lives, leading to excess deaths from cancers, heart disease, and other chronic illnesses.^{2,3}

This review focuses on two general domains of each healthcare system: the macro level and micro level. In this case, the “macro level” considers the overarching structure of healthcare systems, which had significant impacts on COVID-19 policies, care, and the mobilization of resources.⁴ The specific structure of a healthcare system impacts dissemination of materials, funding, and the corresponding standard of care. Narrowing down and identifying the nature of a certain healthcare system can be difficult, given the intertwining and complex nature of bureaucratic and financial legislation on global scales. As such, various typologies of health systems exist; focusing specifically on OECD member countries, the five distinct systems identified by Böhm et al include the National Health Service, the National Health Insurance, the Social Health Insurance, the Etatist Social Health Insurance, and the Private Health System.⁵ However, these categorizations are far from stringent, given the constant evolution of healthcare systems.

The second domain complementing the macro level is the “micro level”, which considers more community-based differences. This review focuses on socioeconomic disparities across

¹ French, “Impact of Hospital Strain on Excess Deaths During the COVID-19 Pandemic — United States, July 2020–July 2021,” 1615.

² Sharpless, “COVID-19 and Cancer,” NP.

³ Wadhwa et al., “Cardiovascular Deaths During the COVID-19 Pandemic in the United States,” 160–61.

⁴ Lal et al., “Fragmented Health Systems in COVID-19,” 61.

⁵ Böhm et al., “Five Types of OECD Healthcare Systems,” 259.

communities that limited access to care, vaccines, and treatment, which has been previously identified as an unfortunate social “side effect” of COVID-19.⁶ Socioeconomic status (SES) is considered one of the many social determinants of health (SDOH), defined to be a non-medical factor that impacts someone’s mental and physical health outcomes.⁷ Public health literature frequently cites a particularly strong correlation between SES and health, given the significant impact SES has on someone’s lifestyle and geographic location, both of which can determine someone’s ability to access care.⁸ Critically, disparities based on SES are also related to racial disparities, with traditionally marginalized communities forced to receive care in hospitals that, unfortunately, bore the brunt of resource shortages and had overall poorer outcomes during the pandemic.

Though there are a significant amount of other influential variables, homing in on comparing the impact of the type of healthcare system on socioeconomic disparities during the COVID-19 pandemic could offer invaluable insights into how to best reduce these disparities when healthcare systems are subject to another crisis and when they are functioning under “normal” conditions.

As we move farther away from the first outbreak of COVID in December 2019,⁹ it is critical for public health experts and policymakers to take the information we learned from the challenges we faced during COVID-19 with stride, looking at the setbacks as an opportunity to prepare for the next, imminent pandemic. Scholars have repeatedly said that we are not yet ready to address another extreme epidemic—which we have a one in 50 chance of experiencing again in our lifetimes.^{10,11,12} As such, framed by the guiding question of “How did the type of healthcare system affect the quality and effectiveness of COVID-19 treatment amidst socioeconomic barriers?”, this work seeks to contribute to a global network of health experts, inform future healthcare policies, and provide stronger insight into the intersection between health systems and equity in times of crisis.

This report is composed of two sections: a literature review that compiles data on health system features and socioeconomic disparities during COVID-19 and a comparative analysis generating tailored policy recommendations. The former includes a scoping literature review, collecting and organizing health data and case studies, synthesizing findings into graphs and charts, and drawing connections between healthcare structures, policies, and outcomes. The latter includes a comparative analysis of collected qualitative and quantitative data and the drafting of actionable policy recommendations for governmental bodies. This study hopes to add to the pre-existing literature on the intersection between SES and COVID-19 transmission, mortality, and vaccination rates.

⁶ Wachtler et al., *Socioeconomic Inequalities and COVID-19 – A Review of the Current International Literature*, 4.

⁷ Healthy People 2030, “Social Determinants of Health - Healthy People 2030,” NP.

⁸ Barakat and Konstantinidis, “A Review of the Relationship between Socioeconomic Status Change and Health,” 10.

⁹ CDC, “CDC Museum COVID-19 Timeline,” NP.

¹⁰ Marani et al., “Intensity and Frequency of Extreme Novel Epidemics,” 1–4.

¹¹ Feldscher, “The next pandemic: not if, but when,” NP.

¹² Gaines Buchler, “Are We Ready for the Next One?,” NP.

In this report, I aimed to focus on three countries that had comparable, yet alternative experiences during COVID-19, but have different healthcare systems as classified by the Böhm et al typologies.¹³ From the five categories, the three that especially piqued my interest were the Private Health System, National Health Insurance System, and Social Health Insurance.¹⁴ such, this report will conduct a cross-country analysis of the healthcare systems in the United States, Canada, and Switzerland.

III. Objectives

The primary objectives of my study are as follows:

1. Analyze and compare three prevalent healthcare system typologies (Private Health System, National Health Insurance System, and Social Health Insurance) through specific observation of the United States, Canada, and Switzerland, respectively.
2. Connect socioeconomic factors to accessing healthcare facilities, workers, and treatment plans during COVID-19 in the United States, Canada, and Switzerland.
3. Identify the strengths and weaknesses of each country's healthcare system in addressing the effects of COVID-19 across their respective populations.

The secondary objectives of my study are as follows:

1. Understand what socioeconomic disparities exist, how they are defined, which communities are most affected, and where they are located, in the United States, Canada, and Switzerland.
2. Propose solutions for alternative health policies and create a framework for future pandemic readiness endeavors.

Ultimately, understanding how various healthcare systems dealt with (or failed to deal with) COVID is critical to informing future health policy planning on domestic and international levels. By employing preventative measures to mitigate socioeconomic disparities in future disease outbreaks, societies become more resilient to future crises.

IV. Methods

The following analysis of the healthcare systems of the United States, Canada, and Switzerland will begin by implementing the descriptive framework for country-level analysis of financing for healthcare systems outlined by Joseph Kutzin to develop each country's standard for financing and insurance coverage.¹⁵ Then, equity within each healthcare system will be assessed through an economic lens, narrowing the public health definition of equity (when everyone can achieve their optimal state of health and well-being) to specifically consider SES.¹⁶ Finally, the equity analysis will be applied to COVID-19 policies and results.

¹³ Böhm et al., "Five Types of OECD Healthcare Systems," 264.

¹⁴ Böhm et al., 264.

¹⁵ Kutzin, "A Descriptive Framework for Country-Level Analysis of Health Care Financing Arrangements," 172.

¹⁶ World Health Organization, "Health Equity," NP.

i. Kutzin's Health Financing Framework

Kutzin's Health Financing Framework provides a mechanism for public health researchers and policymakers to understand how financing works in healthcare systems. The framework can be compartmentalized into four core components: revenue collection, pooling of funds, purchasing of services, and provision of services.¹⁷

Revenue collection is how a country raises money to fund healthcare, which can be done by diverting a greater portion of the public revenue into healthcare or increase the level of public expenditure entirely.¹⁸ Pooling of funds is how and where the funds are collected to optimally ensure individuals have health coverage.¹⁹ Purchasing of services is how the pooled funds are distributed to service providers in exchange for health coverage for a country's constituents.²⁰ Finally, provision of services is the actual delivery of services to the population, through institutions, workers, and levels of care, for example.²¹

V. United States

The American healthcare system is a complex, layered healthcare system. The most prominent example of a Private Health System in the OECD, the country's approach to healthcare is debated ferociously within the public sphere.

i. American Healthcare

Americans do not have the option of universal healthcare; they rely on publicly funded health coverage, privately funded health coverage, or unfortunately no coverage at all. In 2023, 92.0% of Americans had health insurance, with 65.4% covered with private insurance and 36.3% with public insurance.²²

a. Revenue Collection

In the United States, the two largest forms of government-subsidized, public health insurance are Medicare and Medicaid. The former offers the elderly population of the United States (65 years or older) the opportunity to have a significant portion of treatments and medical services partially covered by the federal government. Medicare is broken down into four parts: Hospital Insurance (Part A), Medicare Insurance (Part B), Medicare Advantage Plans (Part C), and Drug Coverage

¹⁷ Kutzin, "Framework for Country-Level Analysis of Health Care Financing Arrangements," 171.

¹⁸ Kutzin, 175.

¹⁹ Kutzin, 177.

²⁰ Kutzin, 180.

²¹ Kutzin, 188.

²² Keisler-Starkey and Bunch, "Health Insurance Coverage in the United States," NP.

(Part D).²³ A significant portion of Medicare participants receive Part A without any additional fees, given that they have been contributing to the program through taxes for an extended period. However, Part B, Part C, and Part D are separate, out-of-pocket expenses; known as Medicare Advantage plans, they supplement the basic basket of services that Part A provides.²⁴ Medicaid is a similar concept but targets low-income individuals. It is also jointly funded by the federal and state government, meaning that specific benefits vary on a state-by-state basis.²⁵

Privately funded insurance makes up a large sector in the United States economy, accounting for 17.8% of the American GDP in 2021.²⁶ At a price, a variety of options are available for consumers. Health maintenance organizations (HMOs) cover a limited basket of services, allowing patients to access only physicians within a “network” of providers, and must go to their primary care physician (PCP) prior to seeing a specialist. Preferred Provider Organizations (PPOs) offer more flexibility in terms of seeing PCPs and specialists in the insurer’s network, as well as covering partial reimbursement for “out-of-network” providers. Point of service plans combine the offerings of HMOs and PPOs.²⁷

b. Pooling of Funds

Given the various streams of revenue collection within the American healthcare system, there are multiple public and private pools of funding/federal partnership that coexist depending on the stream. For example, while Medicare and Medicaid are funded by the federal and state governments, employers offer private insurance plans with alternative stipulations. This fragmented system prevents an equitable distribution of funding across the entire population, leaving low-income individuals unsupported.

c. Purchasing of Services

The purchasing of services occurs by private and public entities from providers in the United States.²⁸ The most expensive public purchasers are, presumably, Medicare and Medicaid.²⁹ As mentioned prior, HMOs, PPOs, and high-deductible plans are the three overarching categories of private healthcare purchasers.³⁰

d. Provision of Services

Finally, the provision of services for Americans is highly contingent on the type of insurance they possess. Patients with insurance can readily schedule an appointment with a PCP or

²³ Rice et al., “United States of America: Health System Review,” 119–21.

²⁴ “A Quick Guide to Medicare & Medicaid,” 1–5.

²⁵ “What’s the Difference between Medicare and Medicaid?,” NP.

²⁶ Gunja et al., *U.S. Health Care from a Global Perspective, 2022: Accelerating Spending, Worsening Outcomes*, NP.

²⁷ UCLA Health, “How Health Insurance Works,” NP.

²⁸ Rice et al., “United States of America: Health System Review,” 141.

²⁹ Rice et al., 43.

³⁰ Rice et al., 45.

specialist in their network, while uninsured patients are redirected to community health clinics and hospital emergency rooms.³¹ Worst case scenario, uninsured patients refrain from seeking medical assistance at all, due to out-of-pocket costs.³²

ii. Equity

As previously established, the American healthcare system has no universal healthcare option, leaving many citizens forced to pay insurmountable fees for insurance (around \$7,000 a year per person) or remain uninsured.³³ The innately disjointed healthcare system in the United States is also unfortunately known for providing disjointed care, particularly along socioeconomic lines. Gulati et al. reported on the significant implications of SES on all-cause mortality, identifying that an elevated mortality risk was associated with uninsurance by 17% and unaffordability by 43%.³⁴ The Commonwealth Fund reinforces this report, establishing that adults in the United States with lower or average incomes have a greater tendency to defer treatment or not get it at all due to cost.³⁵ And, even if a low-income family is covered by Medicaid, some physicians may be hesitant to accept (or flat-out refuse) to accept them as patients, due to the lower payment rates and greater administrative time required for doctors when they see patients on Medicaid compared to Medicare or private insurance.³⁶ Therefore, patients with Medicaid can face similar circumstances as those who are completely uninsured, both groups of people being disadvantaged and left behind.

iii. COVID-19

The United States' management of the pandemic was internationally scrutinized,^{37,38} which was shocking considering the extensive development of pandemic preparedness initiatives. From high case counts, to voluntary federal guidelines on masking and gatherings, to insufficient testing sites and resources, to a dwindling essential healthcare worker population, federal and state governments failed to control the pandemic until it was too late.³⁹ 1.2 million people died of COVID-19 in the United States⁴⁰ and 341.11 deaths per 100,000,⁴¹ with a significant proportion of such deaths estimated to have been preventable.⁴²

³¹ Rice et al., 225.

³² Rice et al., 230.

³³ Masterson, "How Much Does Health Insurance Cost In 2025?," NP.

³⁴ Gulati et al., "Socioeconomic Disparities in Healthcare Access and Implications for All-Cause Mortality among US Adults," 436.

³⁵ Gunja et al., *The Cost of Not Getting Care: Income Disparities in the Affordability of Health Services Across High-Income Countries*, NP.

³⁶ Scott, "Medicaid Is a Hassle for Doctors. That's Hurting Patients.," NP.

³⁷ Hathaway and Phillips-Robins, "COVID-19 and International Law Series," NP.

³⁸ Fidler, "The World Health Organization and Pandemic Politics," NP.

³⁹ Alexander et al., "United States Response to the COVID-19 Pandemic, January-November 2020," 8–12.

⁴⁰ World Health Organization Data, "WHO COVID-19 Dashboard," NP.

⁴¹ Johns Hopkins Coronavirus Resource Center, "Mortality Analyses," NP.

⁴² Jia et al., "Estimated Preventable COVID-19-Associated Deaths Due to Non-Vaccination in the United States," 1125–27.

During the COVID-19 pandemic, the socioeconomic disparities already entrenched in the American healthcare system were amplified. In terms of the infection rates and severity of the disease, groups with a lower SES in the United States were hit harder.⁴³ Price-Haywood et al. found a strong relationship between lower SES and longer hospital stays during the pandemic, indicating more severe outbreaks of disease.⁴⁴ How the disease spread was also influenced by SES; Clouston et al. found that as public health interventions for COVID-19 began to come into effect (i.e., personal protective equipment, social distancing policies), American communities with lower SES were associated with greater incidence of the disease and higher mortality rates,⁴⁵ implying that “more resources, individual and collective actions” contribute significantly to disease transmission and health outcomes.⁴⁶ Zooming in specifically at social distancing, one of the primary strategies used to limit the spread of COVID-19 through mandatory quarantines, closures of schools and businesses, and curfews, SES influenced the burden on various neighborhoods in the United States. Lower-income communities engaged in less physical distancing measures compared to higher-income communities, which was particularly influenced by ability to work from home; higher-income individuals were able to reduce the time they spent working outside of the home, favoring remote modalities, while lower-income individuals were forced to continue working in-person.⁴⁷ Further, access to testing sites proved to be a significant structural barrier to positive health outcomes. An uneven distribution of public health resources reinforces socioeconomic disparities in COVID-19 infection rates, while also delaying identification of (and support for) COVID-19 hotspots.⁴⁸

To mitigate these inequities, the United States Center for Disease Control and Prevention (CDC) implemented a health equity strategy during the pandemic.⁴⁹ They began by expanding data collection to include demographic information such as race and ethnicity (albeit still narrow in scope) to better recognize and tackle marked disparities stemming from COVID-19. Using this data, the organization targeted the most vulnerable populations and provided funding and programming to promote tailored initiatives, including contact tracing. Then, the CDC focused on supporting frontline workers, who faced a higher risk of contracting the virus, through technical support and funding. Finally, they provided funding to engage a diverse workforce, with the guiding principle that “the public health workforce should mirror the communities they serve.”⁵⁰ However beneficial such an equity initiative may be, it is concerning that its implementation was only deemed prudent when a crisis occurred. A 2020 report published by the Government Accountability Office noted that the CDC’s response was “missing critical details”

⁴³ Wachtler et al., *Socioeconomic Inequalities and COVID-19 – A Review of the Current International Literature*, 7–9.

⁴⁴ Wachtler et al., 7–9.

⁴⁵ Clouston et al., “Socioeconomic Inequalities in the Spread of Coronavirus-19 in the United States,” 4.

⁴⁶ Clouston et al., 4.

⁴⁷ Jay et al., “Neighbourhood Income and Physical Distancing during the COVID-19 Pandemic in the United States,” 1296–300.

⁴⁸ Rader et al., “Geographic Access to United States SARS-CoV-2 Testing Sites Highlights Healthcare Disparities and May Bias Transmission Estimates,” 2.

⁴⁹ CDC Archive, “CDC COVID-19 Response Health Equity Strategy: Accelerating Progress Towards Reducing COVID-19 Disparities and Achieving Health Equity,” NP.

⁵⁰ Moore et al., “Promoting Health Equity during the COVID-19 Pandemic, United States,” 172.

in its equity initiative, stunting potential for long-term data collection to better inform decision-making.⁵¹

VI. Canada

The Canadian healthcare system takes the form of a National Health Insurance system. Access to medically necessary, insured health services without any charges at the point of service is an inalienable right, as enshrined in the Canada Health Act of 1984.⁵²

i. Canadian Healthcare

Also known as Medicare, the Canadian healthcare system is publicly funded by each of the 13 provinces and territories, so there is not one unified national plan. The federal government supports the Canadian healthcare system by allocating funding from the federal government on a per-capita basis. For a provincial healthcare system to receive such funding, it must comply with the five core tenets of the Canada Health Act: 1) it must be publicly administered, 2) comprehensive, 3) universal, 4) portable across provinces, and 5) accessible.⁵³

a. Revenue Collection

Canada spent \$372 billion on healthcare, coming out to just over \$9,000 per Canadian.⁵⁴ Of that expenditure, only around 70% of it has been generated from public funds since 1997, with 30% coming from out-of-pocket costs and private insurance plans.⁵⁵ There are three layers to how healthcare is funded in Canada. The first layer includes all the “medically necessary” public services that, as the Canada Health Act stipulates, come at no cost to the consumer. The second layer includes prescription drugs, home care services, and institutional long-term care. These are partially subsidized by private funds but are also paid for out-of-pocket or through private insurance. Lastly, the third layer is funded privately, and includes dental care, physiotherapy, and non-physician-provided vision care.⁵⁶

b. Pooling of Funds

Pooling of funds for healthcare occurs at three levels in Canada: 1) the federal government; 2) provincial/territorial governments; and 3) delegated health authorities, who largely allocate

⁵¹ *COVID-19: Federal Efforts Could Be Strengthened by Timely and Concerted Actions*, NP.

⁵² Health Canada, “About the Canada Health Act,” NP.

⁵³ Allin et al., *Canada*, NP.

⁵⁴ CIHI, “National Health Expenditure Trends,” NP.

⁵⁵ *National Health Expenditure Trends, 1975 to 2019*, 12.

⁵⁶ Martin et al., “Canada’s Universal Health-Care System,” 1721–22.

funding within a province/territory based on the specific health needs of the population.⁵⁷ The Canada Health Transfer allows for the federal government to distribute funds to the provinces/territories,⁵⁸ delivering over \$51 billion CAD in 2023.⁵⁹

c. Purchasing of Services

Physicians within the Medicare system are largely independent contractors who bill public insurance plans on fee-for-service metrics. There are also limited accountability measures that exist between physicians and hospitals, health authorities, or the government, who often have their own independent boards and separate budgets. These facets of the Canadian healthcare system contribute to fragmentation, as the key players often work in isolation of each other.⁶⁰

d. Provision of Services

The Canadian provision of services relies significantly on the general practitioner, a patient's initial point of contact when facing medical concerns. Largely, all subsequent services are performed at not-for-profit institutions (i.e., hospitals), but a growing interest in private clinics may alter the clinical landscape.⁶¹ Physicians are generally self-employed but can be viewed as workers of the state given the fee-for-service payment method and reliance on government funding.⁶²

ii. Equity

Canada's baseline universal healthcare system may not be as "universal" as initially intended. According to the Public Health Agency of Canada, low-income Canadians bear the brunt of the total direct economic burden, accounting for over 60% in 2016.⁶³ Canadians in the lowest income quintile also have the highest age-standardized average health care cost.⁶⁴ Additionally, for Canadian patients living in poverty, there were also significant barriers to accessing care, including the difficult living conditions of impoverished patients, to negative and poor-quality interactions between healthcare providers and underserved patients, to the complexities of navigating the healthcare system with limited resources and support.⁶⁵ Low-income Canadians

⁵⁷ Marchildon et al., "Canada: Health System Review," 69.

⁵⁸ Marchildon et al., 70.

⁵⁹ "Government of Canada Delivers Additional \$2 Billion Canada Health Transfer Payment to Provinces and Territories," NP.

⁶⁰ Martin et al., "Canada's Universal Health-Care System," 1723.

⁶¹ Marchildon et al., "Canada: Health System Review," 100.

⁶² Marchildon et al., xxi-xxii.

⁶³ Public Health Agency of Canada, "Report Summary – The Direct Economic Burden of Socioeconomic Health Inequalities in Canada," 118.

⁶⁴ Public Health Agency of Canada, 118.

⁶⁵ Loignon et al., "Perceived Barriers to Healthcare for Persons Living in Poverty in Quebec, Canada," 2.

are also 10 times more likely than other Canadians to face such barriers to accessing care compared to their higher income counterparts, subsequently reporting unmet health needs.⁶⁶

iii. COVID-19

Overall, Canadian management of the COVID-19 pandemic was strong compared to the other G10 countries, having the second-lowest per capita rate of COVID-19 cases and overall related deaths (Japan was the only country with lower rates of each).⁶⁷ Overall, 135.23 Canadians died per 100,000.⁶⁸ However, despite having developed pandemic preparedness initiatives, the country, plagued by regional differences and a flawed framework for addressing and resolving COVID-19 cases, grappled with over 4 million deaths from 2020 to 2023.⁶⁹ Public health in Canada is addressed collaboratively, engaging federal, provincial, and territorial governments in responses to crises, but the overall setup puts greater responsibility on provincial and territorial governments to directly intervene, consulting the federal government for assistance when needed.⁷⁰

On an equity front, the Canadian approach to public health during the pandemic was lacking. Despite significant financial support and lengthy lockdown/border control measures, vulnerable populations were disproportionately affected by the pandemic. A significant burden was placed upon long-term care homes, with the deaths of residents in such facilities making up around 80% of all COVID-19 deaths in Canada as of August 2020.⁷¹ However, Indigenous populations in Canada (i.e., First Nations, Inuit, and Metis people) experienced lower rates of hospitalization and better outcomes during the pandemic, which could likely be attributed to community-based care and prevention initiatives.⁷²

The impact of SES varied across the 10 provinces and 3 territories. The Pan-Canadian Health Inequalities Reporting Initiative determined that individuals living in low-income, ethnically diverse, large urban hotspots faced a greater burden of mortality rates due to COVID-19, compared to higher income, less diverse, more suburban subgroups. They also pointed towards the structural inequalities surrounding individuals of lower SES (i.e., a requirement to work on-site versus remotely) that likely contributed to an increased burden of disease.⁷³ This mirrors the findings of several province-wide studies. In Quebec, for example, Lefebvre et al. report that based on territorial dissemination, densely populated urban areas were the most affected by the pandemic, with a greater extent of transmission in economically disadvantaged areas. They also identified that these areas also bore the brunt of high transmission rates from the beginning of the pandemic, and any attempt to curb said transmission (through vaccination, increased distribution

⁶⁶ Williamson et al., “Low-Income Canadians’ Experiences with Health-Related Services,” 109.

⁶⁷ Razak et al., “Canada’s Response to the Initial 2 Years of the COVID-19 Pandemic,” E871.

⁶⁸ Johns Hopkins Coronavirus Resource Center, “Mortality Analyses,” NP.

⁶⁹ Johns Hopkins Coronavirus Resource Center, “Canada - COVID-19 Overview - Johns Hopkins,” NP.

⁷⁰ Allin et al., “The Federal Government and Canada’s COVID-19 Responses,” 2–3.

⁷¹ Public Health Agency of Canada, “Backgrounder: The Chief Public Health Officer of Canada’s Report on the State of Public Health in Canada, From Risk to Resilience: An Equity Approach to COVID-19,” NP.

⁷² Public Health Agency of Canada, “Backgrounder: An Equity Approach to COVID-19,” NP.

⁷³ Blair et al., “Social Inequalities in COVID-19 Mortality by Area and Individual-Level Characteristics in Canada, January to July/August 2020,” 34–35.

of PPE) was ineffective at reducing the burden.⁷⁴ In Toronto, Mishra et al. quantified SDOH and determined that though initial rates of COVID-19 concentrated in higher-income neighborhoods, this concentration shifted to lower-income neighborhoods. This trend can, again, be attributed to the type of profession prevalent in various socioeconomic groups and household density.⁷⁵ However, other provinces had other solutions and restrictions during the pandemic that had alternative effects on socioeconomic factors. Manitoba, for instance, prioritized lower-income groups for COVID-19 testing initiatives, promoting a more significant equity-based approach to the pandemic.⁷⁶ Additionally, though Ontario and New Brunswick had a higher rate of positive COVID-19 tests in more urban areas, Manitoba experienced the opposite.⁷⁷

In October 2020, Chief Public Health Officer of Canada Theresa Tam, MD, announced a revised focus of the Public Health Agency of Canada (PHAC) because of the noticeable inequitable impact of the disease on various populations. In a public statement, she called for action on three fronts: 1) maintain leadership and governmental support for structural changes in health, social, and economic sectors, 2) promote social cohesion, and 3) bolster capacity for public health initiatives.⁷⁸ “How these sectors work together, with the engagement of civil society and communities, will influence our success against COVID-19 resurgences and help to mitigate the impacts of future health emergencies,” said Tam.⁷⁹

VII. Switzerland

Switzerland’s induction into the Social Health Insurance type was relatively recent, only switching from a private system to Social Health Insurance in 1996.⁸⁰ Though all three of them are federalist and decentralized in nature, what sets the Swiss Social Health Insurance system apart is its distinct hyper dependence on decentralization, alongside a health insurance model that toes the line between a private and social system.⁸¹

i. Swiss Healthcare

Each of Switzerland’s 26 cantons takes primary ownership of their individual healthcare system. This allows for each region to cater to the specific needs of its constituents, rather than the federal government pouring funding into a broad range of services that may not be necessary for

⁷⁴ Lefebvre et al., “Socioeconomic Disparities and Concentration of the Spread of the COVID-19 Pandemic in the Province of Quebec, Canada,” 5–8.

⁷⁵ Mishra et al., “Increasing Concentration of COVID-19 by Socioeconomic Determinants and Geography in Toronto, Canada,” 86.

⁷⁶ Antonova et al., “Comparison of Socio-Economic Determinants of COVID-19 Testing and Positivity in Canada,” 6–12.

⁷⁷ Antonova et al., 6–12.

⁷⁸ Public Health Agency of Canada, “Backgrounder: An Equity Approach to COVID-19,” NP.

⁷⁹ Public Health Agency of Canada, “Statement from the Chief Public Health Officer of Canada on Her Report on the State of Public Health in Canada 2020—From Risk to Resilience,” NP.

⁸⁰ Böhm et al., “Five Types of OECD Healthcare Systems,” 265.

⁸¹ Crivelli and Salari, “The Impact of Federalism on the Healthcare System in Terms of Efficiency, Equity, and Cost Containment,” 156.

certain cantons, depriving adequate funding for the areas that need it. Additionally, the federal government could also focus on the aspects of health policy that it can have a direct and tangible impact on – innovation when it comes to comparing policy outcomes and opting for the most positive outcome.⁸²

The modern Swiss healthcare system looks quite different compared to what it looked like a century ago. In 1899, Swiss healthcare was intended to go through some serious restructuring. The Bismarck model was proposed, which entailed a healthcare system jointly funded by insured individuals and employers but partitioned across territorial lines. This bill was rejected, however, in a 1900 referendum. In 1911, the alternative Law on Sickness and Accident Insurance was developed and approved via referendum in 1912, transferring the power of managing healthcare to the cantons. Instead of having compulsory health insurance at the national level, individual cantons would mandate health insurance on their own terms. Premiums for such care and services would also be dependent on age and gender, rather than income.⁸³

a. Revenue Collection

As mentioned previously, the Swiss healthcare system relies on a broad base of funding, supplemented partially (around two-thirds) by the compulsory Social Healthcare System.⁸⁴ However, each canton has jurisdiction over the cost of their insurance plan, imposing community-rated premiums at a flat rate.⁸⁵ Additionally, federal and cantonal governments in tandem provide health insurance subsidies for low-income Swiss households.⁸⁶ The expenditure of the Swiss government is almost 100 billion CHF, steadily rising from 95 billion CHF in 2023 to 106 billion CHF in 2026.⁸⁷

b. Pooling of Funds

As previously mentioned, the decentralized Swiss healthcare system allows for more tailored support catered to the needs of each canton. However, the risks of decentralization could also generate inequitable circumstances for citizens, who receive different standards of care in different cantons. Efficiency may also be at risk in such a decentralized system, as dealing with local municipalities may pose a challenge when expedited care is the top priority. To circumvent such challenges, the Swiss government engages in an “equalization mechanism”, which allocates horizontal and vertical funding to cantonal healthcare systems on the condition that basic levels

⁸² Crivelli and Salari, 166.

⁸³ Crivelli and Salari, 162-165.

⁸⁴ Maurer et al., *Sustainability and Resilience in the Swiss Health System*, 4.

⁸⁵ Crivelli and Salari, “The Inequity of the Swiss Health Care System Financing from a Federal State Perspective,” 2.

⁸⁶ Crivelli and Salari, 2.

⁸⁷ KOF Swiss Economic Institute, “Healthcare Expenditure Rises to over CHF 100 Billion,” NP.

of service are achieved. Furthermore, promoting efficiency despite decentralization promotes collaborating with local governments rather than fighting them for policy implementation.⁸⁸

c. Purchasing of Services

Like in the Canadian system, provider payment is run on a fee-for-service model.⁸⁹ Through the TARMED (tarif médical) system, insurers have a contract with providers and pay them accordingly. Cantons supplement this cost and subsidize the cost of care for patients under the private insurance model.⁹⁰

d. Provision of Services

There is a wide range of ownership on healthcare institutions in Switzerland. Over half are privately-owned, 21% are publicly owned, and 25% are managed by a non-profit.⁹¹ Due to cantonal differences and the decentralization of care, consistency of care regarding hospital choice and public health initiatives is lacking. Despite this, patients in the Swiss medical system can access care readily, with 80% of patients able to see a specialist in less than a month and 68% of patients able to see doctors same-day, ranking in the mid-to-upper echelon of ratings for access to care globally.⁹²

ii. Equity

Despite the fiscal equalization and decentralization of healthcare services, the Swiss healthcare system still struggles with differences between cantons in terms of the services they provide and organizational models of care. Today, Switzerland's healthcare system still consists of 26 cantonal models, but the Confederation mandates that citizens have health insurance. Their collaborative insurance model is funded by two separate entities: private "sickness funds" established by the Federal Health Insurance Act (KVG) and public spending on the cantonal and municipal levels.⁹³

Exacerbating cantonal differences in healthcare provided, SES creates additional variation in terms of the quality and type of care that patients receive. Though Switzerland's overall healthcare performance ranks among the best in the world, there are systemic disparities in regional healthcare results and practices. In areas of Switzerland with lower SES, there is a higher rate of potentially avoidable hospitalizations, as well as strong associations between this

⁸⁸ Crivelli and Salari, "The Impact of Federalism on the Healthcare System in Terms of Efficiency, Equity, and Cost Containment," 164.

⁸⁹ De Pietro et al., *Switzerland: Health System Review*, 80.

⁹⁰ De Pietro et al., 80.

⁹¹ De Pietro et al., 123.

⁹² De Pietro et al., 235.

⁹³ Crivelli and Salari, "The Impact of Federalism on the Healthcare System in Terms of Efficiency, Equity, and Cost Containment," 156.

higher rate and lower levels of educational attainment and unemployment. The implications of these high rates are also costly – if the rate of 50% of the more fiscally deprived regions was resolved and brought to the Swiss average, it would save the Swiss healthcare system CHF 37 million (\$44.8 million).⁹⁴

iii. COVID-19

During COVID-19, Switzerland was heavily impacted by the pandemic, with 14,210 deaths and an adjusted number of 164.19 deaths per 100,000.^{95,96} Additionally, Switzerland had the highest infection rate per 1,000 people worldwide.⁹⁷ Despite these odds, the country fought the pandemic with overall success. From significant closures across its borders, to banning gatherings larger than five people as well as in-person schooling,⁹⁸ to a significant push for vaccinations starting in April 2021,⁹⁹ the Swiss were able to manage the pandemic. However, Switzerland was not immune to certain groups bearing the brunt of COVID-19 compared to others; Plümecke et al. found that non-Swiss citizens compared to Swiss citizens faced a higher death toll, for example, indicating unequal access to care.¹⁰⁰

Looking specifically at SES, Switzerland did also face enhanced socioeconomic disparities due to the pandemic. Riou et al. demonstrate that, compared to their lower-income counterparts, those living in higher-income communities would get tested more frequently but had lower rates of positive cases, contributing to a lower death rate.¹⁰¹ Similar associations were subsequently found with ICU admissions and hospitalizations.¹⁰² Outside of physical health, the impact of COVID-19 on mental health was exacerbated for younger Swiss men with a lower SES, particularly when it comes to employment status, men who lost their job or faced some sort of unemployment (i.e., partial unemployment, forced into self-employment). These changes took a significant mental toll, including increased stress levels and higher rates of depression.¹⁰³ On the other hand, compliance with preventative measures (i.e., using proper PPE, social distancing, quarantining after exposure, etc.) after June 2021 was better among groups of lower SES compared to higher SES, indicating overall inconsistencies during COVID on both ends of the socioeconomic spectrum.¹⁰⁴ There did not seem to be an overarching COVID-19 equity initiative within Switzerland – only post-pandemic statements and reflections.

⁹⁴ Spycher et al., *Indicators on Healthcare Equity in Switzerland New Evidence and Challenges*, 23.

⁹⁵ Johns Hopkins Coronavirus Resource Center, “Switzerland - COVID-19 Overview - Johns Hopkins,” NP.

⁹⁶ Johns Hopkins Coronavirus Resource Center, “Mortality Analyses,” NP.

⁹⁷ Sager and Mavrot, “Switzerland’s COVID-19 Policy Response,” 294.

⁹⁸ Sager and Mavrot, 295.

⁹⁹ Mueller Chabloz et al., “COVID-19 Pandemic in Switzerland,” 3.

¹⁰⁰ Plümecke et al., “Differences in Mortality in Switzerland by Citizenship during the First and Second COVID-19 Waves,” 4.

¹⁰¹ Riou et al., “Socioeconomic Position and the COVID-19 Care Cascade from Testing to Mortality in Switzerland,” e688.

¹⁰² Riou et al., e688.

¹⁰³ Marmet et al., “The Psychological Impact of the COVID-19 Crisis Is Higher among Young Swiss Men with a Lower Socioeconomic Status,” 6–9.

¹⁰⁴ Tancredi et al., “Socioeconomic Status and Adherence to Preventive Measures During the COVID-19 Pandemic in Switzerland,” 8.

VIII. Comparative Analysis

The United States, Canada, and Switzerland had alternate approaches to tackling the COVID-19 pandemic. Navigating their respective healthcare systems and governmental systems played a significant role in addressing and resolving this public health crisis, with its repercussions still lingering. And, as established, each country still unfortunately ended up disenfranchising groups of lower socioeconomic status regarding testing, resources, and vaccinations. The degree to which this occurred in each country, however, differed. Dissecting what variables contributed to enhanced socioeconomic disparities in certain countries is critical to developing tailored policy recommendations and pandemic preparedness initiatives.

This comparative analysis was done with two perspectives. Firstly, the alternative definitions of socioeconomic groups across the three countries were considered, providing context to how socioeconomic disparities are felt. Secondly, by considering the differences of each type of healthcare system in the United States, Canada, and Switzerland, the corresponding impact on SES can come to light.

i. Socioeconomic Groups

What defines a certain socioeconomic group in a country is principally similar, with socioeconomic status established as the intersection of three main factors: income, education, and occupation.¹⁰⁵ There are various sociological explanations of what SES entails, but the particular divisions that manifest in the United States include 1) poor and working-poor (12% of the U.S. population); 2) working-class (35% of the U.S. population); 3) middle-class (32% of the U.S. population); 4) managerial/upper-class (20% of the U.S. population); and 5) owning/ruling-class (1% of the U.S. population). See Appendix A for measurements of corresponding income.

Canada has slightly different categorizations. They identify a poor/lower class (15-20% of Canadians), working class ($\frac{1}{3}$ of Canadians), middle class (divided further into upper middle class and lower middle class and overall consists of 40-50% of Canadians), and a rich/upper class (divided further into super rich/upper-upper class and rich/lower upper class and overall consists of 3-5% of Canadians).¹⁰⁶ See Appendix A for measurements of corresponding income.

Swiss measures of SES, however, have different manifestations. Specifically, representations of income consider housing situations based on rent per square meter.¹⁰⁷ Interestingly, Switzerland has less “class consciousness” as a society compared to the American and Canadian public, which makes delineations between economic classes more difficult. Traditional Swiss culture

¹⁰⁵ American Psychological Association, “Socioeconomic Status,” NP.

¹⁰⁶ “Canada’s Socio-Economic Classes; Equality in Canada in 2023!,” NP.

¹⁰⁷ Panczak et al., “The Swiss Neighbourhood Index of Socioeconomic Position,” 1.

doesn't amplify one's wealth via symbolic means, so divisions are more implied than outwardly acknowledged.¹⁰⁸ See Appendix A for measurements of corresponding income.

It is interesting to also consider the Swiss mentality of a limited “class consciousness” and how this mentality applies to income inequality. Instead of Swiss society experiencing the outward manifestation of socioeconomic disparities that are more prevalent in American and Canadian societies, income inequality is an underlying, inward phenomenon. When comparing to other OECD countries, Switzerland has a Gini coefficient of 0.4 in 2023 while the OECD average is around 0.33, indicating an overall equal society based on income.¹⁰⁹ On the other hand, *wealth* inequality is exceedingly high, with the top 10% of Swiss households controlling 63% of all capital. This signifies an immense inequality that is less visible, but no less valuable to consider.¹¹⁰ The United States also suffers from a high Gini coefficient (0.47)¹¹¹, as well as immense income inequality (around 70% of the wealth is held by the top 10% of the American public)¹¹², but given the sheer magnitude and diversity of the country itself, there is bound to be more variation in economic status.

ii. Type of Healthcare System

On top of diverse economic stratifications between the United States, Canada, and Switzerland, each country's healthcare system has undeniable impact on equity. Despite each country having their respective labels of “Private Health System,” “National Health Insurance System,” and “Social Health Insurance,”¹¹³ the inherent flaws and benefits of such systems transcend such categorizations.

Switzerland, for example, had only done away with its more privatized care system in 1996, shifting into the Social Health Insurance realm while maintaining elements of their former system (i.e., voluntary deductibles accumulating to a 30% out-of-pocket financing share).¹¹⁴ Additionally, though the United States falls into the Private Health System model and largely aligns with such ideals, public health insurance programs (like Medicare and Medicaid) contributes around 46% of healthcare funding without considering tax exemptions (this percentage exceeds 50% when tax exemptions are considered).¹¹⁵ And Canada's National Health Insurance engages with more of a public contracting model and private delivery of services is relatively high (private financing of healthcare composes about 1/3 of all funding for the sector).¹¹⁶ These inconsistencies in the label of health systems versus their actual functioning are critical to understanding patient experiences and perceptions of equity.

¹⁰⁸ Stephens, “Switzerland: In a Class of Its Own,” NP.

¹⁰⁹ Hasell et al., “Economic Inequality,” NP.

¹¹⁰ Turuban, “Economic Divide: how equal is Switzerland's wealth distribution?,” NP.

¹¹¹ Tierney, “Household Income Gini Index U.S. 2023,” NP.

¹¹² Buchholz, “Infographic: Where Global Wealth Inequality Is Rampant,” NP.

¹¹³ Böhm et al., “Five Types of OECD Healthcare Systems,” 259.

¹¹⁴ Böhm et al., 266.

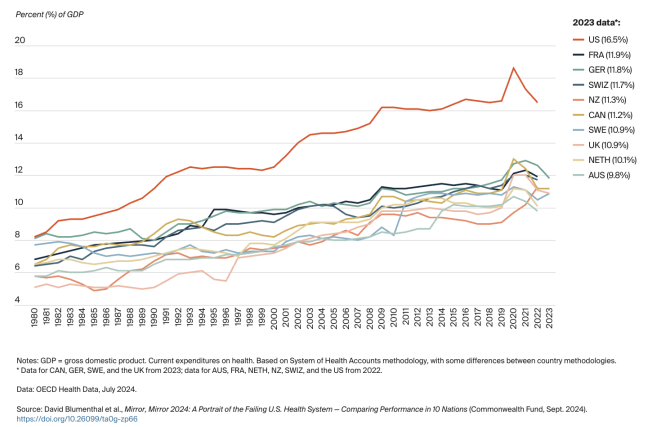
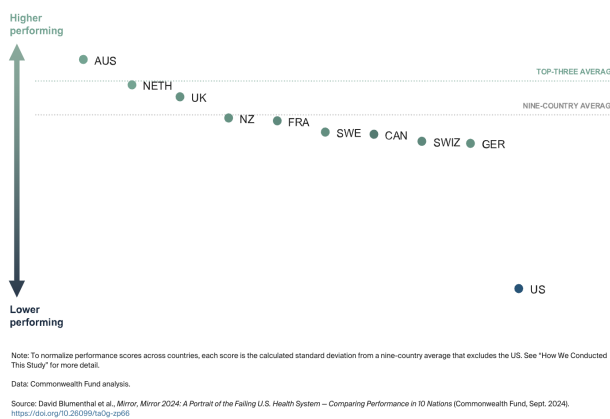
¹¹⁵ Böhm et al., 266.

¹¹⁶ Böhm et al., 265.

When considering the broader lens of equity, there are visible differences in quality through the lens of healthcare. All three countries, like most countries globally, struggled during COVID-19. From an equity lens, however, groups with lower SES in the United States fared worse than their Canadian or Swiss counterparts, facing longer hospital stays, a lower supply of PPE, and fewer physical distancing measures contributing to a greater infection rate.^{117,118} Though low-income Canadians faced greater rates of infection as the pandemic progressed, individual provinces were able to promote a more equity-based approach to vaccination dissemination.¹¹⁹ Finally, Switzerland’s low-income communities would get tested less frequently compared to their higher-income counterparts, but compliance with COVID-19 policies and prevention mechanisms was better in the former group.^{120,121}

It is important to caveat these findings and comparative analysis with an understanding of the sheer size and diversity of each country. A country of 50 states and over 340 million people has a significantly larger population to deal with compared to a country with 10 provinces and 3 territories and over 41 million people, as well as a country with 26 cantons and 9 million people. Would either the Social Health System or National Health Insurance models be adequately replicated with better equity performance in a country with a Private Health System? Or is it unfathomable to apply such models in the United States?

An additional comparable metric that reinforces the information previously presented is system quality and performance; the Commonwealth Fund reports that, compared to its international counterparts, the United States has inadequate healthcare system performance, despite spending substantially more on healthcare (reflected as a percentage of each country’s GDP).¹²²



¹¹⁷ Wachtler et al., *Socioeconomic Inequalities and COVID-19 – A Review of the Current International Literature*, 7–9.

¹¹⁸ Jay et al., “Neighbourhood Income and Physical Distancing during the COVID-19 Pandemic in the United States,” 1296–300.

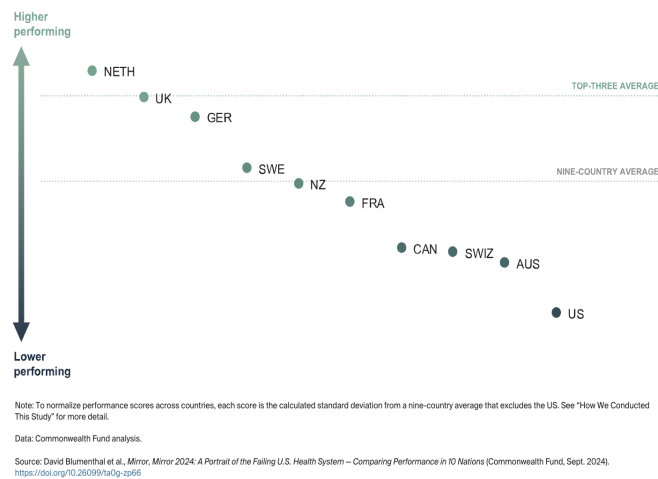
¹¹⁹ Blair et al., “Social Inequalities in COVID-19 Mortality by Area and Individual-Level Characteristics in Canada, January to July/August 2020,” 34–35.

¹²⁰ Riou et al., “Socioeconomic Position and the COVID-19 Care Cascade from Testing to Mortality in Switzerland,” e688–90.

¹²¹ Tancredi et al., “Socioeconomic Status and Adherence to Preventive Measures During the COVID-19 Pandemic in Switzerland,” 8.

¹²² Blumenthal et al., *Mirror, Mirror 2024: A Portrait of the Failing U.S. Health System*, NP.

Americans also face significant difficulty just accessing care, though this difficulty is not significantly worse compared to Canada and Switzerland.¹²³



This is an interesting phenomenon; while the United States may be a frontrunner in unaffordable healthcare systems, Switzerland and Canada are far from excelling in affordable and available care. With a crushing primary care physician shortage leading to substantial burnout and underfunded healthcare institutions in Canada,¹²⁴ and greater out-of-pocket healthcare costs despite mandated insurance policies in Switzerland,¹²⁵ it is critical to consider that both private and public healthcare are far from flawless.

IX. Policy Recommendations

Addressing and resolving the devastating impacts of COVID-19 requires developing measures on a domestic and international scale. Given that the effects of the pandemic were not unilateral in scope or weight, generating multi-pronged policies for all-encompassing, culturally sensitive care (with enhanced emphasis on SES as an SDOH). Such policies must be generated by both the various healthcare/public health institutions of the United States, Switzerland, and Canada, alongside international non-governmental organizations (NGOs) like the World Health Organization (WHO). Understanding what role each type of organization must play in having a productive, inclusive, and tangible pandemic preparedness initiatives and corresponding infrastructure.

These policy recommendations were developed based on the above literature review and corresponding data, alongside a personal analysis of the countries' experiences. In tandem, relevant public health policies and programs were highly considered.

i. Global Collaboration

On May 7th, 2025, the WHO member states voted to create a “convention, agreement or other international instrument” to “strengthen pandemic prevention, preparedness and response.”

¹²³ Blumenthal et al., 2024.

¹²⁴ Shahaed et al., “Primary Care for All,” e1628–30.

¹²⁵ Boes et al., *Health Systems in Action (HSiA) Insights: Switzerland, 2024*, 7.

Spearheaded by an Intergovernmental Negotiating Body (INB), an agreement “framing practical actions to deal with both causes and consequences of pandemics and other health emergencies” was drafted beginning in December 2021 and engaged WHO’s Member States. Ideally, this accord would tackle “global prevention, preparedness, and response arrangements,” “sustained, predictable, coordinated funding for pandemic prevention, preparedness and response,” and “governance and oversight mechanisms.”¹²⁶

However, the WHO has the capacity to do more – and should do more. The WHO should develop a specialized, transdisciplinary subcommittee, called the Subcommittee for Pandemic Preparedness (“the Subcommittee”) that builds upon the work done by the INB. Transdisciplinarity, defined as “a process in which conceptual and methodological frameworks from various specialties are integrated to develop perspectives that transcend traditional disciplinary boundaries,” enlists a collaborative effort to tackle complex problems plaguing multiple aspects of society.¹²⁷ Translating the advice of professionals from across disciplines into a “shared language” for problem-solving could bolster resources and direct greater attention towards dismantling socioeconomic barriers to receiving proper care during a future pandemic.

A transdisciplinary committee will manifest in two ways: geographic transdisciplinarity and personnel transdisciplinarity. Firstly, given the diversity of healthcare systems that exist globally, having a Subcommittee to administer effective pandemic preparedness initiatives would be an asset. To ensure that such a Subcommittee is effective, a comprehensive collaboration amongst the public health entities of individual member states would be necessary. This includes (but is not limited to) the CDC in the United States, PHAC in Canada, and the Federal Office of Public Health in Switzerland.¹²⁸ This international collaboration will consider the insights generated by the INB and develop tailored policy recommendations that align with consistent pandemic preparedness guidelines to prevent misinformation and conflicting messaging.

Secondly, regional representation would be addressed by involving stakeholders from at least all six regions that the WHO Member States are grouped into, but the Subcommittee could require more representatives from more specific geographical areas. Then, from the delegation that each region sends, there should be a variety of subject-matter experts sitting at the table. This must include political scientists, medical scientists, global health officials, financial consultants, and government representatives, but the roles and division of labor is highly amenable based on the assessment and research coordinated by the ING. The ING (and more broadly, the WHO) should take advantage of the incredible organizations laying the groundwork for understanding where certain disparities lie in a government’s healthcare system, like the North American Observatory on Health Systems and Policies and complementary European Observatory on Health Systems and Policies, and ensure that resolving such disparities is prioritized when developing a pandemic preparedness initiative.

¹²⁶ World Health Organization, “Pandemic Prevention, Preparedness and Response Agreement,” NP.

¹²⁷ Knerr and Fullerton, “Transdisciplinary Approaches to Understanding and Eliminating Ethnic Health Disparities,” 1.

¹²⁸ Given recent leadership changes in the United States and corresponding budget cuts of almost \$3 billion (among other significant losses), involvement of the CDC could be more limited in the near future. Additionally, American withdrawal from the WHO will limit preliminary U.S. involvement in PPI in its initial creation. For more on these developments, see Benjamin Hart, “*We Are Less Safe, Plain and Simple*,” New York Magazine, April 17, 2025, <https://nymag.com/intelligencer/article/tom-frieden-on-trump-and-rfk-jr-attack-on-cdc-public-health.html>.

Luckily, pandemics are not frequent occurrences, but this can be problematic when determining the effectiveness of a Subcommittee on pandemic preparedness. Therefore, accountability measures must be established. This should come in the form of pandemic preparedness “drills” and audits of protocols that are accessible to the public. Pandemic preparedness drills include smaller scale tabletop exercises (ensuring that departments know their critical functions in a pandemic response initiative)¹²⁹ and simulation exercises (immersing staff in mock outbreaks where response plans and procedures are used), as well as large-scale, cross-agency simulations. The latter would require significant coordination and training, but it is critical to rehearse and prepare for the effects of a future pandemic.^{130,131}

ii. Country-Specific Initiatives

Though establishing global collaborations for pandemic preparedness initiatives are of utmost importance, country-specific recommendations are invaluable, given the variety in healthcare systems and social stratifications.

a. United States

The United States’ Private Health System and the reliance on Medicaid for patients of lower SES requires enhanced attention when planning for future pandemics.

Given the massive population of the country that has centers of high population density across the country, there is greater susceptibility to higher rates of disease transmission.¹³² Therefore, communities where there is a high population density alongside higher rates of poverty and a generally lower SES need to be at the forefront of public health measures and corresponding legislation. As such, the American course of action when it comes to a future pandemic should emphasize low-cost or free services or bolstering the services that Medicaid already provides. This could come in form of direct fiscal transfers to clinics in underserved areas to get PPE and necessary medical equipment (i.e. ventilators) or maintaining a steady supply of such resources from today, so there is neither a scramble to acquire such supplies nor a shortage to grapple with. Additionally, the CDC’s health equity strategy that they founded during the pandemic could be a valuable tool for developing a long-term strategy that advises a pandemic preparedness initiative. For example, turning their data collection initiatives into a consistent database that is updated periodically¹³³ can offer invaluable information of where to focus funding or personnel. Instead of providing a “band aid” solution to a systemic problem revealed during crises, preventative measures developed over extended periods of time ultimately create stronger, evidence-based resolutions.

¹²⁹ Johns Hopkins Center for Health Security, “Event 201,” NP.

¹³⁰ Johns Hopkins Center for Health Security, NP.

¹³¹ Bollyky and Patrick, “The U.S. Must Learn From COVID-19 to Prevent the Next Disaster,” NP.

¹³² Sy et al., “Population Density and Basic Reproductive Number of COVID-19 across United States Counties,” 7–8.

¹³³ To be established by subject-matter experts at the CDC.

Among other reports, the U.S. Government Accountability Office (GAO) drafted recommendations for the U.S. Congress to better prepare for the next pandemic, as mandated by the Coronavirus Aid, Relief, and Economic Security (CARES) Act. Of relevance to this study is their economic assistance plan for Medicaid patients: using a GAO-developed formula for economic relief, the U.S. government should provide fiscal support to families based on the current state economic conditions that is automatic, timely, and targeted.¹³⁴ The GAO released a follow-up report in July 2025, stating that the mechanisms of improving the dissemination of COVID relief are still unresolved.¹³⁵

b. Canada

The Canadian experience of COVID-19 requires that pandemic preparedness initiatives should be developed in conjunction with the federal government, but the provinces and territories themselves should continue spearheading and finetuning mandates to accommodate the needs of their populations. Quebec’s experience was strikingly different from Ontario’s experience, which were both distinct from Manitoba’s, so these regional variations cannot be addressed with blanketed policy prescriptions. Perhaps a particular subcommittee within PHAC should be established with representatives from each province and territory to promote positive information-sharing practices. Largely, by engaging in an equity-based approach to care, the most critical patients can be served first, stopping the spread by caring for those most susceptible to the virus. It is time for PHAC and Dr. Tam to tangibly live up to the pledge they made during the pandemic and invest into engaging in a collaborative decision-making process for future health emergencies.

The Centre of Excellence on the Canadian Federation released a report in 2024 that noted the overarching, structural failures of the Canadian government (i.e., a lack of trust between the public and government officials, the weakness of intergovernmental relations, digital failures, etc.).¹³⁶ Further, the Canadian Public Health Association released their recommendations for the development of better data collection systems to capture socioeconomic status and to pursue more research about the impact of pandemics on individuals with low SES.¹³⁷

c. Switzerland

Finally, Switzerland’s pandemic preparedness initiative should confront the country-wide unaffordability of care. This could take the form of greater federal control of healthcare rather than restricting it to internal, canton-wide measures. Though the federal government requires that all patients *have* healthcare, inconsistencies in standards of care from canton to canton limits the effectiveness of pandemic prevention measures. By bolstering the KVG-administered “sickness

¹³⁴ *COVID-19: Opportunities to Improve Federal Response and Recovery Efforts*, 74.

¹³⁵ *COVID-19: Update on Key Indicators, the Federal Response, and Implementation of GAO Recommendations*, 5.

¹³⁶ Breton et al., *Resilient Institutions: Learning from Canada’s COVID-19 Pandemic*, 49–62.

¹³⁷ *Canada’s Initial Response to the COVID-19 Pandemic*, 6–8.

funds”, the Swiss government can essentially enforce a unilateral standard of care from the top, while still maintaining cantonal and municipal autonomy for culturally sensitive decision-making and care. Given that first-line initiatives during COVID were largely equitable across the Swiss population, planning out a robust mental health campaign as an integral part of the pandemic preparedness initiative may be particularly beneficial (this also applies to the United States and Canada).

Reports have been conducted on the impact of COVID-19 on SES by the Swiss National COVID-19 Science Task Force, identifying recommendations that mitigate overall discrimination and inequalities in pandemic management.¹³⁸ However, there may be more room to engage in further analyses of specific equity initiatives to overcome differences in SES within the Swiss population to bolster pandemic preparedness.

X. Conclusion

This review aimed to dissect the healthcare systems of the United States, Canada, and Switzerland (described as Private Health System, National Health Insurance System, and Social Health Insurance, respectively) through the lens of COVID-19, with a focus on identifying the role of socioeconomic status in accessing appropriate care during the pandemic. Appropriate care included, but was not limited to, attaining personal protective equipment, healthcare workers, and medical facilities. Identification of such access was guided by Kutzin’s Health Financing Framework.¹³⁹ Additionally, understanding how socioeconomic status is defined in different countries allowed for a comprehensive comparative analysis of the United States, Canada, and Switzerland, which resulted in providing tailored policy prescriptions on macro (involving international stakeholders) and micro (country-specific) scales.

As with many literature reviews, there may be some possible limitations in this study. Firstly, though intended to be as scoping in nature as possible, certain articles or prior reviews on the United States, Canada, and Switzerland may have been left out of this paper’s analysis. Considering that analyses about COVID-19 are forthcoming, periodic literature reviews are necessary to ensuring that future pandemic preparedness initiatives are as robust, thought out, and all-encompassing as possible. Secondly, the three countries focused on in this review are all a part of the Global North, which had drastically different experiences during COVID-19 compared to the Global South. A complementary cross-country review for pandemic preparedness should be conducted with an emphasis on countries in the Global South, with an opportunity to compare approaches to the pandemic in each region. Thirdly, though this review focused on socioeconomic disparities, it is far from the only SDOH that impacted access to COVID-19 care, including race, ethnicity, education, and food insecurity. Additional reviews centered around these alternative factors would reinforce the necessity for robust pandemic preparedness initiatives. Finally, supplementary quantitative reviews comparing the United

¹³⁸ *COVID-19 Social Stratification in Switzerland*, 1.

¹³⁹ Kutzin, “A Descriptive Framework for Country-Level Analysis of Health Care Financing Arrangements,” 171.

States, Canada, and Switzerland should be considered for a more multi-faceted analysis, through the creation of epidemiological models,^{140,141} but with emphasis on SES and income inequality.

The time for pandemic preparedness is now. As much as many want to forget about COVID-19, remembering such a time is critical for informing how to address future disease outbreaks, small or large. If countries plan for future occurrences now, in calmer waters, they set themselves up for success when such waters become choppy and more unexpected.

Frankly, it is not a matter of “if” another pandemic will come; it is a matter of “when.” It is not a question of “if” the world is prepared for a future pandemic; we *must* be prepared. Globally, we are at the pinnacle of scientific innovation, research, and intellectual manpower in a variety of respects – what are we doing if not utilizing such resources to promote and protect the most vulnerable?

We must call upon the WHO, domestic governments, and international NGOs to support pandemic preparedness initiatives from the ground-up, not a scramble for solutions when the death toll becomes insurmountable. Learning from COVID-19 can save money, resources, and, most importantly, lives.

¹⁴⁰ Zardini et al., “A Quantitative Assessment of Epidemiological Parameters Required to Investigate COVID-19 Burden,” 5–8.

¹⁴¹ Yogurtcu et al., “A Quantitative Evaluation of COVID-19 Epidemiological Models,” 1–4.

Appendix A: Socioeconomic Stratifications

The range of income that corresponds with each socioeconomic group in the United States is identified in the below table:¹⁴²

Class Group	Poor	Working	Middle	Upper	Ruling	Top 10% of 18-35-yr-olds (RG's base)
Percentile	0-12	13-29	30-79	80-99	99-100	90-100
Household Income	\$0-19K	\$19K-40K	\$40K-149K	\$149-570K	>\$570K	>\$126K
Wealth			\$24K-\$557K	\$557K-11M	>\$11M	18-24 = \$57K 25-29 = \$91K 30-35 = \$151K

The approximate economic brackets that align with socioeconomic status in Canada are defined as follows:¹⁴³

1. Lower class: 0-28K CAD (\$0-20.4)
2. Lower middle class: 28K-55K CAD (\$20.4-40.2)
3. Middle class: 55K-90K CAD (\$40.2-65.7)
4. Upper middle class: 90K-150K CAD (\$65.7-109.5)
5. Upper class: >150K CAD (>\$109.5)

Finally, in Switzerland, 10% of the population have an equivalized disposable income of less than 26,086 CHF (\$21,444) a year, 10% have an equivalized disposable income of greater than 95,510 CHF (\$78,516) per year, and 50% of Swiss citizens have a equivalized disposable income below 51,973 CHF (\$42,725) per year.¹⁴⁴

These differing standards for socioeconomic classes on a country basis are also a reflection of the respective costs of living. Given the sheer size and population density, it is difficult to exactly quantify cost of living in the United States. The average monthly cost of living is estimated to be between \$2,500 and \$3,500 a month, but this number drastically varies based on location and lifestyle.¹⁴⁵ In Canada, the average monthly cost of living is around 2,500 CAD, but again, regional and provincial differences exist.¹⁴⁶ Finally, Switzerland, known to be a more expensive country to live in, costs on average 15% more than the American cost of living.¹⁴⁷

¹⁴² “Class Distinctions & Income Brackets,” NP.

¹⁴³ *The Globe and Mail*, “Does Your Income Make You Upper Class, Middle Class, or Lower Class?,” NP.

¹⁴⁴ “Income Distribution,” NP.

¹⁴⁵ Tierney, “Cost of Living in the U.S.- Statistics & Facts,” NP.

¹⁴⁶ “The Average Cost of Living in Canada in 2024,” NP.

¹⁴⁷ U.S. Embassy in Switzerland and Liechtenstein, “Living in Switzerland,” NP.

Given the differences in how socioeconomic status is interpreted in each country, not all socioeconomic disparities are created equal. When standardizing currency into USD, the parameters for someone considered “middle class” in Canada are lower than those in the United States, for example. Therefore, two individuals who make the same income can be lumped into different socioeconomic classes in their respective countries, and, as such, face drastically warped socioeconomic disparities.

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