A Comprehensive Review of Multinational Healthcare System Performances: United States, United Kingdom, China, Russia, Tanzania, Australia, and Brazil

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Abstract

Each nation's healthcare system has its benefits and limitations. By examining the healthcare system approaches of various nations, improvements could be identified for each nation. This review examines the healthcare systems of seven countries: the United States, the United Kingdom, China, Russia, Tanzania, Australia, and Brazil. The analysis covers key aspects of each nation: history, life expectancy, infant mortality rates, healthcare policies, insurance coverage and costs, treatment efficacy, and overall system limitations. The United States operates on a for-profit model with high costs but technologically advanced equipment. The United Kingdom utilizes universal coverage through the National Health Service (NHS) but faces challenges with underinvestment and efficiency. Through policies, China has expanded healthcare access and efficiency, but disparities between rural and urban areas persist. Russia utilizes Obligatory Medical Insurance (OMI) to provide healthcare coverage but struggles with budget deficits and resource distribution. Tanzania's healthcare system aims to implement universal healthcare coverage but is severely limited in resources and insurance coverage

rates. Australia's Medicare system issues comprehensive healthcare coverage but faces barriers with long waiting times and funding deficiencies. Brazil's Sistema Único de Saúde (SUS) offers universal healthcare but hampers with inefficiency and resource deficiencies. All countries mentioned struggle with healthcare delivery inefficiency, highlighting the urgency for improvements by policymakers and healthcare professionals.

1.Introduction

1.1 Healthcare Systems

Healthcare systems are complex networks of resources, individuals, and organizations that aim to promote, maintain, and restore health. Health is promoted through preventative measures for disease regulations, encouraging healthy behaviors by launching education initiatives, and making vaccination programs. Health restoration is achieved through medical care and treatments for ill or injured individuals. Health is maintained through programs that aim to support and treat chronic conditions via primary and specialty care.

All healthcare systems focus on five key components to maximize efficiency: population health, service delivery, growth and development, financing, and governance and leadership. Population health is determined through demographics, behavioral risk, and environmental factors. Demographics include population, birth and fertility rates, gender composition, and socio-economic determinants. Behavioral risk factors focus on obesity, addiction, chronic disorders, and obesity rates. Environmental factors focus on food security, housing, and safety—service delivery centers upon preventative services, medical services, and service quality. Preventative services include health awareness, media programs, and self-care training. Medical services consist of outpatient, inpatient, and rehabilitation services. Service quality is determined by patient satisfaction rates, waiting times, staff availability, service efficiency, and service effectiveness. Growth and Development concentrates on medical equipment, facilities, and pharmaceutical systems. Medical equipment and facilities are oriented to increasing quality and quantity of service. Pharmaceutical system development focuses on the capacity of production, import and export of drugs, and supply chain management. Healthcare system financing focuses on resource collection, allocation, and payment systems. Resource collection is achieved through government, private, or external resources. Resource allocation is determined via supply chain management, insurance mechanisms, and cost-effective evaluations—governance and leadership center on rules, regulations, and structure. Rules are set in clinical instructions and guidelines to maintain efficiency. Regulations use strategic frameworks to maintain transparency. Structural frameworks are oriented towards accountability

and policy-making processes (Emami et al., 2023). This framework allows for healthcare systems to provide adequate and effective treatment for their patients.

1.2 Healthcare Policies

Healthcare policies are a set of decisions, plans, and actions to achieve specific healthcare goals within a society. They are used to ensure that individuals receive the necessary medical services, improve the overall health of populations, and address health disparities (Eystad et al., 2021). These policies establish medical guidelines, organizations, and the framework of healthcare systems. Healthcare policies thus deal with issues related to patient care, security, privacy, and treatments. Governing entities and organizations propose and pass policies into law, permitting the acting organization to bring it into reality, using the policy as a plan (University of Buffalo, 2023).

This review aims to cover major policies that influence a nation's overall healthcare, with a specific focus on financial and delivery policies. In addition, the review covers essential information and identifies the benefits of these policies based on peer-reviewed academic articles and sources.

1.3 Healthcare Insurance

Insurance is a contract between an individual and an insurance company or the government. Based on the distinction, insurance is divided into public insurance and private insurance (MetLife, 2023). The government provides public insurance, its role being to ensure that most people in a country have access to medical services. It is relatively inexpensive (even free in some countries). However, the quality of medical services provided by public insurance may vary, and is reflected in the generally lower quality of accessing these services.

Insurance companies provide private insurance. Its role is to provide more comprehensive and high-quality health care for people. Private insurance companies prioritize profits, which may lead to decisions being driven by financial gain rather than simply prioritizing well-being. As a result, private insurance is expensive, has limitations on claims, and may offer less coverage for preventive healthcare and chronic health problems (Scheufler et al., 2023).

1.4 Healthcare Evaluation

The Institute of Medicine (IOM) in the US has determined six metrics for good healthcare; other countries use other systems. Healthcare is evaluated by six metrics, generally called SEPTEE. These metrics are as follows: Safe, meaning to avoid harm to patients from the care intended to help them. Effective, meaning to provide services based on scientific knowledge to all who could benefit. Patient-centered, meaning to provide care that is respectful of and responsive to individual patient preferences, needs, and values. Timely, meaning to reduce wait and sometimes harmful delays for those who receive and give care. Efficient, meaning to avoid waste in all forms, including waste of equipment, supplies, ideas, and energy. Equitable, meaning to provide care that does not vary in quality because of personal characteristics (Agency for Healthcare Research and Quality, 2022).

Using these metrics as a benchmark, countries can determine healthcare policies and the total treatment efficacy, which is the effectiveness of medical treatment in controlled conditions. Once these factors have been determined, quality can be measured, and insurance coverage can be effectively introduced (Atallah et al., 1996). Governments often have a goal to maximize treatment efficacy. As a result, nations worldwide often seek to draw from different forms of healthcare to maximize these metrics, as an example Brazil with its practice guidelines in new emerging treatments, and the different agencies all responsible to ensure new treatments are effective and ethical before mass production. Consequently, these nations often implement methods that include treatment guidelines and efficiency reports to assess the quality of treatment, determining the efficacy and effectiveness in achieving accessible, cost-effective, and practical care (Centers for Medicare and Medicaid Services, 2024).

1.5: Demographic Transition Stages:

The Demographic Transition Model suggests that a country's total population growth rate cycles through stages as national economic development occurs. Data is based on the historical trends of birth and death rates split between five stages. Stage one (High Fluctuating) is characterized by high birth and death rates, leading to a primarily stable population. Stage two

(Early Expanding) contains a decline in death rates due to advancements in medicine and sanitation, while birth rates remain high, causing rapid population growth. In stage three (Late Expanding), birth rates begin to fall, and population growth slows, matching economic and social change. In stage four (Low Fluctuating), birth and death rates are low, resulting in a stable or slightly declining population. In stage five (Declining), Birth rates drop below death rates, leading to a declining population. Each stage is relative to the birth rate (annual births per one thousand people) and death rate (annual deaths per one thousand people). All countries are not monolithic; every country is equally likely to progress since certain social and economic factors can affect birth and death rates (Grover et al., 2014).

1.6 Healthcare systems: background and differences

A country's economic development level (developing and developed) is an important factor affecting the quality of its medical system. Developing countries generally belong to the first, second, and third demographic transition stages, while developed countries generally reside in the third and fourth.

Developed economies tend to have a well-developed hospital system, sufficient professional talent pool, and advanced medical technology, closely related to the quality of medical care. Less economically developed countries tend to lag in these aspects (Fan et al., 2024). The countries mentioned in this article can be roughly classified as follows:

- Developing Countries: China, Brazil, Tanzania and Russia (World Data, 2022).
- Developed Countries: United States, United Kingdom, and Australia (World Population Review, 2022).

In addition to the economic status of countries, healthcare quality can significantly vary depending on the rural, suburban, and urban classification within countries. In rural areas, limited access to healthcare technology and medical providers may hinder healthcare delivery efficiency. In suburban areas, healthcare tends to be balanced between rural and urban, with broader access to medical services than in rural areas. In urban areas, healthcare facilities are more advanced, with higher concentrations of medical professionals and technological

advancements. Therefore, the quality of various countries' healthcare systems is evaluated based on their respective economic development and other influencing factors.

2. Healthcare Systems

2.1 US Health System:

2.1.1 Overview & Brief History:

The United States is in the third demographic transition stage, with a population size of 341 million people, 92% of whom utilize the healthcare system (United States Census Bureau, 2025). Before 1912, healthcare was primarily considered local affairs, provided by local healers using various herbal remedies. Since then, the US government has enacted significant reforms to the healthcare system, starting with Franklin D. Roosevelt's 1944 campaign for mandatory health insurance with the support of his Progressive Party. These changes later added Medicare, Medicaid, and the Affordable Care Act, ameliorating public accessibility to healthcare and healthcare quality. In 1965, Medicare and Medicaid were enacted to expand healthcare access for the elderly and low-income populations (Smith et al., 2023). The Affordable Care Act (ACA) was established in 2010, which improved health insurance coverage and quality of care for US citizens. On the federal level, the Center for Medicare and Medicaid Services (CMS) oversees government programs. In contrast, state-level governments oversee the implementation of Medicaid and related healthcare policies (Homes et al., 2022).

The national health insurance model uses both the Beveridge and Bismarck models, offering national and private insurance for employers and employees (Vera Whole Health, 2020). Depending on income and eligibility, there are significant regional differences in healthcare outcomes, accessibility, and delivery (Enyeji et al., 2023). Paired with the average projected healthcare cost of $16,000 per person per year in 2025 (Mayer, 2024), the US healthcare system is ranked last among the 10 high-income countries in the world (Blumenthal et al., 2024).

2.1.2 Life Expectancy & Infant Mortality Rate

As of 2024, the US life expectancy rate is 79.25 years, an increase of 0.18% from 2023 (Macrotrends, 2024). The infant mortality rate remained relatively consistent from previous years, with 560.2 deaths per 100,000 infants. In 2024, the three primary causes of death remained cancer, accidental injuries, and heart disease (Centers for Disease Control and Prevention, 2024).

2.1.3 USA Policies

Medicare:

Medicare is a federally funded health insurance program designed to provide cost-effective treatments to citizens, paid by federal taxes. Medicare was established in 1965 by President Lyndon B. Johnson. Its purpose is to offer citizens (of 5 years) with specific disabilities and those aged 65 or older federally-funded health coverage (Centers for Medicare and Medicaid Services, 2024). Those eligible for Medicare are offered hospital insurance (Part A), medical insurance (Part B), Advantage plans (Part C), and drug coverage (Part D) (Medicaid, 2025).

Part A covers hospital stays, home healthcare (doctor care, nursing care, etc.), hospice care, and skilled nursing facility (SNF) care (CMS, 2025). Part B covers medically necessary services, including physician care, durable medical equipment (for use at home, such as wheelchairs, hospital beds, and oxygen equipment), and outpatient care (rehabilitation, chemotherapy, bloodwork, etc.), in addition to preventative services (annual check-ups, immunization, physical testing and screenings, and counseling), etc. (CMS, 2024). Part C, also known as Medicare Advantage, is a private coverage program that combines benefits from Part A and Part B. Part D covers drug prescription costs (CMS, 2025). These plans within Medicare can significantly reduce financial burdens, thus augmenting accessibility to healthcare and diminishing disparities. However, Medicare does not cover medical expenses such as long-term care, dental care, and hearing aids, leading to high out-of-pocket costs without private insurance. Health coverage varies by state, as each offers specific plans and coverage for its citizens.

Medicaid:

Medicaid was established alongside Medicare in 1965, with the main difference being that it is better to include low-income households (CMS, 2023). The federal and state governments cooperatively run the program. As such, eligibility and benefits (including the type, duration, and scope of services) vary by state. However, federal law requires that each state meet mandatory eligibility requirements and provide mandatory benefits. Those eligible for Medicaid include low-income households, citizens with disabilities, and citizens aged 65 or more (Medicaid, 2022). Benefits include transportation to medical care, inpatient and outpatient hospital services, nursing facility services, physician services, and midwife services, among other mandatory and optional benefits (Medicaid, 2023).

The federal government provides each state with Medicaid funding based on the Federal Medical Assistance Percentage (FMAP), while the state alone must cover any additional funding. FMAP varies by state, as it is based on each state's per capita income (Williams et al., 2023).

Affordable Care Act (ACA):

The Affordable Care Act was established in 2010 to expand eligibility rates for affordable healthcare programs, namely Medicare and Medicaid (Holmes, 2024). It accomplished this by creating federally funded marketplaces for health insurance, reducing premiums and deductibles, and permitting states to offer Medicaid to adults with incomes of up to 138% of the federal poverty level (FPL), all of which took effect in 2014. Around 40 million people use programs expanded by the ACA, with the number of uninsured people significantly dropping from 45.2 million in 2013 to a historical 26.4 million as of 2022 (Sullivan et al., 2024). This results from the ACA expanding access to part-time workers, the self-employed, small business employees, those who retire before becoming eligible for Medicare, and others who lack access to affordable employer-sponsored health benefits.

2.1.4 Insurance and Costs

The US healthcare system follows a for-profit model due to the country's capitalist background. Government-funded programs – namely Medicare and Medicaid – offer general coverage to those enrolled, costing 21% and 18% of the total national health expenditure (NHE) in 2023, respectively (CMS, 2023). Currently, 36.3% of the population is enrolled in these programs. Additionally, 65.4% of the population is covered by private third-party insurance, two annually costing an average of $8,435 per person as of 2023 (US Census Bureau, 2024). Unlike other countries, private healthcare is more prevalent than public healthcare in the United States, not as a supplement to public healthcare but as a form of primary care(KFF, 2023). This provides citizens with a broader range of plans, allowing individuals to select coverages that best suit their needs. Moreover, Private plans offer shorter wait times, personalized care, and advanced treatments and technologies that otherwise may not be readily available in the public system. Nevertheless, despite such benefits, the costs associated with private health coverage have established a significant financial burden for Americans, especially those without employer-sponsored plans, contributing to disparate treatment.

2.1.5 Treatment Efficacy

Clinical guidelines for US healthcare are determined by a variety of groups and organizations, such as the Centers for Disease Control (CDC) and the National Institutes of Health (NIH), which work with other groups to determine the best possible guidelines, such as those suggested by the American health association (AMA). These guidelines are for medical staff to consider regarding treatment and procedure; however, they are not set protocols. The only legal guidelines are those set by state health departments and the Centers for Medicare and Medicaid Services (CMS), enforced by individual states, the HNS, and the CMS, and all sharing the goal of increased quality of care and better responsiveness through tackling their respective jurisdictions (those being state hospitals and Medicare and Medicaid services respectively). These guidelines affect all aspects of healthcare, including the diagnosis and treatment of patients, healthcare coordination, and resource allocation (CMS, 2024).

Despite this, US life expectancy decreased in the previous years, dropping from 78.8 in 2019 to 77 in 2020, paired with an increase in avoidable deaths per 100,000 patients from 273 to 336 in the same year. Additionally, 30.4% of adults in the US have multiple chronic conditions, and 42.8% of the population is considered obese. While per 100,000 deaths, 162.1 were from cancer, 62.3 from intentional injuries, 39.0 from stroke, 33.4 from chronic lower respiratory diseases, 27.7 from Alzheimer's, 22.4 from diabetes, 13.1 from kidney disease, 13.0 from chronic liver disease/cirrhosis, and 11.9 from COVID-19. This marked the top 10 leading causes of death in 2023, responsible for 70.9% of all deaths that year (Gunja et al., 2023).

2.1.6 Limitations (Overall)

US healthcare has marked itself as the country with the highest spending worldwide, with 17.8% of the GDP spent on healthcare in 2021 and $12,742 per person annually. This is nearly double the OECD average of 9.6%, with an average of $6,850 per person seen in other wealthy countries (excluding the US). However, despite the large amounts of funding, the US healthcare system does not have significantly better health outcomes than other countries and, in many cases, worse outcomes. The US ranks 13th in life expectancy, infant mortality, safety during childbirth, and unmanaged diabetes, 11th in heart attack mortality, and 9th in unmanaged asthma compared to other OECD countries (Peterson Foundation, 2024). Additionally, the US only has 2.8 beds per 1,000 of the population, with hospital stays only lasting an average of 4.8 days, with only 2.6 physicians per 1,000 population and four physician visits per capita, all of which are significantly lower than the OECD averages (Gunja et al., 2023).

Part of this results from the high costs of healthcare services paired with the lack of provided coverage. The US for-profit healthcare system discourages many from making use of its services. Access to healthcare is inequitable as it is tied to work which, in many cases, is denied for those unable to afford it. In 2022, an average of $1,425 was spent out of pocket per person. The US is the only high-income country that does not guarantee healthcare coverage (Shmerling, 2021).

2.2 UK Health System:

2.2.1 Overview & History

The UK is a stage four demographic transition nation with a population of 68.35 million in 2025. The NHS, or National Health Service, was founded in 19481 and has made these changes to improve its efficiency. Since 1990, the country has been divided into England, Scotland, Wales, and Northern Ireland (Nuffield Trust, 2018). UK healthcare is provided within these subsections, but differences persist.

The UK Government allocates a set budget for healthcare in England. In contrast, Scotland, Wales, and Northern Ireland receive a general block grant for public spending, distributed according to funding priorities (Nuffield Trust, 2022). The NHS is funded through taxes, with primary care given to everyone in the UK. In contrast, secondary care requires constant living in the UK (European Observatory on Health Systems and Policies, 2024). The NHS workforce is split between the four significant subsects of the UK as of the 6th of March 2024, with differing numbers of employed depending on the region generally contingent on the overall size of said region. In England, 1,308,825 full-time employees were employed by the NHS. In Scotland, 158,375 full-time employees were employed by the NHS: 95,446 full-time employees in Wales and 64,688 in Northern Ireland (Office for National Statistics, 2024).

At the local level, Integrated Care Systems or ICS in England, health boards in Scotland and Wales, and the health and social care board in Northern Ireland are responsible for commissioning or planning health and care services in their respective areas (European Observatory on Health Systems and Policies, 2024). There is an overall 60% satisfaction rate among users of the NHS, and the UK is 4th out of 11th in developing nations (Michigan Journal of Economics, 2023). Major criticisms of the NHS are inefficiency, stagnation, and underinvestment.

2.2.2 Life Expectancy & Infant Mortality Rate

The life expectancy in the United Kingdom is 82.06 years, an increase of 0.18% since 2024 (MacroTrends, 2025). Current birth rates are 11.075 per 1000 people, a decrease of 0.86% since 2024; now, this does take into account stillbirths in the statistics (MacroTrends, 2025). The infant mortality rate is 3.116 for every 1000 people, a decrease of 2.61% from 2024(MacroTrends, 2025). The primary causes of death in the UK are influenza and dementia as of 2025 (Office for National Statistics, 2025).

2.2.3 Policies

NHS (National Health Service)

The NHS provides access based on clinical needs, not the ability of people to pay for treatments, aiming to reduce healthcare inequality. The NHS is split between NHS England, Scotland, Wales, and Northern Ireland. The respective governments are accountable for organizing and delivering healthcare services. NHS implements legislation to determine policies per region instead of nationwide policies, leading to separate systems in different regions (European Observatory on Health Systems and Policies, 2024). Since 1948, NHS has been offered to the UK through the National Health Service Act, which attempts to achieve a comprehensive health service for England and Wales (Nuffield Trust, 2022). Today, the policy has undergone many changes to modernize the system, including the shift to an Integrated care system from the older Clinical Commissioning groups in 2019 (Nuffield Trust, 2018). However, significant healthcare coverage gaps include social care systems, prescription charges for medicines in England, dental care, and ophthalmic services.

All individuals in the UK can access primary, emergency, and compulsory psychiatric care free of charge. However, only residents qualify for coverage of secondary care services such as social care, prescription charges for medicines, dental care, and ophthalmic services. This leaves undocumented migrants without access to many NHS services, such as maternity care services. The NHS also plays a crucial role in resource allocation, considering availability, population needs, and more. This maximizes efficiency while minimizing costs, providing

universal health care with short waiting times and minimal healthcare inequalities (European Observatory on Health Systems and Policies, 2024).

2.2.4 Insurance and Costs

Private insurance in the UK serves to provide accessible healthcare services beyond what is covered by the NHS, which includes dental, prescriptions, and paying for care in private hospitals. The advantage of the two-tiered private and public health insurance system is that it allows the population to pay for what they need while having emergency healthcare support. Conversely, these two-tiered systems require paying for private insurance to cover medical care like dental while also paying taxes for state healthcare—the private health insurance costs, on average, £41.58 for one person per month (I am INSURED, 2024).

While the NHS does provide cheap healthcare, criticism of long waiting lists is common. Private healthcare offers quicker access to treatment, can be ready for any emergency, and allows for comprehensive coverage. Populations are stuck with having to pay taxes for state healthcare while being able to pay for more expensive private healthcare as an addition. There are multiple types of private healthcare plans accessible to the public, which include individual, family, or corporate plans. This creates cost variations from a case-by-case standard (APRIL International, 2020). In the private system, various factors determine private health insurance costs. Your age, your general health and well-being, your lifestyle, and where you live are major determining factors. This is seen in how older individuals/chronic conditions often pay higher rates. Another factor is where you are getting your private insurance, which can drastically change the level of coverage and cost given (William Russell, 2024).

2.2.5 Treatment Efficacy

Though multiple parties develop clinical guidelines, the National Institute for Health and Care Excellence, or NICE, is the primary determining factor for UK healthcare guidelines. Other influences include stakeholders, expert committees, and medical professionals. NICE publishes guidelines in four versions: full versions with detailed information, NICE guidelines including only guidelines, public guidelines, and general guideline manuals that refer readers towards specific

guidelines. These allow healthcare professionals to optimize treatment efficacy by adhering to these guidelines (NICE, 2013). The NICE guidelines describe how a physician who can treat all common medical conditions, prescribe medication, and refer patients for specialist treatment is a General Practitioner or GP in the UK (U.S. Embassy & Consulates in The United Kingdom, 2024).

However, multiple problems have been reported in the UK healthcare system regarding treatment efficacy and its clinical guidelines. Specifically, 55% of people complained about long wait times, 54% about low staff, and 32% about a lack of investment in the system (Statista, 2024). Despite these issues, the NHS has made significant initiatives to resolve such issues. The same-day emergency care initiative (SDEC) uses a new framework to diagnose and treat patients rapidly. This significantly reduces emergency department wait times (NHS England, 2023). Furthermore, increased government funding and a focus on patient feedback and clinical audits would achieve optimal health outcomes as initiatives to solve inefficient systems.

2.2.6 Limitations (Overall)*

While the NHS and private system have definite benefits, including but not limited to government-mandated and provided primary healthcare, there are significant problems. The primary issues in this system are inefficiency, stagnation, and underinvestment (Statista, 2024). The UK system faces significant challenges in 9 main areas: UK life expectancy is stalling, risk factors are increasing, causing premature deaths, rise in health conditions present in elderly populations, the NHS is failing to deliver needs increases, problems rising caused by a decade of underinvestment, capacity is being outpaced by population especially when compared to other countries such as the US, high amounts of staff shortages, low rates of satisfaction with the NHS in gen, and social care has been significantly ignored by the NHS even during constant reorganization (The Health Foundation, 2023). Multiple solutions have been proposed for the system in different reports. One foremost proposed solution is to reform the Treasury's fiscal framework to prioritize prevention. This reform would reform how funding is allocated and protect funding from being diverted. This would potentially solve the massive funding crisis in the current system. Additional solutions to other problems include focusing on new forms of care and staff well-being. New care systems could include digital mental health services, a focus on

elderly physical care, and caregiver funding (Nesta, 2024). Additionally, the SDCE is allowing for modern reforms in the ability of the current healthcare system (NHS England, 2023).

2.3 Chinese Health System:

2.3.1 Overview & History

China is a stage four demographic transition nation with an increasing median age, declining fertility rates, and rising life expectancy. Its population will reach 1.411 billion in 2025 (Yuan et al., 2020). China primarily utilizes a public healthcare system because the Chinese government wants to build a reasonably extensive health system to cover nearly all of its people. In addition, China has recently undergone significant investments to expand healthcare access. The creation of E-Healthcare in September 2018 has led to the use of remote medical diagnosis to provide personalized treatment plans and medication. With help from the National Health Commission (NHC) and the National Administration of Traditional Chinese Medicine (NATCM), new laws were passed to narrow the gap between urban and rural areas. Specifically, there is a significant disparity between the medical standards in rural and urban areas in China, which causes people in rural areas to have difficulty accessing advanced medical resources, and their health levels are generally lower than those of urban residents. To address this, urban doctors can use online treatment provided by e-healthcare, enabling rural areas to enjoy nearly the same medical standards as urban areas. Moreover, China has established the world's most extensive online direct reporting system for infectious diseases. This online direct reporting system refers to a nationwide disease surveillance network established by the National Health Commission and the China Disease Prevention and Control (CDC). It enables real-time or quasi-real-time data reporting and monitoring between medical and public health institutions at all levels and is used to quickly collect, summarize, and analyze relevant information on infectious diseases. In 2022, the scale was reported to be more than 130 million people (Bhaskar et al., 2020). Moreover, the average of hospital beds (7.23 beds per 1,000 people) is significantly higher than the world average (around 2.94 beds per 1,000 people)(The World Bank, 2019). The Chinese government has opened infirmaries in villages and township health centers to ensure healthcare is available in remote and rural China. At the same time, more than

18,000 medical associations of various forms have been established, and there are 1,070,785 medical and health institutions in China (国家卫生健康委网站, 2024). This indicates that China's healthcare system is powerful on a macro level, which refers to overall national policies, resource allocation, and large-scale public health management.

On the other hand, the public healthcare system faces many challenges, including a lack of staffing and adequate facilities for patients (which became evident during COVID-19), an uneven distribution of medical resources between urban and rural areas, and a health system policy framework and regulatory mechanisms that are not clear and distinct enough. There is "over" utilization of large urban medical institutions. Getting an appointment at major hospitals in Beijing, Shanghai, and other places is complex, and there are even overnight queues. Additionally, medical and health resources in some grassroots medical institutions, such as towns and communities, are idle (Bhaskar et al., 2020). The bed utilization rate of rural township hospitals and community health service centers in some areas is even zero (国家医疗保障局, 2023).

2.3.2 Life Expectancy & Infant Mortality Rate

The most recent report in 2023 stated that the average life expectancy in China is 78.6 years. The population is estimated to be 1.411 billion people in 2025. The national maternal mortality rate has gradually declined due to improvements in healthcare, with 15.1 deaths per 100,000 mothers and an infant mortality rate of 4.5 per thousand infants (李先硕, 2024). The top five causes of death in China are strokes, ischaemic heart disease, lung cancer, chronic obstructive pulmonary disease, and liver cancer (World Health Organization, 2024).

2.3.3 Chinese Policies

Healthy China 2030 Blueprint:

The Healthy China 2030 blueprint has five targets which are “improving the level of health, controlling major risk factors, increasing health service capacity, expanding the health industry scale, and perfecting the health service system”. It provides seven aspects to achieve these goals in healthcare services: “popularize healthy life, optimize health services, improve

health security, build a healthy environment, develop health industries, improve support and guarantees, and strengthen organization and implementation." This policy focuses on all citizens, while it specializes in key groups, including children, women, the elderly, rural residents, low-income populations, and those in high-risk occupations. Meanwhile, this policy has its challenges. As a medium- and long-term policy, the specific implementation and monitoring mechanisms are unclear, and coordination between various government departments remains uneasy (中共中央, 2016). Due to the long policy horizon, it may also be challenging to check the completion of each phase.

Zero Markup Drug Policy:

The Zero Markup Drug Policy aims to reduce drug prices to their original cost. This reduces the price of the drug and improves healthcare affordability. It has been further deepened and consolidated in the 14th Five-Year Plan for National Health, a macro-level(medium-term for five years) policy. This policy proposes to cancel all markups on drugs and medical consumables and emphasizes the reform of public hospitals in many aspects to strengthen their public welfare attributes. This guarantees the continued promotion of the zero-markup drug policy (国务院办公厅, 2022).

The 14th Five-Year Plan for National Health:

The 14th Five-Year Plan for National Health was published on May 20, 2022 (国务院办公厅, 2022). It is formulated in the context of the 14th Five-Year Plan and the Vision 2035 Outline, aimed at building a healthy China and meeting the growing health needs of the people. It has eight primary purposes: strengthen the public health protection network, intervene in health problems and influencing factors, improve the health of the population in the whole cycle, improve the quality of health services, promote innovation of traditional Chinese medicine, develop traditional Chinese medicine, make the health industry better and stronger, and strengthen the support and guarantee of national health." Likewise, this policy targets a group of people similar to the "Healthy China 2030" blueprint. As a medium-term policy, it also faces some challenges. Specifically, there is also a lack of a clear division of responsibilities and

oversight mechanisms in the policy, so there are certain obstacles to coordination between different government departments (国务院办公厅,2022).

Key Tasks for Deepening the Reform of the Medical and Health Care System:

Key Tasks for Deepening the Reform of the Medical and Health Care System is a policy aimed at the coordinated development and governance of medical insurance, medical care, and pharmaceuticals which was published on June 3, 2024 as part of a medium to long-term policy. To achieve this goal, the policy serves to strengthen the leadership of medical reform organizations, further promote the experience of Sanming medical reform, improve the medical and health service system, develop high-quality public hospitals, improve the medical security system, deepen the reform and innovation in the field of drugs, and coordinate other reforms. "This policy consists of a more specific implementation of the two policies (the Healthy China 2030" plan and the 14th Five-Year National Health plan). Therefore, the target groups of this policy are still children, women, the elderly, rural residents, low-income populations, and those in high-risk occupations. This policy does not state how much the central government will allocate. This lack of clarity could lead to funding pressure or corruption (国务院办公厅, 2024).

2.3.4 Insurance and Costs

China's basic health insurance system is extensive in scale, with 1.41 billion (World Health Organization, 2024) insured people and a participation rate of more than 95%. Private and social health insurance constitute China's medical security system, among which social insurance plays a significant role, and private insurance only plays a supplementary role. Because China's current private insurance business volume is small and the coverage rate is low, its supplementary role to social health insurance is minimal. Social health insurance is partly complete, and China's social health insurance is divided into basic health insurance for employees and basic health insurance for urban and rural residents. Moreover, China's social health insurance is still making continuous progress. In recent years, both revenue and expenditure data have increased (国家卫生健康委网站, 2024).

In 2022, both employee and resident health insurance funds in China experienced revenue growth.This demonstrates that the overall operation of the medical insurance fund and cost management remains relatively stable. The income of the employee health insurance fund (including maternity insurance) was 2.079327 trillion yuan, an increase of 9.4% over the previous year. The fund (including maternity insurance) expenditure was 1.52438 trillion yuan, an increase of 3.3% from a year earlier. In 2022, the income of the resident health insurance fund was 1.01289 trillion yuan , a year-on-year increase of 4.2%; the expenditure was 935.344 billion yuan, a year-on-year increase of 0.6% (国家医疗保障局, 2023).

2.3.5 Treatment Efficacy

The Chinese government is committed to developing advanced technology to improve treatment efficacy. Active surgical devices, passive implantable devices, medical software, medical imaging devices, radiation therapy devices, and other high-end medical devices are among the top innovative medical devices approved in 2023 (中国科学院深圳先进技术研究院, 2023). Innovations in these areas have enormous clinical application value. Here are a few specific examples: Single-use circumferential pulmonary artery radiofrequency ablation catheters, single photon emission and X-ray computed tomography imaging systems, and single-port laparoscopic surgery systems are some of the significant technological advancements. These advanced technologies significantly enhance the overall cardiovascular medical outcomes for patients through more accurate diagnosis and treatment, less damage to normal tissue, improved safety, and reduced risk of infection.

While the Chinese government has made considerable improvements in healthcare delivery and technological innovation, they lack guidelines about how these technologies are being practiced and how remote areas are accessing quality healthcare (中国科学院深圳先进技术研究院, 2023). Additionally, inequality of healthcare resources between urban and rural areas remains a serious problem. The current status of the capacity to satisfy the medical needs of the public of primary healthcare organizations, which are generally similar to "community clinics" and medical and health professionals' handling of patient needs, requires improvement. China's medical and health resources have long been distributed in a "dual" pattern, with over-concentration of medical and health resources in urban areas and 80% concentrated in

large hospitals (刘海英 et al., 2011). This “dual” pattern causes medical and health resources in rural areas to be relatively scarce, and towns and communities' medical and health service capabilities are very weak. This shows that China's treatment effectiveness faces challenges in allocating medical resources even with the help of scientific and technological progress (王明昊, 2024).

2.3.6 Limitations (Overall)

There are wide disparities in the level of healthcare between various regions and urban and rural areas. There may be a lack of clear division of responsibilities and monitoring mechanisms among government departments when implementing policies. Lower variety of drugs at the grassroots level and whether the new devices can be widely popularized remains a question (Bhaskar et al.2020). During the COVID-19 pandemic, the unprofessionalism exhibited by many grassroots medical staff once caused Chinese citizens to doubt the level of medical staff. The issue of people's skepticism about the professionalism of healthcare workers after the new crown needs to be addressed. Community hospitals, the leading choice for most Chinese for minor illnesses, have limited capacity, including outdated equipment, low physician capacity, and limited virus detection and surveillance capacity (Sun et al.,2021).

2.4 Russia Health System:

2.4.1 Overview & History

Russia is a stage two demographic transition nation with a population of 143.8 million in 2025. The demographic situation in Russia is declining due to the decreasing migration rate, the decline in birth rate, and the increase in general mortality; all of these factors lead to a decreasing population.

Russia utilizes both private and public healthcare systems to provide nationwide state-funded care. However, since the collapse of the Soviet Union in 1991, the public system has seen various funding cuts of up to 40% since 2014, limiting its ability to maintain and update

the state healthcare system (*OSW Centre for Eastern Studies, 2024)*. Attempts to revitalize the system in 2013 were met with the 2014 financial crisis, leaving healthcare in further decline. The system was unsuccessful, only reaching a limited number of people through nationwide coverage. Additionally, its growth was stunted due to limited funding, leading to long waiting times and a lack of quality care (*International Citizens Insurance, 2024*).

The Russian system has three types of hospitals: state facilities under Obligatory Medical Insurance or OMI, Russian private medical facilities, and Western private medical facilities. At the local level, each region in Russia has its public clinics called Polikliniki, which are either independent facilities or linked to state hospitals. OMI hospitals are generally underfunded, and private state-based hospitals operate with more funding but are much rarer compared to OMI hospitals. Western hospitals maintain the highest quality but are prohibitively expensive on the standard salary in Russia (*Expatica Russia, 2024)*

2.4.2 Life Expectancy & Infant Mortality Rate

The life expectancy in Russia is 73.26 years in 2025, an increase of 0.19% from 2024 (MacroTrends, 2025). Current birth rates are 10.888 per 1,000 people, a decrease of 1.98% from 2024 (MacroTrends, 2025). The infant mortality rate is 4.541 for every 1,000 people, a decrease of 2.5% from 2024 (MacroTrends, 2025). Leading causes of death are circulatory system neoplasms and nervous system diseases (Statista, 2024)

2.4.3 Russia Policies

OMI (Obligatory Medical Insurance)

The Obligatory Medical Insurance (OMI), or the Federal Compulsory Medical Insurance Fund, aims to provide universal medical access based on individuals' or families' clinical needs and financial circumstances. The OMI was founded in 1996 to give free medical insurance to Russians and expats who live permanently or semi-permanently in a foreign country. OMI is funded through payroll taxes and covers a range of healthcare services, including inpatient care, chronic disease management, and maternal care.

All individuals in the country are eligible for care that includes (but is not limited to) inpatient care, chronic conditions, overnight hospital visits, maternal care, and vaccines. Despite universal eligibility, there is significantly limited access to quality care and a satisfaction rate of 2%. As of 2025, Russia is extremely poor, with 17,500 estimated towns completely lacking in medical infrastructure (International Citizens Insurance, 2024)

Accessing OMI as a foreigner or expat is generally straightforward; after signing up, 2 to 3% of the salary is taken into a social taxation fund, which will then be given to OMI. OMI's funding is well below international standards, at 5 to 6% of Russian GDP compared to the world average of 10%. This led to a generally unpopular system in Russia, with only 2% of Russians being proud of the system in 2016, with many citing filthy hospitals, crumbling buildings, and intoxicated doctors. The recent system has gone through many periods of growth and decay, with funding allocations in 2013 being cut by the 2014 Russian financial crisis. This results in a chronic lack of funding in the healthcare system and inefficient distribution of healthcare, leading to some areas of Russia having patients lifted out and flown miles to get to a small healthcare center (OSW Centre for Eastern Studies, 2024).

Reforms are required to improve the OMI system, specifically by increasing government spending and addressing inefficiency. Without increasing spending, the system will remain inconsistent, selective, and provisional.

2.4.4 Insurance and Costs

Employers provide citizens, expats, and foreigners public insurance through Voluntary Healthcare Insurance (VHI). This provides additional coverage for dental and outpatient care, which is not within the scope of OMI. This system is a supplement paid for by employers out of a salary to cover job benefits (Expatica Russia, 2024).

While limited, it abetted a growing role in Russia’s healthcare system to help cover beyond OMI’s basic medical coverages. Private insurance is used by only 5% of the population. Individuals and families may supplement their coverage with private insurance to increase their healthcare quality with less wait time and more specialists. This thus creates variations in costs

for families, depending on the needs and income of individuals and the insurance plan and level of coverage they choose. The financial burden is a drawback to the private insurance sector: the average income in Russia is 1.24 million rubles, and the average insurance cost is 25,000 rubles (International Citizens Insurance, 2024).

2.4.5 Treatment Efficacy

Multiple organizations publish Clinical Practice Guidelines (CPGs) in Russia. The main goal of these CPGs is to provide physicians with adequate information for quality, evidence-based healthcare. Since many guidelines are provided via the CPGs, various interventions can be used to treat the same disease, causing physicians to determine which guidelines to use (PLoS ONE 2018). These clinical guidelines include average treatment times, procedures, equipment, and drug doses (Med Tech Reimbursement Consulting, 2022).

Several factors can hinder treatment efficacy within the healthcare system. Staff shortages are caused by 75% of Russian healthcare workers having below-satisfactory salaries. Accounting for inflation, salaries are decreasing for healthcare professionals, and 80% report working two jobs, contributing to burnout that compromises healthcare quality. The challenge of adhering to CPGs due to a lack of resources, underfunding for technological advancements, and availability of essential medicines decreases patient outcomes (OSW Centre for Eastern Studies, 2024).

2.4.6 Limitations (Overall)

While the OMI, VHI, and private systems have definite benefits to the population, including several options with public and private healthcare, there are significant problems. A lack of up-to-date facilities and lack of staff, which is partially due to an increase of intoxicated doctors, have led to a lack of healthcare trust (International Citizens Insurance 2024). Budget deficits within healthcare have caused significant staffing shortages and scarcity of medicine (OSW Centre for Eastern Studies, 2024). There has also been a reported 40% of the population that suffers from chronic conditions; these conditions make the Russian population susceptible

to long-term epidemics and diseases. A lack of resource distribution also remains a problem, leading to severe inequality of resource access in some areas (Davis Center, 2020).

Increasing state funding is rudimentary to resolving the problems within the system. If new funds were provided through government reforms to move towards a more efficient system, then a more equal distribution of resources could be achieved. This includes new medications, increased staff and staff audits, and more remote regions receiving healthcare infrastructure.

2.5 Tanzania Health System:

2.5.1 Overview & History

Tanzania is in the second demographic transition stage, with a population of 69,323,713. While the government has tried to improve the healthcare system, the country faces significant challenges in providing equal and quality healthcare (World Population Review, 2024).

Despite implementing the NHIF and CHF (two public health insurance funds), only 15.5% of the population is covered by some form of health insurance, 1% of which is covered by private insurance (World Population Review, 2024). In addition to limited access to healthcare, there are significant shortages in medical staff and a lack of available treatments for malaria, tuberculosis, HIV/AIDS, and various respiratory diseases (Osoro et al., 2024).

Before the nation's independence in 1961 from Great Britain, private practitioners primarily provided healthcare. Shortly after, President Julius Nyerere banned for-profit players in the healthcare system until 1991, as the country underwent economic struggles and a public hiring freeze. Additionally, Julius Nyerere enacted his first five-year plan, pushing for improved funding for healthcare services (United Nations, 2025). Healthcare improved within this time frame, as life expectancy increased from 35 for males and 40 for females in 1961 to 56.8 for males and 59.3 for females in the following years (Mboera, 2019).

The healthcare system is organized in a hierarchical network of dispensaries, health centers, and hospitals, with referrals for patients needing increasingly complicated treatment moving up the chain of the district, region, and referral hospitals (WHO, 2017). The government runs 60% of these facilities, with the remaining 40% being private or faith-based. The government has allocated $387.9 million towards its healthcare system, 40% of which is from international donors (International Trade Administration, 2022). Despite the funding, strengthening the public healthcare system through improved quality of care, available resources, and coverage is required to increase the rate of beneficial patient outcomes for citizens of Tanzania (Kolstad, Lindkvist, 2013).

2.5.2 Life Expectancy & Infant Mortality Rate

Health outcomes in Tanzania are informed by life expectancy, mortality rates, and the prevalence of life-threatening diseases. The life expectancy in Tanzania is 65 years for males and 69 for females, with an average life expectancy of 67 (WHO, 2018). The infant mortality rate in Tanzania per 1,000 live births was 38, and the maternal death rate per 100,000 live births was 524 (WHO, 2025). The leading causes of death stem from the spread of malicious diseases within the country, including malaria, tuberculosis, HIV/AIDS, and various respiratory diseases (Kitole et al., 2023).

2.5.3 Tanzania Policies

The National Health Insurance Fund (NHIF)

The National Health Insurance Fund (NHIF) was established under the National Health Insurance Act 1999. The program is funded by premium payments by those enrolled and additional government funding (at the central level) managed by the NHIF board (August et al., 2022). The NHIF covers all healthcare services, including dental, optical, maternal, and emergency care, saving people money on healthcare costs. This decreases healthcare costs for employed citizens, with amendments made in 2016 to include additional civil servants, governance, and beneficiaries (Otieno et al., 2024). However, despite mandatory enrollment for all public servants, the NHIF ensures only 8% of Tanzania's population and uses 15% of the government budget for healthcare coverage—the low enrollment rate results from the required

premium cost to enroll in the NHIF program. The low coverage rate raises concerns about the accessibility of Tanzanian healthcare, especially for low-income households. Thus, a reduction of premium costs or a reevaluation of the NHIF effectivity needs to occur to encourage further development and increase the population coverage rate.

The Community Health Fund (CHF) and Community Health Fund (iCHF)

The Community Health Fund (CHF) was established in 2001 to fund healthcare coverage for individuals through payments from their overall community. Following the CHF, in 2011, the Improved Community Health Fund (iCHF) was established to address the CHF's shortcomings by improving healthcare access and coverage, specifically in rural Tanzania (Kigume, Maluka, 2021). The CHF provides benefits covering all healthcare forms, including laboratory testing, medication, and treatment. The CHF has voluntary enrollment, covering 6% of the total population. To qualify for iCHF coverage, a premium based on family size must be paid, which resulted in low usage due to the typically low household incomes of the population (Mori, 2023). The funding for the iCHF is at the regional level (a divided region of administration), with each region's premiums being put to that region's CHF in addition to government funding. The program is managed by the Regional Acceleration Strategy (RAS) office. Despite the advantages, challenges with enrollment rates and lack of equitable access to coverage remain problematic for the CHF (August et al., 2022).

The Universal Health Insurance Bill (UHI)

The Universal Health Insurance Bill (UHI), passed in 2023, aims to provide financial support for patients, with the ultimate goal of increasing access to healthcare for citizens of the country. The bill aims to address the decline of healthcare utilization from 71% in 2011 to 56% in 2018 due to previous premiums. Specifically, the bill was passed to expand the NHIF and CHF to increase coverage for low-income households (Kitole et al., 2023). To accomplish its goals, the bill mandates that all public servants be covered by health insurance, sourcing premiums from employers to ensure enrollment is paid for each employee. The UHI raises these funds through mandatory contributions and extending contributions to the informal sector, in addition to other sources of funds (Otieno et al., 2024). Enrollment in universal insurance covers costs

for all healthcare services, including medication, emergency, and maternal care. The UHI is leaving enrollment costs to employers to increase enrollment rates; however, due to low official employment rates, many households have to pay the premiums out-of-pocket (August et al., 2022).

2.5.4 Insurance and Costs

Health insurance within Tanzania is provided to residents through programs such as the NHIF and CHF, and private health insurance services are also available. Most citizens with healthcare coverage make use of the NHIF and iCHF (8% and 6% of the population respectively) since they first passed, with the recently passed UHI pushing to integrate these systems further. Of the total population of 69,323,713, only 15.3% are covered by some form of health insurance, and 1.3% are covered explicitly by private health insurance (Otieno et al., 2024). This represents a significant decline from the original 32% coverage in 2019, potentially due to the costs of premiums required by the NHIF and CHF, which annually cost households $21 and $13, respectively. These out-of-pocket costs for NHIF and iCHF enrollment significantly burden Tanzanian households, limiting access to necessary healthcare services. To address these problems, the UHI could mitigate the impact of paid premiums and improve the accessibility of quality healthcare by sourcing premium payments from employers and government funds instead of individual households.

2.5.5 Treatment Efficacy

The specific clinical guidelines used for treatment efficacy are the Standard Treatment Guidelines (STG) and the National Essential Medicines List (NEMLIT), which are used to improve patient outcomes and quality of care within the healthcare system. These guidelines are created by the Ministry of Health, related agencies such as the Community Development, Gender, Elderly and Children, and government programs like the Tanzania Food and Drugs Authority (Tanzania Food and Drugs Authority, 2017).

The STG aims to provide healthcare personnel with standardized methods to diagnose and treat patients, enabling practitioners to offer appropriate treatment. The STG contains

information regarding clinical conditions, diagnosis criteria, medicines of choice, alternatives for the medical condition, and important prescribing information such as dosage, duration, side effects, warnings, contraindications, medicine interactions, and referral criteria. The NEMLIT contains information regarding what the World Health Organization (WHO) defines as essential medicines, including antibiotics, anesthetics, antidotes, and other drugs commonly found in treatment (Ministry of Health, Community Development, Gender, Elderly and Children, 2021).

Despite the implementation of STG guidelines, a 2021 analysis of various patient cases revealed that only 29.9% wholly adhered to the STG, with 30.9% of cases having prescribed the wrong medication and 0.5% of cases not receiving medication at all (Wiedenmayer et al., 2021). Other studies on the efficiency and responsiveness of Tanzania's healthcare system found that the average scale efficiency was 78.6% for regional and 72.9% for district hospitals (Fumbwe et al., 2021). The healthcare system is 87.9% responsive with respect to confidentiality, 79.9% responsive in dignity, 77.2% responsive in prompt attention, 65.2% responsive in basic amenities, and 41.2% responsive in access to care (Kapologwe et al., 2020).

2.5.6 Limitations (Overall)

Despite efforts to improve the healthcare system — the establishment of universal healthcare — it is clear that the system remains limited due to the lack of available resources, staff, quality of care, and access. Financial struggles among both healthcare providers and patients largely influence this. The average income for medical doctors is TSh 3,414,109 (roughly US$1,300), while the average monthly income of the population is TSh 458,092 or roughly US$200 (WageIndicator Foundation, 2025). This indicates that medical staff are not being adequately compensated in addition to the population being unable to afford healthcare (Anker Living Wage and Income Research Network, 2020).

Observations have found that medical doctors treated anywhere from 26,000 to 30,000 patients annually, with only 0.39 nurses and 0.26-0.30 clinical staff (medical doctors, assistant medical officers, and clinical officers) per 1,000 citizens (Fumbwe et al., 2021). The poor working conditions, management, and the lack of available funds leave medical centers with a lack of staff, which quickly becomes an issue as teams are overworked (Manzi et al., 2012).

The low income and an inability to pay premiums for healthcare coverage have resulted in lower enrollment rates in programs like the NHIF and CHF, leading to a low percentage of the population being covered by any healthcare insurance (Mori, 2023). In addition, the lack of awareness about the available healthcare programs further prohibits citizens from taking advantage of the available resources to the fullest extent (Ndomba and Maluka, 2019).

Providing further funding for medical centers could improve the quality of Tanzania's healthcare system, as more funding can be used to improve working conditions, purchase medical resources, and pay salaries. A reevaluation of the implementation of clinical guidelines may also lead to improvement, with more significant implications for the available resources, available staff, and overall quality of care. Likewise, providing more funds to healthcare coverage programs and spreading awareness about them could result in higher enrollment rates.

2.6 Australia Health System:

2.6.1 Overview & History

Australia is a stage four demographic transition nation, with a population of 26,958,054 people as of 2025 (Macrotrends, 2025). Recognizing the need for adequate healthcare coverage for the population, economists John Deeble and Dick Scotton proposed a universal healthcare system to the Labour Party of Australia. The proposal was further implemented in 1974 when the new Labour Government under Gough Whitlam appointed Deeble and Scotton to set up the system. Medicare was further refined in 1984, aiming to establish a national health insurance commission to administer the program, universally available medical benefits paid to practitioners, hospitalization without charge and without means testing (looking at specific income brackets to determine eligibility) as a patient in a public hospital; its revenue was to be raised through a levy on taxable income, recommended at 1.25%, with matching Commonwealth subsidy (Ross, 2024).

Under Medicare, the government subsidizes the cost of medical services using tax-payer money. As a result, a portion of the cost of most medical services is covered by the Australian government (Department of Health and Aged Care, 2024). This ensures that people struggling in hard times have a cushion when dealing with medical expenses. Despite its benefits, there are also various drawbacks, such as increased income tax concessions on health expenses and contributions to voluntary insurance organizations to maintain program solvency, which went against the crux of the program at large (Ross, 2024).

2.6.2 Life Expectancy & Infant Mortality Rate

The Australian life expectancy has shown no signs of a decrease post-introduction of Medicare. The current life expectancy is 84.18 years, an increase of 12% from 1984 when Medicare was first introduced (Macrotrends, 2024). The infant mortality is three infant mortalities per 1,000 infants, a negative 72% decrease from 1984 (Macrotrends, 2024). The five leading causes of death in Australia are Ischaemic heart disease, Dementia, including Alzheimer's disease, COVID-19, Cerebrovascular diseases (strokes), and Lung cancer (Royal Victorian Eye and Ear Hospital, 2024).

2.6.3 Australia Policies

Policy 1: Pharmaceutical Benefits Schedule

The Pharmaceutical Benefits Schedule (PBS) allows for cheap subsidization of pharmaceuticals, ensuring that patients pay minimally while acquiring the required medications used for treatments. Patients with financial difficulties may be qualified to receive a further reduction in payment. As of 2019, PBS has reduced the prices of over 5,000 medicines, providing affordable healthcare for those in need (Department of Health and Aged Care, 2019). However, there are limitations: negotiations may cause drag-outs and tend to be overpriced, imperiling those who need immediate assistance to cover the cost of medicines.

Policy 2: Medicare

Medicare provides free healthcare to all citizens of Australia as well as visitors for minimal to no costs, subsidized by the Australian taxpayer. There are no healthcare plans in this system. Instead, there are limitations to what the system covers, which is determined by a team of professors and medical doctors under a regulatory body called the Medical Services Advisory Committee (MSAC) who provide comments, recommendations, and personal advice on coverage to maximize clinical effectiveness and cost-effective treatments for patients. Each determination affects Medicare's broader policies. Specifically, these determinations allow for lowering costs and providing affordable treatments under Medicare (Department of Health and Aged Care, 2019).

2.6.4 Insurance and Costs – Medicare

Healthcare in Australia is divided into two sections: public, covered by the Australian Government under Medicare, and Private, which is supplemental and provides more benefits than the public health system. Private health insurance is a "cover" for various expenses (Department of Health and Aged Care, 2024). The Government defines two types of private health coverage: hospital coverage for some or all of the cost of treatment as a private patient and general treatment for services not covered under Medicare (such as dental, ophthalmology, etc.) Medicare is only public and covered under taxes, but it is common to experience long waiting periods, and not all services are covered under Medicare. Private health insurance seeks to circumvent these flaws. Additionally, the Government provides a means-tested rebate to alleviate some of the costs associated with the private healthcare system, ensuring more people can use it (Department of Health and Aged Care, 2024).

2.6.5 Treatment Efficacy

The Australian Commission on Safety and Quality in Healthcare writes Australia's efficacy guidelines. There are eight guidelines: clinical governance, partnering with consumers, preventing and controlling healthcare-associated infections, medication safety, comprehensive care, communicating for safety, blood management, and recognizing and responding to acute deterioration (Australian Commission on Safety and Quality in Health Care, 2021). The health outcomes of these policies facilitate proper health practices to ensure that treatment efficiency is

maximized and safety is prioritized. Australia's new medical innovations are facilitated by the Medical Research Future Fund, which subsidizes and distributes new effective treatments and inventions to the public. This encourages private companies to create new solutions for emerging disease treatments, providing Australian people with advanced healthcare compared to other countries (Department of Health and Aged Care, 2024). This is exemplified by the Cochlear Implant, a device that stimulates the hearing nerve directly and provides a hearing sense to the wearer (Royal Victorian Eye and Ear Hospital, 2023). This shows that the current MedTech program is promising for medical technological development in Australia. A limitation of these technologies is that they need to be sanctioned or produced by the IP owner, involving extensive government bureaucracy and delaying critical help for needy people due to the various hurdles needed to even get the rights of production (RSM, 2024).

2.6.6 Limitations (Overall)

While it is explicit that the state government is paying for the health system, the decentralized nature of this system presents many challenges. The various municipalities in Australia have distinct types of healthcare systems, but they do not allow for any choice given the availability of specific treatments in certain hospitals. The system would be significantly improved should the Government invest more into Medicare, starting by expanding the Medicare system at large, providing more funding and a safety net should a patient not be able to cover the cost of a procedure, while it might not be beneficial in the short term, inviting tax-increases, the Government should use their mandate to prioritize the wellbeing of the people. They should also expand the Pharmaceutical Benefits Schedule to cover new treatments quickly should one be available. They should also work to make pharmaceutical innovations covered under PBS. An example of this would be cooperating with venture capital medical research companies, leading to immediate assistance for anyone who needs treatment that might not have easily acquired treatment.

2.7 Brazil Health System:

2.7.1 Overview & History

Brazil is a stage two demographic transition nation. Before 1988, the "Sanitary Movement" called for equal access to healthcare services, with members joining the Health Ministry of Brazil. This movement culminated in the enactment of the 1988 Constitution, making the health of Brazilians a state's duty. This formed the "Sistema Único de Saúde" (SUS), Brazil's health system which allows for universal and equal access to services for promotion (making citizens aware of healthcare), protection (disease protection and prevention), and recovery (aid in the recovery process of citizens from diseases) (Pan & Dias, 2024). This system is decentralized, assuring cooperation from all levels of government, from doctors to patients who voice concerns and solutions to the Health Ministry (Research Handbook on Health Care Policy, 2024). As a result, all citizens and visitors can access this system, providing free services. 75% of the population depends solely on SUS, whilst approximately 25% of citizens, mainly middle to upper-class citizens, use private healthcare to supplement SUS, circumventing the disadvantages of the system (The Commonwealth Fund, 2020). Since 2021, the system has been receiving more funding from the private sector. An estimated 56.07% of total health spending to SUS came from private sources, while 43.93% came from governmental funds (British Journal of Multidisciplinary and Advanced Studies, 2024). This came to fruition given the need for a combined healthcare system and a need to help the citizens. The SUS system lacks a coherent structure, and its decentralization makes it a complex area to help the people of Brazil. The other lack is the lack of coherency in the funding for the system, which imperils the program's long-term solvency.

2.7.2 Life Expectancy & Infant Mortality Rate

As of 2024, the life expectancy in Brazil is 76.96 years, an increase of 17.7% from 1988 (*MacroTrends, 2024).* The Current Infant Mortality Rate in Brazil is 10 deaths out of 1000, a decrease of 82% (*MacroTrends, 2025).* The five leading causes of death in Brazil as of 2023 are diseases of the circulatory system, neoplasms (tumors), diseases of the respiratory system, external causes of morbidity (external defects), and endocrine/metabolic diseases (Statista, 2023).

2.7.3 Brazil Policies

Policy 1: Farmacia Popular

Farmacia Popular, also known as the "Popular Pharmacy," is the primary pharmaceutical provider of the SUS program. Popular Pharmacy helps the government achieve goals directed at the progress of vaccination against common diseases (*The Lancet,* 2024). Medicines such as contraceptives and drugs for diseases like Parkinson's, asthma, and osteoporosis are made in Brazil with help from the Popular Pharmacy. This policy subsidizes the cost of these medicines to ensure that the population can acquire these medicines for an affordable price (*The Commonwealth Fund, 2020*). Additionally, Popular Pharmacy made Brazil one of the first middle-income countries to offer free access to treatments for HIV/AIDS and ensure Brazilians receive vital medicines. An inherent downside to this program is that the Farmacia Popular Program only reaches municipalities with a high population, exacerbating the system's overall inequalities (*PubMed, 2024).*

Policy 2: FHS (Family Health Strategy)

The Family Health Strategy, composed of a doctor, nurse, nurse assistant, and up to 12 community health workers, promotes family health. The teams cover 2,000 to 4,000 individuals in households across a geographic area (*The Commonwealth Fund, 2020*). In 2019, 98% of the municipalities had adopted the Family Health Strategy model. More than 43,000 family health teams and at least 26,000 oral health teams provided care to more than 133 million people (64% of the population), accomplishing a range at which care can be delivered and bridging geographical boundaries. During the pandemic, flaws arose in this policy, one being inherent in the complete SUS system. A lack of clarity in the health measures and numerous changes to the head of the health ministry had resulted in the policy being strained during and post-COVID. There were also infrastructure shortages to even face the pandemic in the first place, so this policy had many structural and inherent problems (*Cost Effectiveness and Resource Allocation, 2022).*

Policy 3: Mais Médicos

Mais Medicos is a program that hires doctors for municipalities, providing residencies in the process. While the former President initially terminated the program, the program was relaunched by President Lula de Silva. As a result, the number of doctors the government hired doubled during President de Silva's first year in office. Mais Medicos successfully bridges the gap of ensuring treatments can be delivered to hard-to-reach places, helping people in urban and suburban areas, and ensuring Indigenous folk can be treated (*The Lancet, 2024*). Whilst the program might be good, the inherent problem is the distribution of practitioners to underserved communities and the impact of MM physicians on traditional in-residence physicians. The analysis is mixed, but a consensus is that any produced effect of this program will be minute, either positive or negative (*Social Science & Medicine*, 2024).

2.7.4 Insurance and Costs – SUS

SUS fully covers health insurance for all citizens and travelers. Two plans are available under SUS: The first provides public healthcare, offering all citizens and travelers access, while the second acts as a supplemental healthcare system, which is private and paid out-of-pocket. This system circumvents problems of public planning under the broader SUS system, such as backlogs and waitlists. However, the free healthcare plan under SUS is riddled with waitlists that have not recovered since the COVID-19 pandemic. Unlike the public healthcare system, the Brazilian private healthcare system, which is considerably funded compared to the SUS system, is free of backlogs and allows quicker care. Private healthcare is tax deductible, and 25% of the population (typically wealthier citizens) have some form of supplemental healthcare system. The difference is determined by a supplemental cost added to the person's health expenses, whilst SUS is public healthcare not paid for (*The Commonwealth Fund, 2020*).

2.7.5 Treatment Efficacy

Practice Guidelines (PGs) are guidelines developed under Brazil's Ministry of Health to develop standards for treatment using technology. The Health Technology Assessments (HTA) used by the National Committee for Health Technology Incorporation (NCHTI) assess current technologies to determine cost-effectiveness. This works in conjunction with the broader SUS

program to ensure that every hospital has technological effectiveness for the health of its citizens (*Health Research Policy and Systems, 2022).*

Brazil's National Health Service Agency regulates biosimilars and biopharmaceuticals (treatments comparable to pre-existing treatments) that are approved but not patented, allowing for more treatments for various diseases. Brazil is also working on genetic treatments to develop personalized treatments and increase their accuracy. The benefit of the Agência Nacional de Vigilância Sanitária (ANVISA) doing this is that it will allow more people to receive low-cost treatments and quickly treat diseases that pop up in the country.

The country allows and encourages new inventions by various governmental agencies, funding and facilitating participation in various summits, demonstrations, and meetings. The agencies are the "National Confederation of Industry–Brazil (CNI), an agency that promotes various types of training on new medicinal innovations; Social Service of Industry (SESI), an agency that focuses on workers' quality of life to increase productivity, National Service for Industrial Training (SENAI), an agency that provides technical and vocational training to develop innovative outcomes throughout all sectors of the Brazilian economy, Euvaldo Lodi Institute (IEL), an agency that bridges academics and agency that promotes R&D innovations, (all of these agencies are under the CNI), and the Brazilian Micro and Small Business Support Service (SEBRAE), (a company that helps small businesses and micro businesses develop new technologies)"

While there are benefits to the net innovation resulting from the companies, the system has limitations. It involves adjudication over the Intellectual Property Rights of various treatments and machinery, which impedes the growth of the developer and the Brazilian health economy, given the immense amount of regulation present (*WIPO Knowledge Repository, 2019*).

2.7.6 Limitations (Overall)

While the Brazilian healthcare system is available to all citizens and its decentralized system allows for a decreased bureaucracy in the healthcare sector, Brazil's healthcare system unintentionally causes bottlenecks across the staffing sector, hampering care to those in need (*The Commonwealth Fund, 2020*). There is a backlog in Brazil's healthcare system; as of February 2024, 1 million Brazilians have not yet received surgery (*The Lancet, 2024*). It also requires more coordination since a decentralized healthcare system can be prone to disagreements based on inherent politicization or structural factors (*Cost Effectiveness and Resource Allocation, 2022*). It also comes at a cost for the municipalities since municipalities should contribute 12% - 15% of their yearly revenue, which can harm the system should a municipality have a deficit (*Health Research Policy and Systems, 2024).* Additionally, there is a lack of doctors in the system, but the Government has fixed this problem as of 2024. On the other hand, a need exists for more specific residencies to accommodate patients in hard-to-reach areas (*The Lancet, 2024*).

Current government action should be reevaluated to achieve an effective outcome from the SUS system. With the lack of doctors, the backlog grows again to the point at which additional governmental action should be needed to reform the Brazilian system. Brazi's decentralized co-partner system advantages the wealthy, as the problems outlined in this section are not evident in the current system. The Government should work to ensure that these problems are rectified and that the quality of healthcare is comparable with the quality of Brazilian private healthcare.

3. Discussion

The United States operates on a for-profit model with high costs but technologically advanced equipment. US healthcare utilizes primarily private healthcare, supplemented by public healthcare. Private healthcare provides citizens with short wait times, personalized medicine, and technologically advanced equipment. On the other hand, private healthcare costs are overwhelmingly high, leading to healthcare inequality. Public healthcare attempts to minimize healthcare disparities through Medicare, Medicaid, and the ACA policies. However, such policies impact specific age groups and qualifications. Thus, healthcare remains unequal and depends on income to afford varying healthcare quality.

The United Kingdom utilizes universal coverage through the National Health Service (NHS), which allows for a state-funded, run, and distributed system. This system, however, faces challenges with underinvestment and efficiency. These problems range from a massive staff shortage to a growing sick and elderly population with no trend in decreasing. Private healthcare in the UK is generally only used to fill care, not by the NHS, including dental and secondary emergencies. This makes private healthcare relatively common.

The Chinese government has made remarkable achievements in the breadth of its medical system coverage, while the government has also improved treatment efficiency by issuing various policies and developing technology. However, disparities between rural and urban areas persist. Medical resources are abundant in big cities but are weak in grassroots and rural areas. The issue of how to supervise and improve the policy and the tense doctor-patient relationship still exists.

Russia utilizes Obligatory Medical Insurance (OMI) to provide healthcare coverage nationwide, which allows for state-run efficiency. This system, however, struggles with budget deficits and resource distribution. This leads to a lack of healthcare access across the nation, especially in remote locations. The system, in general, also suffers from a poor level of

treatment efficacy, with most locations being understaffed and under equipped. Private healthcare in Russia is scarce and expensive, leading to almost no alternative to state care.

The Tanzanian Government is actively promoting the development of their healthcare system through increased access to the system (with healthcare coverage policies such as the NHIS and CHF) and the establishment of clinical guidelines to ensure increased treatment. Despite these changes, obstacles remain. Specifically, funding remains to be Tanzania's primary issue. Insufficient funds provided by the government to healthcare programs related to coverage and resources have led to poor working conditions and low enrollment rates in government-sponsored healthcare coverage programs. Additionally, the premiums paid by those who use the services leave many citizens unqualified for the coverage programs, limiting healthcare system usage. Limited healthcare coverage, alongside the lack of enforcement of clinical guidelines, leaves the healthcare system inefficient nor effective in providing accessible healthcare.

Australia has a comprehensive healthcare system with several significant advantages, including low medical costs, excellent treatment efficiency and medical technology, and a well-developed insurance system. However, the time it takes for the government to negotiate drug prices and review new technologies is sometimes too long, which might delay treatment. Regional differences caused by the decentralized management of the healthcare system may lead to patients being unable to get the treatment they need in a particular hospital.

Brazil's Sistema Único de Saúde (SUS)aims to provide universal healthcare through different policies, that at its core work to streamline the process through cheaper and more advanced treatments, a program to hire more doctors to solve in underserved areas, and a strategy to help streamline family health. A limitation to healthcare policies like these are inherent geographical constraints, the landscape imperiling both healthcare access and distribution of treatments. The healthcare system is decentralized, ensuring that concerns can be addressed at specific levels. However, there is an inherent disadvantage to Brazil's structure for healthcare. The decentralized nature of the system makes the system especially vulnerable to chain-problems. Specifically, if inefficiency occurs at one leg of the system, the entire system

would be under immense problems, such as city budget imperiling local implementation, which would necessitate governmental intervention. Through funding and direct governmental intervention and regulation, this problem could be addressed and minimized. Another problem is a backlog that has not been rectified since the COVID-19 pandemic, which could be solved similarly to the previous problem. The government should focus on providing grant subsidies, which can efficiency solve any obstacles

All countries aforementioned struggle with healthcare disparities and insufficient funding. These obstacles highlight the urgency for policymakers and healthcare professionals to make improvements. The improvement of healthcare disparity is directly related to shifting the structure of healthcare in each country to better account for those discouraged from using the systems and, more importantly, the offering of healthcare services equally through allocating funds towards this goal. To improve the funding insufficiencies exhibited, governments should work to ensure that their system is uniquely solvent through grant subsidies and improve the unique structural disparities to their systems.

4. Abbreviations

1. ACA: Affordable Care Act
2. AMA: American Medical Association
3. ANVISA: Agência Nacional de Vigilância Sanitária
4. CNI: National Confederation of Industry–Brazil
5. CMS: Center for Medicare and Medicaid
6. CPGs: Clinical Practice Guidelines
7. CDC: Centers for Medicare and Medicaid Services
8. CDC: China Disease Prevention and Control
9. CHF: Community Health Fund
10. HNS: American Academy of Otolaryngology-Head and Neck Surgery
11. HTA: The Health Technology Assessments
12. ICS: Integrated Care Systems
13. IEL: Euvaldo Lodi Institute
14. MSAC: Medical Services Advisory Committee
15. NATCM: National Administration of Traditional Chinese Medicine
16. NIH: National Institutes of Health
17. NHC: National Health Commission
18. NCHTI: National Committee for Health Technology Incorporation
19. NHS: National Health System
20. NHIF: National Health Insurance Fund
21. NHSA: National Health Surveillance Agency
22. OMI: Obligatory Medical Insurance
23. PBS: The Pharmaceutical Benefits Schedule
24. PGs: Practice Guidelines
25. SEBRAE: Small Business Support Service
26. SESI: Social Service of Industry
27. SENAI: National Service for Industrial Training
28. SUS: Sistema Único de Saúde

29. MM: Mais Medicos
30. UHI: The Universal Health Insurance Bill
31. VHI: Voluntary Healthcare Insurance
32. WHO: World Health Organization

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