Cross-Country Comparisons of Health Care Systems

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Abstract:

Because of the differences between healthcare systems across the globe, the ability to critique the positives and negatives of each system can be a daunting task. To diagnose the differences between healthcare systems, a better method of classification needs to be developed so that these differences can be more easily understood. This presentation explores a new method of healthcare system classification and applies this classification system to nations alongside statistics that highlight system differences within their categories.

Keywords:

Healthcare; Systems; Regulation; Financing; Access

Category:

Management Information Systems

BACKGROUND

Healthcare systems exist through the need of a nation's polity to provide for the general welfare of its constituents. According to the WHO, a healthcare system consists of all organizations, people and actions whose purpose and intent is for the provisions of maintaining and restoring health. The goals of these systems are for the creation of better health, longer life expectancy, higher standards of living, and to support the human capital that underpins the state among others. Under this definition and according to the goals of what a healthcare system should prescribe, however, are many other examples that would not normally be considered part of a professional healthcare provider. For example, the WHO definition includes home care for a sick child, an elementary school that employs rehabilitation services such as routine eye exams for children, or even a work setting that provides employees with access to a physical fitness center. Therefore, the ability to define what a healthcare system is remains a complex one deeply entrenched in any society's culture and economy.

There are myriad of healthcare systems across the globe and no single definition or description can be used to classify each system. Each system contains elements general to each other. The first attempts to create classifications created the four-system model. While their inception is ideologically and culturally founded, these four healthcare system models are best described according to how they are financed. The funding for these models come from a variety of sources and include general taxation, national health insurance, voluntary or private health insurance, donations, and out-of-pocket expenses. Based around these sources of funding, four general patterns of models emerged which include the Bismarck Model, the Beveridge Model, the National Health Insurance Model, and the Private Model.

Developed in the late 19th century by Otto von Bismarck during the unification and creation of the modern German state, the Bismarck Model developed as a way for constituents

to pay into a universal fund to access healthcare through state-owned healthcare institutions. The principles behind this model were universal access to healthcare with state entities negotiating terms of care and funding. In essence, the Bismarck model is a social insurance model receiving its healthcare funding through employee and employer taxes.

In the first half of the 20th century the British Beveridge Model developed around the principle that health was a human right. In this model, income taxes are collected to fund a healthcare system in which the government regulates competition and the healthcare market. Since healthcare is considered a human right, universal access is guaranteed by the state akin to a social security system. In this system, the government acts a single payer to reduce competition and keep market prices low.

Over the course of the latter half of the 20th Century, a mixture of the Beveridge and Bismarck Models emerged known at the National Health Insurance Model. This model take elements from both the Beveridge and Bismarck models and utilizes private sector providers funded by a nationally administered government insurance program. National Health Insurance Models vary wildly from nation to nation with varying degrees of centralization. Canada is considered the most extreme form with a rigidly centralized single-payer system while nation's such as Hungary or Germany offer more options for healthcare in a mixed-model.

The three models above are considered universal healthcare systems. In these systems, healthcare is available to any person who desires it through varying types of funding. On the other side of the coin is the non-universal healthcare systems. These systems can be termed as either Private Health Insurance or Out-of-Pocket insurance. In the Private Health Insurance Model, healthcare is funded through market driven income levels. Healthcare access is determined by the private contributions of the individual to a private insurance plan. These plans may be offered through employment paid for by payroll deductions or by the individual on an as needed basis. In the Out-of-Pocket system, a nation's healthcare structure is too fractured to create a unified system and healthcare is administered on an as needed basis according to affordability. Notably, only the USA, developing, and extreme rural area of the world utilize Private Health Insurance or Out-of-Pocket systems.

Despite these four models, however, there remains many elements to each of the models that does not describe it wholly. For example, the United States is well known as the only developed nation in the world with a private health insurance system. However, the US government has created such national health insurance systems such as the Veteran Health Administration and Medicare. This indicates that there is a gap in the above models in the description of what is a healthcare system. The above models use funding as a driving factor in their classifications, however, health systems are much more than funding and the provision of health services. Other aspects to consider are access, financial risk, and regulation. Over the past forty years, changes to healthcare systems across the world show a need to reevaluate the above healthcare models. Shifts in financing, state levels of involvement and regulation, and service provision have occurred in major healthcare systems in many nations of the world.

In consideration of these shifts five types of OECD (Organization for Economic Cooperation and Development) health systems are classified to better account for the changing landscape of healthcare systems. This classification method uses a deductive approach, identifying core dimensions of a healthcare system as a hierarchy of regulation, financing, and service provision. These three dimensions are correlated to the main actors in the healthcare system of the state, the society, and the market participants. From these dimensions and correlations to main actors in the system, five dominant types of systems emerge. According to Bohm et al., this typology results in the identification of National Health Service, National Health Insurance, Social Health Insurance, Etatist Social Health Insurance, and the Private Health System. It should be noted, however, that while most healthcare systems will be of a mixed type, meaning each type is not absolute and will contain minority features similar to other systems, each will be more influenced from the either state, the market participants, or the societal influence (insurer associations, trade unions, employer associations, patient associations).[1]

[1] The Bismarck, Beveridge, National Health Insurance and universal non-coverage systems tend to focus solely on financing when considering their relative influence over economies. This study wished to incorporate not just financing, but healthcare access, and healthcare regulation both of which prove to profoundly influence how a system conducts itself. As such, this study creates a conceptual framework for comparisons of health systems across nations.

In the development of these typologies, it becomes clear that national differences concerning political ideologies such as the welfare-state, social-democrat state, or liberal-state greatly influence national cultural tendencies regarding a population's acceptance of such institutions. In this they create various approaches on how to regulate an industry, be it vertical or horizontal, how the industries are financed, whether through a centralized or decentralized method, and service provisions, from inpatient to outpatient care, and pharmaceuticals. These also greatly influence how care is administered through the systems that are at work. By framing healthcare systems along these topologies, comparisons between nations can be more easily understood regarding spending, such as healthcare expenditure per GDP, regulation, in that major controlling influences on the system is identified, and service provision, by showing the relationship between the provider and provisee more transparently.

The five types of health systems are identified and clustered according to type and nations below:

National Health Service	Denmark, Norway, Sweden, UK
National Health Insurance	Australia, Canada, New Zealand, Italy
Social Health Insurance	Austria, Germany, Luxembourg, Switzerland
Etatist Social Health Insurance	France, Netherlands, Japan, Korea
Private Health Insurance	USA

The first type, National Health Service, represents strong state dominance of the healthcare system where regulation, finance, and access or provision are concerned. In this system, "the state assumes the responsibility to govern the relation between the main actors in healthcare." While private actors do exist in this system, it is the state that is the dominant actor. In this system healthcare is available to all citizens, is government funded through general taxation, and is regulated by the government through the creation a single risk pool of the population.

The second group is the National Health Insurance type and is much like the NHS in that it mimics the regulation and tax structures present in NHS. However, in this system, there is a dominance of private actors in the service provision and allows for for-profit provision. While

the state regulates the relations between payers, providers, and patients, the greater share of power of service providers in this system remains in private hands rather than the state's hands. In short, this system features private delivery of universally accessible healthcare in a state regulated and state financed landscape.

The third grouping is the Social Health Insurance system. This system most closely resembles the Bismarckian system, but has evolved over the years to meet changing societal needs. Funding is created through the requirement of citizens to maintain health insurance. This, in turn is paid for through both employee and employer taxes. However, state authorities maintain a supervisory role over these "sickness funds and service providers" based upon collective agreements between them. Service provision remains mostly with private actors and partly with public and non-profit actors. Even so, there are varying degrees of state dominance over societal actors in this system.

The Etatist Social Health Insurance System is a mixed healthcare system type. In this system, a universal private health insurance system exists with few elements of public insurance. This system is notable for its strict hierarchy between regulation, funding, and service provision. The state remains responsible for regulation, financing is relegated to social insurance, and service provision is laid in private hands. The diversity of actors and the strength afforded to each in its hierarchy prevents actors becoming involved with each other within their respective dimension.

Lastly, the Private Healthcare system is epitomized by nearly complete supremacy of the system by private actors. These dominant private market actors are responsible for the organization of the healthcare system, its funding, whether out-of-pocket or through private insurance, and services performed through for-profit providers. In this system, the state has little regulatory power over societal actors and service providers.

The establishment of these categories of health systems is superior to the Beveridge, Bismarck, National Health Insurance and Non-Universal systems discussed above. These categories allow for greater comparison between health systems in that the data collected concerning healthcare for each of the nations within these categories can be seen considering the trio of the state, the population, and the institution; the three main constituents in any

healthcare system. These three main constituents evolve over time thus influencing any changes that occur within any given system. In this way, the differences between the systems, based around consideration of the functions in a healthcare system, instead of the simple measurement and comparison of data between nations alone, can be gauged giving the data that is collected deeper meaning into the merits and faults of each system.

THE SYSTEMS AND THE COUNTRIES

Of the countries listed in the table above, one each from each healthcare system type will be analyzed considering healthcare data obtained by the WHO, the OECD, and the Commonwealth Fund. Several indicators of performance will be explored in comparing systems including healthcare spending as a percentage of GDP, number of hospitals, clinics, and doctors, life expectancy and preventable mortality, and access to care.

In 2020, The government of the United Kingdom financed up to 83% of healthcare services. Thus, the United Kingdom falls under the National Health Service type of healthcare system. This is mostly due to the service providers being regulated by the state. In this case, the government controls market access to healthcare and owns the hospitals and providers of care including primary care, ambulance, mental health, and community services while pharmaceutical access remains private. These services are funded primarily through general taxation with a smaller proportion coming from payroll taxes providing a supplemental national insurance. As such, health services are generally free to all residents, although private insurance does exist as a supplemental. Pharmaceutical access is limited to out-of-pocket copays. Access to care is limited through a gatekeeping model that limits secondary care and most are able to choose primary care freely. This access to primary care is limited in the number of available practices and practitioners as is the choice of hospital.

Canada utilizes a universal and publicly funded healthcare system that falls under the category of National Health Insurance. This system is administered by the country's federal government, provinces, and territories and financed 75% of health services in 2020 (OECD 2022). The primary financial administration of the system for the general population resides

with the provinces and territories. Funding for service provision comes from government revenue sourced from general taxation. Private insurance does exist in Canada and serves as supplemental insurance for services not covered through public coverage such as dental, vision, and pharmaceutical services. The funding source for this supplemental insurance comes from employers and other groups or organizations. The government maintains financial, regulatory market access control over the health system, however, service provision remains private providing basic medical services and hospital care. Access to care is a free choice for the patient and includes general practice as well as choice of hospital for secondary care and any needed tertiary care.

In Germany, health insurance is mandatory for its citizens and as such places Germany as a Social Health Insurance system type. In 2020, the German government provided 85% of funding in health services (OECD 2022). This funding comes from wage taxation and supplementary contributions from both employers and employees. These wage taxes, or contributions, combined with supplementary contributions are combined into a pool known as a sickness fund. The regulation and distribution of funds is allocated to sickness fund associations and are administered by German state governments which are then reallocated to the individual participating in the insurance program. Market access is controlled by these sickness fund associations, and the state retains an administrative and supervisory role for hospitals and general public services. For a smaller portion of the population, private health insurance is available, albeit on a risk based contractual agreement. Service provision is mainly made available by private actors for all types of care including general practitioners, hospitals, pharmaceuticals, dental, vision, and other types of care. Patient access is generally unlimited giving participants free choice in seeking care.

Japan falls into the Etatist Social Health Insurance type due to its state regulation of market access, funding of health services through social security taxes, and privately owned providers. National and local governments are required by law to provide healthcare to the population. Japan's statutory health insurance system provided 83% funding for healthcare services in 2020 (OECD 2022). This funding comes from taxes and mandatory individual contributions and is similar to a sickness fund. In the case of Japan, private insurance is held by

a large portion of the population despite the availability of universal coverage, however this private insurance is of a supplementary form. The state government maintains strict regulation over most of the social health insurance system. Market access is controlled by the government as they set the fee schedules and provide subsidies to local governments, insurers, and providers. Health service providers are mostly held privately, but since the government regulates fee schedules, compensation is often based around negotiated fee-for-service models between the sickness fund and the provider. The exception to this is that 15% of hospitals are owned by the government with the rest being private or non-profit. There is no gatekeeping and patients are free to choose access of primary, secondary, and tertiary care.

The United States is the only private for-profit healthcare system in the world. Around 92% of the US population is insured, public or private, leaving the US as the only developed nation in the world to not have 100% health coverage available for the population. While the government provided 35% of public health funding in 2020, 65% percent of the population funds healthcare privately through private insurers or out-of-pocket expenses. The indicates that the US maintains a Private Health System. While the US does provide public coverage for parts of the population that meet certain requirements, the dominant form of health coverage is provided from employers contracted with private insurers and paid through premiums, sourced from both employees and employers, to private actors performing health services. As such, regulation of the healthcare industry is limited. Public insurance programs, however, are heavily regulated. This creates dual market access for providers. Access to the private market depends upon the contracts of private plans, which are themselves self-regulated, while access to the public market is controlled by a mixture of federal and state actors. In addition, this dual access creates much freedom of choice for the private patient and is only restricted by contractual details created through employer sponsored healthcare plans while the patient participating in the public programs is severely limited to state administration and regulation. Lastly, the 8% percent of the uninsured population retain complete freedom of provider choice within a completely unregulated market bearing all health expenses for health services.

HOW THESE COUNTRIES AND SYSTEMS COMPARE

The first comparison to make is spending as a percentage of GDP. The United States spends the most on healthcare as a percentage of GDP followed by Germany, Japan, Canada, and United Kingdom.

Nation	Percentage of GDP (2018)
United States	16.9
Germany	11.2
Japan	10.9
Canada	10.7
United Kingdom	9.8

As the above table shows, each country makes significant investments toward healthcare with the United States far outspending any other nation in the world and almost double the OECD world average of 8.8% of GDP. Healthcare spending per capita shows a similar trend with the United States spending far more than the rest of the nations in the healthcare system types.

Nation	Healthcare spending per Capita (dollars)
United States	10,637
Germany	6,646
Canada	5,418
Japan	4,360
United Kingdom	4,290

This spending is funneled into healthcare centers that include hospitals and the doctors who diagnose and treat patients. Japan has the most hospitals of all five of the above nations followed by the United States with Canada having the fewest.

Nation	Number of Hospitals (2019)
Japan	8,335

United States	6,051
Germany	3,027
United Kingdom	1,932
Canada	714

However, number of hospitals does not equate to quality of care. In order to get a better picture of patient access, hospital density must be considered. In this respect, the numbers of hospitals per 100,000 residents changes the ranking of the table above.

Nation	Hospitals per 100,000 residents (2019)
Japan	6.6
Germany	3.6
United Kingdom	2.9
United States	2.5
Canada	1.9

The WHO states that the number of hospital beds per 1,000 residents should be three for a nation to adequately serve its population. The table below reflects the number of hospital beds per 1000 people and shows the extent of which long term care is available to a population.

Nation	Hospital Beds per 1000 (2018)
Japan	12.6
Germany	7.8
United States	2.8
Canada	2.6
United Kingdom	2.3

These hospitals are staffed by doctors, nurses, and other staff to deliver the care the patients need. It is interesting to note that the number of doctors per 1,000 residents varies from the number of hospitals, hospital beds, and hospital density.

Nation	Doctors per 1,000 residents (2018)

Germany	4.5
United Kingdom	3.2
Canada	2.8
United States	2.6 (tie)
Japan	2.6(tie)

The amount of available healthcare and the access to it must be compared to health outcomes. In order to shed light on the effectiveness of the health system types average length of stay, mortality rates from avoidable causes (where treatable mortality is that which can be avoided through effective healthcare intervention after diagnosis), and life expectancy are investigated. Length of stay, juxtaposed against mortality rates from treatable causes shows a snapshot of care afforded a given population and when combined with life expectancy shows a population's general health.

Nation	Average length of stay 2018
Japan	16.4
Canada	7.7
Germany	7.4
United Kingdom	6.2
United States	5.4

Treatable mortality falls in line with the above table. The OECD world average is 73.

Nation	Mortality from Treatable Causes per 100,000
Japan	47
Canada	56
Germany	62
United Kingdom	69
United States	88

Life expectancy is the result of healthcare. A knowledgeable and healthily population, with access to quality healthcare, will generally live longer. When treatable mortality is considered alongside life expectancy and inverse relationship is apparent.

Nation	Life expectancy (2018)
Japan	81.6
Canada	79.5
Germany	78.7
United Kingdom	78.4
United States	74.2

CONCLUSION

Looking at the data above, it becomes apparent that high amounts of spending does not guarantee better outcomes. This is clear as the United States spends the most on healthcare, almost double the world average, while consistently ranking last in access to care and outcomes. This shows that the Private Health System the United States employs does not provide the outcomes necessary for a healthy population. Indeed, ranking last in life expectancy and treatable deaths is indicative of this conclusion. While having a high number of hospitals, but low doctor to patient ratio, the United States Private Healthcare model seems to be ineffective in even preventable mortality, where preventable mortality is the effective public health and primary intervention to avoid sickness.

The United Kingdom, with its National Health Service model, ranks just ahead of the United States in outcomes as well as in most categories. However, spending as a percentage of GDP and per capita spending is lowest among the group. This shows that the United Kingdom's National Health Service model is not as effective as the other models in the group. Canada, with its National Health Insurance model, resides in the middle of the pack in most categories. However, with the fewest hospitals and next to last number of hospital beds per 1,000

residents, Canada boasts the second highest life expectancy and second lowest number of treatable mortality cases. This shows that Canada's National Health Insurance Model is an effective health system model. Germany's Social Health Insurance Model seems to perform very effectively as well. With a higher percentage GDP and per capita spending, Germany ranks the highest in number of doctors per 1,000 residents, second highest in hospitals per 100,000 residents, and second highest number of hospital beds per 1,000 residents. This access to care leads to third best in treatable mortality and high life expectancy showing Germany's Social Health Insurance model is effective in delivering healthcare to the population.

When comparing other health system models, the Etatist Social Health Insurance model seems to perform better that the rest. The Japanese healthcare system, with its strict separation of funding, regulation, and services provided consistently ranks highest with almost the lowest per capita spending and average percentage of GDP spending. Even though Japan spends almost the fewest of the five nations analyzed, they employ that largest number of doctors, have the highest number of hospitals and hospital beds. Their low treatable mortality rate ranks the lowest among the group and they enjoy the longest life expectancy showing an effective healthcare system.

Looking at these five health system models and comparing the data gives insight into which healthcare model might be more effective that another. This, however, is simply a snapshot of the models. Further data collected over years would give this study a longitudinal accuracy and could suggest models for future healthcare systems or could suggest reforms to current models.

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