

Comparison of the International Health Care Systems Through the Consideration of Population Health and Performance Indicators in Canada, Australia and New Zealand: a systematic literature review

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Abstract- A health care system is an organised plan of health services that manage health care to a specified society. Health care system involves a network of organisations, governance, facilities, and health care providers. A successful health care system requires qualified services to all populations whenever and wherever they need.

Objective: This article has two main purposes. 1) To ascertain the management of health care system in Canada, Australia and New Zealand, and 2) to discuss the benefits and disadvantages of Universal Health Coverage (UHC) in Canada, Australia and New Zealand.

Method: The comparison study is based on the electronic databases such as Scopus, Web of Sciences, PubMed, ProQuest and SAGE. The study was used databases published between 2015-2019, and using OECD and World Bank health data.

Results: The Canada, Australia, and New Zealand have similar health care services and pharmaceutical expenses. Although all the similarity in health care services are easy access and comprehensive, the additional purchase of insurance is still required in each country.

Conclusion: This study concluded that the Universal Health Coverage is politically achievable and fiscally feasible by considering the depth and scope of its coverage. After comparing the results of the accessibility and quality of health services in Canada, Australia, and New Zealand, the data suggested that the health care systems of these countries are relatively adequate.

Index Terms-“healthcare system”, “population health indicators”, “international comparison”, “performance indicators”

I. INTRODUCTION

Health care systems around the world are different due to the different combination of politics, history, health economics, and etc. Those systems organised health care services for a specified society. Health care system involved a network of organisations, governance, facilities and health care providers (Cuadrado, Crispi, Libuy, Marchildon, & Cid, 2019) defined health care system as “all the activities whose primary purpose is to promote, restore or maintain health”. In fact, health care

systems are complicated but their main purpose is to improve one health with limited resources (Schütte et al., 2018). Comparing health care systems is important for policy-makers because it will help them to strengthen health care systems as well as attracting attention to inconsistencies among different populations. Hence, it gets the attention of the United Nations (UN) and the World Health Organisation (WHO) for systems to be assessed and compared the policies and strategies to be developed.

The primary goal of the health care system is undoubted for better health (Hejduková & Kureková, 2016). Many studies mentioned that the health is the important role of the economic growth (Hejduková & Kureková, 2016), and in many parts of the society, they have the potential to cause and share responsibility for its protection and improvement. A successful health care system requires qualified services to all populations whenever and wherever they need. In worldwide, there is a crisis that everyone is concern about the rapid aging of populations, as well as increasing life expectancy and health expectancy (Perry, Mulligan, & Smith, 2017). This has led to a number of challenges for the business, societies, and governments, including slowing economic growth, insufficient labour workforce, issues among generational equity due to the rising retired populations rather than working age populations, as well as poverty among elderly and rising in dependency (Chand, 2018).

Even the most developing economic countries are rapidly aging as well with low fertility rates and increasing life expectancies because of the growing social conditions and health care advancements. In this study, life expectancy will be mentioned as it is one of the common population indicators and it has been a strong fact although it is not a perfect indicator (Sharma, 2018). As an example, one country has high life expectancy compared to other countries in the world but most of its population might have some serious illness and might not be productive for country’s economic growth. Since health is a product of many factors, and many parts of the community have likely to give and share authority for its protection and advancement. Thereby, performance monitoring is used as a tool to approach activities in different sectors and to promote cooperation and accountability in working regarding better health outcome for the community. There must be a way to monitor performance and outcomes for communities as a whole within

health care organisations. For instant, financial resources are one of the concerns in how countries' efficiency and effectiveness of the performance monitoring response. While comparing health care systems through the population health and performance indicators, there is so much hesitation and argument over which one to use and access to present the information right. Therefore, I proposed the comparative study by reviewing and assessing existing health care system comparison research papers as this may help giving recommendation for the future literature in the same area.

II. METHODS

This study is based on the health performance indicators and population health available from the Canada, Australia, and New Zealand.

2.1 Research Process

The search method used to find the information and data were searched through academic/scholarly and peer-reviewed articles through Griffith University library. A systemic search was undertaken using electronic databases such as Scopus, Web of Science, PubMed, Proquest, and SAGE. The Google search of the websites of the AIHW, Canada Health Act (CHA), Ministry of Health (MOH) New Zealand, the OECD, and the World Bank was conducted to find the health care data related to Canada, Australia and New Zealand. The key search terms included: "healthcare system", "health system", "population health indicators",

"international comparison", "performance indicators", combined with Canada*, Australia*, and New Zealand*. A search string is a combination consist of search terms combined using Boolean operators "AND", "OR". This Boolean operator helped the whole search methodology; including search terms, the reference sources, and enough information to support the study review (Livoreil et al., 2017).

2.2 Inclusion criteria

Articles published during the period of 2015-2019, which provided information and data related to the health care system performance indicators and population health was selected. As for the indicators, the OECD health data from 2016 and 2017 were used. In some cases, older data had to be used (Rump & Schöffski, 2016).

III. RESULTS

After applying the search terms using Boolean operators, the database searches resulted in 396 articles. Apparently, many duplicates were included in the original searches. After removing duplicates, 156 articles were screened by title and abstract against the eligibility criteria. Out of these, 90 articles were eliminated after further reading. Based on the detailed full-text reading, another 32 articles were excluded. The screening of articles resulted in 18 articles that fell into the inclusion criteria. The process is described in a PRISMA flow chart (figure 2).

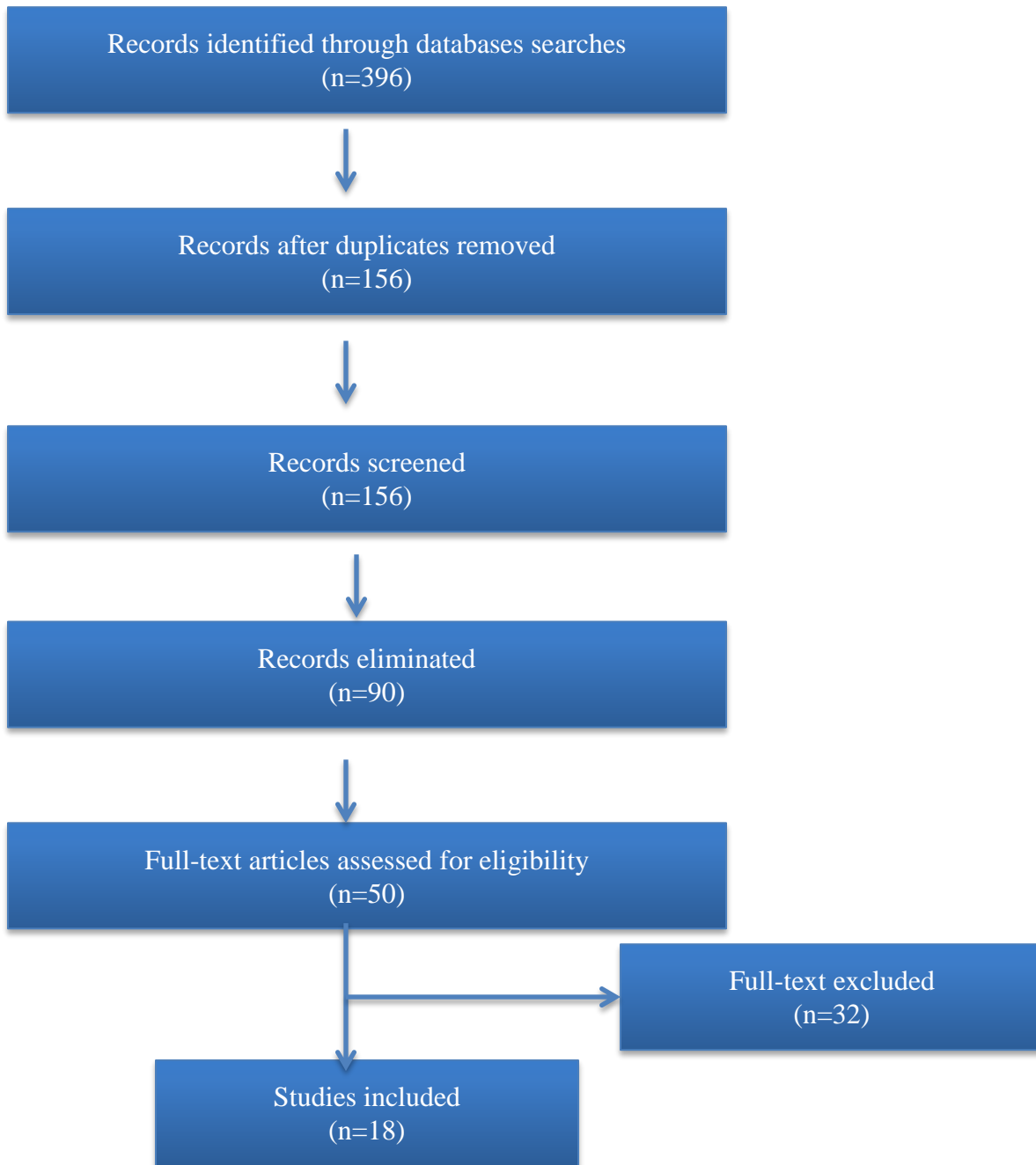


Figure 2. PRISMA flow chart

3.1 Assessment of the selected countries

The Canadian, Australian, and New Zealander health care systems provide universal coverage to their citizens and have overall high population health outcomes (table 1). However, each country has its own challenges for population health and equity, such as inequality in provinces and territories health care access and in native and non-native health outcomes in these three countries (Robertson-Preidler, Anstey, Biller-Andorno, & Norrish, 2017). Health care utilisations are also differed in between in New Zealand compared to Australia and Canada. The Canada, Australia, and New Zealand have similar health care systems that cover similar health care services, and pharmaceutical expenses. Despite all the similarity in health care

services, additional purchase of private insurance is still required in each country.

Criteria	Inclusion	Exclusion
Study type	Peer-reviewed and academic scholarly research	Non-peer reviewed research
Time frame	2015-2019	Other time periods
Language	English	Non-English
Country selected	Canada AND Australia AND New Zealand	Other countries

Aspects of health services	Public and private hospitals	General clinics and dental clinics
Aspects of health reform	National level and provincial level health care reform	Institutional or localised health care reform
Methods	Quantitative	Qualitative

Table 1. Inclusion and exclusion standards criteria

3.2 Limitations

First of all, the broad search strategy resulted in a large number of papers for review. Subsequently, the title, abstract and full text articles were done by single reviewer review of each relevant article. Perhaps, some of the relevant articles may have been misidentified. Therefore, the new evidence can change the concept of dependent review while one limitation is too broad or too narrow. The inclusion of (18) articles and the heterogeneity of outcomes and measures restrict the comparison of results. Consequently, the conclusions undertaken are cautious. At the same time, the findings have identified the key issues and topics associated with population health and performance indicators in health care system, then they are limited in their requests. I did not include all the performance indicators due to the lack of information update in each country. For example, although New Zealand has a high quality data, it did not provide all the costs (Blakely et al., 2019). The articles included in this study are published in English language only.

3.3 Health care system models

There are three different models of health care system in the world, the welfare state model, the market model, and the hybrid model (Dixit & Sambasivan, 2018). Welfare state model is funded by tax and government bears the full responsibility for the provision of healthcare services. In the market model, the payment of healthcare services is depending on individuals and private institutions. As for the hybrid model, government subsidies for basic health coverage and individuals have a choice to buy own private insurance on top of their public health insurance. When health care services are financed by Medicare, both supply and demand are affected and ideal market model is no longer cared and in welfare state, by prioritising these over market concerns such as price and choice that are associated with competition (Hewitt, 2018). In this study, the National Health Insurance (NHI) that will indirectly head towards universal health coverage (UHC) within the range of possible health finance, and ensure equitable access to healthcare by improving health systems' efficiency and reinforcing regulation (Cuadrado et al., 2019). On the other hand, NHI systems are similar to the UHC where the health care providers compensate for every citizen who are eligible for as a tax-funded national health insurance plan. (Fox & Poirier, 2018) argued in their paper that there was a lack of systemic comparison between the performances of single-payer models over UHC models and thus, it resulted the confusion among policy-makers. Therefore, there are many aspects of health system performance to consider, and all of which have to interpret in the social and institutional context of their respective health care systems (Gusmano, Strumpf, Fiset-Laniel, Weisz, & Rodwin, 2019). So that, one has to investigate the experience of health systems with

NHI coverage to recognise that this does not solve all access problems.

Out-of-pocket expenditure is one of the most common modes of payment activities, which are paid by consumer of health care. It has become important as per comprehensive assessment of a health system, sustaining in a catastrophic and weakening expense for the household, and the scope of health universal coverage (Pinzón-Flórez, Fernández-Niño, Ruiz-Rodríguez, Idrovo, & López, 2015). The health expenditure per capita (figure 3) and the out-of-pocket health expenditure (table 1) were significantly related the mortality results in the three countries compared. When out-of-pocket payments have been made using any health care products or services that are related to large amount to pay and people start to experience financial hardship. These days the health systems mostly involve out-of-pocket payments are facing a financial hardship problem in any country (Yerramilli, Fernández, & Thomson, 2018). On the contrary, Fox et.al (2018) proved that the single-payer (NHI) model has the lowest out-of-pocket expenditure compared to National Health Service (NHS). Countries with universal coverage systems are experiencing with cost-related barriers among population.

IV. DISCUSSION

After further investigations, I have discovered that the health care systems of Canada and Australia are listed under Medicare programs called separated universal systems. So in both countries, Medicare is only financing scheme and did not have it's own unitary health care provision structure (Toth, 2016). Apparently, the health care system was founded on the same principles of universal, equity and access on the basis of need, and not being able to pay (Hewitt, 2018). Overall, New Zealand has the lowest amount of money spending on health care as in percentage and as well as in US dollars (figure 3) compared to Canada and Australia.

4.1 What are the management of health care systems in Canada, Australia and New Zealand?

Health care system may have different objectives in each country but one of the most important facts is improving population health and so without it the measurement of health care system performance is incomplete (Reibling, 2013). The Canada, Australia and New Zealand health care systems have common sources. Health care in Canada is brought by a publicly funded health care system called Medicare, and subjected to provincial and territorial basis according to the Canada Health Act (CHA) in 1984 (Chowdhury & Chowdhury, 2018). The Medicare consists of 13 provincial and territorial health care systems and insurance plans that have common components and basic standards of coverage (Soril, Adams, Phipps-Taylor, Winblad, & Clement, 2017). In Canada, 70% of health care is paid through general taxation and the other 30% comes from out-of-pocket payments or by private supplemental health insurance plans (Martin et al., 2018). Therefore, there are lack of medical treatments and services not publicly covered and some costs are paid directly by the Canadian citizens when they access them. Health insurance programs implemented by the provinces did not expand the population-based insurance program and public insurance drug plans (Sutherland & Busse, 2016). This health insurance programs resulted in increased inequities through the fact that health

expenditure on pharmaceuticals and out-of-pocket expenditure reported to be increased (table 1). As a result, the health coverage has caused some Canadian citizens to have minimum or no coverage for prescription drugs.

Australian health care system has been known as easily accessible, quality and comprehensive health care, which delivered the transparency to the public. Australian health care system contains many public and private hospitals and their health care services including preventive health services, primary and community health services, and any spatial services for all citizens across nation (Song et al., 2018). Australia has a universal health care system called Medicare that was introduced in 1984 and it was introduced to promote health equity by improving access and affordability of health services (Callander, Fox, & Lindsay, 2019). Medicare in Australia covers basic hospital services. In Australia, out-of-pocket health expenditure is significantly higher than Canada and New Zealand, and it has been growing quickly (table 1). The usage of private hospitals has increased more than admitting to the public hospitals. Therefore, Australians were more likely to have increased out-of-pocket money and those with higher income have private supplemental insurance due to cost-

related access problem. Australians' government has set the Medicare as in all citizens are treated with free of charge as patients in public hospitals and as in out patients services, the fee covers for basis service, as well as provided drugs listed on the Pharmaceutical Benefits Scheme.

On the other hand, New Zealand health care system is a combination of public 80% and 20% private supplement insurance. Its health care system is funded mainly from taxation with 20 District Health Boards (DHBs) (Breton et al., 2017). According to (Gauld, Atmore, Baxter, Crampton, & Stokes, 2019), DHBs are funded on the basis of population via a population-based funding formula. DHBs delegated governance, coordination, delivery, and administration of the public figures of the health system and eventually those are accountable to New Zealand government (Tenbensen & Burau, 2017). Since late 1930s, primary health care interests in New Zealand's health care system successfully emerged into universal access to healthcare, and manifested the right of general practitioners (GPs) to charge patient as co-payments. Hence, New Zealand's Labour government developed a state national health service in 1938 (Gorsky & Sirrs, 2018).

Demographics	Data collection Year	Canada	Australia	New Zealand
Population	2017	36,540,268	24,601,860	4,793,900
Fertility rate, total (births per woman)	2017	1.496	1.765	1.81
Population Health				
Life expectancy at birth (total, years)	2017	82.47	82.498	81.659
Infant mortality rate (per 1,000 live births)	2017	4.5	3	4.4
Population overweight or obese	2017 & 2018	59.1%	65.2%	66.8%
Population daily smokers	2016-2018	12%	12.4%	13.1%
Leading cause of death	2018	Cancer	Heart disease	Lung cancer
Per capita costs				
Total health expenditure per GDP (% of GDP)	2016	10.535%	9.252%	9.222%
Total health expenditure per capita (PPP)	2016	4,718.297	4,529.887	3,664.722
Out-of-pocket expenditure (% of current health expenditure)	2016	14.617%	18.944%	13.576%
Total health expenditure on pharmaceuticals	2017 & 2018	16.7%	14.7%	NA

Table 1. Comparative indicators of Canada, Australia and New Zealand

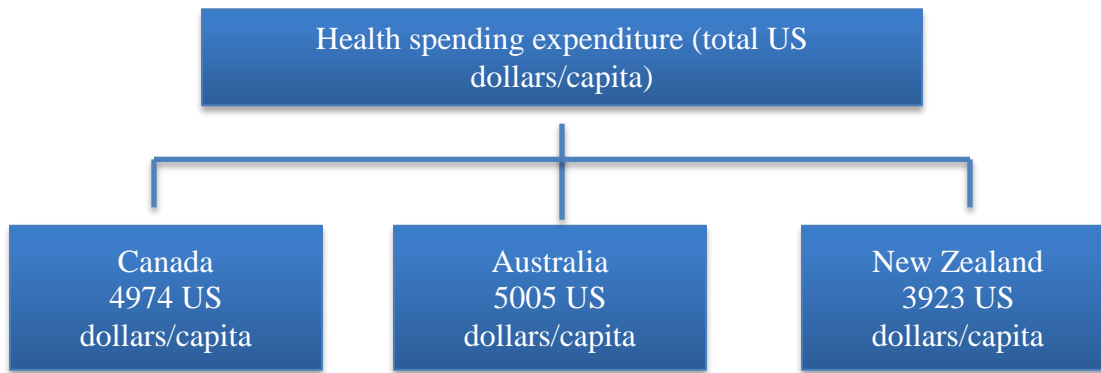


Figure 3. Health Spending from OECD data (2018)

4.2 What are the benefits and disadvantage of Universal health Coverage (UHC) in Canada, Australia and New Zealand?

According to (Tsisis, Agrawal, & Guriel, 2019), universal health coverage is overall costs that do not rise because of excess usage of services and healthcare expenditures are not a key determinant of health. Many countries are trying to achieve Universal Health Coverage (UHC) in the most effective way in accessing the health services (Braithwaite et al., 2018). Thus, universal health coverage is an aspirational not a destination of a country's goal (Martin et al., 2018). All countries have continuously considered the depth and scope of coverage that is politically achievable and fiscally practical. The Pan American Health Organisation (PAHO) describes universal health coverage (UHC) in "where all people and communities have equitable access to the comprehensive and guaranteed quality services that they need, throughout the life course, without financial hardship" (Cuadrado et al., 2019). The concept of universal health coverage (UHC) was diffused by the international organisations such as the World Bank (WB), the World Health Organisation (WHO), and United Nations (UN) resolutions (Giovannella et al., 2018). Many countries in the world currently inspire universal health coverage due to the implementation of effective health policies and reforms. However, universal health coverage is the broad term used in worldwide. Nonetheless, (Livoreil et al., 2017) argued that the goal of UHC defined as the Sustainable Development Goals that provide a confirmation on the need to take a system perspective in creating policies to manage the private sector. As a result, UHC faced a double challenge that the underuse of high-value services and the overuse of non-value or low-value health care services (Elshaug et al., 2017). Elshaug et al. (2017) argued that the objective is to improve health care delivery systems that need to be properly scaled and adapted to national needs and socioeconomic states need to be more effective. In order to do so, the delivery health system leaders must be mindful about their systems' input into health and must be restricted from the duty of substituting less effective medical spending for social spending. For this reason, a good governance such as transparency, participation, monitoring or accountability for pharmaceutical affordability and financing are measured to gather user contributions and to get help from the international cooperation is either weak or absent (Perehudoff, Alexandrov, & Hogerzeil, 2019).

V. CONCLUSION

This study concluded that the Universal Health Coverage is politically achievable and fiscally feasible by considering the depth and scope of its coverage. After comparing the results of the accessibility and quality of health services in Canada, Australia, and New Zealand, the data suggested that the health care systems of these countries are relatively adequate.

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