A Comparative Study of the Status of Supportive-Palliative Care Provision in Iran and Selected Countries: Strengths and Weaknesses

pouran raeissi
iran university of medical sciences
mohammad salimi (salimiamroud.m@iums.ac.ir)
Iran University of Medical Sciences
Seyed-Masoud Hashemi
Shahid Beheshti University of Medical Sciences School of Pharmacy
nahid Reisi
Isfahan University of Medical Sciences
seyed ahmad ahmadi
iran University of Medical Sciences

Research article

Keywords: Palliative Care, Supportive Care, Terminally Patients, End-of-Life Care, Specific Patients

Posted Date: April 28th, 2020

DOI: https://doi.org/10.21203/rs.3.rs-21565/v1

Abstract

Background: Terminally illnesses such as cancer, AIDS, dementia, and advanced heart disease will require special supportive and palliative care, although a few numbers of these patients are provided with these services.

Objective: The present study was conducted aiming to perform a comparative study of supportive-palliative care provision in selected countries.

Methods: This research was a descriptive-comparative study that its research population was the frameworks of palliative and supportive care provision in Egypt, Turkey, America, Australia, Canada, the Netherlands, and China. These frameworks were compared across 6 dimensions of service receivers, financing, providers, service provider centers, type of services provided and training. Data collection tool has included checklist and information sources, documents, evidence, articles, books and journals collected through the internet and organizations related to the health information of selected countries and by library search. Data was investigated and analyzed using data collection tool and checklists.

Findings: The findings showed that the developed countries having decentralized trusteeship structure had a more favorable status in palliative and supportive care provision. The type of services provided was a combination of mental, psychological, social, spiritual, financial, and physical and communication services. Provider centers included hospital, the elderly, and cancer, and charity centers.

Conclusion: Regarding the investigation and recognition of the status of supportive-palliative care provision, it was observed that the provision of these services was a concern of the selected countries, but they did not have a defined model or pattern to provide these services. Therefore, it is suggested that each country takes a step to redesign and define frameworks and structures in the evolution of supportive-palliative cares in accordance with the particular conditions, indigenous culture, religion and other effective cases of that country and pays special attention to the role and position of supportive-palliative cares.

1. Background

Since illness is considered as an inseparable part of human life, hence observing the patient's rights is also a respected point. Every patient has the right to receive appropriate health services, coupled with preserving human dignity, fairly, and according to cultural and religious criteria, respectfully, up-to-date, without gender and ethnic discrimination, and at all stages including prevention, diagnosis, treatment and rehabilitation (1). In the past few decades, the provision of health care services to patients has shifted from a traditional, passive, and inefficient system to a more active and dynamic system (2). On the other hand, at present, issues such as aging of the population and the pattern change of diseases towards chronic diseases have made the necessity of intensive care provision unavoidable (3).

Global health estimates indicate that currently, the highest factor of mortality among the elderly in the world is respectively heart diseases, cancer and diabetes, a situation that is both different in various ages and in high, middle, and low-income countries (4). Undoubtedly, terminally diseases such as cancer, AIDS, dementia, and advanced heart disease will require special supportive and palliative care. However, according to the declaration of the World Health Organization, only 14 percent of people subject to special care have these services (5).

Palliative care is a set of measures conducted aiming to promote the life quality of patients and their families to remove the problems and issues due to incurable and life-threatening diseases through early diagnosis, complete evaluation, and treatment of pain and other psychological-mental and physiological problems (6). Supportive care also means optimizing care for the comfort and social support of the patients and their families at all stages of the disease (6).

In numerous studies, the deployment of a comprehensive system and the provision of special care for incurable patients on the verge of death have been emphasized (7, 8). Hospice care rather than care in hospitals is very effective in reducing hospital services consumption, reducing hospital admissions rate, especially in the intensive units, and consequently reducing hospital costs for these individuals and health systems. Hospices have not currently been developed in Iran. Iran lacks a comprehensive model of care for incurable patients on the verge of death and does not have a proper forecast of facilities, trained manpower and organizational structures for these services (9, 10).

In Iran, such patients are cared in hospital centers. However, the providers of such services not only do not receive the necessary training in this area but mainly due to the lack of receiving adequate training, do not provide appropriate care for these patients. In the absence of structures such as Hospices, services to cancer patients or other patients at the end-of-life stages are not performed in hospital centers, or no services are provided at all. The quality of such services in hospitals whether in terms of employees' attitude and knowledge or in terms of the appropriateness of hospital structure and facilities for patients requiring end-of-life care is not appropriate. Therefore, the end-of-life special care system for patients on the verge of death must be developed within the health system of Iran (11).

So far, various studies have been conducted in the field of palliative and supportive care. Kelly et al. in a study conducted aiming to determine factors in caring incurable patients, determined seven basic areas of regional medical resourcing, personal physician executive models, local executive models, patient access to financial resources for treatment, patient's preferences and patient relatives' preferences for care, and the possibility of the patient's benefiting from the treatment, and concluded in such a way that physician's executive models can influence treatment method, and that the patient's characteristics in terms of gender, age, race, and economic status can affect in the interaction on the physician's executive models, and ultimately the evidence indicate interaction between race and the type of treatment (12). Also, Lozzny et al. in their study mentioned five basic areas of pain relief, independence, nutrition support, skin protection to cope with bedsore, and spiritual and social support in palliative care (13).

Nowadays, in respect of meeting the need of incurable patients, the deployment and development of the care system of incurable patients on the verge of death in the country is important. Therefore, the compilation and provision of care services package including outlining organizational structure such as

trusteeship, facilities, equipment and manpower, explanation of service provision processes, exact determination of insurance systems and payment systems to service providers, determination of management methods and the determination of monitoring, measurement and evaluation indicators of services is considered a necessity. The present research aims to more recognize the existing models in the field of palliative care provision in selected countries. This review can be used as a source for policymakers, researchers, physicians, and other people to provide more appropriate services to incurable patients. It can also be used to understand the routes of complex problems and to support the compilation of innovative policies and programs.

2. Method

In order to conduct this research, supportive-palliative cares provision model and frameworks in Iran, Egypt, Turkey, USA, Australia, Canada, Netherlands, and China in six dimensions of service recipients, financing, providers, service provider centers, types of services provided, and education were compared. The data collection tool consisted of pre-designed tables in which the data was completed and filled. The sources of information were the documents, evidence, and articles published by the organizations related to the health information of the selected countries which were collected by the library research method. The applied sites were Health Information, Canadian Health Information, Databases of (Web of Science, PubMed, Scopus, Science Direct, and Google Scholar), and websites of the Ministry of Health of the selected countries and so on. Unknown sites were not used. The investigated articles were also reviewed from the time interval of 2000 onwards. In order to recognize the palliative cares status better in the countries under study, demographic, economic and health outcome indicators, type of political, economic and health services provision structure among the countries were also investigated.

3. Results

The findings of this study have been presented in three sections as follows: 1- Data related to demographic, economic and health outcomes indicators among selected countries, 2- Type of political, economic and health services provision structure among these countries, and 3- Status and structure of palliative cares among selected countries.

3.1. Demographic, economic and health outcomes

The findings of the present study showed that among the selected countries, China is the most populated country with a population of 1.386 billion people and the Netherlands with a population of 17.08 million people is the least populated country (Table 1).

Table 1
Demographic, economic indicators, and health outcome among selected countries

Criteria and Indicators	Egypt	Turkey	America	Australia	Canada	Netherlands	China	Iran
Population (Million) (2017)	97.55	79.81	327.2	24.6	37.06	17.08	1.386 billion	81.16
Health Share, A Percentage of GDP	5.6	5.4	17.1	9.4	10.4	10.9	5.5	6.9
Life Expectancy; Male / Female	68/73	73/79	76/81	81/85	81/85	80/83	75/78	75/77
Mortality under 5 Years (Per 1000 People)	22	12	7	4	5	4	9	15
Mortality 15 to 60 Years (Per 1000 Persons) Male / Female	205/121	138/71	142/86	77/45	76/49	66/52	93/67	99/60
Health Cost Per Capita	594	668	9146	3685	4759	5131	646	1218
Public Sector Share of Health	72.3	74.8	47.1	68.5	96.8	84.8	58.8	40.4
Human Development Index	0.69	0.79	0.91	0.93	0.91	0.93	0.72	0.76

Among the countries investigated, in terms of "budget allocation" to the health sector, America had allocated the highest (17.1) and Turkey had allocated the lowest (5.4) percentage of their GDP to the health sector. In terms of "life expectancy" among the countries investigated, Australia and Canada had the highest ratio of life expectancy. Egypt and Turkey also had the lowest life expectancy ratio and the highest mortality ratio of 15 to 60 years old in the population of 1,000 people. It is worth mentioning that Iran also has the highest mortality ratio among children under 5 years old after Egypt. Among the countries investigated in terms of "health cost per capita", America had the highest and China had the lowest health cost per capita ratio. In terms of "public sector share of health", Canada had the highest public sector share of health among the selected countries. In terms of the "human development index", the Netherlands and Canada had the highest and Egypt had the lowest human development index (Table 1).

(Insert Table 1 here)

(Insert Table 2 here)

Table 2
Political, economic structure type and health service provision among the selected countries

Criteria and Indicators	Egypt	Turkey	America	Australia	Canada	Netherlands	China	Iran
Providers	Public and Private	Public and Private	Private and Small Role of the Government	Public and Private	Public and Private	Private and Small Role of the Government	Public and Private (Government Supplement)	Public and Private (Government Supplement)
Trusteeship Structure	Often Centralized	Often Centralized	Decentralized	Decentralized	Decentralized	Decentralized	Centralized	Often Centralized
Organizing Service Provision	Provincial, County	Provincial, County	State	State, Regional and Local	Provincial	Provincial and Urban	Provincial and County	Provincial and County
Payment System	Salary and Per Capita	Performance Reward, Salary and Per Capita	Medicare, Medicaid and DRG	Performance Reward, Salary, Budget and DRG	Performance Reward	Performance Reward, Per Capita, Budget and Salary	General and Case Budget	Performance Reward, Salary and Per Capita

3.2. The type of political, economic, and health services provision structure

In this section, a comparison of countries based on the structural layer has been firstly performed on the role of private and public providers, the trusteeship structure, organizing service provision and payment system of the selected countries.

Among the countries investigated, the private sector in America and the Netherlands allocates the first role in providing health services to itself and the government has a minimal share in providing services. The payment system in America is also as Medicare, Medicaid and Diagnostic Related Groups (DRGs), but in the Netherlands, it is as performance reward, per capita, budget and salary, and the government has a control or supervision role, while in the investigated countries, the providers are the combination of public and the private sectors, and the government generally has a more prominent role than the private sector, and the payment system in these countries is as performance reward, salary, per capita and budgetary.

Trusteeship in the health system of America, Australia, Canada, and the Netherlands is decentralized and organizing service provision is respectively as 1-state, 2-state / regional/local, 3-provincial, and 4-provincial / urban, while the trusteeship structure of other investigated countries is as decentralized or often decentralized, and organizing services provision in them is as provincial and city-wide. It should be mentioned that in most liberal countries, health is not proposed as a right and the trusteeship structures are as decentralized form (Table 2).

3.3. The Status and Structure of Palliative Care

In this section of the study, the comparison of selected countries has been performed according to the service receivers, financing, providers, provider centers, type of services and training.

3.3.1. Service Receivers

The findings of the present study showed that cancer patients are among the groups that in all the investigated countries, palliative care has been provided to them.

In Egypt and countries such as America, Australia, the Netherlands, and Canada, which are more exposed to aging and the life expectancy ratio in these countries is higher, the phenomenon of aging is more prevalent and as a result, palliative care for these groups is also provided more than other groups. The incurable diseases are also more subject to receiving palliative care in countries such as America, Australia, and the Netherlands. On the other hand, China is the only country that has subjected dying or on the verge of death patients to palliative care provision.

3.3.2. Financing

In comparing and investigating the palliative care financing situation in the countries investigated it was shown that public and private sectors together have a prominent role in all countries and they are not funded exclusively by the public or private sector in any country. Australia, America, and Egypt are also among the countries that palliative care is funded by charitable people.

3.3.3. Providers

The findings of the present study showed that family physicians, various specialists, and nurses are among the groups that provide services in the field of palliative care in all countries. Also, the results obtained from comparing and investigating countries show that oncologists have a more prominent role in providing palliative care services in countries such as America, Australia, and Canada and have more activity than other people in this area. Turkey was also one of the few countries among the investigated countries in which rehabilitation specialists such as physiotherapists, nutritionists, and social workers play a role in providing palliative care services.

3.3.4. Provider Centers

Regarding palliative care centers or locations in the countries investigated, it was observed that hospitals in all countries are the main reference of providing care. America and the Netherlands are among the countries in which the elderly centers also perform the activity as a palliative care provider. In China, Canada, and Australia, in addition to hospitals, private centers also have a role as palliative care providers. In the Netherlands in addition to hospitals, the elderly

homes, nursing homes, oncology clinic, and children's medical homes also perform the activity to provide palliative care. Among the countries studied, Egypt and Turkey are the only countries that palliative care is provided solely in the hospitals.

3.3.5. Type of Services

On the other hand, regarding the services provided in palliative care among the countries investigated it was observed that in Egypt services such as emotional support, physical and somatic services, communication, social, spiritual and financial support, in Turkey emotional services, physical and somatic services, communication, social, spiritual and financial support, in America physical and somatic, emotional, social, psychological and financial services, in Australia emotional, physical and somatic services, communication, social, spiritual and financial support, in Canada emotional support, social, physical and financial services, in the Netherlands physical, psychological, social, spiritual services, oncology and cancer, pediatrics and spiritual needs, and in China, physical, psychological, emotional and social services are provided.

3.3.6. Trainings in Palliative Care

Concerning the role and importance of palliative care training, it was also observed that there is no formal and academic training in any of the countries investigated, and it was identified as the main challenges among all countries (Table 3).

Table 3
Provision and structure of palliative care among selected countries

Criteria and Indicators	Egypt	Turkey	America	Australia	Canada	Netherlands	China	Iran
Service Receivers	Elderly, cancer patients	Cancer patients, patients who cannot be treated by a family physician.	Cancer patients, the incurable patients, the elderly, children	Categorizing patients into three groups: A, B, C, such as cancer patients, patients with chronic and unattended diseases and the elderly	Cancer patients and the elderly	Cancer patients, the elderly and the incurable patients	Cancer patients, dying patients	cancer patients
Financing	Public and charity	Public and private	Private, charity	Public and private and charity	Private and public	Public and private	Public and private	Public, private and charity
Providers	General Physicians, Oncologists, Nurses	Family Physicians, Nurses, Physiotherapists, Nutritionists, Psychologists, Social Workers	Physicians and Specialists Including Oncologists, Nurses	General Physicians (Family) and Social Care Nurses, Relevant Specialists Such as Oncologists, Pharmacists	General Physicians, Oncologists, Nurses, Social Workers	Specialists, General Physicians And Nurses	Physicians, Nurses and Psychiatrists	Physicians and Nurses
Provider Centers	Hospital	Hospital	Hospitals, the elderly Centers and Charity centers	Hospital, private centers and homes	Private centers and hospitals	Hospital, the elderly homes, nursing homes, oncology clinic, children's medical home	Hospitals and private centers	Hospital
Type of services	Emotional support, physical services, communication, social, spiritual and financial support	Emotional support, physical, communication, social, spiritual and financial services	Physical, emotional, social, psychological and financial	Emotional support, physical, communication, social, spiritual and financial services	Emotional, social, physical and financial support	Physical, psychological, social, spiritual services, and spiritual needs	Physical, psychological, emotional and social services	Physical, emotional, social work and spiritual services
Training	Not academically.	Not academically.	Not academically.	Not academically.	Not academically.	Not academically.	Not academically.	Not academically

(Insert Table 3 here)

4. Discussion

The results of demographic, economic indicators and health outcomes among the selected countries showed that America allocates the highest budget and Turkey also allocates the lowest budget to the health sector. Life expectancy had the highest ratio in Australia and Canada, and Turkey and Egypt also had the lowest ratio of life expectancy and the highest mortality. In terms of health cost per capita, China had the lowest ratio and America had the highest ratio. Also, the findings of the present study concerning the type of political, economic structure and health care provision showed that the private sector allocates the first role in providing health services to itself in America and the Netherlands. America's payment system is a combination of Medicare, Medicaid, and Diagnostic

Related Groups (DRGs), and in the Netherlands, it is also as performance reward, per capita, budget, and salary, and the government has a controlling or supervising role. In other countries as compared, the two private and public sectors together have contributed to the provision of health services, and the payment system is as performance reward, salary, per capita, and budget in these countries. Trusteeship in the health systems of America, Australia, Canada, and the Netherlands is decentralized and organizing the provision of services is 1-state, 2-state / regional/local, 3-provincial and 4-provincial / urban respectively. It should be mentioned that in most liberal countries, health is not proposed as a right and the trusteeship structure is as decentralized (14–17).

Iran's economic structure as a developing country is a combination and classification of the political structure in this provincial country. Health system trusteeship is often centralized and health services have been organized at the provincial and county levels. The structure of Iran is closer to social countries. In fact, countries like Iran, which have abundant natural resources, have often designed their structure in a public and centralized manner (17, 18).

Liberal countries, on the other hand, emphasize individualism and minimal government interference in structures, and all of these characteristics have been formed in the health system of these countries. For example, America, considering the minimal intervention of the government and attention to individual freedom, has based its health system on the treatment and mostly on private sectors, (19, 20).

Finally, the findings obtained from the investigation and comparison of selected countries concerning the provision and structure of palliative care showed that cancer patients and the elderly are the largest group of patients that in all countries benefit from palliative and supportive services. China is also the only country that in addition to the elderly and cancer patients provides palliative care for dying patients. Funding in the selected countries in the field of palliative and supportive care is a combination of public and private sectors and charity. The palliative and supportive care provider forces in the selected countries were a combination of family physicians and specialists, rehabilitation specialists, and social workers. The results indicated that in developed countries, the majority of the group of providers was oncologists, medical professionals and experienced nurses. Among the countries selected, Turkey was one of the few countries that physiotherapists and social workers had more roles. The main reference of palliative and supportive care provider centers in all countries was hospital. It can be concluded that liberal and developed countries are among those countries where palliative care is not confined to the hospital, and even palliative care is provided in specialized centers such as the elderly and charity centers, and so on. Turkey and Egypt were also identified as developing countries that the palliative and supportive care provision centers were limited to the hospital. The type of services were almost similar to each other in all countries, and service types such as mental, psychological, social, spiritual, financial, physical and communication were provided. The results of the present research regarding palliative and supportive care trainings in selected countries showed that, in none of the countries, training was formal and academic and it was identified as the main challenges among all countries (14–17).

As it was observed and investigated, the lack of academic training and not defining the specific structure and instruction regarding supportive-palliative cares were the main reasons for not providing these services officially in the selected countries. There is no special trained staff and force in the field of supportive-palliative cares in any of the selected countries and this is also another reason of not providing these services officially in the health care service provider centers.

Demographic composition, type of financing, and the type of health care provider centers are other incentives of the countries and health care provider centers in supportive-palliative cares provision because the private and even charitable sectors refuse to provide these services when they are not funded, and the patients who are eligible for these services will be deprived of the cares. Therefore, it is essential to regard specific financial source for these cares, and encouraging incentives should be considered for charitable and private providers so that the provision of these cares play a more highlighted role than before.

5. Conclusion

Iran does not have a defined and specific framework for palliative and supportive care provision, and most of the patients for whom this care is provided informally are cancer patients. Financing is in a combined form, and physicians and nurses are among the main groups of providers. Service provider centers include the public, private and charitable sectors, but the private sector has a more prominent role than other sectors. The services provided are mostly related to the physical, emotional, social work and spiritual services of the patients. Iran, with its specific structures in various fields, is, in fact, a unique type of developing countries. But it has not been able to create its own structures and frameworks in the field of palliative and supportive care as it deserves, fitting its native status. Thus, the proportion between economic, social structures such as health and other related cases has been reduced, and this point can be observed at various levels that it has changed the health system to a multiple cooperative with a discrete and piecewise structure. The countries with different payment systems and semi-centralized structure in health and having proper economic conditions and social supports have a more favorable status than other countries in respect of health. In order to reduce the gaps and to perform better in the field of palliative and supportive care provision to specific patient groups, each country needs to consider reviewing the structures and define palliative and supportive care frameworks. Therefore, it is suggested that Iran also take a step to redesign, and define the frameworks and structures in the development of palliative and supportive care, and pay particular attention to the role and position of palliative and supportive care.

Declarations

Abbreviations

Not applicable.

Ethics approval and consent to participate

The ethics committee of the Iran University of Medical Sciences has approved the study (12847). All study participants were informed and asked for consent verbally and in written form.

Consent for publication

Not applicable.

Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing interest

The authors declare that they have no competing interests.

Funding

The study is part of the PhD thesis, Department of Health Services Management, School of Health Management and Medical Information Science, Iran University of Medical Sciences, that was funded by Iran University of Medical Sciences.

Authors' contributions

MSA: searched literature; major contributor in writing the manuscript. SMH: designed the overall study and gave critical feedback to the manuscript. NR: designed the overall study; major contributor in writing the manuscript. PR and SAA: gave critical feedback to the manuscript. All authors have read and approved the manuscript prior to submission.

Acknowledgements

The authors would like to thank Iran University of Medical Sciences for financial supports.

References

1. Parsapoor AB, A. Larijani, B. . Patient's rights charter in Iran. Acta Medica Iranica. 2014;52(1):24-8.

2. Pad B, Alavi K, Hajebi A. A Randomized Controlled Trial of Telephone Follow-Up in Patients With Severe Mental Illness: Study Protocol. Iranian Journal of Psychiatry and Clinical Psychology. 2017;23(1):108-17.

3. vafadar Z, Vanaki Z, Ebadi A. An Overview of the most Prominent Applied Models of Inter-Professional Education in Health Sciences in the World. Research in Medical Education. 2017;8(4):69-80.

4. Beard JRO, Al. Carvalho, I.A.D. Sadana, R. Pot, A.M. Michel, J.p.Lloyd-sherlock, P. The World report on ageing and health : a policy framework. Elsevier Inc. 2016;387(10033):2145-54.

5. Organization WH. Cancer Control knowledge into action WHO guide for Effective Programmes: World Health Organization; 2007.

6. Hui D, De La Cruz M, Mori M, Parsons HA, Kwon JH, Torres-Vigil I, et al. Concepts and definitions for "supportive care,""best supportive care,""palliative care," and "hospice care" in the published literature, dictionaries, and textbooks. Supportive Care in Cancer. 2013;21(3):659-85.

7. Malayeri R, Hazini A, Pirjani P, Sharbafchi MR, Hojjat S. 494P Palliative care in Iran, two year experience of the Firoozgar Palliative Medicine Unit. Annalsof Oncology. 2016;27(suppl_9):mdw595.010-mdw595.010.

8. Twycross RG. Palliative Care. Journal of Pain & Palliative Care Pharmacotherapy. 2002;16(1):61-79.

9. Miller SC, Lima, J., Gozalo, P. L. and Mor, V. . The Growth of Hospice Care in U.S. Nursing Homes. . Journal of the American Geriatrics Society. 2010;58(8):1481-8.

10. Azami-Aghdash S JH, Bakhshian F, et al. . Attitudes and Knowledge of Iranian Nurses about Hospice Care. . Indian Journal of Palliative Care. 2015;21(2):209-13.

11. Iranmanesh S, RazbanF, Tirgari B, Zahra G. Nurses' knowledge about palliative care in Southeast Iran. Palliative and Supportive Care. 2013;12(3):203-10.

12. Kelley AS, Morrison RS, Wenger NS, Ettner SL, Sarkisian CA. Determinants of Treatment Intensity for Patients with Serious Illness: A New Conceptual Framework. Journal of Palliative Medicine. 2010;13(7):807-13.

13. Luzny J, Vyrostkova O, Blazkova M, Pospisilova I, Indrakova A. 520 – Key points in psychogeriatric palliative care - developping the “PANSS” model in the czech republic. European Psychiatry. 2013;28(Supplement 1):1.

14. Palliative Care Australia. Available from: https://www.health.gov.au/contacts/palliative-care-australia. 2019.

15. Ministry of Public Health (China). Available from: http://ghdx.healthdata.org/organizations/ministry-health-china. 2019.

16. Hacıkamiloglu E, Utku ES, Cukurova Z, Keskinkilic B, Topcu I, Gultekin M, et al. Community palliative care in Turkey: A collaborative promoter to a new concept in the Middle East. Journal of Public Health Management and Practice. 2016;22(1):81-8.

17. World Health Organization. World Health Organization’s Ranking of the World’s Health Systems [Internet]. 2000. Available from: https://www.google.com/url?sa=t&rct=j&q=&esrc=s&sourc e=web&cd=2&cad=rja&uact=8&ved=0ahUKEwifz9CmoLL YAhXCa5oKHQbhDFMQFgg6MAE&url=http%3A%2F%2Fw ww.who.int%2Fhealthinfo 2Fpaper30.pdf&usg=AOvVaw0 g5NYTFueYMYfe_fcYtVsW.

18. Davis K, Stremikis K, Squires D, Schoen C. Mirror, mirror on the wall. How the performance of the US Health care system compares internationally New York: CommonWealth Fund. 2014.

19. Watts RL. Comparing federal systems: Queen's University (Kingston, Ont.). Queen's University (Kingston, Ont.). 2008.

20. Tuohy CH. Single payers, multiple systems: the scope and limits of subnational variation under a federal health policy framework. Journal of Health Politics, Policy and Law. 2009;34(4):453-96.