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OF SCIENCES AND LITERATURE

**Future Prospects of Private Enterprise
Health Care in Sri Lanka.**

By Amara Priyanthala Gamage Balasooriya
(No : UNISE2074IT)

Supervised by
Dr.H.M.M.B.Seneviratne

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Abstract

Small and medium scale private hospital system plays a critical role in Sri Lanka's healthcare landscape. Over 90 percent of the registered 250 private hospitals in the country are SME hospitals. These hospitals cater to 60 percent of OPD treatment, provide health sector employment opportunities, and more importantly, ensure wide reaching access to quality healthcare. The core of the marketing strategy in the field of health services is represented by the quality of services. Successful organizations in the healthcare field have a clear, competitive, strategy that empowers and forces them to adapt to environmental conditions. Research indicates that, in a developing country like Sri Lanka, there should be full freedom to operate private hospitals and research, provided that organizations operate within internationally acceptable guide lines. It is clear that they have performed well since their origin in Sri Lanka and have to allow to continue their progress. Statistical analysis indicates that there is an agreement between the users and the firm under study in relation to its service. In summary, it is evident that the demand for private hospitals is steadily increasing, though there are short term setbacks emanating from economic problems. As 98 percent of the respondents indicate the nonchalance and inefficiency of the public health service is the major reason for them to use private hospitals, though it is expensive. The firm under study is visited by all the above types of respondents and as the analysis indicate they were satisfied of the services provided. However, as the competition is set to increase in the future, with the rise in population numbers firm has to adjust its organizational capacity and service system.

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Chapter 1

Introduction

1.1 Introduction

Small and medium scale private hospital system plays a critical role in Sri Lanka's healthcare landscape. Over 90 percent of the registered 250 private hospitals in the country are SME hospitals. These hospitals cater to 60 percent of OPD treatment, provide health sector employment opportunities, and more importantly, ensure wide reaching access to quality healthcare (AHS, 2018). Small and medium-scale hospitals give a personal touch in managing their patients, and most SME healthcare practices are developed by doctors who have been in the field for a long time. To continue to provide quality service, they need to have enough staff strength and there is an overall gap in skilled workers in the private health sector, especially in the field of X-Ray, laboratory technicians, and specialised nurses. However, the operators have managed to exist and continue to operate even during a global and a local pandemic. The future for SME health care providers is bright as long as there is policy and macro-economic stability. In face of economic and monetary instability many private health care operators have invested in auxiliary business activities.

From the coast to inland, connected in the south to the periphery of the ever expanding largest urban metropolitan area of the nation, the firm is situated in a complex socio-economic and health environment with a high degree of variation in illnesses and diseases. This thesis examines a case of a private healthcare firm with an intention to programme its course for the next decade.

Demand for healthcare has increased over the past five years with hospital visits increasing by 12.2percent on average. This growth is driven by a multitude of factors, among which the increased access to medical insurance schemes, rising income of the

families with foreign based income earners, change in disease patterns, change in health seeking behavior and high level of inefficiency in the public health care facilities.

The shift in demographics is the main driver of the shift in disease patterns with diseases impacting the old age showing marked increases. However, the current demand is dominated by diseases affecting all the age groups, but majority of in-patient systems originate from an ageing population. In addition the younger people in private sector are affected by high levels of work stress creating illnesses related to obesity, which leads to early onset of chronic diseases. Further, children in the urban areas are seriously affected by polluted air and water resulting in high prevalence of viral and bacterial infections.

1.2 Problem Statement

The future of private health care in Sri Lanka is not a well-researched area in business administration and its application to Sri Lanka is not thoroughly researched. Therefore this research intends to fill the academic gap which exists in this area of research as vision is expected to play a more relevant role in the 21st century private health care system

However, the research seeks to answer the following main research questions, with reference to private health care system in Sri Lanka and the firm under analysis:

the present status of relationship between private health care and its capabilities for positive future development

To identify the preferred status of relationship between private health care and its capabilities for positive future development

Examine the strengths and weaknesses of relationship between private health care and its capabilities for positive future development

1.3 Aim, Scope and Objective

Aim of this study is to analyze the effects of deficiency and weakness of the present status of relationship between private health care and its capabilities for positive future development. Further its implications to local business systems within a global research perspective at present and future will be studied. The study will be conducted, within the context of business administration methodology and philosophy (Cooper and Schindler, 2006). Further theoretical support will be collated from global experiences on sustainable and successful private health care systems.

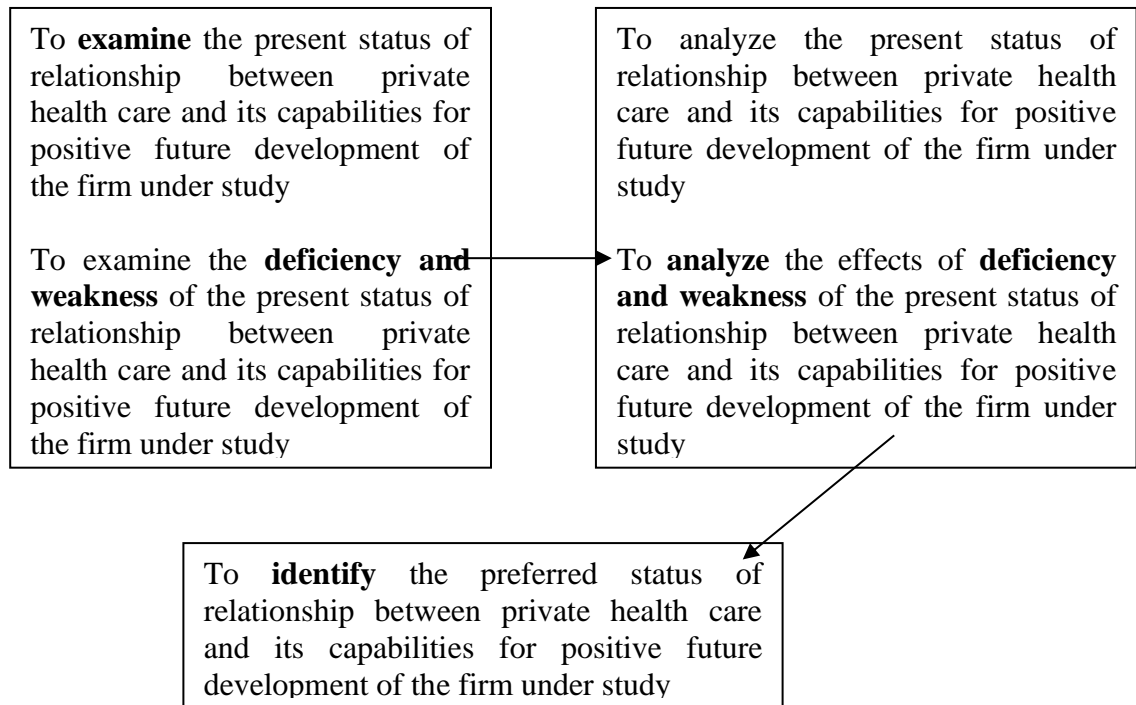


Figure 1.2 Conceptual framework of the study

Scope of the study is to investigate the validity of private health care and its capabilities for positive future development with reference to the selected organisation in Sri Lanka. In this attempt the use of systems in management will be evaluated within the scope of available knowledge on global and local experiences of private health care systems. Within this expectation a detailed literature review will be conducted on the present status of relationship between private health care and its capabilities for positive future development within the global systems and local systems and how it supports the selected organisation.

The primary objective of the study is to conduct an analysis of the role of private health care and its capabilities for positive future development in the selected organisation in Sri Lanka. Expected service development and marketing strategies will be investigated in detail.

Secondary objectives are to investigate the weaknesses and strengths of present systems in operation with an aim of identifying most suitable relationship status for the establishment of a sustainable system in the selected organisation.

1.4. Disease environment of the firm

Seneviratne, (2018), provides the following account of present health, morbidity and disease environment of Sri Lanka in detail.

Increase of viral and respiratory diseases are related to environmental change and change of environments.

Most of the new diseases are related to new or mutated viruses and bacteria, stress originating from misuse or inability to adapt to new technologies and disease causing pathogens originating from unhealthy environment and climate change.

Traumatic injuries have increased sharply due to migration, natural disasters, conflict and increased mobility of populations.

Emerging trend of good health in the rich and poor health in the poor remains stronger than ever

Increase of viral and respiratory diseases – general

Viral diseases

Dengue

Viral hepatitis

Ebola virus

Avian influenza A (H7N9) virus

Middle East respiratory syndrome coronavirus (MERS-CoV)

Pandemic (H1N1) 2009

Pandemic Covid 19 (2019)

Many types of viral fevers –influenza type and non influenza type

Worldwide increase of viral diseases

Respiratory diseases

Middle East respiratory syndrome coronavirus (MERS-CoV)

Respiratory diseases originating from air pollution

Bacterial infections

Bacterial infections remain a major threat in all the developing countries

Some new and old health hazards developing into serious hazards in the last 10 years in Sri Lanka

Disease	Cause
Rabies	Lack of enforcement of law on domesticated animals / low environment illiteracy of policy maker and society. All the religions advice that pets have to be properly treated. However, lack of proper understanding of religion by a small minority of people and the low literacy on pet care of the policy makers, administrators, religious bodies and media in Sri Lanka has resulted in large number of stray dogs and cats.
Dengue	Poor waste and waste water disposal system mainly in urban areas and wetlands without proper organisation
Traffic accidents	Low driving literacy, alcoholism, low mannerisms, poor road designs
Renal failure	Poor quality drinking water, interaction with heavy use of chemical fertilizer and alcoholism
Heart disease	Stress, imbalanced diet, alcoholism and lack of early detection system
Cancer	Heavy chemical pollution in water and air, lack of early detection system
Diabetes	Stress, imbalanced diet, alcoholism and lack of early detection system

Ministry of health sources (AHS, 2018), indicates that above hazards result in rising health expenditure in the last 10 years.

Continuing rise in respiratory diseases are related mainly to atmospheric pollution emanating from, increased threat from solid and fluid waste, high density of chemical substances (vehicular and industrial) and poor quality housing.

Problems due to waste disposal and poor quality housing are due to low environment literacy of the people and policy makers. There is no set policy or mannerism in waste disposal as the urban housing density has increased without any support on waste

disposal. Waste recycling has faced serious problems due to lack of local strategic planning and the habit of “free waste throwing culture”.

Most of the housing has adopted open system high frontage designs allowing the droplet spray to enter living area of the house. If proper ceilings are not installed these types of housing produces heavy inflow of droplets in the humid climate, which leads to many respiratory problems mainly in children. All major urban centers have highly polluted air due mainly to lack of proper planning on parking and traffic flow. The urban roads are widened and parking is allowed on the widened area, which makes the road congested as before. Parking areas are not provided and traffic flow is highly interrupted by congestion which in turn leads to heavy burning of diesel and petrol resulting in high air pollution. The pavements are blocked by traders and pedestrians are not provided with underground or over ground crossings, which makes the urban area a trap of polluted air for at least 15 hours a day.

Increased incidence of cancer may be related to high density of chemical substances in air, water and food resulting from poor quality control of related material by policy makers. Respondents, freely express their dissatisfaction on types of fertilizers, insecticides, tobacco, alcohol, paints and preservatives available in the market. General public has little or knowledge of use of modern chemicals and use them at will to satisfy their needs. In addition, increase in aged population due to availability of easy treatment methods for geriatric complaints and diseases can also cause high incidence of cancer among the aged. Further, inability of the policy makers to fund monitoring programmes for aged prevents early detection of most of the cancers. Rich and elite utilise foreign treatment and surveillance facilities for acute chronic diseases, but the low and middle income group suffer heavily. It is a common scene to find low or middle income person collecting donations, media advertisement calling for donations and mortgaging or selling his property for treatment of serious cases.

The increase in heart related diseases and diabetes is a result mainly of ageing population, food, tobacco and beverages related chemical reactions and stress

originating from changing life styles. There was a drastic change in the global and Sri Lankan life style in the last 20 years, which took population away from mostly active to relaxing. Walking and home related hard manual labour is a thing of the past and people accumulate sugar and fat in large amounts in their body. Sri Lanka has become highly mobile with the availability of tree wheelers and motor bikes, which has prevented even short distance walking. Therefore, obesity has become a problem in all income groups.

Strict regulatory measures are not applied due to fear of loss of votes by the policy making authorities and people have no proper understanding on following proper regulations as their environment and health knowledge is poor though Sri Lanka boasts of a general literacy rate about 90 percent. The general education system has no effect on the populace on the value of safeguarding a healthy environment and mannerisms associated with it.

1.5 Change in Treatment system in Sri Lanka

The treatment system has experienced a change in the last 10 years mainly due to increase per capita income of the middle and lower middle class of the population and increased services provided by the national public health service.

About 53 million visited the public health service out patient service in 2016, which is lower than the average of the period between 2000 and 2015 (61 million). This is mainly result of increased attendance at private medical services, which has increased from about 1.2 million in 2012 to 6.3 million in 2017 (estimates made from a random survey conducted in 17 districts, Seneviratne, 2018).

The public hospitals serve about 95 percent of the emergencies and serious case admissions. The doctors, nurses and other supporting staff provide a commendable service. However, out-patients, hospital admissions and off and on hospital treatments (radiotherapy, and clinical checks) are affected by long delays.

The increase in the employment in the private sector and medical insurance systems offered by banking system in the last 10 years have constructed, private health insurance schemes, which enable patients to visit private medical service. Private medical facilities have increased by about 70 percent between 2005 and 2015. Availability of a private general practitioner has increased by about 82 percent in the same period.

The good services of the public health sector, fairly high literacy on the selection of the proper treatment system by the populace (65 percent) and support of private medical services has led to a nation of good health. However, the risk of infectious diseases remains high and chronic diseases are on the increase in Sri Lanka. Risk of infectious diseases is mainly a result of low health literacy of the populace and policy makers. Increase in chronic diseases is mainly a result of life style change.

1.6 Problem Environment

Changing Life style

Globally, two major types of life style factors result in increase in both infectious and chronic diseases.

Increased mobility is one of the major factors in creating a new global disease environment. Motorised transport has increased the percentage of people on the move and spread of disease. Developed nations have managed to limit the impact of new infectious diseases with their advancement in medical sciences and creating safer living environments. However, the developing world is unable to manage their health properly due to inefficient and poor governance practices.

Chronic diseases have become a serious problem in both developed and developing due to increase in stress originating from climate change, high demands for efficiency and evolution of complex life styles.

Intra- regional, national and international travel in Sri Lanka has increased by about 30 percent in the last 10 years.

This increase is mainly associated with combined trips made on tourism – pilgrimage habit in Sri Lanka. Availability of cheap fares in group travel has led to about 2000 to 3000 trips made by a total of about 3 million people on the move across climatic and cultural boundaries in Sri Lanka. Distant destinations like Katharagama, Anuradhapura, Polonnaruwa, Nuwaraeliya and Jaffna are connected by express bus services and group type smaller units on van services. Accommodation and food supply facilities of towns of these destinations have grown by about 50 percent in the last 10 years, with Katharagama and Anuradhapura recording about 30 percent growth in accommodation and food supply facilities. Small towns along the routes to Anuradhapura and Katharagama have seen a growths between 20 to 40 percent in the last 10 years. The tourists on these routes have limited health protection due to poor quality water, food and toilet facilities available to them and produce a high quantity of waste along the route and at destination. About 80 percent of the people in this category are from low and lower middle income group with limited capacity to obtain proper healthy services and are at risk of infectious diseases. Though deadly infectious diseases are rare, about 15 to 20 percent of this group are subjected to viral or bacterial infections, which require outpatient type treatment resulting in increased morbidity recorded in health statistics.

There is notable increase in mobility of population resulting from long distance travel to work and education, which results in an increase of traumatic injuries, fatalities from accidents and viral and bacterial diseases contracted from unhealthy town and city environments. Town and city environments of Sri Lanka record unhealthy air pollution levels resulting from poor waste disposal and vehicle emissions. All major cities (over 2 million) record continuous occurrence of smog with an increased prevalence of respiratory diseases (asthma and bronchitis) diarrhoea and various types of fevers.

Dengue fever is mainly associated with urban areas and notably the urban conglomeration of Colombo and the surrounding districts due to inability of urban planners to provide a solution to problem of drainage and low environmental literacy of the population, which boasts of a general literacy rate over 90 percent. It should be mentioned here that either there is a serious error in the variables used in Sri Lanka to calculate literacy rate or people provide incorrect answer to the question on literacy or though they have the literacy on the basis of their education, the education system has failed to instill proper environmental knowledge in them. Detailed investigations indicate that people give incorrect information on their educational level in the surveys conducted and education system which allows students to “just proceed” to GCE OL, without any serious measure of knowledge level has created a majority of citizenry (about 60 percent of the total population) without a proper understanding of environmental cleanliness.

Further, the policy makers and politicians have forgotten the use of environmental laws, to achieve political success. With reference to cities and towns, planning for parking space (vehicles of visitors and commercial sector), waste disposal (liquid and solid) and issuance of building permits frequently have no logical explanation. These activities are conducted at free will of the people, making traffic congestion and rotting waste a serious health hazards. It is the responsibility of the policy makers to keep the city and town environment clean to avoid an increase in morbidity and fatalities from traffic accidents.

Traumatic injuries are at a all-time high in both developed and developing world due to increased density of motorised transport, terrorism and industrial accidents. Sri Lanka has recorded a massive increase in traumatic injuries, Heart related situations, diabetes and cancer in the last ten years.

Increasing of traumatic injuries is related to traffic accidents and gang violence. The low literacy level and traffic accidents have a significant relationship, as most of the

fatal accidents caused by drivers under the influence of alcohol or hard drugs. Second most important reason for increased traffic accidents is over work and falling asleep while driving. There is no significant increase in homicides, industrial and domestic accidents.

Heart related illnesses, diabetes, cancer and many other chronic diseases are related to multitude of factors. Stress, lack of exercises and use of chemicals in farming and industrial production have contributed to increase in these diseases.

Reduced walking and manual work may be the major reason for obesity.

High level of diesel vehicle emissions can contribute to high prevalence of respiratory diseases and cancer.

The effect of mobile phones on ear is noticed by researchers.

Diseases related to addiction to alcohol and drugs and sexually transmitted diseases continue to increase slowly.

The complex social structures built by globalisation have influenced the global health and morbidity. However, the developed world with their health insurance schemes and advances made in medical sciences has managed to limit the effects of new diseases.

Non- availability of Holistic National planning in Sri Lanka leads to its underdevelopment. Sri Lanka is blessed with all the basic resources, but the financial mismanagement in the political system has led the populace to disregard any meaningful stable development process. Majority of the populace have no proper understanding on the basic premise of development and believe higher income will lead to development. The political authority is always in disorder and inefficient. Therefore populace has a way of by-passing the proper operational system and

engages in disorderly practices to achieve their goal. Therefore, it is the vicious cycle of disorder and failure, which leads to a nation still troubled with poor health.

1.7 Impact of marketing strategies on the quality of healthcare services

<https://hirschhealthconsulting.com> (2022) indicate that, to understand the impact of marketing strategies on the quality of healthcare services, it is important to understand today's medical consumer who prefers to look for medical information online, where he also has a wealth of healthcare services, healthcare providers, reviews from patients who contacted the provider, etc.

With digital marketing, almost everything can be tracked and measured. Healthcare professionals and healthcare organizations no longer need to insight what works and what does not work. With the help of marketing performance information, healthcare professionals, and healthcare organizations can make an informed decision on how to improve their efforts, along with the ability to continually measure and evaluate them. The healthcare industry has the potential to significantly increase its coverage and effectively engage consumers with digital marketing tactics.

As the marketing progress grows, organizations are moving towards more digital approaches to remain relevant to consumers. Digital marketing expenses have been the highest of all time, with healthcare companies spending over \$ 2.5 billion on marketing, estimated at \$ 4 billion by 2020 (<https://www.healthworkscollective.com>, 2018). At the same time, the marketing mix strategy is necessary in medical organizations to ensure their success. Thus, the strategy leads to a significant impact on the medical organization, including its performance measured by patient satisfaction, the co-ordination of planned marketing efforts to address organizational performance being essential.

Therefore, the benefits of implementing marketing strategies are

- — to improve the competitive advantage,

- — to increase the visibility,
- — to create a solid reputation among patients,
- — to understand the needs and expectations of consumers,
- — to understand the patients’ perceptions of the quality and results of their experience within the medical organization, offering memorable experiences to patients and, of course, building a strong, effective, dominant brand on the health services market.

1.8 Significance of the Study

Past decade was noted by researchers as a testing time for private health care providers in Sri Lanka. In the developed nations private health care providers have managed to acquire much importance as public health care systems are troubled by policy and poor macro-economic performance. Therefore, it is time to study the need for developing private health care suitable for new challenges.

Effects of the many separate direct determinants or risk factors for disease from the limited data that are available, it is timely to consider a limited number of socio-economic variables:

- (1) average income per capita, measured as gross domestic product (GDP) per capita;
 - (2) the average number of years of schooling in adults, referred to as “human capital”;
- and
- (3) time, a proxy measure for the impact of technological change on health status.

This latter variable captures the effects of accumulating knowledge and technological development, allowing the implementation of more cost-effective health interventions, both preventive and curative, at constant levels of income and human capital (Murray and Lopez, 1996). These socio-economic variables show clear historical relationships with mortality rates, and may be regarded as indirect, or distal, determinants of health.

In addition, a fourth variable, tobacco use, can be included in the projections for cancers, cardiovascular diseases and chronic respiratory diseases, because of its overwhelming importance in determining trends for these causes. Tobacco use measured in terms of “smoking intensity” - that component of observed lung cancer mortality that is attributable to tobacco smoking (Peto et al. 1992). Death rates for all major causes excluding HIV/AIDS and tuberculosis are related to these four variables using historical death registration data for 107 countries between 1950 and 2002.

Since a substantial proportion of diabetes mortality is attributable to overweight and obesity (James et al. 2004), a separate projection model for diabetes mortality can be developed using WHO projection of trends in body mass index distributions from 2000 to 2010. The WHO projections of mortality rates to 2015, together with UN medium variant assumptions for fertility rates and migration rates (United Nations Population Division 2003), can also be used to prepare consistent population projections for all regions. The projected global population in 2015 was 7.1 billion compared to the UN medium variant projection of 7.2 billion, reflecting somewhat higher adult death rates in the WHO mortality projections. For ischaemic heart disease and stroke, future case fatality rates were assumed to decline with improvements in income per capita.

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It is evident that health is a character based on income and knowledge, which is linked to general policy decisions and ability of the populace to access health providers. Impact of behavioural characteristics has also become highly important in a world with complex life styles. Therefore this thesis will attempt to study the complex relationship between the requirements of the customer and medium scale private health care in Sri Lanka, with special reference to the selected organization.

1.9 Conclusion

General trend of climatic change and global and regional economic instability will affect all enterprises as pandemics and economic crisis has become a norm. Effect on private health care is noted as rising cost of equipment and medicine is to continue. At the time of preparing the thesis, economic crisis has brought a serious financial problem to many private health care facilities in Sri Lanka. Long term unsustainable economic policies led to high internal and external debt and Covid 19 pandemic almost stopped the income from tourism and foreign remittances. This situation is expected to continue for at least another 2 years and private health care facilities have to adjust to a new reality. However, all enterprises in Sri Lanka, including private health care has to plan and execute proper strategies in the foreseeable future to face many difficulties. Within this situation an attempt is made to search for strategies required for a sustainable growth of the firm under study in the thesis.

Chapter 2

Operating environment and Strategies of Private health care provision in Sri Lanka

2.1 Introduction

Health in the context of developing countries is a status, where disease is not serious enough to seek medical attention. In here the status of disease is also weighed according to its long term or debilitating effect. As there is no regular health check-up system and continuous medical record system the treatment is conducted in an isolated sphere from the natural and social environment of the person. Therefore it is believed that the health measured by commonly known variables like life expectancy at birth, child mortality and maternal mortality may have only a marginal picture on health status of the developing world including Sri Lanka. In addition availability of unregistered medical practitioners and pharmacy network facilitates some sick to be not counted at any stage in studies of environment and health.

In addition poverty in the developing world makes some people with good physical health to have hidden mental sicknesses which are not detected until they are subjected to certain stresses. For example newspaper reports collected from some dailies of Sri Lanka indicate that a bus conductor (passed 8th grade in school) has behaved in an indecent manner to a passenger and was discovered to be suffering from the problem of sadist behaviour under medical examination. A university student has acted like a mafia person in an attack on another student. A minister with a degree in Sociology has used abusive words on his opponent in politics. Therefore people with good physical health may be mentally unstable under stress or inbuilt hidden mental status. Then health or being healthy has no universal truth and health cannot have universally acceptable definition. It is because that behavioural development of man is a valuable factor responsible for the status of health.

2.2 Strategies and future

Marketing Strategies and Performance of Private Hospitals (Mwangi, 2015)

Marketing tactics and know-how are crucial in commercializing products and inventions successfully in the marketplace. Marketing provides a long-term competitive advantage for companies. Today, cost efficiency does not provide long-term competitive advantage. Traditionally, marketing has been viewed as an operational approach instead as a strategic function in organizations. Morgan, Clark and Gooner (2002) argue from a strategic point of view that marketing budgets should be seen as capital expenditure to build revenue generating marketing assets rather than be seen as overhead expenditure because marketing resources ultimately drive long-term marketing performance. However, it is not easy for marketing managers to convince corporate executives in the absence of valid, reliable, and credible marketing performance assessment systems. Difficulty to assess the marketing performance is attributed to external and mostly uncontrollable factors, such as customers and competitors (Neely, 2002).

The rapid growth of health care facilities providing direct medical services has substantially increased the number of decision makers who need to be familiar with performance information. Effective decision making in their jobs depends on an accurate interpretation of performance information. Many health care decision makers involved directly in health care delivery – doctors, nurses, dieticians, pharmacists, radiologists and physical therapists – are medically or scientifically trained, but lack education and experience in business administration. However, advancement and promotion within health care organizations increasingly entails assumption of business administrative duties, requiring almost an instant knowledge of financial information. Communication with the organization's financial executives is not always helpful. As a result, executives without a strong knowledge of finance often end up ignoring financial information (Cleverly and Cameron, 2007).

Governing boards of health care facilities, which are significant users of performance information, are expanding in size. However, many board members even those with backgrounds in business are being overwhelmed by financial reports and statements. An important distinction exists between the financial reports and statements of business organizations and those of health care organizations—that is, only some board members are familiar in the case of health care organizations. Therefore, governing board members must recognize these differences if they are to carry out their governing missions satisfactorily (Ronen, Pliskin and Pass, 2006). In Kenya, health services are provided through a network of over 4,700 health facilities, with the public sector system accounting for about 51 percent of these facilities. The government health service is supplemented by privately owned and operated hospitals and clinics, and faith-based hospitals and clinics, which together provide between 30 and 40 percent of the hospital beds in Kenya (Ministry of Health, 2011).

Private sector health care is defined to include all the providers outside the public sector. The private sector includes both for-profit and not-for-profit entities, such as faith-based organizations and non-governmental organizations. The private sector covers a wide range of health care providers such as doctors, nurses, midwives, clinical officers and pharmacists (Barnes et al, 2010).

A company's strategy is the management's action plan for running the business and conducting operations. Thus a company's strategy is all about how. How management intends to grow the business, how it will build a loyal clientele and outcompete rivals, how each functional piece of the business (research and development, supply chain activities, production, sales and marketing, distribution, finance and human resources) will be operated, and how performance will be boosted. (Thompson, Strickland and Gamble, 2013). West, Ford and Ibrahim (2010) describe marketing strategy as a means that aims to improve the strategic performance of an organization through the use of sub-strategies such as the development of new products, the development of new segments and/or customers, specialized delivery arrangements, after-sales service improvement, market forecasting and market-share analysis. Three types of strategy

can be specifically defined in relation to organizational structure. Varadarajan and Jayachandran (2000) note that strategy exists at multiple levels in an organization: corporate, business and functional levels. Corporate strategy describes a company's overall direction in terms of its general attitude towards growth and the management of its various businesses and product lines to achieve a balanced portfolio of products and services. Additionally, corporate strategy is the pattern of decisions regarding the types of businesses in which a firm should be involved, the flow of financial and other resources to and from its divisions and the relationship of the organization to key groups in its environment. Sometimes called competitive strategy, business strategy is usually developed at divisional level and emphasizes improvement of the competitive position of a corporation's products or services in the specific industry or market segment served by that division. Just as corporate strategy asks what industry the company should be in, business strategy asks how the company or its strategic business units (SBUs) should compete or cooperate in each industry. Within the constraints of the corporate and business strategies, functional departments such as marketing, finance, R&D and production develop strategies to pull together their various activities and competencies so as to improve performance. Thus from the above definitions, marketing strategy is a functional strategy (West, Ford & Ibrahim, 2010).

Organizational Performance

A performance measure is the standard with which progress of the strategic objective can be measured and with which the organization vision and objectives are made measurable. Traditionally, many organizations relied on financial measures of performance such as sales and profits, Return on Assets (ROA) and stock returns (O'Sullivan, Abela and Hutchinson, 2008). After decades of being frustrated by inadequacies of traditional performance measurement systems, managers and academic researchers have devised a balanced scorecard which includes financial and operational measures. The balanced scorecard allows managers to look at business from four perspectives; financial, customer satisfaction, innovation and learning, and internal process perspective (Kaplan and Norton, 1998). Lusthaus et. Al. (2002) has

further identified four key indicators of performance as effectiveness, efficiency, relevance and financial viability. Today, many organizations use a composite of performance measures as suggested by the balanced scorecard and other scholars as opposed to over-relying on financial measures only. Therefore, financial and nonfinancial performance measures play a significant part in assessing the degree of organizational performance. Over the past few decades, there have been many new innovations at the management, institutional and other levels aimed at improving organizational performance. These include interventions such as total quality management, re-engineering, decentralization and performance management.

The private healthcare sector in Sri Lanka has made a remarkable contribution in the delivery of healthcare services. It has filled a resource gap for health development by improving efficiency and the quality of care by promoting competition and complementing public sector services. Kumaranayake (1998) provides three main reasons for the increase in private sector activity within the health sector. First, an explicit deliberate policy choice of health sector reforms were carried out purposely to encourage the development of the private sector as an alternative means of healthcare provision. This has been spurred by increasing resource constraints and the poor performance of the public sector. The second is a response to weak provision of public health services. The public health sector has become inefficient in delivery of health services, accounting for 30% wastage of resources. The poor remuneration of personnel, low morale, lack of ownership of the services by communities, poor logistic support, and little opportunities for continuing education have further degraded the quality of services. Mushrooming of unregistered clinics run by unqualified personnel has slowly taken advantage of the inefficiency in public health services (Oduwo et al, 2001; IEA, 1998; IEA/SID, 2001). Poor remuneration in the public healthcare sector has forced doctors to resort to private clinics or seek employment in other countries (Nyangena, 2000). The poor performance of the public healthcare system could also have contributed to the growth in traditional medicine as an alternative source of healthcare. The third reason for the increase in private healthcare services arises from the need to respond to increased consumer affluence (such as the expanding

middleclass) and preference for greater quality services. Studies by Berman et al (1995) and Hursh-Cesar et al (1994) found that in many low and middle-income countries, the demand for private healthcare has been driven by its perception as a higherquality service.

The Ansoff Growth Matrix

The Ansoff matrix has four alternatives of marketing strategies—that is, Market penetration; Product development; Market development; and Diversification. Market penetration covers products that are in existence and in an existing market. The risk involved here is small since the products are already known to consumers in an already existing market and there can be further exploitation of the products without the need to change the product or the outlook of the product. Market penetration can be increased through the use of promotional methods, using various pricing policies to attract more clientele, increasing product usage or by making distribution more extensive. Product development growth strategy introduces new products into existing markets and it can range from the introduction of a new product in an existing market or it can involve modifying an existing product. Modification of the product changes its presentation and increases the product's performance or quality, which can appeal to the already existing market. Market development or market extension strategy concerns the firm selling its existing products to new markets through further market segmentation that aids in identifying a new clientele base by using different approaches such as, entering new geographical markets, developing new distribution channels such as e-commerce, new product packaging and different pricing policies so as to attract a new market segment. Market development is a much riskier strategy as compared to market penetration since it assumes that the existing markets have been fully exploited thus the need to venture into new markets. Diversification growth strategy involves an organization marketing or selling new products to new markets at the same time. It is the riskiest strategy among the others as it involves two unknowns—that is, new products being created and a firm being unaware of development problems that might occur as well as the fact that there is a new market being targeted. Related diversification and unrelated diversification are the two

diversification growth strategies. Related diversification means the firm remains in the same industry it is familiar, while in unrelated diversification there is usually no previous industry relations or market experience (Kotler, 2011).

According to Baker and Hart (2012), the aim of the development of an organization's marketing strategy development is to establish, build, defend and maintain its competitive advantage with the adapting of marketing mix elements to environmental forces.

Product Strategy

Diversification of services is achieved through new product or service development. The eight stages of new product development begin with the first stage of Idea generation. Organizations get their ideas for new product development from marketing research, employees, consultants, competitors, customers, distributors and suppliers. The second stage of idea screening involves shifting through the ideas generated and selecting ideas that are feasible and practical to develop. The third stage involves concept development and testing. The organization may have come across what they believe to be a feasible idea; however, the idea needs to be taken to the target audience. The idea that is taken to the target audience is not a working prototype at this stage, it is just a concept. The fourth stage involves marketing strategy development. This stage addresses how the product/service idea will be launched within the market. A proposed marketing strategy will be written laying out the marketing mix strategy of the product, the segmentation, targeting and positioning strategy, and market and sales forecasting. The fifth stage involves conducting a business analysis. The business analysis stage looks more deeply into the cash flow the product could generate, what the cost will be, how much market share the product may achieve and the expected life of the product. The sixth stage involves the development of the new product. At this stage a prototype is produced. The prototype will undergo a series of tests and will be presented to a selection of people made up of the target market segment so as to see if changes need to be made. The seventh stage involves test marketing. Thus, the product is tested within a specific geographic area.

The product will be launched within a particular region so the marketing mix strategy can be monitored and if needed modified before national launch. The eighth and last stage involves commercialization. Here, the product is launched on a national scale. Decisions regarding launching nationally include: the timing of the launch, how the product will be launched, where the product will be launched and whether there will be a national roll out or whether it will be region by region (Baker and Hart, 2012). Lovelock (2011) argues that the key aspect of the service strategy in hospitals is to meet the problems which are created by the characteristics of services. This can be achieved by having a range of high quality services, means of branding, new service development, and customer service.

Pricing Strategy

The product or service should always be seen as representing good value for money. This does not necessarily mean it should be the cheapest available; one of the main tenets of the marketing concept is that customers are usually happy to pay a little more for something that works really well for them. There are several pricing strategies available to marketers. Penetration pricing is where the organization sets a low price to increase sales and market share. Once market share has been captured the firm may well then increase their price. Skimming pricing is where the organization sets an initial high price and then slowly lowers the price to make the product available to a wider market. The objective is to skim profits of the market layer by layer. Competition pricing involves setting a price in comparison with competitors. A firm has three options and these are to price lower, price the same or price higher. Psychological pricing is when the seller considers the psychology of price and the positioning of price within the market place. Premium pricing is when the price set is high to reflect the exclusiveness of the product. Cost based pricing involves the firm adding a percentage to costs as profit margin to come to their final pricing decisions (Kotler, 2011). Nagle and Holden (2012) point out that if effective product development, distribution and promotion sow the seeds of organizational success; efficient pricing strategy is the harvest. While effective pricing strategy can never compensate for poor execution of the first three elements, ineffective pricing can

surely avoid those efforts from resulting in financial success. The price strategy should be integrated and consistent with the other marketing mix strategies in the organization to achieve the organization objectives (Palmer, 2011). The degree of complexity of pricing strategy amongst the service sector is comparatively significant due to the high degree of homogeneity between most service groups and shared service delivery and operating systems.

Distribution Strategy

Services such as air travel, banking and health care often involve distribution channels. The service provider renders the service to the end users rather than producing it like a physical product and moving it through marketing intermediaries to the end user. Because of this the distribution networks for services differ somewhat from those of goods. Services are normally rendered when needed rather than being placed into inventory. Similarly, services may not be transported although the service provider may go to the user's location to render the service. Processing and storage are normally not involved with services. Servicing and repair functions may not apply to many functions. Other functions that apply to both goods and services include: buying and selling, financing, advertising and sales promotion, and communications. Service channel levels are of two levels: first is service provider directly to end user channel level and secondly is service provider through agent/broker and then to the end user channel level (Cravens & Piercy, 2012). Health care organizations, whose products are primarily services, must consider three distribution decisions: physical access, time access, and informational and promotional access (Jones, 2013). For example, dental offices in shopping malls operate in locations (physical access) that are more convenient for the consumer. They are also open on weekends and in the evening, providing better time access. Time access deals with three distinct issues: the opening hours, the length of waiting time (in the service providing waiting area) and the time between calling and having an appointment (Renner & Palmer, 2013). And they rely on the traffic within the shopping mall (promotional access) rather than word of mouth or physician recommendation (referral) to generate demand (Jones, 2013).

Promotion Strategy

Promotion is the communication aspect of the marketing mix. The selection of the portfolio of activities may depend on the company's marketing and sales strategies and budget allocations. Advertising is a mode of promotion that is usually paid. Mass media such as television, radio or newspapers and magazines is most often the carrier of these messages. Apart from these, billboards, posters, web pages, brochures and direct mail also fall in the same category. Public relations and sponsorship tries to increase positive mention of the product or brand in influential media outlets. These could include newspapers, magazines, talk shows and new media such as social networks and blogs. Personal selling connects company representatives with the consumer. These interactions can be in person, over the phone and over email or chat. This personal contact aims to create a personal relationship between the client and the brand. Direct marketing targets specific influential potential users through telemarketing, customized letters, emails and text messages. Sales promotions are usually short term strategic activities which aim to encourage a surge in sales. These could be 'buy one get one free' options, seasonal discounts, contests, samples or even special coupons with expiration dates (Kotler, 2011). Andaleeb (2012) discussed advertising as being an important tool for hospitals for two reasons. First, advertising is a competitive tool for hospitals. Its effective use should assist hospitals to attract and retain clients in a rapidly changing environment where the clients are increasingly involved in selecting the right hospital. Second, a nationwide survey showed that 50 percent of consumers remembered seeing or hearing a hospital advertisement. Word of mouth can operate through both channels. Informational influence occurs when information is accepted as evidence of reality (Lovelock, 2011). In contrast, normative influence operates through compliance, which means that the individual conforms to the verbalized expectations of referent others (Wangenheim & Bay`on, 2009).

Physical Evidence Strategy

Physical evidence has been defined as the environment in which the service is delivered, when the firm and customer interact and any tangible components that facilitates performance of the service (Zeithaml and Bitner, 2009). Physical

environment includes the appearance of physical structure landscaping, vehicles, interior furnishing, equipment, uniforms, signs, printed materials and other visible cues that provide evidence of service quality. Physical evidence is thus, an element of services marketing mix which enables the consumer to evaluate a firm. The intangibility of service products makes it difficult for consumers to evaluate service offerings, particularly quality and value for money, prior to purchase. Also this intangibility can make it difficult for the marketer to position new service product offerings. In view of this, marketers often need to make the service offering tangible through the way they manage the physical evidence that accompanies the service. (Lovelock, 2011 and Palmer, 2011) have pointed out the vital importance of physical evidence in service businesses in order to send a consistent message and retain a coherent image about the organization. Palmer (2011) has focused on the vital role of providing tangibles as a significant component of the company service offer. Lovelock (2011) has argued that physical evidence is one of the vital components of the 7Ps of the services management paradigm by which the company can provide tangible objects to customers during the service delivery process and tangible metaphors used in such communications as advertising, symbols, and trademarks.

Process Strategy

The process of service delivery can be thought of as the expressive performance of a service. Its descriptors are Duration—that is, the total time involved before and during the service encounter. Work-area appearance—that is, the non-design aspects of the service environment, such as the day-to-day cleanliness and tidiness of the service location, which are inherently variable in nature. Employee appearance—that is, the personal aspects of a contact employee's presence, including both hygiene factors and the manner in which costumes are worn. Empathy, assurance and employee effort—that is, which encompass the skills, knowledge and professionalism of customer-contact employees. For example, how well contact employees are able to understand the customer's situations and treat them accordingly, and the amount of energy expended by an employee on behalf of a customer during a service encounter, which includes the employee's ability to be responsive to a customer's needs. Reliability—

that is, the ability to deliver an accurate service that has been promised to a customer on the first, and each subsequent, service encounter. Customer participation—that is, not the "designed-in" elements of customer participation, but the customer's own style of consuming the service, and customer-to-customer interactions (Grönroos, 2010). Zeithaml and Bitner (2009) discovered that the top management challenges across service industries were maintaining service quality, hiring employees, and employee training. Process has three major components, which are the flow of activities (standardized or customized), number of steps (simple or complex) and customer involvement. The patient's opinion of a service is influenced by his or her experience of the service process. This can be divided into three phases - namely joining, intensive consumption, and detachment (Palmer, 2011). In medical services, the joining phase occurs when the patient joins in the service process in order to consume a core health service. The core surgical service is delivered in the intensive consumption phase. In surgical services the delivery and intensive consumption of services are simultaneous processes, with interactions occurring between the patient and the tangible and intangible production resources of the medical service provider (Ennew, 2011). The intensive consumption phase is followed by the detachment phase, during which the patient leaves the surgical service process. Every phase can contain various auxiliary elements, in the form of facilitating or supporting services (Grönroos, 2010).

People Strategy

In health care, more than in other services, the product is the person. When the patient thinks of medical care he or she thinks of the physician (Ahmad, 2011). The patient envisions medical care in terms of the people who deliver it. People play a crucial role in service organizations, especially during the service delivery process when the participants have interactions with customers. Currently the role of people in service delivery varies considerably across service contexts. However, the health sector is one field where health staffs are considered to be of particular importance. It is widely argued that the overall quality of the delivered service for organizations such as health services is influenced, among other things, by the nature of the relationship between

the customer and health providers. Storbacka et al (2012) labelled routine and critical interactions as routine and critical episodes. Customer relationships have a number of different types of episodes, and these differ with respect to content, frequency, duration, and regularity. The doctor has significant discretion in meeting customer needs, and evaluation of the interaction is largely based on the attributes of experience and credence (Avlonitis and Indounas, 2011). Experience attributes can be evaluated only during or after the consumption of medical service. Credence attributes are hard to evaluate, even after the consumption of a medical service has occurred (Ojasalo, 2010).

Marketing Strategies and Organizational Performance

The analysis of organizational performance is a crucial step in the organizational assessment process. Yet, measuring performance is one of the most problematic issues in the field of organizational theory (Steers, 2012; Zammuto, 2010). While there are a number of approaches to assessing organizational performance, there is little consensus as to what constitutes a valid set of criteria. In other words, the concept of organizational performance is, at least in part, individually constructed. The influence or power of different stakeholders determines which performance message is dominant. In the private sector, for example, people who invest in an organization—an important stakeholder group—are more interested in profitability and return on investment as a performance issue than are the organization's employees or beneficiaries. Each interest group or stakeholder in an organization may have a different concept of what constitutes good performance. Amid all these levels and layers of complexity, the elements that should be assessed in analyzing the performance of an organization include: effectiveness, efficiency, relevance and financial viability. The balanced scorecard supplements traditional financial measures with criteria that measures performance from three additional perspectives—those of customers, internal business processes, and learning and growth. It therefore enables companies to track financial results while simultaneously monitoring progress in building the capabilities and acquiring the intangible assets they would need for future growth. The scorecard is not a replacement for financial measures; it is their

complement. The balanced scorecard meets several managerial needs. First, the scorecard brings together, in a single management report, many of the seemingly disparate elements of a company's competitive agenda—that is, becoming customer oriented, shortening response time, improving quality, emphasizing teamwork, reducing new product launch times, and managing for the long term. Second, the scorecard guards against sub-optimization. By forcing senior managers to consider all the important operational measures together, the balanced scorecard lets them see whether improvement in one area may have been achieved at the expense of another. It provides answers to four basic questions: Firstly, how do customers see us? (customer perspective); Secondly, what must we excel in? (internal business perspective); Thirdly, can we continue to improve and create value? (innovation and learning perspective) and Fourthly, how do we look to shareholders? (financial perspective) (Ioppolo, Saija, and Salomone, 2012). How a company is performing from its customers' perspective has become a priority for top management. The balanced scorecard demands that managers translate their general mission statement on customer service into specific measures that reflect the factors that really matter to customers. Customers' concerns tend to fall into four categories: time, quality, performance and service, and cost. To put the balanced scorecard to work, companies should articulate goals for time, quality, and performance and service and then translate these goals into specific measures. Customer-based measures are important, but they must be translated into measures of what the company must do internally to meet its customers' expectations. The internal measures for the balanced scorecard should stem from the business processes that have the greatest impact on customer satisfaction—factors that affect cycle time, quality, employee skills, and productivity, for example. To achieve goals on cycle time, quality, productivity, and cost, managers must devise measures that are influenced by employees' actions. The customer-based and internal business process measures on the balanced scorecard identify the parameters that the company considers most important for competitive success. A company's ability to innovate, improve, and learn ties directly to the company's value. That is, only through the ability to launch new products, create more value for customers, and improve operating efficiencies continually can a company penetrate

new markets and increase revenues and margins—in short, grow and thereby increase shareholder value. Financial performance measures indicate whether the company's strategy, implementation, and execution are contributing to bottom-line improvement. Typical financial goals have to do with profitability, growth, and shareholder value.

Marketing has traditionally been viewed and treated more as an operational rather than strategic function in companies. It has focused on decisions related to analyzing and selecting target markets, product and brand development, promotion, and channels of distribution. This perhaps somewhat biased standpoint presents marketing as a task of creating, promoting and delivering goods and services to consumers and businesses (Kotler, 2011). It is generally accepted that acquiring a new customer may turn out to be considerably more expensive than building customer loyalty among firm's current customers (Kotler, 2011). This strongly speaks for the need for higher levels of customer orientation among companies. Similarly to reward systems that base on short-term performance, short-term marketing focus may start working against longer-term market orientation, business performance and strategic intentions of a company. From strategic point of view, as Morgan, Clark and Gooner (2002) argue, marketing budgets should be seen as capital expenditure in building revenue generating marketing assets rather than overhead expenditure; marketing resources ultimately drive long-term marketing performance. It is not easy, however, for marketing managers to convince executives in the absence of valid, reliable, and credible marketing performance assessment systems. In addition to corporate executives, also marketing managers are also often unable to uncover and confidently support cause-and-effect relationships between marketing inputs, marketing processes and marketing performance outcomes. (Morgan, Clark and Gooner, 2002) Difficulty to assess the marketing performance is evident since it depends on external, largely uncontrollable factors, such as customers and competitors (Neely, 2002). Additionally, links to business performance are very often complex and may include some irrationality; for example, success sometimes is based purely on luck. Thus, as the aggravated example shows, high performance of a product or a company may not have much to do with the goodness of management. According to previous studies (e.g. Hooley et al., 2001;

Fahy and Smithee, 1999), marketing capabilities and assets possess potential to be important sources of competitive advantage for companies. As a component of marketing orientation of a company, also innovation orientation that situates between internal and external views has been showed to influence performance (e.g. Matsuno, Mentzer and Ozsomer, 2002). In addition, marketing with strong market orientation seems to be increasingly important for firms (e.g. Kohli and Jaworski, 1990). This is due to strong inward focus of resource-based view of the firm which is at risk to ignore dynamic market conditions and nature of demand. Clearly, firms should thus start adapting principles of strategic marketing.

The marketing of health care services at the macro and microeconomic level (Radulescu et al, 2008)

In health care domain, the marketing is an interdisciplinary domain because, both at the conceptual and operational levels, it uses a series of concepts, methods and techniques of marketing appropriate to the marketing of services and to the social marketing, too, having in view, on the one hand, selling of a service by a service supplier to a beneficiary and, on the other hand, raising of an adhesion to an idea, cause, social behaviour of a person or of a community. Moreover, the need that the health care service satisfies places this field on the limit between economic and social, between the orientation for profit and non-profit one, a fact with profound implications over the marketing measures at the macro and microeconomic level. The marketing at the macroeconomic level or the macro-marketing implies the application of the marketing at the level of the national economy as a social process which manages an economic flow of goods and services, from producers to consumers, in a manner which combines, in an efficient way, the offer and the demand and which fulfills the society's objectives. Therefore, the macro-marketing has in view the application of the marketing by the society, at the level of the entire national economy, through its specific forms of organization, orientation of the economic activity, and the micromarketing deals with the distinct activity of each organization within its confrontation with the market, with the economic-social environment. In the health

care services domain the role of the marketing is more important due to the influence of the state over the availability, accessibility and the cost of health care services. Mainly, applying the marketing concept at the macroeconomic level implies the re-definition of the place and of the role of the Ministry of Health, as it is the specialized organism through which the intervention of the state in the economy is accomplished, the realities from the domain of the health care services are analysed, the decisions which manage this domain are grounded and the service supplied, taking into consideration the individual needs or the community's needs, is projected. The marketing measures, at the macroeconomic level, aim, through the accepted policies, strategies and tactics, the surveillance of the public health, the promotion of the public health, prevention of the diseases, as well as the projection and the proportioning of the offer depending on the characteristics and on the way in which the demand is revealed. The regulation of this domain, which is strong enough, influences the manner in which the marketing policy is grounded. Therefore, the marketing policy, which is applied in the health care services, is generally grounded at the level of the Ministry of Health which accomplishes the study of the economic-social environment and also the manners in which the health system is adapted to the population's needs and in accordance to the requests imposed in/by the adherence at the European Union. Therefore, through its macroeconomic dimension, the marketing follows the description and the analysis of the social, economic and institutional phenomena and processes which take place on the market. Any marketing approach of an organisation starts from a macroeconomic analysis, at the level of the market or at the level of the sector of activity. The organisations must know their environment- the framework in which they develop their activity, the market on which they work, as well as the main laws, norms, rules which defines this market, institutions which give decisions and have activities playing a decisive role in their development. The micromarketing aims the marketing applied by the organisations for their functioning within the economy, directly referring to the "accomplishment of the activities which aim to fulfill the objectives of an organization through the anticipation of the needs of the buyers or clients and managing the flow of goods and services for satisfying the needs from producer to buyer or client"(Balaure, 2002, p. 69). The microeconomic dimension of

the marketing is a managerial one. It refers to the decisions and actions of the organization referring to what it does and what it has to do in order to guide its current activity for touching some pre-established targets. At the level of the organizations from the health care domain, the marketing aims the prevention, the diagnosis, the treatment, the healing and the recovery of the consumers' health, considered in an individual manner. From the attempt of clarifying the place of the marketing in the health care domain in one of the two specializations – social marketing and services marketing –, comes one conclusion: through the concepts, methods and techniques that it uses, adapted to the contain and the characteristics of the services of public health care or which are linked by the person's medicine, this is a specialized domain, self-contained, with a strong social and economic orientation; the decisions are taken at the central level of the Ministry of Health and they are operated, at the microeconomic level, by the organizations which supply services of health care to the population.

Particularities of the marketing enforcement in the health care domain

From the conceptual point of view, the acceptance of the marketing in the health care domain has followed an insecure path as there are more elements which hamper its implementation, as a managerial function inside the organizations from the health care domain. The application of the marketing in the healthcare services domain is different from other departments due to its particularities established by the characteristics of the market, of the organizations, products, staff and of consumers.

The market –

the existence of a real market, from the economic point of view, in the health care domain, is questionable as the manner in which the law of the demand and of the offer functions is different in comparison with other markets; even if the offer of healthcare services raises, in most of the cases, this does not impose a diminution of the price and even if the level of the demand increases, does not mean that the price will increase; with other words, the modification of the demand and of the offer, in most of the cases, does not influence the modification of the price. The offer depends on the

government's politics and on different restrictions, and the level of the demand is determined by the level of the insurances, by the availability of resources and by the activity of the family doctors, and less by the illness level of the population. Moreover, the existence of a real market would suppose that the reasons and the activities of the suppliers of health care services and of third parties are strictly economical, a fact which is not a characteristic of the organizations' behaviour from the health care domain. On a real market, the suppliers of healthcare services enter in relationships of competition for the consumers' resources, and this competition determines the price of the goods and of the services, a situation which is not specific to the health care services. Moreover, many organizations have the monopoly for a specific service. Therefore, a particular market will occur. Oligopoly is very present and sometimes the consumers do not have many options in choosing the medical staff or the services which are supplied. Although, in case of the health care services supplied to consumers who do not have insurance, the payment will be made directly, still there are certain ethical grounds for which the patients with serious problems must be nursed even if they do not have insurance and they cannot pay. On other markets, the products and the services are paid directly by the consumer, while very little healthcare services are paid directly, the majority being paid through third party payer.

The organizations

The health care sectors is different from the other activity sectors even when we refer to the organization's objectives. While in other branches of activity the majority of the organizations establish their objectives taking into consideration the profit, many organizations from the health care domain must accept clients which are not able to pay or are considered to be "undesirable". If some providers have the liberty of accepting or rejecting the patients with normal problems of health, the departments of emergency must accept a patient with serious problems. Moreover, unlike the traditional pyramidal hierarchy of power met in the majority of the organizations which relies on profit (where a great number of persons are reported to a smaller number of superiors, which then leads to the consolidation of the power in one person from the executive), most of the organizations from the health care service have a

double hierarchy of the power; on the one hand, the specialists in medicine (surgeons, physicians, dentists, therapists, psychiatrists), and, on the other hand, the managers (the management), each of them having different objectives. Like in some other domains, these organizations, especially the hospitals, maintain a monopoly or oligopoly control on the markets where they develop their activity having therefore a secure number of the patients. Nowadays, in the European countries and in USA, few of them still have this loyalty from the part of the patients. The non-profit organizations have had an important role in the health care domain and they still have it. Although a number big enough of physicians were employed in the medical centres and cabinets relying on profit, there are a great number of non-profit organizations. This non-profit orientation creates a different environment in comparison to other activity domains. Another aspect which makes the difference between these organizations and the others, from other domains, is connected with the relational system on the basis of which it functions, relationships which appear between physicians from the primary assistance and those from hospitals. Therefore, the hospitals accept patients on the basis of a medical note, except the emergency hospitals. The importance of this kind of relationship is reflected by the fact that, in most of the cases, the decision of referring to an organization or another does not represent the willing of the final consumer. Therefore, the specialists in marketing must ground the strategies taking into consideration not only the final consumer, but all the factors which can influence this system of relationships (physicians from the primary assistance, the health care plans at the local, regional or national level etc.).

The product

In the health care domain, there is a very rich range of services which, in most of the cases, are offered in group. For example, a surgery supposes a series of procedures/services which, often, cannot be defined or measured with precision. The specialists in marketing are facing some serious problems when they have to give a definition for these services. In the same time, for the majority of them there are no products which could be replaced, as it is the case of other types of services.

The staff – the health care organizations are dominated by the medical staff and less by the managers; the last ones have different views regarding the organization's objectives. While the physicians take the decisions in favour of the patients, the managers are tempted to take these decisions in favour of the organization, meaning in terms of cost and efficiency. Although the medical staff had to become more realistic regarding the manner in which it uses the resources, the interests of the organizations from the health care domain are, in most of the cases, financial. The conflict between the physicians' targets and the managers' ones is therefore inevitable, a situation which occurs more rarely in other domains of the services. This conflict is also aggravated by the increasing of the anti-profit orientation which characterises an important part of the medical staff who actually considers that applying the marketing in this domain is an inappropriate decision.

Consumers are different from those of other goods and services because of the lack of information regarding the manner of carrying out a service and their price, because of the manner in which a decision is taken, because of the behaviour when buying and consuming, because of the limited capacity for evaluating the quality of the services and of the result. One of the most important elements of any business plan is represented by the marketing plan; it is made of the strategic plan of marketing and the tactic plan. The strategic plan establishes the main objectives of the marketing activity and the appropriate strategy, on the basis of the analysis of the current situation of the market and of the occasions occurred on the market, and the tactic plan of marketing points out the marketing strategies specific to the strategy which was used (Kotler, 1998, p. 137). The marketing plan represents the central instrument for managing and coordinating the effort of marketing. In the case of the institutions oriented towards the market, the marketing planning represent the starting point of the planning process as it supplies action directions for all the other functions inside the organization. The first step in marketing planning is the establishment of the mission and of the objectives, as it determines the planning at the operational level, at the staff level and of the financial plan (Hillestad, Berkowitz, 1991, p. 48). The processes and the relationships developed at the level of the inferior organisational chains are the object

of the strategic marketing and they are met again inside the actions of strategic marketing planning. The strategic marketing planning implies the fulfillment of some stages inside of which a series of concepts afferent to the strategic marketing are used: segmentation, positioning and composition of the marketing mix (Olteanu, 2003, p. 154).

The market segmentation represents the process of division of a collectivity in homogenous groups, depending on some criteria and choosing a strategic alternative of approach of the identified segments. The heterogeneity of the market of health care services imposes the organization of the market on segments; the activity of segmentation may be analysed from two perspectives

The segmentation from the point of view of the offer implies the identification of some categories of services according to their particularities, which are dedicated to certain segments of consumers (for example, prevention, curative or paediatrics services, cardiology or dermatology services etc.

The segmentation of the demand imposes the consumers' regrouping according to their type, their expectations, the demographic, economic characteristics, the behaviour of buying and consumption.

A first step in the market segmentation, from the demand point of view, is represented by the identification of the type of clients to which the offer is dedicated and here we distinguish:

1. legal persons-collective consumers(the number of the providers of health care services who try to attract the clients/companies is increasing, as they offer complete services for their employees, on the basis of some private health care insurances and some services of labour medicine);
2. legal persons-medical cabinets (for a series of suppliers of health care services – hospitals, clinics – the medical cabinets which offer primary assistance represent the main target as the family doctors are those who send the individual consumers);

3. natural persons-individual consumer.

The market segmentation according to the mentioned criteria and to the evaluation of the mentioned segments, help the organization in establishing the target-market, namely the market segments which it desires to approach, according to its resources and objectives. The marketing theory and practice has identified three strategic orientation of approaching the target-market: the focused strategy (specific to the situation in which the organization decides that the efforts should be concentrated towards just one segment – for example, the children with diseases of nutrition), differentiated strategy (acting over more segments– for example, the children with cardiac and respiratory problems) and undifferentiated strategy (approaching the market in an uniform manner – the sick children)

The services' positioning

The decision of buying the services is based on the image of the consumer regarding that particular product, the image determined by a series of endogen and hexogen factors. Among these factors, an important role is played by the actions carried on by the organization and which try to identify, develop and transmit a competitive advantage to the client; therefore, the services should be seen as superior and different from those of the competition. The positioning in services represents the action through which the offer and the image of an organization are projected in such a manner that it should have a distinct and considerable position in the eyes of the targeted buyers (Kotler,1998, p. 39). The positioning implies a variety of strategic decisions linked by the size of the services range offered inside every segment, services with added value which can be included and the manners in which the competition's actions may be counteracted. The market content which is part of the healthcare services imposes a different position inside the extern market and inside the interactive one. Therefore, inside the extern one, the organization must focus on the elements of differentiation as the notoriety, image, and inside the interactive one, on the real elements which touch the service, e.g.: ambiance, staff, equipments etc.

Taking into consideration every type of organization, the positioning may be made at different levels: at the level of the organization on the whole, at the level of some categories of services or positioning of a sole service. As there is a connection between the three levels, the image of one level can affect the image of others, too. For example, if the obstetrics services have a very good reputation inside a hospital, these services can be seen as a guarantee of the quality for the others services offered inside the hospital (paediatrics, surgery etc.) In the end, the competitive advantage is obtained through the different perception of some attributes which express the characteristics of the service, and this perception may be sustained by the organization through adequate promotional techniques which are part of the actions which offer the difference regarding the image. The specialists in marketing use for identifying the most efficient attributes of positioning, the “map of the consumers’ perception” which makes the differences between the attributes of the service by using the multidimensional scalar of the perception and of preferences (Kotler, Armstrong, 1994, p. 504). The execution of a positioning map will be made by taking into consideration two criteria; for example, in case of the healthcare services, the quality of the medical action and the level of the sophisticated equipments. A method used by the organizations from the health care domain for establishing the position inside the market is the MAC Model (The Management Analysis Center) which focuses more on the current activity and less on its development and implies two dimensions: the added value and the width of the products line (Hillestd, Berkowitz, 1991, p. 111). The term of added value for the healthcare services is referring to the programme of the units, the localization, the prestige, the programming system, the emergency phone line or other agents which can make the difference between one service and another.

The term of width of the products line describes the number of the available services. The MAC model identifies four alternative strategies: the high added value and a high number of services (private hospitals which offer high added value for all the specialities); The high added value and the reduced number of services (paediatrics hospital); The reduced added value and a reduced number of services (individual medical cabinet); The reduced added value and a high number of services which are

offered(public hospitals).As the hospitals, the clinics, the treatment and diagnosis centres and the medical cabinets have the possibility of selecting the market segments which they desire to deal with, they can project services with added value and they can establish the services range which they offer; therefore, they often contribute in establishing a position within the market. In what the positioning is concerned, a very important role is played by the communication system, too, reason for which, in the operationalization, the positioning represents two hierarchical levels: a superior one, at the level of the entire organization when the action is carried on the basis of the decisions and instruments according to this level, and another one, inferior, at the level of the set of concrete marketing activities, when the action is carried on through promotional techniques(Olteanu, 2002, p. 85).

The formulation of the marketing strategy

Depending on its objectives, the organization may choose certain strategies in order to differentiate its activity, for obtaining the desired position on the target-market. The marketing strategies, subordinated to the general strategies of the organization, are referring to the manner in which the organization deals with the market and with the elements of marketing mix. The formulation of the marketing strategies in the process of marketing planning starts from the generic strategy chosen by the organization, according to its mission and objectives. The contemporary economic, social and technological dynamism where the health care organizations carry on their activity brings a very large diversity of the strategies which are used. The factors specific to the services make quite difficult this action, therefore, when the market strategies are established, more criteria will be taken into consideration: the demand-offer report, the content of the organization's relations with the environment, the reports with the competition, the attitude for clients.

The demand-offer report has a specific evolution determined by the variability of the demand in time (it changes on a daily, weekly, monthly basis), a fact which imposes a new differentiated strategy or an undifferentiated strategy. The temporal differentiation of the marketing activities is made through a concomitant action over

the demand and offer, using strategies specific to these components, through a correct proportioning of the offer and the demand ordering. The content of the organization's relationships with the environment suggests the possibility of using two strategic alternatives: promotion of some partnership relations or some relations which involve the competition. The partnership relations has particular forms in the organization's reports with each component of the environment: with the clients, there are preferential relationships; with the competition, there are relations of tolerance and cooperation; and with the suppliers (especially with those who supply the work force), relations of cooperation. A family doctor sending patients to a specialist, although they might be in competition, becomes the specialist's client, even if, in most of the cases, the specialist's activity represents an extension of the family doctor's activity. The specialist may affect the reputation and the consumer's respect for the family doctor. Moreover, the family doctor wants more than his/her client's respect, he/she wishes to be a part of the team which treat the patient. In order to maintain a good relationship with his/her client, the family doctor, the specialist, must carry on the activity as good as possible, but also to place the family doctor, in the eyes of the patient, into a position of coordinator for the team which offers the treatment. This action has positive effects on three dimensions: it maintains the family doctor's feeling that he/she is involved in that particular case, it creates a good image of the specialist and of the family doctor, and it helps in the consolidation of the relationship between the patient and the doctor. Therefore, the specialist creates a unique service which demonstrates the partnership strategy: he/she continues to think about the client (in this case, the family doctor) and about his/her needs. The attitude (position) in front of the clients is reflecting in a behaviour which expresses itself in two strategic alternatives: attracting, maintaining, recovering the clients who reflect the marketing vision and another characteristic of a traditional vision, the strategy of indifference which, unfortunately, is specific to many organizations from the health care domain. Therefore, the strategy in the services domain must have, besides the essential characteristics and attributes which will correspond with the consumers' expectations, the attributes which will exceed these expectations (Cetinã et al., 2006, p. 141).

The marketing programmes elaboration

The operationalization of the marketing strategies is made by a series of instruments specific to the marketing activity named marketing programmes. The marketing programme is a developed plan of a complex marketing activity, made up of an ensemble of practical actions, echeloned in time, indicating the human, material and financial responsibilities which are implied in the development of every action. The programme stages and the concrete activities in the health care services will be carried on taking into consideration the demands of the extern, intern and interactive marketing. Therefore, the activities of the extern marketing are placed under the responsibility of some departments which usually are part of the superior management, those specific to the interactive marketing are part of the interactive marketing, and those specific to the intern marketing will represent the responsibility of managers, especially the managers responsible for the staff, for the sales and the operative managers (Olteanu, 2002, p. 286). A very important stage for the achievement of the marketing programme is represented by the determination of the budget. The resources allocation is made according to the importance level of every marketing technique, component of the mix, specific for every stage which is part of the life cycle of the products and according to the total evolution of that particular market.

Digital marketing (<https://www.knorex.com>, 2022)

Digital marketing has availed doctors and health specialists the opportunity to showcase their service to the digital world, beyond their locality.

Digital marketing allows Health specialists to showcase expertise to prospective patients, build professional territory, and boost healthcare reputation.

The importance of digital marketing for healthcare service delivery cannot be underestimated. If you're yet to implement this strategy, maybe now is the right time.

This article walks you through the benefits of investing in digital marketing for healthcare and the best strategies to implement for the best result.

How can digital marketing promote a hospital?

Digital marketing tactics can promote hospitals in many ways. Let's find out the key reasons behind it:

1. Prospective patients hang around online

As the popular saying goes, 'fish where fishes abound.'

Today, everyone, including your prospective patients live in the digital world. And even, according to statistics, most successful healthcare deals started from the internet.

A significant percentage of the US population look up health information online

2. The use of mobile devices has risen

Many people, including millennials, now turn to their mobile devices for information.

Everything from catching the latest football score to the newest supplement in town.

Utilizing this recent trend can be a turnaround for digital healthcare marketing.

3. Digital metrics track down everything

Digital metrics are powerful and can track any info, trend, or happening which, in the long run, are helpful to run a successful campaign.

3. Email marketing is a saver

Hospitals can tap into the numerous benefits of email marketing for reaching out to patients.

4. The ability to target particular demographics

Digital marketing allows hospitals to segment campaigns to target local areas, suburban, and certain healthcare territories which make it easier to reach out to the target audience.

5. Most prospective patients value reputation

Digital tools allow healthcare services to display professionalism, reputation, and reliability.

Patients look up the reputational aspect of a business before giving them a try.

6. Most health service audiences are college-educated.

A recent study from Think with Google confirmed that over 75% of people who look up health-related issues are college-educated.

. 50% of them are looking up information about a specific healthcare practitioner online.

7. Change is constant and digital healthcare marketing isn't exempted

People are beginning to dive into the digital marketing healthcare industry to connect with the right hospital or medical practitioner.

Digital marketing is the most flexible, reliable, and easy-to-implement strategy for a hospital marketing pursuit.

What are the advantages of investing in healthcare digital marketing?

Not only is digital marketing a lucrative strategy for getting more patients, but also a cost-effective way of advertising a healthcare service.

Let's explore some key advantages.

Cost-Per-Acquisition (CPA)

Implementing a digital marketing strategy to acquire new clients can reduce your total ad spend. According to a survey by US vein practice, medical centres spend over \$314 and \$348 per patient on print and TV ads, respectively. This is a lot of money, compared to what they'll spend on running a digital marketing campaign (over 50% slash in ad spend)

Location-based targeting

Digital marketing avails the healthcare centres the opportunity to target a specific demographic, including age, sex, location, and more. That way, relating to patients will be easier, and patients can get a more personalised experience.

Data-driven decisions

Tracking down patient's information can be difficult with traditional marketing, but with digital marketing, the process is a breeze. Plus, making an informed, data-driven decision is easier with digital marketing.

Better visibility on Search Engine

One out of 20 searches on Google is healthcare-related, including health and wellness tips, disease symptoms, diet tips, and more.

Good news. With effective digital marketing and search engine optimisation, you can increase your chances of becoming visible on Google's first page.

Increased patient referrals

With digital marketing, you have access to several professional tools and software that can scale your campaign for utmost performance and drive quality leads to your healthcare service.

Healthcare Digital Marketing Strategies And Best Practices

Digital marketing has gained huge traction because people turn to the internet to get quick access to a specialist from the comfort of their home.

A McKinsey survey found that over 75% of respondents said they love to speak to their specialists online.

That said; let's outline some of the most effective strategies and best practices.

Plan for Local SEO

Search Engine Optimization and user experience go hand in hand. Implementing an efficient local SEO strategy will help scale a successful healthcare business.

Responsive design, web load time, mobile and voice search optimization, easy navigation, and quality content are some of the features that make a website stand out.

SEO, a digital marketing strategy, boosts your visibility online. With the help of a professional SEO agency, you can target a specific location, boost user experience, brand visibility, and generate more traffic to your website.

Check out these statistics highlighting the importance of SEO for your healthcare service.

- 77% of people who look up online for health concerns use Google, Bings, and other top search engines.
- People who search for an optometrist, therapist, and nursing home have a higher chance of putting a call through to a medical centre.
- Over 70% of people who look up health-related searches online don't go past the first page of the search engine
- 47% of online searchers look up for more information on a doctor or a medical centre.

Consider pay per click advertising

PPC is an advertising service implemented by search engines, social media, and other platforms where you only have to pay when a lead clicks on your ad. An example is

Google AdWord that offers text and image ads. Text ads are those ads you see on the first page of search engines.

Image ads are those occasional display ads that pop up on your screen. The algorithm of these ads works based on your search history.

PPC ads allow your healthcare service website to be visible on search engines and generate more traffic. You can monitor the progress of your PPC ads to know what's working and what's not.

These statistics show the importance of PPC advertising in the healthcare industry.

- Globally, the Healthcare industry spends an estimated \$36B on advertising in 2020.
- Over 7 million healthcare services spent over \$10.1 billion on PPC advertising.
- On average, healthcare providers get \$3 back on every \$1.60 ad spend on Google.

Social Media marketing

The healthcare sector uses social media to reach out to more people, including prospective patients.

Social media marketing allows hospitals and healthcare practitioners to target their desired demographics, such as age, sex, location, and more.

With social media marketing, not only are you able to put your healthcare service out there, but also to educate people on certain health concerns, provide tips on mental and physical health, and lots more?

The following statistics reveal the importance of social media in the healthcare industry.

- 94.41% of healthcare centres in the US have a Facebook account, 50.82% have a Twitter account, 99.14% have yelp, 99.41% use Foursquare.
- 60% of social media users love health-related tips posted by professionals online
- 83% of social media users in the United States have looked up health-related information on social media.
- 91% of social media users confessed that the health information they looked up on social media has helped them make better decisions.

Content marketing

As with many industries, content marketing has been one of the most effective tools for healthcare specialists to engage with patients.

Whether it's through articles, blog posts, infographics, video contents, and more, content marketing allows you to share your expertise with patients.

For example, if you're a dietician, you can share information on diet tips, give nutritional advice, fitness tips, and lots more.

The goal is to provide valuable content. Avoid being promotional with your content. Focus on providing value; everything else will fall in place. Also, avoid using too many medical terms. It makes your content less engaging.

Content with fewer medical terms will easily connect with the audience and is generally understandable.

The following statistic reveals the importance of content marketing in the healthcare sector.

- Healthcare content marketing generates three times more ROI than outbound marketing, and ad spend is 62% less than other marketing plans.
- Healthcare video marketers make 66% more targeted leads in a year.
- 83% of health organisations implement a content marketing strategy
- 58% of health marketers have an updated blog

Mobile marketing

Everyone uses smartphones, from young to old. Mobile marketing in the healthcare sector is aimed at targeting people who use mobile devices such as smartphones, tablets, and other handheld devices with internet connectivity.

Text messages, In-game mobile marketing, mobile image ads, mobile search ads, and location-based marketing, geofencing, cross channel marketing, are some of the popular ideas that work well.

Mobile marketing allows you not just to target a wider audience but also share health-beneficial information and boost reputation.

Here are some proven statistics on the impact of mobile marketing in the healthcare sector.

- 44% of people who look up hospitals on their mobile end up scheduling an appointment
- 47.6% of healthcare emails are opened via mobile.
- 19% of mobile users have health and fitness apps on their mobile devices.

Invest in email marketing

If you want to maintain a healthy, near-direct relationship with your patients, email marketing is one of the most cost-effective ways to achieve this goal.

Personalise your email messages based on demographics like age, interest, location, health condition, and more. Always create friendly messages, enticing subject lines, and calls to action.

Implementing an effective email marketing strategy can help generate more leads and more patients for your hospital.

Below are some proven statistics on the impact of email marketing in the healthcare sector.

- Email is 40 times more effective than Twitter and Facebook when it comes to acquiring new leads
- 89% of digital health marketers said email is the primary source of their lead generation
- For every \$1 spent on email marketing, the ROI is \$44.25

Final words

There's no denying the fact that healthcare marketing is the new normal for a successful professional health service.

The importance of digital marketing in the healthcare sector cannot be underestimated. Establishing an online presence is critical to the growth of your healthcare service as it allows you to reach out to a wider audience who hangs around in the digital world.

In the long run, a patient's experience and brand reputation will remain the most crucial factor for a successful digital marketing strategy.

Proper marketing and advantages - <https://healthcaresuccess.com> (Gandolf, 2022)

When done properly, healthcare marketing can:

- Enhance the patient experience
- Keep healthcare consumers engaged with relevant, personalized, and timely outreach during their journey
- Empower consumers to make smarter, healthier decisions, leading to better outcomes for healthcare brands and consumers

- Increase your consumer base, retain existing consumers long-term, and improve loyalty in your healthcare community
- Drive more qualified leads and generate more revenue
- Increase local physician referrals
- Position your physicians as thought leaders in their market
- Evaluate your productivity and re-align the strategy
- Increase your strategic advantage to attract healthcare consumers in an increasingly competitive marketplace
- Improve your online reputation
- Build your brand

Rapid changes in the healthcare industry markets require agility and focus. You may need to hire a marketing agency and plan for a larger budget than you have in the past. But in the end, it's worth it for that peace of mind—and to see your bottom line grow faster than ever before.

To help you along, we offer here our always up-to-date 15 strategies to include with any well-planned healthcare marketing plan.

1. Use consistent healthcare branding

You might feel confident your expertise sets you apart from other healthcare providers or businesses. But let's face it—to a healthcare consumer, one white coat looks just like the next, and consumers are famously unwilling to buy a product or service from someone they don't know and trust.

When you build a strong and recognizable brand and promote awareness of it, you go a long way towards reducing your overall cost-per-acquisition and growing your ROI. First, you'll need to determine what your brand is all about. In other words, what's unique about your healthcare business? Is it the way you treat healthcare consumers?

Your family-friendly office? Your spa-like environment?

There is at least one thing that makes your medical team unique, and that's what helps consumers remember your healthcare organization's name. Promoting awards or

accolades for this sort of achievement is a terrific way to build trust in your brand, especially because you're asking consumers to trust you with their health.

It may take time to determine what works best for your brand. But eventually, a sound healthcare marketing strategy with consistent branding and marketing materials will come together and represent your brand in the best possible light.

2. Evaluate the online patient experience

Twenty years ago, simply having a website was enough to impress prospective healthcare consumers and help them find your healthcare brand identity.

Today, consumer engagement has become increasingly complex as the healthcare industry shifts more readily into virtual care experiences, like telehealth and remote monitoring.

A website is your organization's front door. It's often the first thing consumers see; if it's not optimized, it may also be the last time a person considers your hospital or healthcare practices.

Aside from ensuring your site has accurate and easily accessible contact information (e.g., locations, phone numbers, contact form, and primary services), the imagery and wording represent your consumer base.

On top of that, to encourage better engagement, healthcare businesses must include value-add experiences, like easy access to information, timely appointments, and high-quality communication with healthcare providers. It must be baked into every experience they have with your brand, intentional or not. User experience is an essential part of website design. But sometimes, designers are so focused on making the website look good that they forget to focus on the patient experience. We often find that websites need to be completely reimaged. But, we also look for ways to make small but immediate improvements to drive more business, like positioning the "Contact Us" form above the fold.

Creating a positive patient experience also means analyzing how most consumers typically engage with you (e.g., website, social media, paid ads, third-party listing service, etc.).

Consumers want to interact with you on their own terms. Your medical marketing strategy must account for every consumer touchpoint.

Examine the path consumers take after first engaging with your business and whether they call or submit a form (or not). Mapping your consumers' journey can give you a better understanding of their needs and what can trigger a conversion.

3. Build a responsive healthcare website

A responsive website automatically adjusts to the size of a screen, so the experience is the same whether the site is accessed from a computer, tablet, phone, or another mobile device.

It's the norm in website design today—but more than that, it's something search engines look for when crawling any medical website to determine how and where you'll rank.

Google cares about the user experience. As of September 2020, Google committed to a mobile-first index of all websites, including Healthcare websites. This means it ranks responsive sites higher than non-responsive sites. However, even if your site is responsive, it's important to confirm that your content and imagery load properly (and promptly) across all mobile device types.

4. Test site speeds

Healthcare marketers who study user (prospective healthcare consumer) behaviors online have proven that consumers are less willing to put up with slow loading times than ever before. It only takes 5 seconds to lose a prospective consumer.

What's more, poor site speed may cause your medical or healthcare website to fall in the search engine results. You can test your site speed using Google's PageSpeed Insights. If load times are slow, talk to your web developer about ways to speed it up. I also recommend checking the site speeds of your direct and indirect competitors to see how your site stacks up.

5. Optimize organic search engine results for prospective healthcare consumers

Search engine optimization is a powerful tool for getting your medical practices or hospital network to the top of the search engines. However, it's a lot more complex than most people realize.

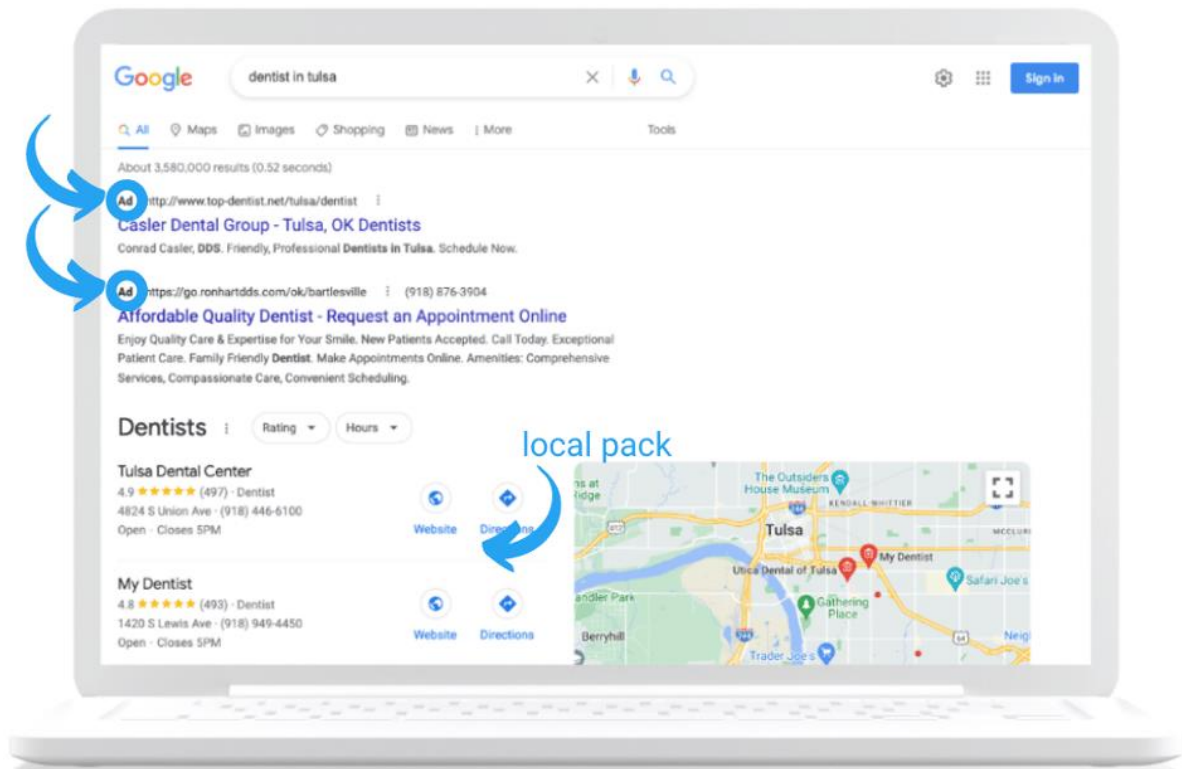
You cannot simply use the term "orthopaedic surgeon" 100 times throughout your website and hope to rank #1 on Google among all doctors, physicians, and surgeons providing healthcare services in your area.

SEO involves using the right optimal phrases and keywords so Google can understand your healthcare organization's websites. Focusing on organic SEO tactics helps you rank for the proper, relevant, and pertinent healthcare-related search terms (e.g., medical conditions, healthcare professional treatment of any type). However, you must also use those terms naturally throughout your content because Google cares about readability first and foremost.

This is only the beginning of healthcare marketing best practices for SEO, which also include:

- Developing content pages full of high-quality information and optimized with your keywords.
- Having internal links pointing back to relevant pages on your website.
- Gaining external backlinks from reputable health sites.
- Managing your site index or sitemap (making it easy for search engines to read and rank).
- Claiming your healthcare website on Google Business Profile and complete your business listing with complete, accurate information.
 - Fill out every available section for each location
 - Incorporate photos and videos
 - Optimize local listings and reviews
 - Post frequently asked questions in the Q&A section
- Optimizing your site with local SEO tactics (increasing your likelihood of appearing in the Google Local Pack).
- Submitting your website to Google.

6. Use PPC and display ads for healthcare marketing



Paid search advertisements appear first in search results.

Search Engine Optimization (i.e., “Healthcare SEO”) is an organic marketing strategy used to earn a healthcare system, hospital, or practice greater visibility online.

However, even if your site ranks number one organically, for a search term like “surgeon in Tulsa,” there are still 3 or 4 paid advertisements above your organic web page that people will see first.

PPC (pay-per-click), or paid search advertisements, are laser-targeted to appear first on the search engine results page (SERP) for a set of search terms. You can manage your budget with paid search and decide how much you’d like to spend to keep your site at the top of SERPs. Your return on investment is clear and defined with both PPC and display ads that appear on the sidebar or top of other websites.

7. Leverage social media (the right way)

Too many hospitals and healthcare practices rely solely on organic social media for a large part of their digital healthcare marketing strategies. Organic social media means

posting photos, updates, events, etc., directly to Facebook, Twitter, or YouTube. It's a valid brand-building strategy and lets healthcare consumers know what's new.

However, it shouldn't be your only social strategy. Paid advertising on social media is a better way to reach much larger numbers of the right people who may be looking for your services—even if you're not already connected. Let's face it: few people share posts from local healthcare organizations online unless they are already engaged with that group (or better yet) employed by it.

Paid social media is about more than pressing the "Boost Post" button that appears when you post from your business page. Like PPC or display advertising, it involves strategizing and budgeting to target the audience you want.

8. Ask for reviews from healthcare consumers

Consumers want to see that others like them have had a good experience before scheduling their visit. Online reviews continue to gain credibility for potential and current patients. 86% of 1,124 US-based consumers surveyed trust online reviews as much as personal recommendations and believe they're a reliable resource when choosing a new physician.

Typically, healthcare consumers only leave reviews when motivated to do so (e.g., if they've had an above-average or extremely poor experience). Unless you're proactively asking for reviews, you're missing out on opportunities to feature positive consumer feedback.

Keep your finger on the pulse of consumer feedback by incorporating automated, HIPAA-compliant review platforms into your healthcare marketing strategy.

While there are many good options out there, our agency provides clients with a highly scalable platform that offers the three most vital functions:

1. Review solicitation. Most review/rating sites allow you to ethically solicit reviews from healthcare consumers and patients, so long as you don't artificially "stack the deck." Your platform should allow you to request reviews at scale through text and email or on a one-on-one basis through QR codes, tablets, and individual text messages. Your platform can direct patients to websites like Google and Facebook and generate first-party reviews for your website.
2. Review monitoring. While review monitoring for a single location is pretty manageable, it can be a nightmare for multilocation providers. What's more, without the proper software, you will likely miss both good and bad reviews on dozens of rating sites.
3. Review responses. Your platform should also allow you to respond to online reviews easily. (More on this in a moment.)

Note: All client communications need to be empathetic and HIPAA compliant. Also, be sure never to post or buy fake third-party reviews.

9. Follow up with consumer feedback in your marketing efforts

If a healthcare consumer shares a poor opinion of your practice on outside review sites such as Google, Facebook, and Yelp, you need to respond and show that you're working to resolve the problem. With the proper follow-up, consumers may be motivated to update their reviews to let others know you resolved the issue quickly.

Reputation management should be a part of any healthcare marketing strategy, but this doesn't mean you should get defensive about negative reviews. Instead, look at them as learning experiences and upgrade processes and equipment as needed to ensure the best possible patient experience moving forward.

10. Look into traditional media options

Many healthcare businesses are reluctant to invest in external media opportunities: traditional advertising sources like radio, television, billboards, and newspapers. These can be significant investments, so you must be careful where you spend your money to see the best, tangible results.

Having unqualified healthcare media buyers make these decisions for you is the best way to make sure your advertisements get seen by the right people at the right time. A billboard in the middle of nowhere does little to bring in healthcare consumers, but a television advertisement that runs on a channel with demographics that represent your average consumer can do wonders for your ROI.

11. Build physician referrals into your medical marketing plans

How does your practice reach potential referring doctors? If you're not using a physician liaison, you're not getting what you need. Doctor referrals are some of the best organic marketing strategies for bringing in new healthcare consumers. To ensure you're receiving as many doctor referrals as possible, you or your physician liaison must be proactive and exercise best practices in professional communications and relationships. Here are several suggestions to help you get started:

- Meet & greet
Welcome every new healthcare professional to the area with a personal note or in-person visit.
- Build and maintain relationships
If you want doctors to refer their patients to your practice, they must trust your ability to provide exceptional care. Not only that, but they've got to like you. Reach out regularly to establish a friendly, professional relationship.
- Get involved
Referring physicians are more likely to take notice of your practice, value your skills, and entrust their patients to your care if you're actively engaged with your community.
- Follow up regularly
Thank referring physicians with a phone call or handwritten note, and keep them apprised of the referred patient's condition and the course of treatment you administered or prescribed. They'll appreciate the information and your attention to detail, which may also help persuade them to refer additional patients to you.

- Keep it simple. Make it easy for doctors to refer their patients to your practice. Keep your contact information on your website, social media accounts, and business cards up-to-date, and have an easy-to-use referral form on your website.
- Scale your outreach. In decades past, it was easy for solo practice specialists to build relationships with referring doctors one-on-one. Today, hospitals and multilocation groups are far too large, and the competition is too great to contemplate just “dropping by with some business cards.” Instead, larger organizations rely on a team of skilled physician liaisons and the right digital marketing tactics to woo referring physicians.

12. Check in with your current healthcare consumers

Though it may not compare to digital advertising, word-of-mouth referrals should always be part of your overall medical marketing strategy.

Follow up with your healthcare consumers after an appointment or procedure to see how they’re doing. Ask about their families, or send birthday cards with a personalized touch. You should also send emails and text reminders for follow-up appointments (in-person or via telemedicine) and do whatever you can to maintain a positive relationship.

Consumers will always appreciate you taking the time to reach out and may go out of their way to recommend your business to friends and family.

13. Become an authority in your specific field of medicine

Prospective healthcare consumers are more likely to remember brands that establish themselves as an authority in their medical specialty. Your public relations strategy should involve reaching out to appropriate media outlets when you have something noteworthy to share—it’s almost free advertising for your healthcare brand.

Stay up-to-date with your specific healthcare industry niche through LinkedIn groups and other online forums. Consider following sites like HARO (Help a Reporter Out) to

learn about interview opportunities. Submit healthcare community press releases from time to time—and consider hiring outside help to boost your visibility.

14. Track your marketing strategy

You should continuously monitor how your medical marketing strategy pays off in terms of ROI. Each year, your healthcare marketing budget should adjust in terms of what you want to focus on and be based on a careful study of your metrics (performance analytics dashboard). There are many ways to do this type of healthcare consumer marketing tracking:

- Use a CRM (customer relationship management system) like HubSpot to track how healthcare consumers engage with your campaigns via emails, call centers, or targeted landing pages.
- Use Google Analytics to determine which terms you rank for and which terms you're missing out on.
- Track your PPC campaigns by setting up Google AdWords.
- Use a HIPAA-compliant call-tracking system to see how your paid advertising is paying off and monitor your front desk.

15. Audit your call center's response to your healthcare marketing initiatives

You can have the best healthcare marketing strategy for anyone in your area, but you lose money and opportunities if your call center cannot handle calls properly. An audit of your healthcare consumers' call center experiences may reveal any of the following:

- Long hold times for potential consumers
- Confusion or consumer misinformation
- A slow scheduling system
- An inability (on the part of your staff) to discuss or present your healthcare services
- No strategy in place to get consumers to make a commitment or book an appointment

We strongly believe that no healthcare marketing strategy is complete without adequate training for your call center. This helps you and your team learn how best to represent your brand.

Ready to update your marketing plan? Implement these 15 strategies to gain and keep consumers and grow your business.

2.3 Health environment management: theoretical overview

Health environment management is required today more than any other time in the human civilisation because the balance between resources and man is weaker than any other time of the human civilisation. Further it is required for the reason that there is an environment of imbalanced development process in the developing or poor countries of the world where more than two thirds of the people live.

Environment is rapidly changing as a result of human and geological influences resulting in chaos and hazards. This raises the need for a study of environmental management for health, which aims at preparing a healthy environmental with the use of best available scientific methods and technologies. Environmental management began as a response to major problems like air pollution, water pollution, soil erosion and emergence of new diseases. It is clear that all the environment problems around us are linked to these three basic damaging activities. However, we cannot conserve as we like and the rising populations demand that more and more resources are to be utilised if they are to be provided with the basic necessities of life.

Environmental change

Environmental change is the process of changing environment through physical and human activities with use of technology, social and political ideology. Physical changes are initiated by geological changes of landforms and climate which in turn

lead to changes in biological environment (Seneviratne, 2018). Human activities are controlled by the available technology, social structures and political ideology.

For example the ancient civilisation of Sri Lanka was based on the concept of irrigation and a strong monarchical rule, which arranged the environment to suit the sustainability of a hydraulic civilisation. This civilisation has experienced periods of climatic fluctuations which were controlled through the cascade system of irrigation. But there were times of extremities where famine and flood has created havoc and destabilised the settled environment (Seneviratne, 2018). Recovery from these changes were easier than today because there was only a minimal amount of chemical pollution and any other forms of pollution were controlled through very strict system of environmental control. After the fall of the Ancient kingdom the survivors have made an attempt to adjust and adapt to the new wet environment of the south, south west and the mountains. However the technology of tank cascade system was not applicable to the new wet areas and dry phases of climate made them to drift more into the wettest areas of the country. They managed to use the canal irrigation but drainage systems suitable for hill ranges and mountains were difficult to master. Survival was difficult in the new environment and population dropped to an all time low due to exposure to new endemic diseases of the wet zone for which they had very low immunity. It is believed that a population of about 6 million around AD 1200 has dropped to about a million in and around 1400 AD. Major diseases which led to this destruction of population were malaria, dysentery and typhoid fever which originated as a result of destruction of water supply and drainage system. Since the arrival of western colonists environment of Sri Lanka was changed to suit the cultivation of tree crops and spices.

We are still in this environment and have begun to introduce an unplanned urban and rural settlement expansion. Transformations from rural to urban and low density to high density housing has a marked impact on health in developing nations as these transformations are not properly planned. Resulting environmental change leads to congestion and pollution of the living environment. Therefore our urban environment

is becoming more and more polluted, dangerous and chaotic to live with increased prevalence of infectious, respiratory and gastrointestinal types of diseases. The use of chemicals in farming and food preparations and preservation has become a contributory factor to an increase in many types cancers. Change of diet and life style has resulted in the increase of diabetes and heart related diseases. Threat of terrorism and racism has led to an increase of trauma and mental disorders. The study is conducted within an area influenced by above mentioned complex situations in the past three decades, though urbanisation and congestion began mostly in the last decade.

Change of environment is the change of living environment by migration for the purpose of living and economic activity. Migration to farm settlements, urban areas and emigration result in change of environment. Again if these activities are not planned properly, the new environment is subjected to pollution, becoming dangerous and chaotic to live. When emigration is not conducted in a proper manner the emigrants are subjected to many legal and social difficulties, which may result in abuse and trauma.

In the area of the location of the firm majority of the people can be categorised as migrants. First a back water for the ancient kingdom, then a salt and dry fish supplier to the Kandyan kingdom, western rule, independent Sri Lanka a contested area in the 30 year war and subsequent settlement of the war affected , tourism and lobster and prawn farming, and as late as 2019 a terrorist training area for IS group.

The holistic view of the environment is utilised in the new concept of health management, where value of health environment is weighed on the basis of its long-term sustainability within the environment. Therefore the new concept is constantly linked to agriculture, industry, investment, monetary policy, livelihoods and economic planning. This enables the health manager to begin at the point of investment and end at sustainable control.

Health environmental management is required to organise and utilise the environmental resource with optimum benefits to the populace. In the process of this organisation and utilisation system two major principles are to be followed.

1. Understand the dynamics of natural and societal systems of health and the effect of them on disease scenarios
2. Understand the causes of disease and the organisational structure of disease management systems best suitable for control, recovery and rehabilitation from health threats

Understand the dynamics of natural and societal systems of health and the effect of them on disease

This is the primary task of health environment manager because without a proper understanding of the dynamics of natural and societal systems of health and the effect of them on disease, the health manager cannot provide the direction required for the progress of the users.

Firstly there is the presence of ever changing nature of value of natural and societal resources based on the technology available. It is now clear that the traditional measures of national income have a very limited relationship to the well being of people. This is primarily a result of not accounting the cost of health on real income. For example unless the infectious diseases are controlled wellbeing of the people are degraded. This is exactly the situation almost all the poor countries of the world including Sri Lanka. Covid 19 indicated the vulnerability of modern civilisation to a pandemic.

There are two major forces in action in a given environment in the formation of disease:

Physical systems and Societal systems.

These two systems should operate on a highly complementary state if success is to be achieved in the programme of health environment management.

The physical systems operate on the principles of natural sciences and form many types of risks. The endemic environment is decided upon by the climate and topographic environment of a given place. For example malaria in the dry zone is formed from a combination of seasonally dry climate and even landscape with slow flowing streams. Respiratory diseases in urban environment result from lack of control of air pollution and living in houses without proper ceilings where droplet spray settles in the night.

Amount of water available in a given country is of utmost importance to its health and development. The amount of water available in a given country is related to its rainfall, runoff and storage. This amount of water changes over space and time. For example in Sri Lanka, its ancient civilisation depended on a total forest cover of the highlands, which enabled them to receive large quantities of spring water to the rivers flowing across the plain. At that time there was slightly higher rainfall in Sri Lanka, runoff was low due to thick forest cover and storage was high due to non-clearance of upper catchment forests and a well designed settlement plan. Since the movement of civilisation to the wet zone, gradually the highland forests were destroyed and today Sri Lanka is an area of constant water shortages. This is due to inability of the present environmental managers to understand the true dynamics of the water supply system of Sri Lanka. The designs of the countries where problem of water is minimised indicate that the holistic view they have incorporated into their environmental planning has yielded expected results. These planning systems utilise the value of upper catchment conservation and settlement planning as an integral part of conservation of water. Modern settlement utilise massive quantities of water and water supply in them cannot be maintained well without recycling of water.

Understand the causes of disease and the organisational structure of disease management systems best suitable for control, recovery and rehabilitation from health threats

Once the change is properly identified the health environment manager has to investigate the causes of the disease systems and the disease management systems best suited for control, recovery and rehabilitation. Principal cause of disease is the unplanned process of human development which is not based on development ideology.

Two major development ideologies have been used since the industrial revolution to develop human environment with an aim of improving health. They are modernisation and alternative development which can be used to improve environment and health. Though Sri Lanka has made a serious attempt to raise the living standards and improve health status of its citizens since independence poor quality national planning and corruption has made it a dream which is yet to be fulfilled like in all the other developing countries.

Environment, development and health: disease management and environmental management

It is clear from the discussions on macro-economic development, health sector development, demographic and epidemiological transitions and poverty, that all these processes are notably affected by the physical environment of the tropics, which are capable of year round breeding of vector borne and bacterial pathogens. Further, poverty has its own array of conflict, which enhances the possibility of continuing morbidity as Sen (1999) has indicated. The poverty itself has to be eliminated with the help of the physico-ecological environment of the developing world, because the primary step towards alleviation of poverty is to provide food and shelter. In this context migration becomes a necessity as the present areas of habitat are not sufficient

to provide these basic requirements of food or shelter in the developing world, where rapidly rising populations and epidemiological puzzles are common.

Mayer (1990), in a general evaluation of the traditions of medical thought, discuss the utilization of spatial, human environment, physical and regional traditions in medical space and explains the value of an ecological approach in the study of disease patterns within the human environment tradition. He further indicates that there is a close association between the human environment tradition and disease ecology.

Curtis and Taket (1996) identify two major traditions in medical studies and two strands under each of the two traditions. Spatial patterning of disease and health and service provision is categorized as the two strands of traditional medical space. Contemporary medical space is studied within the humanistic tradition and the structuralist/materialist/critical turn. The final strand under contemporary medical space is named transgressing the boundaries – the cultural turn. The cultural turn has begun to pay more attention to place and health, reviving an old tradition in a new perspective.

Kearns and Moon (2002) have investigated this changing nature of medical space and the emergence of health space. They explain that the complexity of theory in medical or new health space arises from the nature of health and health related problems themselves, which keep changing with changes in development and natural ecology.

This diversity of approaches in medical and health space is provided by writers such as May (1954 and 1982) Mead (1976), Kjerkshus (1977), Turshen (1984) Mayer (1996 and 1999), Gatrell (2001), Kearns and Moon (2002) and Seneviratne (2003).

The evolution of the study of health related issues in space therefore originated from the epidemiological method, but a more human approach have begun to move away from physical epidemiology. However, the value of ecology remains extremely important in studies of the development world where the incidence and prevalence of

environment related diseases have not been adequately controlled. This situation demands the continuation of an ecological model either in full, or as it becomes relevant to a particular study.

In most parts of the developing world, a change of environment and environmental change which results not only in a change of developmental level, but also a physical one. As explained earlier under the sub topic of development strategies, the settlement system of Sri Lanka is a product of its political authority. This is because the present state of landlessness in the wet zone is a product of colonial land policies, and the continuation of the same policies beyond independence. Recent high demand for land can be linked to the early achievement of better health status among them, which resulted in a population explosion between 1950 and 1970. Therefore it is evident that an environmental change for the better in the wet zone has increased its population rapidly, and that the excess population has to be accommodated. This situation leads to provision of land in the marginal areas where swamps, water logged or areas with many other risks are used for housing. This situation is common to many developing countries where land is a commodity of the rich and powerful and national planning has not prepared land for the use of the rest.

Disease Ecology/ Political Ecology

These types of changes have been studied within a framework of disease ecology and/or political ecology of disease by many authors in Africa, Latin America and Asia, which inspired the adoption of a similar approach in this study.

In his presentation of the disease ecology approach, May (1954) identified the importance of biology and material aspects of culture in disease complexes, and the interaction between humans and their environment as a progenitor of disease in humans.

Hughes and Hunter (1970) have dealt with the impact of modernization and socio-political development in relation to understanding disease, implying the importance of development in change of environment or environmental change. Turshen (1984) gives a presentation of the political ecology of disease in Tanzania, and emphasizes the importance of development strategies and ecological consequences in the study of health. Kjekshus (1977) and Desowitz (1981) have presented strong empirical evidence for the importance of ecology within a spatial and historical and context. Meade et al (1988:19) utilizes the ecological model in a discussion of settlement and health.

Packard et al (1989) indicates the increase use of spatial, climatic, economic and political factors in studies of health and disease. These theoretical submissions rely on the importance of ecology in the construction of disease scenario of the tropical developing world. The development of resistant varieties of bacteria and viruses, and encounters with new diseases as discussed earlier, further enhance the value of investigating the role played by change of ecological environment due to modern developmental process.

The use of an ecological model of disease and its evolution is summarized by Mayer (1996), who explains the use of social and psychological contexts by both geographers and epidemiologists. Further he presents a detailed investigation of research connected to disease ecology.

As suggested by Packard et al (1989), disease ecology can be taken a stage further by incorporating spatial, climatic, economic and political factors that affect disease patterns.

Studies of health and disease have recognized the limitations of research, which depends on narrow biological determinants of disease. This type of inquiry has resulted from the increasing link that is made between political process and development, which results in health implications from epidemics and the high

prevalence of easily controllable infectious diseases. Brownlea (1981) indicate the neglect of this aspect of power and politics in the analysis of health care systems and epidemiological questions. In a study of environmental change and disease in Tanzania, Turshen (1977) has criticized May (1954) for neglecting politics, and Kjekshus (1979) uses a political economy approach without much consideration of disease ecology. The way to find an approach is through the understanding of May (1958) in a context that he was a medical doctor and implicitly or explicitly excluded the role of politics in health (Mayer, 1996). Studies on malaria in Trinidad (Fonaroff, 1968), and Malaysia (Meade, 1976) emphasise the importance of political policy making in the proliferation of disease, but have not incorporated the full contribution of politics in the formulation of disease scenarios. However, these studies can form a basis for the political ecology of disease, which will be flexible and allow political and economic considerations to be included in ecologically based studies.

Political ecology as popularly defined by Blaikie and Brookfield (1987) combines the concerns of ecology and political economy within a spatio-temporal perspective. This is a powerful basis for the analysis of disease ecology, especially in the developing world where many facets of national and local politics may override optimum resource use, as detailed by Grossman (1981). Political ecology emphasises the role of individuals and collective action, and it acknowledges that these different types of action are constantly affected by socio-political processes.

Another aspect of political ecology is its ability to accommodate varying scales ranging from the local to the global. The important place of historical analysis in political ecology provides an understanding of structural change over time and its effect on social structure and social relations. These characteristics enable political ecology to be used as an alternative to disease ecology, when socio-political factors have an overwhelming influence on the formation of health and disease scenarios. Studies by Meade (1976), Turshen (1977), Kjekshus (1979), Grossman (1988), Packard (1989) and Mayer (1996) have contributed to the emergence of this valuable approach, which is applicable to developing areas of the world where ecological

considerations have become secondly to political programmes, resulting in many troublesome health and disease scenarios. Settlement and encroachment on marginal land in the developing world has increased the prevalence of infectious diseases, and these programmes either directly or indirectly have been initiated by socio-political forces operating within societies and from outside.

Prothero (1994:661) discusses the health problems associated with settlement in detail and his analysis applies well to the situation under study in this book, because the macro scenario of disease prevalence in the study areas indicates higher morbidity among settlers than their siblings in the home villages. This high morbidity arises from the high prevalence of infectious diseases in settlement programme areas, which can be explained as resulting from changes in physical environment and the core-periphery relationships of modernization.

The impoverishment risks/restoration model presented by Cernea (1996:21) identified increased morbidity as one of the eight factors which can contribute to multifaceted impoverishment.

These studies indicate that neglect of the health implications of settlement exposes the settler to serious health hazards. This is primarily due to lack of understanding of the process of environmental change, or neglect of the ecological factor in planning settlement. Therefore, settlement can lead to the creation of a group of people who are vulnerable to disease and marginalisation due to neglect of the ecological factor. A similar scenario is suspected in the study area, as even the settlement schemes established more than 50 years ago in Sri Lanka have not shown a marked change in the disease prevalence profiles.

However the theoretical domain of political ecology is better suited for the study of environment and health in the developing countries, because health is more a political issue in these countries where development is guided by political decisions than environmental planning.

Human Ecology of disease

Studies on human ecology treat habitat, population, and behaviour as the vertices of a triangle that encloses the state of human health.

Habitat is the living environment of people. Landforms, climate, vegetation, animals, health care facilities, transportation and communication systems and systems of government control are included under this topic.

Population studies humans as an organic unit and a group which can be hosts of disease. Natural immunity levels of the population in relation to genetics, nutritional status, immunological status, and its immediate physiological status with regard to time of day or year are also considered within this topic. The effects of age, family composition and the personnel habits can also be considered under this topic.

Behaviour is the area of culture which can be clearly identified through the way of life of people. This is related to cultural precepts, economic status, social norms, and individual psychology. It includes mobility, roles, cultural practices, and technological interventions.

Habitat

Habitat contains all the elements of the physical and biotic environment, which affect human health. However, today, most of the humans live mainly in built-up environment of housing and other infrastructure. Therefore today our health is primarily controlled from the built-up environment, clean or dirty.

Frequency of intestinal infections is reduced when proper drainage facilities are constructed and droplet infections are increased when a proper ceiling is not installed in the house. Malaria disappeared from Southern Europe after all the swamps were

drained and Dengue is on the increase in Sri Lanka as unplanned filling of lowlands have blocked drainage. Viral infections are on the increase in Sri Lanka due to breeding of viruses by all the city and town waste dumps due to low environment literacy of urban area dwellers and administrators.

The occurrence of dysentery, tuberculosis, dengue, influenza, viral fever and typhoid are directly associated to poor housing, which is confirmed by the economic status of the patients. A survey conducted on three base hospitals in Sri Lanka revealed that 64.4 percent of the patients treated for infectious diseases came from low income households with less than 40000 rupees monthly income.

An investigation into the prevalence of chronic diseases also related to income levels. Hospital mortality records confirm that about 84 percent of the people with chronic diseases are from the income group above 50,000 rupees per month.

Tables 2.1 to 2.3 indicate the present status of habitat in general, where no place on earth is free from some form of chemical or organic disturbance. This is because, the global environment is surrounded by all types of waste produced by geological and human forces.

Table 2.1 Nature and habitat

Physical characteristic	Health Problem	Reason	Exposed population
Lowland humid	Respiratory	Lack of proper housing	Poor and low income
Limestone aquifer	Diarrhoea	Rapid drainage	All categories
Limestone basement in Dry Zone	Renal failure	Weak filtration system	All categories

Highland wet	Respiratory	Exposure to mist and drizzle	Estate workers
Lowland wetlands	Helminthic	Poor drainage	Poor urban dwellers

Table 2.2 Development and habitat

Habitat Type	Economic status	Management level	Health status	Major health effect
Natural	Developed	Controlled and harvested	Protected	Chemical pollution
	Fast developing	Initial control and harvesting has begun	Fairly protected	Low chemical and high organic pollution
	Slow developing	Very limited inconsistent control	Not protected	Low chemical and high organic pollution
	Poor	No control	Not protected	High chemical and organic influx
Built-up	Developed	Controlled and managed	Well protected	Chemical pollution

	Fast developing	Initial control and management has begun	Fairly protected	Low chemical and high organic pollution
	Slow developing	Disorderly	Not protected	Low chemical and high organic pollution
	Poor	Highly disorderly	Not protected	High chemical and organic influx

Table 2.3 Extremely dangerous habitats

Habitat	Disease	Origin
Tropical forests	Malaria, Filaria, Dengue, viral fevers and possibly AIDS	Mosquito, monkeys
Tropical savanna	Schistosomiasis, onchocerciasis	Snail, fly
Semi desert – Sahel	Cerebro Spinal meningitis	Virus from faecal deposits
Migratory work camps	AIDS, Viral and bacterial fevers in Sri Lanka	Careless sexual activity
Southeast Asian Chicken and duck	Bird Flu	Careless animal rearing

farms		
Urban slums	All types of infectious diseases, in Sri Lanka Dengue	

For example Dust raised by storms in Taklamakan desert in Central Asia is found deposited in the ice sheets of European Alps and sometimes they drift over Sri Lanka. The effect of Ozone hole in the Antarctica is felt in Sri Lanka through the activities of El Nino weather systems. These dust flows and El Nino occurrences lead to an increase in respiratory diseases and failures in children and old age people. Therefore today we cannot identify any place or space as natural, though locally a few areas may have natural characteristics identified by biologists. For example, the Cloud forest of Samanala Range and Rain forest in Sinharaja are considered by biologists as natural, but the air and water in them are found to be contaminated with sediments from the surrounding areas.

Man has effectively interfered with the natural systems and made the habitat orderly or disorderly, but he is not capable of keeping it truly natural. This affects the health status of people living all over the earth. The resurgence of old diseases like Tuberculosis and emergence of new diseases like Dengue and Avian Flu confirm the poor control man has over his natural domain.

Settlement patterns

Settlement is the unit where people live together in a constructed environment. Settlement has primary and secondary units of constructions. Housing, roads, communications, drainage, sewage systems and waste disposal systems are the major constructed items in a settlement. The micro climate, aerodynamics, flow hydraulics and biology of the settlement form the secondary environment, which affect people living in the settlement.

These constructions are made from chemical mixtures and the designs formed by these constructions can affect the health of the dwellers. Today most of the housing is constructed with cement and iron related material and applied with paint manufactured from petroleum residue. Most of the furniture has plastic coatings or paint coatings made from various types of chemicals.

Roads in and around settlements are constructed with bitumen and concrete, which are manufactured from chemical mixtures. Communication equipment is primarily plastics and metallic in nature. We hold communication equipment very dear to us and connect them to some form of electricity.

The story of the ability of portable communication equipment in the formation of some bodily stresses is studied in detail and some of these stresses are found to be harmful to health. For example in Sri Lanka noise generated from bus stereo systems and music system in town areas have higher noise levels, which can harm ears and brain. The impatience of the transport operators (drivers and conductors) may be linked to “beat music” played and “language used” by FM radio networks. Vary many accidents occur as a result of use of these equipment on the run as attempt to play the equipment can deviate your mind from controlling a vehicle. Field data collected on 100 traffic accidents has revealed that about 8 percent of them were caused by attempts to use communication equipment while driving.

Drainage, sewage and waste disposal systems are the measures which can be used to identify the risk of infectious diseases in the settled environment. The basic difference between development and poverty is measured from the rate of presence of infectious diseases. For example Colombo was known as the Garden city in the 1960s, because its drainage and sewage system was sufficient enough to keep the city clean even after a very heavy rain storm. But lack of proper planning since then has made Colombo to be one of the dirtiest cities in Asia, with a common presence of Filaria, Tuberculosis and Dengue.

Poor planning of city and town landscapes lead to accumulation of heat and dust which forms unhealthy micro-climates. Non-utilisation of aerodynamics and flow hydraulics leads to local flooding in the settled areas. Accumulation of waste material in large quantities can attract various types of micro-organisms and animals into settled environment. There are constant reports of increase of diarrhoea in and around urban garbage dumps in the developing countries.

The settlement form can be a factor in health. Nuclear settlement is the most economical form of settlement type in the provision of modern facilities. However it has to be constructed well with a highly organized system of waste control. If not there is high risk from infectious diseases.

The dispersed settlement is one of the best models for healthy living but large populations cannot be accommodated in this type of settlements. Therefore they cannot be used as an example of healthy settlement type in a modern habitat.

A linear settlement is also not a suitable option as it consumes a large area of land and as in developing countries when they are formed along main roads they cause congestion and death from cross-road movement of people. For example in Sri Lanka about 30 to 35 deaths and 300 to 400 injuries are caused by this type of behaviour in linear settlements.

The relationship between health and settlement is clearer when it is studied within a given developmental region. This is because level of technological development decides the level of health threat in a settlement.

Most human infectious diseases survive in urban areas, because only cities have a large enough population to support the continuing circulation of disease agents.

Today disease agents can easily cross continents and oceans on an airplane and space agencies have special “bacteria detectives” to prevent contamination from space

travel. The airplanes and ships are regularly sprayed with anti-bacterial cleaning fluid and goods are quarantined. However, Covid 19 type viruses cannot be controlled by regular methods.

The accelerating mobility of the human population also seems to have created different disease entities by the sheer intensity of transmission that has been made possible, as is illustrated in the discussion of the development of dengue hemorrhagic fever in Sri Lanka in page.

Population

Genetics, Age, weather and behaviour are the most important factors within a population with reference to its health status.

Genetics

Human genetics is a new science but the value of genetics in health has been under observation for a long period of time. Knowledge on DNA (deoxyribonucleic acid) has changed the way medical science approaches problems of health and made possible to have a deeper understanding of health.

Immunity, tolerance and sometime behaviour are also related to genetic information, through collection of data on certain general problems of populations. Immunity of the people of poor countries to certain types of diarrhoea, intestinal infections are believed to be related to genetic evolution. This may be a result of historical exposure to these diseases in the areas where sanitation has not improved.

Lactose intolerance or resistance to milk is identified as a spatial puzzle in human ecology. This may be a result of inability to rear animals due to humid tropical

climate where animals are subjected to permanent wet ground, which lead to foot and mouth diseases. The inability of Europeans to eat hot food may also be a result of loosing their natural taste system after they have migrated to cooler climates where hot chillie will not grow. Some believe colour, size and hair are strictly controlled by genetic factors. African hair and height of the Nordic Europeans are considered to be two very strong genetic systems in relation to cross marriages. Though many people relate various types of factors to genetics, we are yet to discover the true nature of genetics in life. However the genetic scientists are hopeful of the unlimited value in genetics in the treatment of serious disabilities which affect children and young.

Our face, walk and talk are related to genetics in gossip, but this type of resemblance may or may not be true some times. Therefore any information on genetics of populations should be treated with care.

Age is an important factor as health is constantly related to the life cycle of a human being. Life cycle has its own health capacities and threats in relation to age. Infant is highly susceptible to infectious diseases and almost 80 percent or more infant deaths occur due to them. Bacterial and viral diseases affect the childhood as the child is always experimenting with new products, environments and behaviours.

Adults are the most threatened in the modern world as they are exposed to many types of environments within a day and some even travel between two types of endemic environments daily. For example a bus driver travelling from Vauniya to Colombo, begins his journey from the malaria endemic environment and ends his journey in a Dengue and filarial endemic environment. Someone travelling from Kandy to Anuradhapura to work leaves a non-endemic environment for malaria and enters the malaria endemic environment around Nalanda on route A 9.

Adults also experience with alcohol, sex and other adventures when they are between teen and late 30s, and most of them encounter accidents and diseases related to those experiences.

Marriage is another break point in adult health life as they have to cope with increased expenses and psychological support for children. Today this has become a serious problem in poor countries where life has become a continuous struggle due to socio-political corruption in them. Family is seriously under pressure from the cultural infiltration from western modernist ideals and lack of proper law and order makes the life of a father and mother in poor countries a serious threat to individual health.

For example it is estimated that about 80 percent of the families in Sri Lanka is under serious psychological threat due to culture clash originating from uncontrolled modernization. This is very clear among the students of Public Universities, where uncertainty arising from poor rate of economic development due to political corruption makes them to be uneasy and boisterous.

The aged are the most vulnerable to ill health as the age after 60 is considered to be the time of loss of control in the body system. Control of food, behaviour and ready availability of treatment are the only ways to combat serious health threats at this age. This type of health environment is not readily available in the developing and poor countries of the world and the aged living in these countries suffer and die from easily curable illnesses and diseases.

Behaviour

Cultural behaviour is the most important factor in the environment and health as it forms the basis of the level of development of environment. Cultures can be identified in many ways in relation to health and in this study it is identified as developed world culture and undeveloped world culture. This division is adopted,

because the author believes that we are today at a stage of development which we have never witnessed in the history of human evolution and the only way to achieve a satisfactory status of health is to follow the modern system of health care with sufficient help from traditional health care systems. When this type of approach is made there will be only a minimal amount of conflict between culture and health.

Control of waste in the habitat has to be made safe with all the possible applications from both systems. It is clear from the experiences of the developed world the only way to keep the habitat safe is to remove corruption and utilize law and order in managing the environment. For example the solid waste removal is a responsibility of the local authorities and they must plan properly and enforce rules and regulations in a free and fair manner. The settlement design is paramount to environmental management, expenditure on the provision of essential services like water, electricity, transport and communications. Therefore all habitat related activities should aim at providing a healthy environment.

Modern world is a massive mix of life styles. However these many types of life styles can be divided into two major groups: Safe and unsafe. It is the responsibility of the governance to encourage safe life styles and strictly limit unsafe life styles with the use of powers available to public order and security. The unsafe life styles should be controlled with the use of modern technology available and rehabilitation from unsafe life styles can utilize local cultural support. Covid 19 indicated the effect of cultural practises on spread of disease in both developed and developing nation as urban areas with high density population and high mobility resulting in majority of cases and deaths.

Waste is the most important variable in the management of a healthy environment. Where there is unattended or untreated waste there is always a health risk. Therefore the behaviour of populations should be guided in a way that the authorities should be able to collect and dispose of it orderly.

People have managed to evolve many protection systems through their culture and religion and these are very valuable in the formation of a healthy environment. In modern times the use of alternative medicine has sometimes reduced the health cost of nations by a considerable amount. The role of these treatment systems are not clearly indicated in research but if there is no harmful element in them these systems can be utilized with guidance from elders or traditional healers. It is estimated that there may be more than 20,000 to 30,000 unregistered traditional healers in Sri Lanka and the occurrence of malpractices are rare.

Protection also comes from food habits, cleaning systems and dress. Buddhism and Hinduism prohibit meat, Islam prohibits Pork and Christians are not supposed to eat meat on Friday. Giving alms to poor people and taking care of the disabled is preached in all the religions, which indicate universality in helping the poor to be healthy. Modern developed societies utilize a social security system for the purpose of care of the poor, which is primarily supported by the funding from religious and cultural societies.

Terrorist behaviour has become the most destructive human behaviour of the world today. It is estimated that annually about 60,000 die, 300,000 are injured and another 100,000 are traumatized by terrorism or terrorism related activities. Though terrorism has been an integral part of human existence, today it has become one of the major problems in the health environment.

Corruption in governance also lead to a serious weakness in the health environment through misuse of funds allocated for the provision of preventive and curative medicine in the developing world. The high prevalence of infectious diseases in the developing world is partially a result of corruption in governance which diverts funding away from essential services to private use.

Development and Health

Socio-economic development is aimed at constructing a healthy living environment. However the programme of development is not universally active due many social and political reasons. Therefore there is always a difference of health status between developed and developing countries. International evaluations on health and development are based on some selected criteria like

1. rates of total mortality, infant and child mortality
2. case prevalence or incidence at hospitals
3. national health and population surveys
4. local or regional health surveys
5. estimates from combined services

Disease environment in the developed world

Developed world is where public sector services are run on the principles of environmental and economic planning. They have long term plans for environmental control and economic stability supported by the selected resource utilisation systems. The following tables will provide you with the major characteristics of the environment and health in the developed world where impact of infectious diseases are minimised to the level

Table 2.4 Environment of the developed countries of Europe, North America, Japan, Australia and New Zealand

Category	Latitude in degrees north of Equator	Majority of the People (more than 80 percent)	Nature of living environment of the majority (more than 80 percent)
Warm and cool south	From 35 to 45 degrees North and South	Low immunity to unclean environment and water. Fair skinned and can be subjected to sun burn	Planned drainage and sewage disposal. Very good quality health support systems.

Cool centre	From 46 to 55 degrees North and South	Very Low immunity to unclean environment and water. Fair skinned and can be subjected to sun burn	Planned drainage and sewage disposal. Very good quality health support systems
Cool to cold north/south central	55 to 65 North and South	Extremely low immunity to unclean environment and water. Very fair skinned and can be subjected to sun burn	Planned drainage and sewage disposal. Very good quality health support systems
Cold north/south	66 to 90 North and South	Extremely Low immunity to unclean environment and water. Extremely fair skinned and can be subjected to sun burn	Planned drainage and sewage disposal. Very good quality health support systems

that they are incapable of causing more than 0.5 percent of the deaths. However the industrial pollution and comfortable lifestyles have increased the incidence of chronic diseases in them.

Table 2.5 Socio-economic and immediate living environment in the developed countries

Area	Status	Health status	Reason
Urban areas	Fairly clean	Good – low risk of infectious diseases	High literacy and income. Strict enforcement of environment law
Rural	Clean	Very good – very low risk of infectious diseases	High literacy and income. Very strict enforcement of environment

			law
Special areas	Very clean	Excellent - very low risk of infectious diseases	High literacy and income. Extremely Strict enforcement of environment law

Table 2.6 Developed countries: Nature of basic construction required for a health living environment

Construction	Status	Health status	Reason
Housing	Planned and properly built	Good with proper drainage and waste disposal	High literacy and income. Strict enforcement of environment law
Work place	Planned and properly built	Good with safety	High literacy and income. Very strict enforcement of environment law
Transport	Planned and properly built	Good with safety and speed	High literacy and income. Extremely Strict enforcement of environment law

Developing world - Tropical environment

Developing world is synonymous with tropical world as almost all the countries categorised as developing are situated in the tropical world. These areas of the world are constantly ravaged by environmental mismanagement, wastage of resources and imbalanced income distribution. However, it is abundantly clear that these areas have

enormous resources of natural resources which are able to provide a sound basis of development for their inhabitants, but prevented due to socio-political corruption. Rapid development in Singapore from a developing nation to a developed nation revealed that it is the establishment of an organisational structure for development which was required in this minute island nation. Malaysia has shown that there developing status is not physical, but social and political. The tables 2.4 to 2.6 provide the basic details of tropical developing world with reference to the majority of the population which live under constant threat of ill health or disease.

Majority of the people have very little or no health security in case of ill health or disease in the present socio-economic environment of their respective countries or nations. The group of people under study form about 90 to 95 percent of the population of the developing countries, which are politically marginalised by the organisational structure of the public service system in them. These people have a minimum of about 5 US Dollar a day (monthly Sri Lanka Rupees 40000) to about 7 US Dollars a day (monthly Sri Lanka Rupees 50,000) income per family, though their earnings can fluctuate heavily when affected by ill health or disease. These people lack social security in health and only a handful have some form of medical insurance.

Most of these people live in unhealthy housing and drainage environment. Fast developing Malaysia and Taiwan are the only countries which have an acceptable level of living environment among developing tropical countries. Some of the countries like Sri Lanka and Cuba have established a heavily subsidized treatment system but the living environment of majority of the people remains dirty resulting in the heavy presence of diarrhoea and dysentery.

Table 2.7 Climatic and immediate living environment of the tropical developing areas

Category	Vegetation	Majority of the People (more than 80 percent)	Nature of living environment of the majority (more than 80 percent)
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Ultra humid average relative humidity above 60 percent	Equatorial Rain forest or monsoon rain forest	Poor live in unclean environment and water.	No planned drainage and sewage disposal. Very poor quality health support systems. Tuberculosis, Filariasis, Cholera, Dysentery, high infant and maternal mortality
Humid average relative humidity above 45 percent and below 60 percent	Monsoon forest and savanna wood land	Poor live in unclean environment and water.	No planned drainage and sewage disposal. Very poor quality health support systems. Tuberculosis, Cholera, Dysentery, Schistosomiasis, Onchocerciasis, Leishmaniasis, Trypanosomiasis, Hepatitis high infant and maternal mortality
Dry average relative humidity above 25 percent and below 45 percent	Monsoon woodland, scrub and thorny bushes. Under threat from desertification	Very Poor live in unclean environment and water	No planned drainage and sewage disposal. Very poor quality health support systems Tuberculosis, Cholera, Dysentery, Meningitis, Hepatitis, very high infant and maternal mortality
Arid relative humidity below	Semi arid and hot desert/oasis living	Very Poor live in unclean environment	No planned drainage and sewage disposal. Very poor quality health support systems Tuberculosis, Cholera, Dysentery,

25 percent		and water	Meningitis, Hepatitis- very high infant and maternal mortality
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Table 2.8 Socio-economic environment of the low and middle income people in the tropical developing countries

Area	Status	Health status	Reason
Urban areas	Dirty	Poor - high risk of infectious diseases	Low environment literacy and income. Non application and enforcement of environment law
Rural	Fair to dirty	Fair – moderate risk of infectious diseases	Low environment literacy and income. Non application and enforcement of environment law
Conserved areas	Fair	Fair - very low risk of infectious diseases	Low environment literacy and income. Non application and enforcement of environment law

Table 2.9 Developing countries: Nature of basic construction required for a healthy living, working and travelling environment

Construction	Status	Health	Reason
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		status	
Housing	Unplanned and hastily built	Risky with poor drainage and waste disposal	Low environmental literacy and income. Lack of enforcement of environment law
Work place	Unplanned and hastily built	Very risky with poor drainage and waste disposal	Very low environmental literacy and income. Lack of enforcement of environment law
Transport	Unplanned and hastily built	Extremely risky with poor road surfaces and lack of traffic control	Extremely low general and environmental literacy and income. Lack of enforcement of environment law

The detailed study on development and health is presented under the headings of

Agent-host relationships

Domesticated animals

Immediate living environment

Nutrition

Literacy

The traditional belief system of health and

Health behaviour, which are established in the living environment through the efforts of development.

Table 2.10 Factors of developmental environmental factors and their status in relation to development

Factor	Type of control/ developed	Type of control/developing
Agent-host relationships	Heavily controlled through use of management and technology	Low to no control as the systems in action are disturbed by corruption
Domesticated animals	Heavily controlled through use of management, technology and law	Low to no control as the systems in action are disturbed by corruption
Immediate living environment	Heavily controlled through use of management, technology and law	Low to no control as the systems in action are disturbed by corruption
Nutrition	Provide required nutrition through good economic programmes	Low to no control as the systems in action are disturbed by corruption
Literacy	Provide quality literacy through education, training and governance.	Do not provide quality education and training due to bad governance
The traditional belief system of health	Is utilised for the development of modern medicine	Is not properly organised and developed other than in a few fast developing countries
Health	Regulated through	Regulated only at

behaviour	education and law	times of sickness or in the families with quality education.
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Table 2.10 indicates the major differences between developed and developing countries with reference to factors of developmental environment.

Table 2.11 show the basic differences in two primary factors used in the differentiation between developed and developing.

Table 2.11 Development and health

Country	Life expectancy at birth	Child (under 5) mortality per 1000
Norway	77	9
Sweden	79	6
Japan	80	6
Sri Lanka	73	19
China	69	43
India	62	99
Bourkina Faso	47	186
Sierra Leone	40	242

Sri Lanka has a very high level of health when compared to other developing nations due to high quality dedication of majority of the medical personnel and a low priced private sector “private practice doctor” service provided in the semi-urban and rural areas of the country. Further the tradition of limited contact between animals and humans in a majority Buddhist population and early acceptance of western medicine may also have contributed to this high state of health (Seneviratne, 2003).

Environment and health of the tropical underdeveloped areas

Case study - Disease environment of Sri Lanka

The disease environment of Sri Lanka is primarily a product of its island location, ecological characteristics, development of social services and belief system of health. The island location, macro level landform structure of a central hill country surrounded by plains, heavy social welfare spending, literacy level, gender equality and the existence of a pluralistic belief system of health are identified by many researchers as factors responsible for the relatively better health situation in Sri Lanka, in comparison to its South Asian neighbours (Nordstrom, 1988; Wolffers, 1988 and Caldwell, 1993).

The island location reduces the risk of transmission of diseases and epidemics, and its advantageous effect is clearly shown during the outbreak of epidemics of cholera, typhoid and measles in the neighbouring countries. The ecological characteristics formed by the macro level landform structure with a central hill country, which constructs fast flowing rivers, has been identified as a factor for very low incidence of malaria in the wet zone of Sri Lanka (Farmer, 1957 and Litsios, 1996). Furthermore, the ridge and valley nature of the plain topography and the extensive spread of acidic soils may have helped the quick out flow of flood water and rapid fermentation of vegetative matter, which limit the formation of unsanitary pools of water.

In the global context of disease environment, Sri Lanka is situated within a region of high prevalence of tropical diseases. Dengue, diarrhoeal diseases, intestinal infections, and anemia dominate its regional and local disease prevalence scenario (Ministry of Health, 2018). The discussion on disease environment of Sri Lanka is presented under sub-chapters on agent-host relationships, immediate living environment, nutritional status, literacy and gender, to link it with the tropical setting and explain the presence of many types of infectious diseases.

Agent-host relationships

The tropical humid climate of Sri Lanka facilitates the breeding of many types of disease causing agents common to its south Asian neighbours, but the severity of infection is reduced by cultural practices like use of traditional antiseptics, low consumption of raw food and adherence to advice on health.

The breeding of agents causing dengue and diarrhoeal and respiratory diseases are always associated with heavy rain, flooding and poor sanitation. The high incidence of rabies in Sri Lanka can be related to nonchalant attitudes in the rearing of dogs and the existence of a large rat population, specially in the urban areas of the country where rabies has been identified as a serious health risk (Ministry of Health, 2018). However, a definitive agent-host relationship cannot be established due to dearth of research.

Dengue and influenza causing agents have shown drug resistance in recent decades, but their effect on the disease scenario is reduced mainly due to early identification and improved health care support. The “emerging disease” (Mayer, 1999) and disease causing agents have not shown a market impact on the disease system as HIV / AIDS has not made a substantial impact in Sri Lanka for the last decade. Increases are recorded in chronic disease especially in the categories of heart, diabetes and cancer. The largest increases are recorded in the category of road accidents and insecticide poisoning which are results of socio-political manifestations (Ministry of Health, 2018).

Immediate living environment

The immediate living environment is identified by many researchers as a very important variable in disease origin and spread. Although there is no set model to the immediate living environment, it consists of the house and garden. Three major types of immediate living environments can be identified in Sri Lanka in relation to prevalence of infectious diseases.

Firstly, the urban and rural rich and middle class, which makes up about 10 percent of the population live in modern housing and rarely affected by infectious diseases.

Secondly, farmers, labourers and other low-income groups live in small units of nuclear family houses with a small garden, a toilet and a well for drinking water, which is normally, is shared with relatives or neighbours. Bathing is normally done in a communal well, stream or river. Only about 50 percent of the village settlements have safe drinking water and more than 60 percent have no safe bathing water facilities (Seneviratne, 2018). Housing is mainly in the categories of mud or mud brick or partial brick and cement with no ceiling or proper arrangement of ventilation facilities. The pit toilets are not properly built or maintained and pose a serious health risk in terms of breeding of diarrhoea related bacteria. Lund (1979), Marga (1988) and Konradsen et al (1977) have identified the impact of poor living environment in relation to the abundance of malaria and diarrhoea in the Sri Lankan environment, and this is confirmed in the most recent available health data (Ministry of Health, 1996). Though malaria has faded away, many viral and bacterial diseases have increased to health profile in the last decade (Seneviratne, 2018).

Thirdly, the marginalised groups live in specific spatial areas such as remote rural communities, fishing communities in coastal areas, estate communities, communities in urban slum areas, village expansion colonies and areas affected by ethnic conflict. Studies on these groups have begun recently (Ariappala, 2000, Sarath Ananda, et al 2000 and seneviratne, 2018) however the conclusion so far is that the immediate living environment of these people is considered to be harmful to their health.

There are no detailed studies on the impact of immediate living environment on disease prevalence in Sri Lanka, but the grouping of the population on the basis of their major contact environment reveals that there is a variation in infant and child mortality rates between rural and urban areas, and between urban and rural and estate environments. These three categories are based on the identification given by administrative authorities and used in the national surveys on data collection. District

level disease prevalence data suggest that resettled people can be placed in between rural and estate in this profile, but no definite conclusions can be made due to lack of specific data.

Nutrition

Nutrition or level of nutrition is an indicator of the state of health and form an integral part of the disease environment because of the established relationship between nutrition and health. It is evident from macro data that the marginalised groups are more vulnerable to malnutrition and under nutrition than the rest of the population.

General surveys indicate as an important factor in nutritional status. Gunasekera (1996) and Seneviratne (2018) using DHS data stresses the importance of literacy of the mother in general and in relation to plantation areas in particular. There is high rate of stunting in the category of mother not attending school and the rate of stunting is reduced where the mother has received the secondary level education. In the estates where there is a large concentration of mothers with no schooling, 45 per cent of children are stunted compared to 18 per cent in the urban sector and 13 per cent in the category of some education beyond secondary level. Above situation remains unchanged and economic collapse may increase the severity.

Loganathan (1990) Gajanayake et al (1991) and Seneviratne (2018) have indicated the relationship between low literacy and high mortality of Tamil plantation workers, which stresses the role of poverty for this deprived population.

The observations of Gunasekara (1996) add an additional dimension to the nutritional status, which he associates with the spatial distribution of the population. He indicates that Uva, Anuradhapura and the north- western provinces have recorded the highest levels of stunting. There is a reduction in the categories of moderate and severe stunting between 1987 and 1993, but insufficient data on instability of residence may hide the exact nature and distribution of stunting, when compared with the data from

the established old village environment. Ariaypala (2000) identifies the plight of children in a slum area in Nugegoda in relation to nutrition and discover that 62 per cent of them are malnourished. The nature of the meal in this group of people is decided by the daily wage of the income provider and girls suffer from malnutrition more than boys. A similar study in the Kandy slum revealed an alarming 99 per cent of malnutrition among children (Sarath Ananda et al, 2000). The nutritional status of the children living in the north and east is definitely poorer than the national levels. Under –weight in the age group of 0 to 5 years is 35 per cent for the children in the conflict area compared to 27.6 per cent of the country average (Seneviratne, 2018). Fernando et al. (2000). Found that school children in the rural areas of the Moneragala district are affected by malnutrition and high rates of hook worm. Further they have evidence to show that the girls are more underweight than the boys. The iron intake of the adolescent school girls in the rural periphery of southern provinces is a good indication of the nutritional deficiency among the poor (Jayatissa and Piyasena, 1999). The studies on nutrition are conducted within different groups of people in the category of marginalized. However, valuable information concerning like living environment and its resources, which can be utilized for improving the nutritional condition is yet to be fully investigated. Seneviratne (2018) agrees that nutrition is a serious issue in low and lower middle income groups where diet is limited to affordable items where balanced diet is not achieved.

Literacy

Education has played a vital role in the construction of the present disease environment of Sri Lanka, mainly through general increase in literacy. Universal free education and adult education, which was supported by the extensive health education programmes of the 1950s and 1960s, have enabled most adults to acquire knowledge of reading and writing. This has developed a keen interest in reading newspapers which are the primary tool in the rapid dissemination of advice on health.

The rural sector in which the farmers live has a high literacy level, when compared to the South Asian situation. The level of primary and secondary education among the farmers is almost equal to the all sectors literacy levels. It should be noted that the lower age groups are presented as noted in the source material and the sole purpose of this table intended only to compare values between the groups. This high level of literacy has resulted in the schooling of girls and this had an effect on efforts of decrease in birth rate and maternal and infant mortality rates from the 1960s, through birth control and postponement of marriage. Throughout the 1970s and 1980s, the average family size was reduced from 6 to 4, and at the end of 2015 it was further reduced to 3.1, and this can be explained by a lowering of fertility due to heavy use of birth control. By 2018, literacy has increased to a better level, but health literacy is still at a low level due to poor status of health education and inability of the low and lower middle income group to maintain a reasonable income (Seneviratne, 2018).

The traditional belief system of health

Records on the history of traditional medicine go back to the beginning of civilization in Sri Lanka. Evidence reveals there was a well organized medicare system with hospitals, rest homes, herb gardens and conserved forests of medicinal trees and shrubs located in various parts of the island. These are well recorded in various inscriptions and chronicles (Paranavitana, 1959).

Two major sub-systems can be identified in the traditional medicine: The first system is the herbal-ritual system based on many beliefs such as deities, telepathy, sound, herbs etc., which is identified here as the ancient system. The deity (God) is at the centre of this treatment system where an edura (faith healer) is the messenger between the deity and the patient. The treatment process involves either a full ritual with a sacrifice or a promise to the deity of an offering. Sometimes the ritual may accompany herbal treatment. A full ritual programme is composed of offerings, sacrifices and chanting, which is mainly used in the treatment of mental disorders and spiritually-caused sicknesses resulting from shock and depression. Ritual and herbal treatment are

used in the treatment of many other sicknesses and diseases, especially communicable diseases like chicken pox, measles and mumps. In the treatment of these traditional infectious diseases, the patient is strictly forbidden to ingest any animal products, the patient is kept in a dark room without any contact with other than a selected group of people and is given many herbal mixtures. The faith healer (edura) is called for to chant verses. Finally a promise will be made to make offerings at the nearest shrine of the goddess Paththini and to give alms to seven or more women devoted to the worship of goddess Paththini.

The herbal tradition is utilized by a group of practitioners who live in the villages and practice their method of treatment (Jayasekara, 1957 and Ambatalawa, 1994). The most common specialties are available in from of anti-venom, asthma and fracture treatment, which are utilized heavily by the general populace. There is very little written knowledge in this tradition and the practice is considered a family tradition, which is given only to male members of the family. Herbal medicine in the form of mixtures, pastes and oils are used in the treatment along with strict dietary control. However, in recent times the influence of Ayurveda has made these practitioners to use some Ayurveda has made these practitioners to use some Ayurvedic medicine in their practice (Gnanawimala, 1950; Ramanayake and Ponnampereuma, 1985 and Ambatalawa, 1994).

The second system is Ayurveda, which is of Vedic origin and believed to have originated in the second millennium BC, probably in the land between present-day Pakistan and Iran (Ariyadasa, 1982). The traditions and teachings of Ayurveda entered Sri Lanka with the arrival of the Aryans and developed steadily through continuous contact between India and Sri Lanka.

Since its establishment in Sri Lanka, Ayurveda and traditional medicine were practiced together probably with the same patronage, but seeking the higher level of Ayurveda when needed. In the civilization of the early Anuradhapura period the physician was considered an important professional. During this period a notable

feature of civilization was the importance attached to the establishment and maintenance of hospitals for the treatment of sick. Among the kings of ancient Sri Lanka King Buddhadasa (circa 337-365 B.C) was reputed to be a skilful physician and he appointed a physician for every ten villages. (Paranavitana, 1959). This tradition continued throughout the ancient and modern history and by the time of arrival of Western medicine there was a well-established health care delivery system in Sri Lanka (Ramanayake, 1985). Antibiotics are not mentioned in the Ayurvedic medical literature, but some of the mixtures used in it are found to be antibiotic in nature (Silva, 1991).

The term indigenous medicine is official used today to identify a system of medication and treatment, which include both the ancient and the Ayurvedic systems. The continuing struggle of the organized group of activists of indigenous medicine led to the establishment of the Department of Indigenous Medicine even before independence (Ramanayaka and Ponnampereuma, 1985). The establishment of Ministry of Indigenous Medicine, Institute of Teaching and Research in Indigenous Medicine and registration of indigenous medical practitioners as government physicians have enhanced the value of traditional and Ayurvedic medicine among the local populace and foreigners. Today it is estimated that more than 40 per cent of the total out patients registered daily, use indigenous medicine related services and among the poor the percentage may be as high as 60 per cent (Kannangara, 1962).

Today, indigenous medicine is the most important health service system at first referral level for most of the poor until their economic status is elevated. For the rest of the richer classes its use is restricted to times of special need. Recent modernization of herbal preparations have actually led to an increase in popularity of indigenous medicine and associated treatment systems (Ekanayake and Chandrasekara, 1989 and Seneviratne, 2018).

With the impact of developmental change, the existence of the pluralist tradition of medicine has negated most of the ill effects of the tropical disease environment of Sri

Lanka. However, the inability to develop the indigenous knowledge to full capacity has increased the cost of health services (Seneviratne, 2018).

Health behaviour

Aitken and Jellicoe (1989), identify environmental, cultural, group and personal factors as the four major factors, which construct the health behaviour of a social group. The environmental and cultural factors were discussed under the topics of immediate living environment and domesticated animals in the previous sub-sections and this discussion intends to investigate group and personal factors in relation to farming population of Sri Lanka.

Health is highly valued in the community as there is no proper social security benefit system in operation in Sri Lanka. Therefore people depend on siblings, relatives and friends for advice and selection of treatment as identified by Wolffers (1988).

The self-control, hardiness and coping skills are included in the personal life style factors within health behaviour. Farming population have acquired many health practices of western medicine and have used them successfully to enhance their self-control, hardiness and coping skills. This is a result of increased literacy over the last two to three decades and constantly improving living standards. Further, they have accepted family planning and increased their resistance to common ailments and sickness through extensive use of western and traditional medicine. As shown in the hospital utilisation data in the Ministry of Health (2018), 40 million patients were treated at the Government facilities and the total number receiving treatment from registered health service both the public and private health care facilities may be as high as 45 million.

The health behaviours of personal nature are learned through the process of family living, and the mother-daughter and mother-child relationship as identified in Liiman (1974). In the farming community under study health of the family is observed mainly

by the wife as men spend only a limited time with children. It is the women, who teaches children health behaviour, prepares home remedies, accompany children to immunization, dispensary or hospital and even take care of the man's health by washing his clothes, cleaning his room etc (Baker, 1998 and Seneviratne, 2018). Covid 19 brought back the validity of some ayurvedic and traditional medicine preparations.

Drug utilization surveys conducted in the South Asian region refers to the common practice of misuse and over-prescription of pharmaceutical drugs in Sri Lanka. This type of abuse occurs mostly in the pharmacy system, which is mostly operated by unqualified or under-qualified personnel. Further, the unregistered medical practitioners of various types use western medicine in their treatment system in the rural areas where the authorities are less vigilant. The present situation is well summarized by Laing (2000) and Senevirane (2003).

It is not pertinent to leave this discussion without a presentation on suicide and alcohol abuse in Sri Lanka, as they contribute heavily to the increased incidence of health risks within the disease environment through causing chronic diseases and contraction of infectious diseases. It is believed that the farming community is highly affected by these two behavioural traits, though detailed studies are yet to be conducted. The suicides are responsible for about 6 percent of all the deaths registered in Sri Lanka (Seneviratne, 2018). Therefore, Sri Lanka has one of the highest suicide rates in the world and it is difficult to relate to any single cause. The most common cause is identified as depression arising from failure. Kearney and Miller (1988) and Seneviratne, (2018) have conducted studeis on the internal migration and suicide in Sri Lanka and concludes that there is a strong association between suicide and the percentage of migrant population in the dry zone of Sri Lanka.

The medical professionals identify alcohol abuse as a serous threat to the health of adult males. The primary effects leads to chronic diseases in the liver by drinking poisonous preparations brewed by the illegal alcohol traders. Secondary effects are

less serious, which originate through the contraction of infectious diseases by consumption of locally made food or wild meat while drinking alcohol. Many research workers and media publications identify alcohol abuse and alcoholism as two of the major behavioural factors in the increase of health risks in men of Sri Lanka. Hettige (1990) and Wickramasinghe (1993) have given some recent information on this issue though many medical articles appear in the Ceylon Medical Journal regularly. Hettige (1990), indicates that there is an increasing trend of alcohol use in Sri Lanka, which has not been duly recognized by the socio-political institutions. However, the diseases or deaths originating from alcohol abuse are not recorded properly in the medical records and therefore it is impossible to understand the true effect of alcohol abuse in the Sri Lanka society. It is clear that most of the families with extreme poverty in Sri Lanka are affected by the alcohol abuse of the householder, but the status of the alcohol as a cause or effect cannot be properly understood due to lack of detailed research (Seneviratne, 2018).

Behavioural change to health and disease is not a rapidly changing phenomena. However, with the increased availability of information on health and disease there is an increase of knowledge to understand disease causing behavioural patterns. In Sri Lanka there have been some changes in relation to smoking, alcohol consumption and use of proper medical facilities, but many instances of use of damaging behaviour is still widespread in society (Seneviratne, 2018).

Development and health in Sri Lanka

Modernization and alternative development

Structural functionalism has combined naturalism and rationalism to form the philosophical basis for an evolutionary theory of modernization covering all aspects of social activity (Peet and Hartwick, 1996). Both sociological and economical and economic modernization theories are built on structuralist ideology where societies are expected to utilize normative systems in development by limiting the place of

affective expressions. Linguists and social anthropologists have attempted to study the deep structures present in many languages and cultures, and this type of structuralism, which is interested in the universal and basic structures of the human mind, is known as structure as construct. However, the type of structuralism that investigates structures at societal level has had a stronger impact on space (Johnston, 1986). Structuralists hypothesise that there are hidden mechanisms which produce divisions within society based on ethnicity, gender, class and age. Power relations are established within these groups, and some groups attempt to dominate other. This domination is achieved mainly through developing ideologies which are supported by the hidden mechanisms.

Here are two major variants of economic modernization which believe in authoritative intervention through the use of economic growth models and aid mechanisms. Firstly, Keynesian ideology paved the way for intervention through the new idea of the role of the government in managing the economy (Preston 1996). Keynes was of the belief that government borrowings could finance expenditure, which in turn would generate more revenue, which together with higher tax returns from increased revenue, could be used for the repayment of these borrowings. Myrdal (1957) brought forward the concept of circular cumulative causation, which became popular through the notion of the vicious cycle of poverty. He regarded development as a social process, and stressed that the power structures of the developing world have to be changed either by evolution or revolution as a prerequisite for development. Rostow (1960), presented a model based on five stages, which will be experienced by all societies in the transformation of their economies from undeveloped to developed. It assumes that increased production leads to growth, and that redistribution of capital will occur in the process of this growth. Capital accumulation. Growth of the labour force and scientific and technological advancement are woven into the process of development I five major stages outlined in this theory. It was still a pre-eminent theory of modernization in the early 1960s (Preston, 1996). Secondly, the dependency school formulated an under-development theory through the writings of many radical researchers, which contained Marxist language, mode of analysis and ideological and

theoretical projects. In parallel to the theory of under-development, the problems of modernization were discussed in structural Marxism, which originates from the French school of Marxist studies. This theory explained the importance of class relations in development gave a strong critique of capitalism and explained the process of development. Modernization is a spatial diffusion process beginning at the cities and administrative centres, and transmitting along transport routes. The rate of progress was measured by a set of statistical indices related to the development of economic and social status. The continuing poverty of the developing world led to a rethinking of the validity of the modernist and dependence theories, and a search for a better alternative in development ideology. The Cocoon conference in 1974 discussed the idea of sustainable development, and the International Foundation for Development Alternatives (IFAD) recommended the establishment of a humanist model of development. Following this conference, many world gatherings were convened in the 1980s to find a serious alternative to the current development strategy. The need for a paradigm which could focus on ways of improving the productivity of the poor through social, economic and political empowerment became vital. Therefore, the alternative development approach became an action oriented programme based on humanistic and post-structuralist methods. Among many poststructuralist sociologists, Giddens (1979 and 1984) had the most marked influence on human space.

A development strategy, which emphasizes social services is the key to the current better health status of Sri Lanka. The social welfare programme was an extensive programme and was operated in the 1950s and 1960s by a group of leaders, whom Framer (1957) identified as “very able Ceylonese”. This socially oriented development has helped the poor to escape from extreme poverty and live on a welfare system provided by the government. Caldwell (1993) clearly formulates the value of societal and political commitment in establishing a healthy environment and concedes that both are available in Sri Lanka. Wolffers (1988) believes that the secret of the better health situation in Sri Lanka rests in its well-established cosmopolitan system of public health.

It clearly shows the high expenditure on welfare and public sector employment in Sri Lanka, which may have laid the foundation for the better health and living conditions of the poor. Further, it is my belief of the researcher, that the close association with the extended family and friends and the acceptance of the positive health practices by the majority of the people have enabled the construction of a disease environment of moderate risk in Sri Lanka. In addition, rapid rise in literacy, early empowerment of women, and a comparatively less corrupt political system have also been noted by some researchers as a reason for the better health situation of Sri Lanka, since the 1950s.

Macro-economic development strategies

Even though the present trend indicates a further slowing down of the population growth rate, it is estimated that a population of about 23 million around the year 2030 is expected. From independence to the introduction of the open market economy in the 1980s, the development process in Sri Lanka has been guided by a structured set of strategies. Keynesian ideology, Rostow's theory, Marxism and dependency thinking have been utilized by the development planners of the respective capitalist and socialist governments of Sri Lanka during this period. Myrdal's thinking was of great importance to development planning in the 1960s, where his notion of a vicious cycle of poverty was regularly utilized in development rhetoric. The salient feature of this time period was an attempt to construct time related planning programmes in the form of three-year, five-year or ten-year developing plans. Development planning was a strategy used by both development and developing nations in the post war period. This was aimed at initiating structural changes in the systems of production, and to promote social development (Fernando, 1997). The first exercise in planning was presented in a document entitled "Ceylon Today – A government by the People" in 1952. The "National Plan" was a section of this document, which outlined action related to agriculture industry, transportation, post and telecommunications, health, education and food subsidies. The second planning programme was the six-year programme of investment, 1954/55 – 1959/60, published in 1955, which only dealt with government

investment expenditure, and which was abandoned by the newly elected government in 1956. The Marxist orientation of this government led to the formulation of a ten-year plan. A policy of working towards a socialist society and a mixed economy in the spheres of trade, industry and agriculture was proposed in this plan. Major strategies that were identified were the development of the export sector, development of the dry zone, improvement of productivity in non-estate agricultural and industrialization. Social service sector expenditure was maintained with a limited reduction in food and nutritional subsidies. The weakest point in the plan was the lack of explanation on the modalities of private sector participation, though the private sector was invited to invest in the national economic development programme. This plan was abandoned in 1965 by the newly elected government, but state control of development was continued with the allocation of control of the national budget to the Planning Ministry. The foreign exchange budget became the responsibility of the Department of Foreign Aid, and a dual rate of foreign exchange was introduced to exert more state control on the import-export trade. This was aimed at controlling the fast dwindling foreign exchange, which had resulted from a fall in income from the export of traditional plantation products like tea and rubber. The 1966-70 Agricultural Development Proposals and Plan of Development was prepared with the aim of achieving self sufficiency in rice and other food crops. Green revolution ideology was used, and particular attention was paid to the dry zone settlements by provision of high yielding varieties, chemical fertilizers, agro chemicals, tractors, other agricultural machinery, increased extension services and agricultural credit. A change of government in 1970 did not exert a major change on the strategies, although a Five Year Plan (1972-76) was initiated in 1972. Like the Ten Year Plan, this was a comprehensive plan covering all sectors of the economy. However it was centred on public sector programmes and was not detailed enough on the role of private sector participation. The effect of the petroleum price increases and drought of 1973 affected its implementation, and the set goals and objectives were not given priority by the government (Radhakrishnan, 1979). Therefore from the time of independence to about 1977, Sri Lanka adhered to programmes of modernization based on a structuralist mode.

The global change of development strategies in the 1970s towards alternative development was not immediately felt in the economy of Sri Lanka. This was primarily a result of two major factors. Firstly, the inward looking economic policies of the 1970s were aimed at achieving self-sufficiency in the face of declining foreign exchange income from the plantation sector. These policies were intended to increase local farm production, develop cottage industries and establish a heavy industrial base. Secondly, the strong influence of 'Warsaw pact' economic aid during this period guided Sri Lanka away from the new policies of open market economics. However, by 1977, it was clear that the inward looking economic policies had not achieved their objectives, and a change of political leadership resulted in an attempt in 1977 to introduce the alternative development strategies of the western developmental model into the Sri Lankan economy, through the establishment of an open market economy. From around 1980, open market reforms began to result in some fundamental changes to the economy and employment structure. De Vroey and Shanmugaratnam (1984) investigated the nature of his economic transformation within the settlement programme. In their view the need for colonization arose not only from population pressure on the land, but also from lack of investment in the economy for diversification of the labour market. Three other economic changes have resulted in the overall transformation of the economic structure from a state controlled to an open market system. They are the employment generated by the Middle East labour market, the establishment of export-orientated industries and the war economy. These three changes have resulted in the empowerment of the settlement dwellers and the poor in general. The findings of researchers indicate the improved level of empowerment, through allowing their wives and daughters to be employed as ready-made garment factory workers, housemaids in the Middle East labour market and in the armed forces. Institutionalized attempts to provide development alternatives were introduced to facilitate the poor and the marginalized, through national programmes of small-to medium-scale animal rearing and 'Samurdhi' (a partially voluntary type of employment and an employment training programme established by the government). Private sector participation in export crop production, NGO support for community

banking, water supply and maintenance of visiting health care professionals have emerged in the latter half of the 1990s, as a result of the changing structure of development strategies. No major changes in the health system was noted in the last two decades but the health system has acquired a strong private sector presence (Seneviratne, 2018). However, Covid 19 pandemic and economic system failure has indicated that existing strategies are insufficient for future health sector development.

Health sector development

Health sector development during this period was guided by two major political programmes. Firstly, the health of the nation was treated as a primary responsibility of the government. Programmes for education, health, food, nutritional subsidy and free social security payments were maintained by successive governments between 1948 and 1970. These programmes consumed an average of 25 to 30 percent of total government expenditure during the period immediately after independence. Health expenditure amounted to 7 to 8 percent of total government expenditure on average, which was one of the highest in the developing world (Seneviratne, 2018). This was a period which saw the establishment or improvement of the health sector's infrastructure, and an accelerated training of doctors and auxiliary service personnel. Financing came from the nation's healthy economic environment, which was supported by programmes like the Colombo Plan and Commonwealth Financial Aid. The recognition of Ayurveda as an alternative form of medicine, and the establishment of the scientific teaching of Ayurvedic Medicine in the 1960s, may also have helped Sri Lanka to achieve a better health status than many other developing countries. In general, therefore, within the period when modernization strategies were employed, health has achieved a remarkable level of improvement in contrast to the weakening economic status of the nation (Caldwell, 1993). Secondly, programmes related to community health, nutritional supplement, the eradication of parasitic and infectious diseases and immunization were vigorously pursued by the government. All these programmes were funded by public funds and foreign aid. Malaria and tuberculosis eradication, child and maternal immunization, and infectious disease control were the

major preventive medical programmes in this category. The success of these programmes was notable in Sri Lanka compared to other countries in the developing world. Welfare policies were highly politicized and they remained in place despite many attempts to change or reduce them. This trend continued until 1977 without many alterations, although some peripheral changes were introduced into the social welfare programme. There was a revenue problem in the period from 1970 to 1977 (Jayasundera, 1986), but social services were sometimes supported from foreign borrowings and aid. Liberalisation of the economy led to the emergence of a powerful private health care service of a special category in Sri Lanka between 1980 and 2000. This private health care is operated by many types of qualified and non-qualified personnel, and pharmacies have become places of treatment. The slack attitude of the law enforcement agencies and the lack of general policy in this area enabled some of operators to provide an illegal, but low cost service, which could be afforded by anyone other than the poorest people. Thus the population has created an enabling structure in response to economic realities, though it may not yield a safe end result. The poorest are supported by social welfare, many non-governmental organizations, and in the case of serious illnesses, by a Presidential Fund. In the last 5 to 10 years, public health services have begun to suffer seriously from a number of problems including lack of drugs, qualified staff, machinery, buildings and other infrastructure facilities, but most of the staff has remained in service by engaging themselves in private practice. Recent research (Seneviratne, 2018) indicates that the situation of the marginalized has not considerably changed in the last 20 years. This is a result of continuing poverty and rising inflation, which leads to erosion of the buying power of the poor. These researchers further identify a rise in malnutrition, under nutrition and respiratory disease in Sri Lanka, which are linked to poor diet and housing. A high variation in mortality conditions by sectors such as urban, rural and estate is noticeable. According to the data (Ministry of Health, 2018) the infant mortality rate and child mortality rate were highest in the estates and lowest in the urban sector.

Demographic and epidemiological transitions

The demographic transition theory was presented as a model by Notestein (1954), and suggests that there is a relationship between population change and socio-economic development. Population change within the model is initiated by spatio-temporal variations of death, birth and fertility rates associated with modern development. Development in the model refers to modernization conducted through a western-style economic development, which will transform an agrarian society into a modern industrial society. The model depends on three major postulates. The first is that decreases in mortality are the direct result of socio-economic change. Second, fertility is less responsive to socio-economic change, and decreases in fertility occur sometime after decreases in death rates. Thirdly, the socio-economic process is evolutionary and agrarian societies will change to modern, industrial urban societies. Based on these three major postulates, a four-stage model is constructed. Stage one is a period of high death and birth rates resulting in a period of low stable population, which has been experienced by the human species throughout most of its history. Stage two is a transitional stage with falling death rates and high birth rates due to the initiation of the modernization process, which brings modern medicine and information, although fertility remains high because of its control by traditional belief systems. Stage three is another transition stage in which birth rates begin to fall as urbanization increases and low death rates are sustained by improved health. Stage four is a balanced state of low birth and death rates in which a high stable population live in a modernized industrial urban society. Recently, however, a fifth stage has been identified where birth rates fall below death rates, which leads to population decline.

Stage one scenario of the demographic transition in Sri Lanka was established around 1946 by a shift from high to low mortality. This was a result of the achievements by the health services, which were heavily supported by the policies of free preventive, curative and rehabilitative medical care and social support. Stage two lasted for about ten years between the census years 1946 and 1953, and stage three lasted from 1953 to the 1981 census. The fall of birth rates in the general populace is related to a heavy use of contraceptives, high general literacy and delayed marriage due to rising opportunities for higher education and employment for women (Siddhisena, 1989 and

Silva, 1991). At present Sri Lanka is advancing towards stage four at an extremely slow pace and natural increase is still above 1 percent, which is expected to yield a heavy growth in actual numbers in the next decade. This slow pace is not yet fully understood due to lack of detailed research, but a considerable contribution is made by the tradition of having at least one child within a marriage. As discussed earlier in the sub chapters on strategies of modern socio-economic development, demographical change in Sri Lanka shows no agreement with its economic development or urbanization. Though there have been many investigations into this dichotomy, a final conclusion cannot be reached due to a lack of studies on marginalized groups like the rural and urban poor, estate workers, resettled population and people affected by conflict; and a detailed study to evaluate the role of statistics related to private medical care. Omran (1971) proposes a five stage epidemiological transition model. In stages one and two there is a strong presence of parasitic, bacterial and viral diseases, with women and children forming the high risk group. The third stage initiates a significant decline in mortality from infectious diseases, and non-infectious diseases become important. The mortality risk of women and children declines during this period, but is still higher than in the rest of the population. Stage four indicates the prominence of non-infectious diseases, and a decline in the mortality risk of women of all ages is recorded. Stage five is dominated by non-infectious diseases, but diseases associated with environmental pollution and viral infections begin to grow in significance. All members of the population are at risk, especially children.

Data recorded in the Annual Health Bulletin (Ministry of Health, 1996) indicate that Sri Lanka has reached the third stage in the epidemiological transition, but the case of the marginalized is less clear (Seneviratne, 2018). A study by Siddhisena and Seneviratne (2002) has observed some striking differences between the health of children and mothers of the marginalized and general populace. Many researchers have observed these local variations, but a standardized result has yet to be produced on the health status of the marginalized. In addition, endemic malaria is a serious morbidity problem in the dry zone, and parasitic diseases cause regional or local

epidemics, Lung infections and viral disease also remain a threat in urban areas, related either to pollution or congestion.

Changes in the developing world have not shown much agreement with the general models of demographic and epidemiological transition. This is primarily due to the slowness of modernization, which result in the continuation of poverty and poor health service facilities. Modernization is based on the experiences of the Western industrial world, where urbanization, literacy, the rapid development of health facilities and social security systems were established in rapid succession. This form of development led to the formation of better sanitation, and maternal and infant health. Further, the modernization of Western culture allowed more freedom for both men and women in their choice of life style. The occurrence of this type of socio-economic change in the developing world was limited to the urbanized and literate, while the rest have lagged behind, resulting in only a partial achievement of the transitions as described by the models.

Literacy is identified as the primary factor behind demographic transition in Sri Lanka, though the contributions made by many social and ethnic factors are yet to be fully investigated. The place of women in society and ethnicity has shown a close association with local variations in demographic transition, but true relationships cannot be established from the available evidence. Investigations are further delayed due to the difficulty of conducting research in a period of serious ethnic conflict and a lack of trained personnel in the fields of demography, anthropology and health space. Omran (1981) Mc Glashan et al (1995) and Seneviratne (2018) have indicated the complex scenarios which originate from various patterns of socio-economic and health sector development in developed and developing countries. This is specially observed in the third stage and beyond, where local changes become important. Omran (1981) places Sri Lanka within the contemporary or delayed model, where dynamics of mortality and fertility change are mainly affected by social settings. There is no clear agreement between demographic and epidemiological transition and economic indicators in Sri Lanka, which has puzzled many.

The urban and rural poor group seems to have a different status than the general model of demographic and epidemiological transition in Sri Lanka. At the commencement of settlement, the demographic profile indicates an abnormality with many old and middle-aged, and very few young. The absence of young people is temporary as they will arrive once housing and schooling is ready. Within a period of about ten years of settlement, a rapid growth of population is experienced due to natural increase brought about by second-generation marriages. With this growth of population the area enters the second stage profile, and most of the resettled areas stay in this stage for a long period of time adding a large number of young people to the population.

The loss of income from the export of agricultural raw material and the poor pricing and taxation policies of successive governments since independence, are the major causes of modern poverty in Sri Lanka. The poor pricing and taxation policies have resulted in corruption and a wide rich-poor gap, which leads the landless and unemployed to depend on social benefits and suffer from social inequality.

The household and the farmland are identified as the major sediment supplier to the sedimentation system. Home gardens of Sri Lanka are poorly organized to prevent the flow of sediments to the local network of drains. In turn the authorities poorly maintain the local network of drains responsible for the prevention of soil erosion. In all the seven provinces where the data was collected, none of the town, city and municipal council had clean drains and full of bad odour. It is the view of many medical practitioners that the increase in respiratory diseases in urban areas results mainly from poor air quality.

The rapid increase in the population of the farming areas of Sri Lanka has increased the housing density of these two villages by an average of 30 to 40 percent in the last decade, but the removal of excess water produced by pavementation has not been considered important. Rural areas are seriously affected by chemical fertiliser pollution and poor quality drinking water. The present economic system failures may

have begun with Sri Lanka experiencing the effects of poor strategies in developmental process within a comparatively high population densities in urban areas.

Health belief system

The belief system is rooted in a traditional treatment system, which is based on an herbal tradition. This system was friendly to influence and readily accommodated the cosmopolitan medicine at an early stage of modernization. Immediate living environment, nutrition, literacy and gender are the primary elements which constitute the present day disease environment of Sri Lanka. Basic climatic variation has always been a divide in the disease environment of Sri Lanka. During the time of ancient civilization from around BC 250 to 1200 the wet zone was considered to be inhabitable due to its unsuitability for large scale grain cultivation. After the drift of population to the wet zone, the dry zone was treated as disease ridden and inhabitable due to the presence of infectious diseases. This change of status in the disease environments of the wet and dry zones of Sri Lanka is a result of the environmental change initiated by man under various types of technologies and belief systems.

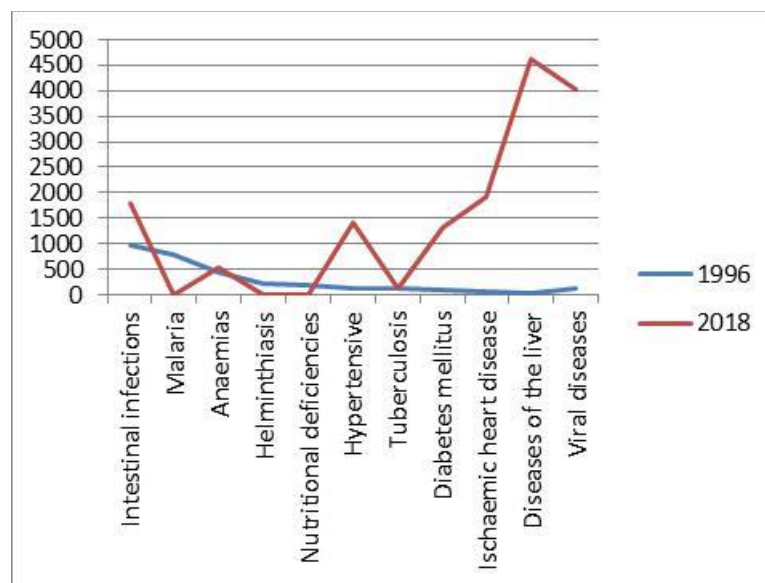
Evolution of disease prevalence

The evolution of disease prevalence over a period of 20 years in Sri Lanka indicates a reduction in the prevalence of infectious diseases and an increase in the chronic diseases, which led to an epidemiological transition in recent times. A close examination on morbidity indicates that the intestinal infections and malaria are recorded as the two most important infectious diseases. This corresponds to the disease situation of many developing countries in which poor sanitation and water supply, low calorie diets and endemic diseases record a high prevalence. The increase in the chronic diseases reveals the arrival of the epidemiological transition.

Table 2.12 The hospital in-patient morbidity 1975 and 2018 in Sri Lanka (prevalence per 100,000).

Disease group	1975	2018
Intestinal infections	970	1600
Malaria	800	0.1
Anaemias	430	500
Helminthiasis	231	0.2
Nutritional deficiencies	198	64
Hypertensive	122	1400
Tuberculosis	114	60
Diabetes mellitus	96	1800
Ischaemic heart disease	76	1910
Diseases of the liver	39	4560

Source: Ministry of Health, 1996 and 2018.



Source: Ministry of Health, 1996 and 2018.

Spatial variation of mortality and disease prevalence

Spatial variation arises from the developmental and environmental factors. It is clear that poverty, literacy and accessibility to health services play an important role in this variation. The effect of ethnicity on spatial variation is identified by some researchers, but the exact nature of its influence is yet to be fully understood. The discussion here will be conducted in relation to spatial variation of infectious disease and mortality. Finally some examples of mobility and ecology are presented to show their effect on spatial variation of disease prevalence.

Infectious diseases

Dengue, tuberculosis, typhoid and viral hepatitis are the four important infectious diseases noted in health statistics in Sri Lanka (Seneviratne, 2018). The high prevalence of tuberculosis corresponds well with the areas of highest population density, where the poor urban population is concentrated. The excessively high incidence of typhoid in the Jaffna district is commonly associated with continuous pilgrimage to South India and trade between the two areas, but the reality is yet to be fully understood. The prevalence of viral hepatitis is concentrated in the areas along the two major transportation routes to the highland and the northern parts of Sri Lanka, respectively.

The other infectious diseases recorded under the category of notifiable diseases are dysentery, viral encephalitis, dengue haemorrhagic fever, measles, rubella, cholera and whooping cough. These are the diseases, which have a tendency to emerge suddenly and spread rapidly along the major communication routes in Sri Lanka. Dysentery is the most commonly occurring infectious disease in Sri Lanka with a heavy presence in the urban areas and dry zone. In addition it can emerge after floods, and landslides in any part of the country. Dengue occurs mostly in the western part of the country in the lowland areas and spread into highlands between July and October and has become a national health problem due to its effect on children.

Mortality

Although Sri Lanka's national infant, child and maternal mortality rates are relatively low, there are several regional disparities that policy makers should pay extra attention to. Although Sri Lanka recorded a remarkably low level of maternal mortality rate of 0.2 per 1000 live births in 1996, there are marked regional disparities across districts. Many reasons are given for these extreme situations in the surveys conducted on specific vulnerable groups. The primary reason is poverty or a poverty based factor such as malnutrition and accessibility. Some of these areas (Nuwaragam Palatha, Thamankaduwa and Koralepattu west) are located in heavily forested or isolated areas in Sri Lanka, where high level of poverty is recorded. However, the presence of some urban areas (Chilaw, Kegalle, Matara, Badulla and Ratnapura) in this group of DS divisions indicates that effect of urban slum living also has a role to play in high mortality rates. Observations made in these urban areas indicate that a large number of slum dwellers live in and around swamps and wet lands. However, lack of data on these communities prevent making of a reliable conclusion. The estates, where Indian Tamils live, have the highest mortality levels, especially among infant and children. During 1948-1974, the infant mortality rate in the estate sector was 134 per thousand live births and the child mortality was 36. This pattern remains unchanged even after 1974 as recorded in the DHS Surveys in 1987 and 1993. According to the 1987 and 1993 DHS surveys, the infant mortality rate and child mortality rate were highest in the estate sector due to increasing poverty. Meegama (1980) has pointed out that the high level of infant mortality in the estates during 1946 to 1974 was due to malnutrition among mothers, lack of antenatal care, and lack of trained midwives and low level of institutional births.

The comparatively high incidence of tuberculosis, viral hepatitis and dengue in the districts of Colombo, Gampaha, Kalutara and Kandy, which are the most urbanized, is a confirmation to this fact, though no definitive conclusions can be made on the relationship between socio-economic factor and high prevalence.

Mobility

The increased mobility of modern populations either internally or internationally has been recognized as an important factor in disease diffusion. Commuting to work, long distance travel to home villages and pilgrimages have been cited by health authorities of Sri Lanka as the cause of rapid dissemination of cholera, dengue, respiratory infections and influenza epidemics. The irrigation canals have been associated with the spread of cholera and malaria in the dry zone and spread of malaria into marginal areas of the wet zone and the wet zone has been associated with long route mobility, as Meade (1976) has discovered in Malaysia. The spread of the 1998 cholera epidemic was mapped by the researcher, on the basis of reports from the Divisional Health Service and National Television, which strongly favour a possible connection between the long distance express bus service and diffusion of cholera (Seneviratne, 2003). A similar pattern was identified with Covid 19 expansion in 2020. The major routes of mobility in Sri Lanka operates along five road arteries radiating from Colombo and media reports indicate an association between occurrence of epidemics of infectious diseases and, the towns and linear settlements served by these major routes, although this contention is yet to be confirmed by a proper research programme.

It can be inferred that the presence of respiratory diseases increase with poverty and low accessibility to health services. However, the influence of air pollution in the urban areas and dust in the dry zone has been identified as ever increasing causative factors for the increase of respiratory diseases in Sri Lanka. The high presence of bacterial disease in national profiles is a result of urbanization, where drainage and access to safe water are inadequate. The gradual reduction in the bacterial diseases towards the rural periphery may also be a result of both a cleaner village environment and non-reporting to hospitals. This is a result of treatment of common bacterial diseases by freely available antibiotics and by the villagers in Sri Lanka.

This evolution is associated also with the development change in health services, which are felt much stronger in national data due to the limited presence of infectious

diseases in the middle and upper classes, which have reached a stage with a heavy presence of chronic diseases among them. The economically strong classes have reached this stage mainly through their improved immediate living environment and use of western medicine.

The effective control of most of the dangerous infectious diseases by a welfare state is the primary factor responsible for the present day pattern of disease prevalence in Sri Lanka, though there is a positive contribution from the rapid rise in literacy and social modernization in the last fifty years. The free provision of western and Ayurvedic health care facilities by the government has enabled the poor to have access to preventive and curative medicine. However, the ability and willingness to use the facilities and the selection of the medical systems originates from literacy. The place of women in society is also a major supportive factor in achieving better levels of health in Sri Lanka.

The national data indicate a situation of epidemiological transition, but a detailed analysis indicate that the national data base is becoming irrelevant to marginalized groups like urban poor and middle class.

The immediate living environment

The immediate living environment was investigated in detail and the house and environment was evaluated on the basis of its relationship to healthy living as perceived by the national health standards. This analysis was conducted in order to build a background for the study of environment risk, which is used to identify the major differences in living environment.

The quality of the house

The quality of the house in the study was measured through the occupancy rate of the house, on the basis of density of persons per room. This measurement is used because it combines the size of the house with the number of people in the house.

Drinking water

The quality of drinking water is of prime importance to health as most the serious tropical infectious diseases are associated with contaminated water. The contamination of water can occur at any place between the source and consumption. In the farming communities of Sri Lanka, both the primary generator of consumption can be equally contaminated. The source is the primary generator of the disease, while the point of consumption can be the secondary node of infection.

Toilet facilities

The toilet facilities have a similar scenario to the supply of safe water, but the hazardous effect of poor quality toilet facilities is lowered by the health habits formed through literacy and adherence to advice on use of toilets.

Wastewater disposal

The wastewater disposal was observed during the survey through the assessment of risk associated with the open drains, which drain wastewater from kitchen and garden.

Presence of mosquitoes

Mosquitoes

There are many types of biting mosquitoes in the humid tropical environment of the wet zone, many which have not been studied due to their low capability in disease transfer. Fifty five percent of the respondents reported that there is a mosquito

problem during the months after the two major rainy periods and sometimes even during the dry spells in the rainy season

Accessibility

Sometimes the location of the house imposed restrictions on accessibility to health services and good quality water. The accessibility to medical facilities is considered to be an important variable of the health status of modern populations through it is a difficult component to measure due to wide disparities in spatial distribution and functional level of services. An equation is formed on the principles given in Meade et al (1988) to calculate the accessibility of normal and emergency conditions to identify the major difference between the two study areas. Under normal conditions $A = d \cdot h / t$, where A, is accessibility, d is distance to the service, h is number of government hospitals visited and t is travel time. In case of emergencies the value of t is replaced by the mean cost of travel to hospital. The data for the calculation was collected on the basis of number of health care facilities visited by the respondents.

Table 2.13 Accessibility ratios to health care facilities under normal and emergency conditions

Variable	2000	2022
Mean distance to hospital in kilometres (d)	13	12
Number of hospitals visited	13	-
Mean Travel time (minutes)	66	50
Mean Cost of emergency transport (Rupees)	400	800

Source : Seneviratne (2003) and 2022 field data

The distance to hospitals was calculated on the basis of the route taken and the number of hospitals visited gives the total number of hospitals visited by the sample population. The travel time and the cost of emergency transport were the estimates made by the respondent. The mean values were calculated for comparison and the results show that there is a clear difference in the level of physical accessibility to health services between the two study areas as expected.

Environment risk score

The quality of the immediate living environment was calculated to form an environment risk score, using the data on house quality, water supply, toilet type and mosquito presence. These factors were condensed into three categories and assigned a value between 1 and 3. One represents the low risk, while 2 and 3 respectively represent moderate and high-risk levels. The risk score was calculated by adding the four numbers allocated to an individual household.

The levels of low, moderate and high risk were formulated with the help of White (1979) in relation to risk arising from the natural environment and hazards (table 2.14).

The total obtained from the addition of values from the four variables is 12, which is equal to the risk level 3. The calculation of the risk levels for an individual house enables the researcher to place it in one of the following categories:

- Low risk – 4 to 7
- Moderate risk – 8 to 11
- High risk – 12 and above

Table 2.14 Computation of the variables into three risk levels

House quality	Environment risk score
2 per room	1

3 to 4 per room	2
More than 4 per room	3
Type of water supply	
Public mains	1
Tube well	2
Protected well	2
Unprotected well	3
River, tank and stream	3
Other	3
Type of toilet	
Water seal	1
Pour flush	2
Pit	3
Others (mostly temporary)	3
Shared	3
No toilet	3
Mosquito presence	
No problem	1
Seasonal problem	2
All season problem	3

Source : Seneviratne (2003)

The risk level information confirms the difference quality of the immediate living environment in the study area. Therefore developmental change contributes heavily to the risk score on immediate living environment through the presence or absence of infrastructure facilities and auxiliary income sources.

World Bank (2014), in a study of private health care outlines following.

Sri Lanka has made remarkable progress in improving the health status of its population. Since the 1920s (Gottret and Schieber 2009), the country has made

dramatic strides on key outcome indicators such as life expectancy (75.9 years at birth in 2012 compared to 40.0 in 1930) and child mortality (17 per 1,000 in 2010, down from 175 in 1930) (CIA World Factbook and UNICEF, 2012). Sri Lanka's achievement is even more remarkable when we consider its level of income and its low expenditure on health. It spends a total (public and private) of approximately 4.2 percent of GDP or US\$57 per capita on health (Sri Lanka Health Accounts [SLHA] 2011). Yet, many of its health indicators are comparable to those found in Thailand, Malaysia, and Korea — countries with income levels two to six times higher, adjusting for purchasing power parity, which spend 1.5 to 10.0 times more on health per capita. The Sri Lankan model relies heavily on an effective public delivery system, providing both preventive and curative care with separate dedicated teams for each of these streams. Contrary to the experience of most other countries in South Asia, empirical evidence indicates that the public sector in Sri Lanka has delivered care at low cost with high levels of productivity and efficiency (Hsiao, 2000). One reason for such efficiency might be the strong focus on the inherently more cost-effective preventive and public health services, along with a reasonable level of access to curative services. It is estimated that the private sector in Sri Lanka accounts for 50 percent of total health expenditure. Although this is reason enough to conduct this review, there are several other important reasons, particularly with an eye on the future and given the evolving challenges in the health sector.

- Greater purchasing power increases demand for private health services: Sri Lanka is now a middle-income country. With increasing purchasing power, private health care options — with their perceived benefits of “quicker,” “cleaner,” and “more flexible” service delivery (Salgado, 2012) — are expanding. This expansion of options, combined with the gaps in service delivery and quality in the public system noted above, suggest that the demand for private options for health care may be a growing trend.
- Demographic and epidemiological transitions pose new health challenges: Sri Lanka is now at a crossroads: due to the marked increase in life expectancy and decrease in fertility rates, the country is in the advanced stages of a demographic and

epidemiological transition. With the share of the population age 60 years and older expected to double in the next 30 years to 24 percent, it faces the challenge of an aging population. There is also a shift in the disease profile, with non-communicable diseases (NCDs) now accounting for 85 percent of the total burden of disease (Government of Sri Lanka 2011). Servicing the needs of the elderly, as well as treating and managing NCDs, requires longer-term and more expensive services relative to maternal and child health and infectious disease interventions.

- Increasing NCD burden risks exacerbating inequalities in health care access: The poor become particularly vulnerable as the incidence of NCDs rises. This is likely to mean out-of-pocket payments for needed medicines and investigative services, which are both costlier and require sustained usage. There is a real risk that this trend could compromise Sri Lanka's stellar record in protecting the poor against catastrophic and impoverishing health expenditures.
- The evidence-base for the private sector in health is weak: Despite the strong interrelationship between the public and private sectors, the private sector is generally not well understood by policy makers. The paucity of information is an important reason for the suboptimal participation of the private sector in the achievement of public health objectives; in fact, prior to this review, no systematic assessment of the private health sector had been undertaken in Sri Lanka.
- Both the public and private sectors now see value in engaging with each other

Sri Lanka aspires to improve the quality of existing health care and transform the sector into one that caters to economic growth as well as to social inclusion, the country faces fresh challenges posed by the aging population and the growing burden of NCDs. This clearly warrants fresh thinking on how to finance and deliver health services in the future.

Reasons for choosing the private sector:

The private sector was seen as having certain advantages: the main one was the convenience factor. In addition, the comfort of knowing the patient could select the

specialist of his or her choice, and continuity with the same doctor were also considered important reasons to seek private health services. Greater confidentiality in private settings as compared to public facilities was also identified as an important factor.

While people were choosing private providers for the reasons mentioned above, they did express concerns about the cost of care in the private sector. Out-of-pocket expenditure on medicines and laboratory investigations has contributed to the galloping cost of health care despite the country's free health care policy. While patients had no idea what the public sector health services cost the government, the exorbitant medical bills charged by the private hospitals were a grave concern. There was a plea that private hospitals indicate an approximate cost for patients prior to major treatment procedures to promote greater transparency and facilitate informed decision making.

Coverage of health insurance was minimal. For those with no insurance, out-of-pocket expenditure for medicines and laboratory tests has become prohibitive. Even those with personal health insurance coverage (which only covers a small proportion of the population) faced substantial hurdles in settling legitimate claims: so much so, they often abandoned the effort. A different view was expressed by those who had insurance cover as a perquisite of their employment package. While a significant proportion of the expenses were covered by the company providing the insurance policy, there were several exceptions that had to be borne by the insured. Some respondents were open to the idea of government charging a nominal fee for health services, provided that medicines and laboratory-service standards were improved.

Lack of transparency and credibility of private sector services was a grave concern across the board. The establishment of an independent governing body to maintain standards and provide accreditation was stated as an important step toward developing a more standardized private health sector in the country. Across all respondents there was a consensus that there were unofficial ties between certain private sector health

care providers and government institutions, which gave these service providers an undue advantage over their competitors. The fact that over 95 percent of private practitioners were also working with the government (even the large private hospitals are primarily staffed by doctors – especially specialists — who are also on the government payroll) makes such a nexus easy to establish and sustain.

Private Medical Institutions Registration ACT (PMIRA) and Registration/Accreditation Requirements:

The private sector respondents did not highlight significant shortcomings in PMIRA except for two issues: (1) large numbers of stand-alone medical testing laboratories, pharmacies, and consulting centers (“Channeling Centers”) have not been registered and are functioning unchecked; and (2) unqualified practitioners or quacks were practicing freely as allopathic or Ayurveda doctors. Respondents were unanimous in stating that all private sector health care institutions should be registered, inspected at regular intervals, and graded and accredited — according to predefined criteria relating to the services offered by an appropriate independent authority specifically appointed for the purpose. They, however, were keen to ensure that the same principles for accreditation were applied in both the public and private sectors. They also felt that the enforcement by the regulators of the provision of the act was suboptimal and that this needed to be addressed.

Compliance by the Private Sector of Government’s Standards and Reporting Requirements: Respondents noted that the private sector was not homogenous, and consisted of entities of various sizes with different functions; as such they felt that “one size could not fit all” in terms of government regulation. Respondents indicated that the larger private institutions were, by and large, complying with these requirements. In fact, some private hospitals have invested in building up their own monitoring and reporting systems. They acknowledged that smaller facilities may not be fully compliant with the government’s quality standards and reporting requirements, but insisted that the government also needed to do more to inform and

educate such institutions on what data were needed and why, and also why this was also in the interest of the private sector.

Services offered by private hospitals, including the training of “private” nurses: Respondents felt that, in general, the facilities and services offered in the private hospitals are satisfactory. They highlighted two constraints: (1) the training of nurses by private hospitals, which is recognized by neither the Sri Lanka Medical Council (SLMC) nor the Sri Lanka Nursing Council (SLNC) and therefore does not lead to the registration of these nurses; and (2) the private medical institutions’ (PMIs)’ inability to offer 24-hour cover by an in-house senior medical officer employed on a permanent or long-term contract basis. The respondents claimed that nurses employed in their hospitals are being trained according to “an approved curriculum.” The approval is stated to be from the Director General of Health Services (DGHS) and/or the Private Health Services Regulatory (PHSR) Council. In most cases, the training of nurses is undertaken in-house, but is sometimes outsourced to either the Aquinas University (private university) or the Open University of Sri Lanka (government university). As such, the respondents felt that these nurses should be formally recognized.

Contracts between private hospitals and public doctors using these facilities for private practice: The respondents felt strongly that the practice of public doctors being permitted to practice in the private sector should continue. Only a few private hospitals, however, could confirm that the government consultants/specialists who use their hospitals for private practice (outpatient consultations, invasive investigations, and surgical operations) during off-duty hours have signed a legally valid (and therefore enforceable) contract with the relevant hospital. Informal discussions with such doctors indicate that the vast majority of them have not signed any kind of contract with the private hospital(s) where they engage in private practice. The absence of enforceable contracts raises issues of accountability of doctors to the hospitals and, more importantly, to patients.

Quality of Foreign Consultants/Specialists: The respondents defended their use of foreign consultants/specialists to run their facilities. They indicated that, as far as the quality of foreign doctors employed is concerned, there was a set procedure, wherein the SLMC and relevant colleges of specialists (for example, College of Surgeons, College of Anesthesiologists) have the final say in approval and registration. Their principal complaint was that the process took a long time. Other stakeholders have, however, raised questions about the feasibility of judging the competence of highly specialized surgeons on the sole basis of paper qualifications and curriculum vita. They also suggested that the willingness of foreign specialists to accept lower remuneration might be influencing their selection by the private hospitals.

Opportunities for Development of the Private Sector and Public Private-Collaboration: The respondents made a forceful case that they were equal participants in the provision of health care services to the population at large. They felt that the private sector could be a valuable ally to the government in expanding the range and scope of health services offered to the population. They particularly highlighted the areas of diagnostics (radiological investigations, laboratory services), management of non-communicable diseases, and the diagnosis and treatment of some selected communicable diseases (for example, TB) as having the most potential for such collaboration. Some respondents felt that the government needed to do more to encourage the private sector; in particular they argued for a reduction in the 18 percent interest rate charged on loans to the private health institutions. They also suggested that health insurance could be used by the government to finance and incentivize the private sector, where and when appropriate. They also argued for a forum through which regular interactions between the private sector and the government could be sustained.

There has been a surge in private sector capacity since the 1980s, but the rate of growth of the sector has slowed more recently. Private health sector facilities in Sri Lanka saw a rapid growth during the period 1981 to 2000, with an expansion of services through hospitals, laboratories, and clinics. This growth has continued in

recent years, but the rate of growth since 2000 has slowed and, in the case of smaller clinics and laboratories, has declined.

The private health sector provides both outpatient and inpatient curative care in urban and semiurban areas of the country. The focus on curative services most likely stems from the higher demand for these services compared to for preventive services (which the public system ensures easy access to) and the greater profit margins that curative services yield.

Private facilities are not evenly distributed across Sri Lanka. Unlike public facilities, which are spread out across the country, private facilities are largely concentrated in the Western Province, as well as in urban areas. This is almost certainly the higher per capita income and higher population density of this province (nearly 25 percent of the country's population lives in the Western Province and nearly 40 percent of the country's GDP is generated in that province). The urban concentration of private facilities was also illustrated in the mapping exercise undertaken as part of this review, which showed that almost three-fourths of the facilities in the four Divisional Secretary areas sampled were located in urban areas, near the main road and quite close to government hospitals (suggesting that they were not necessarily expanding the reach of health services).

The Private sector consists of a range of providers. Private health facilities are of three types: hospitals (specialized or general), clinics (specialized or general), and laboratories. Private hospitals provide inpatient care, with an estimated 4,210 beds in the private sector. Of these, approximately 50 percent are in Colombo, and the rest are distributed across a few districts (for example, Kandy, Galle, Kurunegala, and Anuradhapura) in small hospitals or clinics with approximately 20 to 30 beds each. The pharmacies, laboratories, imaging facilities, and individual medical practitioners provide ambulatory care.

Over half (56 percent) of the hospitals and 41 percent of the clinics surveyed had more than five employees. Among them, 66 percent provided inpatient care. 44 percent of the health facilities had 1 to 19 beds; another 44 percent had 20 to 99 beds, while 12 percent of the health facilities had more than 100 beds; Of all health facilities surveyed, 72 percent had at least one operating theater. Among the 82 inpatient facilities surveyed, 59 percent did not have any intensive care unit (ICU) beds; 74 percent did not have pediatric ICU beds; 77 percent did not have beds in the cardiology unit. Of all hospitals surveyed, 28 percent reported an increase of their hospital bed strength during the past three years.

Perceived quality and customer relationships, rather than price, determine competitiveness of private facilities: As shown below, when the owners/managers of private facilities were asked about the most important factors in determining the competitiveness of their establishment, they highlighted (1) the perceived (higher) quality of care they provided, and (2) the long-term relationships they had established with their clients. These two factors constituted over 90 percent of the total responses, while price was only mentioned as a consideration by 9 percent of the respondents. This finding suggests that if the public sector does not provide continuity of care and a full range of services (particularly those associated with the increased incidence of NCDs), patients are likely to gravitate increasingly to the private sector.

Barriers to Health Facility Operation

Shortage of health-related human resources was identified as the most important barrier to the growth of the private health sector. Approximately a fifth (19 percent) of the health facilities had fewer than ten full-time staff, defined as paid employees who were contracted for a term of one or more years, and/or a guaranteed renewal of their employment contract, and who work a full shift each day. Only about 15 percent of the health facilities had more than 100 full-time employees.

Of health facilities, 28 percent identified the shortage and/or restricted availability of a specialized health labor force as a major constraint to the delivery of services. 15

percent of the facilities identified the unavailability of specialist doctors; 10 percent, the paucity of qualified nurses; and 2 percent, the shortage of laboratory technicians, as the most important barrier to operating a health establishment.

Limited access to finance, competition from providers, and restricted access to land were identified as the other important obstacles to the development of the private health sector in the country. The private sector is heavily reliant on the public sector for delivering general and specialist medical services. Of private health facilities, 70 percent have general medical officers who work on a part-time basis, and 86 percent engage specialist medical officers on a part-time basis — all of whom work with GOSL, as well. This could be one reason for the restricted growth of the private health sector in Sri Lanka.

Nursing care in the private health sector facilities is provided by nearly a 50-50 combination of qualified nurses and trainee nurses. This situation can create issues related to the quality of care. In contrast, the public facilities are generally assured of the availability of qualified nurses, with nearly 30,000 nurses available for the 70,000 public sector beds. GOSL recognizes only its own training facilities for nurses, and absorbs all the nurses produced by them. The large private hospitals have therefore created their own nurses-training programs, albeit unrecognized by GOSL.

Pharmacists, laboratory technicians, and selected other categories of health staff are unavailable in a majority of facilities. Over two-thirds (70 percent) of the health facilities do not have even one pharmacist or a laboratory technologist working full- or part-time, while 39 percent of the health facilities had only one pharmacist and one laboratory technologist. Furthermore, 23 percent of the facilities do not have a business manager, and 30 percent do not have a medical records assistant/officer attached to the facility. According to the findings, the other categories of staff (nurses, laboratory technicians, pharmacists, medical records persons, and other staff other than medical officers) are not working on a part-time basis.

The bulk of private sector financing consists of household out-of-pocket expenditure, which has remained at over 82 percent of private expenditure throughout the entire period under review. Expenditure by companies to provide health care and medical benefits to their employees has been the next largest (8 percent) source of private financing. This expenditure has shown a slight decline of about 1 to 2 percent from 2002 to 2006, but increased to 8 percent by 2008. The contribution from private health insurance as a share of private financing has increased, from less than 1 percent in 1990 to 5 percent by 2008, making it one of the most rapidly increasing sources of health care financing. The nonprofit sector has maintained its share of private financing at 2 percent throughout.

Most out-of-pocket expenditures are on doctors' fees. Most of the OOPE was on private practitioners: taking Ayurvedic practitioners' and specialists' fees into account, the doctors' fees account for over 50 percent of the total OOPE. On the other hand, OOPE on private hospitals almost doubled from 9.7 percent in 2007 to 19.3 percent in 2010. Interestingly, the proportion of OOPE spent on medicines decreased slightly from 25.5 percent in 2002 to 19.1 percent in 2010. Taking into account the fact that 10 percent of the money paid to private practitioners probably goes toward medicines dispensed by them, the OOPE on pharmaceuticals is estimated at about 24 percent of the total OOPE. This percentage is smaller when compared with other middle-income countries, and with other countries in the region. It is possible that the relatively low fraction spent on drugs is because most drugs are available free through the public health care system, although it could also indicate that people, to some extent, are forgoing the use of necessary medicines. The increase in OOPE on diagnostic tests from 4.4 to 7.4 percent is also striking and indicates that the private sector is playing an increasing role in this area.

Most of the private practitioners are also public sector doctors, working additional hours at their private practice. This raises some interesting issues regarding the reasons for patients seeking out doctors in their hours of private practice rather than at the public facility. As noted in the previous section, patients perceive better quality of care

in the private practice compared to public facility. This raises important issues about the potential and/or real conflict of interest between the practitioner's public service and private practice. Sri Lanka does not seem to have high degrees of absenteeism among doctors in the public sector; however, the potential effect of working double the hours every single day (that is, in the public and in the private sector) on the doctors' performance cannot be ignored. Other issues include the potentially perverse incentives that could drive the behaviors of such practitioners, who might give preferential treatment to those private clients who seek care from the same doctor in the public hospital.

There are clear differences in the composition of OOPE across income quintiles. The richest spend roughly a third of their OOPE on private practitioners, another third on private hospital care, and 16 percent on drugs. The poorest, on the other hand, spend roughly 70 percent on private practitioners, less than 1 percent on private hospitals, and about 20 percent on drugs. Clearly, private hospital visits are pro-rich, as also are laboratory investigations and specialist care. Private outpatient visits are evidently the more affordable type of care and hence constitute a bigger proportion of the OOPE by the poor.

Private Health Insurance

There has been an increase in the number of firms selling personal medical insurance since market liberalization in the 1980s. A census of insurance companies indicates that health-related insurance is provided by insurance firms as a product in their general insurance portfolio, and as a rider cover to life insurance. The insurance companies included in the survey were selected from the listing of insurance companies provided by the Insurance Board of Sri Lanka; of the total of 15 general insurance providers, 13 responded to the survey (87 percent); and of the total of 13 life insurance providers, 11 responded to the survey (85 percent). The premium attributable to health insurance is 10.2 percent of the total premiums for general insurance (2010). Over 95 percent of general health insurance premiums are under

group schemes for the period 2000–10, with a very small proportion being individual policies. General exclusions include chronic conditions, preexisting conditions, and childbirth.

Provision of Health Services: From the data presented, it is clear that the private sector in Sri Lanka includes a range of providers; tends to focus primarily on the provision of curative — rather than preventive — and outpatient services; and is heavily concentrated in urban areas. Furthermore, these facilities tend to cluster around areas that already have government facilities, which limits their ability to expand the reach of health services to the general population. Consideration could be given to incentivizing the private sector to participate more widely and systematically in both preventive and curative services, and, further, to expand beyond urban areas to the rural and underserved regions, so that the scope and reach of health care services in Sri Lanka could be optimized.

As highlighted above, public-private partnerships (PPPs) in the health sector are minimal: a majority of the health facilities function as independent institutions, and the survey revealed that only 12 percent of health facilities had agreements/contracts with the government health sector at least once in the past. Furthermore, government only provides limited support to the private sector to participate in the implementation of public health programs. In keeping with its role as steward of the health sector, the government could ensure a more efficient and equitable distribution of its scarce resources by leveraging synergies across the two sectors. For instance, diagnostics are an important and growing area within the private health sector, although relatively few private facilities currently provide a full range of diagnostic services. This is an area where both the public and the private sector could potentially stand to gain through mutual collaboration. On the other hand, the private sector is virtually totally dependent on the public sector for its supply of human resources. It would therefore be important to address the issues of human resources in the health sector, which affect both public and private facilities, including the shortage of certain types of personnel, and the potential conflict of interest issues arising from the same personnel working in

both public and private sectors. One option could be to share the resources for the training of nurses, laboratory technicians, and pharmacists between the private sector and the ongoing Allied Health Professionals Training Units in the Faculties of Medicine. Such a step could potentially increase the numbers of such personnel within the system, and also ensure uniform and accredited standards in the public and private sectors. Limited access to finance is identified as a barrier to the effective operation of private health facilities. The private sector, on the whole, is heavily reliant on out-of-pocket payments, with government subsidies and insurance playing only a minimal role. The design of viable risksharing arrangements could potentially address this issue, and promote more effective private sector participation in the health sector.

The quality of care in the public and private sectors in Sri Lanka is broadly comparable; the private sector attracts patients primarily because, on average, it is cleaner, more patient-friendly, and offers greater choice, more privacy, and shorter wait times. However, the overall quality of health care services in Sri Lanka in both the private and public sectors still lags behind those offered in more advanced countries. An active partnership with the government in this area would help the private sector and the country in two ways: first, adherence to government's norms and standards would ensure better quality of care for the consumer in the private (and public) sector; and, second, rewards and incentives offered to private establishments that make significant improvements in service quality could enhance their competitiveness in the health care market. In areas where quality indicators show marked differences between the public and private sectors, there could be cross-learning between the two (after studying the reasons for such differences, given the overlap of personnel between the two markets). The public sector can also improve its quality of services considerably by focusing on overcrowding (resulting in longer waiting times and shorter consultation times), cleanliness, advice given to patients, and effective follow-up and continuity of care. Health expenditure and utilization of health services: Notwithstanding the remarkable success of the public sector in ensuring access to efficient and good quality health services in Sri Lanka, private

health expenditure is more than half of total health expenditure, mostly in the form of out-of-pocket payments by households at the point of service delivery.

The largest OOPE category is doctor's fees; the share of diagnostics and private hospitals is rising, while pharmaceuticals are declining. The evidence shows that the rich are paying more for health care than the poor by a factor of 10, but the poor spend proportionately more when OOPE is examined as a share of nonfood expenditure. The rich are also spending more proportionately on private hospitals, diagnostics, and specialists than the poor. This demonstrates possible inequalities in access to health care between different income groups; and more importantly, that the lower utilization of these services is an indication that the poor are forgoing these services, possibly due to cost considerations. Although, the burden of OOPE has remained constant across quintiles, when considering those reporting a non-zero OOPE on health, poor households spend on average more of their nonfood expenditures on health, compared with the richer households.

On the positive side, only a small proportion of the population has catastrophic or impoverishing OOPE, with catastrophic expenditures being concentrated among the rich, while impoverishing expenditures occur more among the poor. There could be several policy options to address the inequities noted above and avert the likelihood that the poor are forgoing health care. These range from improving the quality, completeness, and availability of public sector services to introducing means-tested public subsidies of privately available services (so that the poor can also afford to buy those services not easily accessible in public facilities). Any such scheme, however, needs to be carefully planned and executed after considerable consultation and technical work.

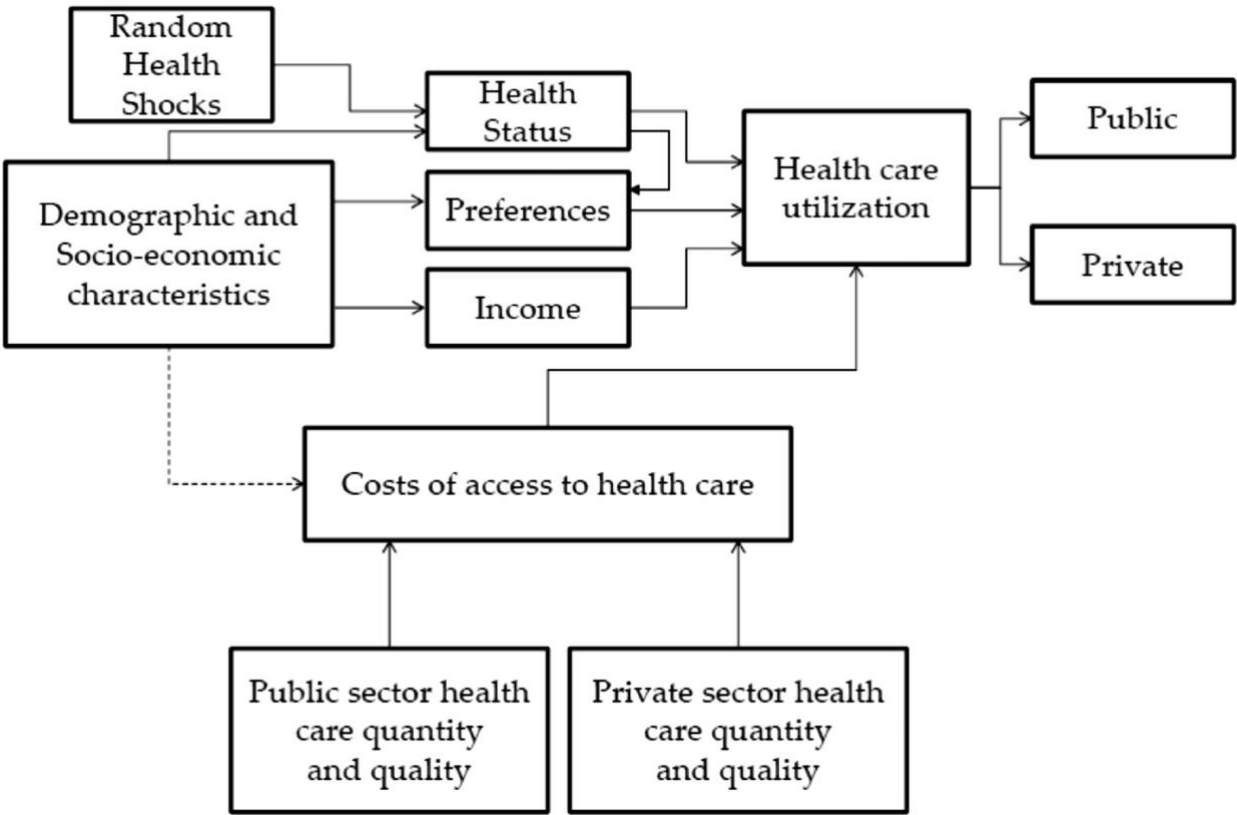
Demand for private healthcare in a universal public healthcare system: empirical evidence from Sri Lanka (Pallegedara and Grimm (2017))

Pallegedara and Grimm (2017), indicate that, according to Andersen's behavioural model of healthcare utilization (Andersen 1968; Andersen and Newman 1973), an individual utilizes healthcare based on a function of predisposing, enabling and need based characteristics. Predisposing characteristics represent the socio-cultural characteristics of individuals that exist prior to their illness such as demographics, social structure and health beliefs. Enabling characteristics include resources available within the family such as economic status, social relationships and location of residence and the community such as access and availability to health services and waiting time. Need based characteristics refer to immediate healthcare use that consists of both perceived needs based on symptoms and disabilities and clinically evaluated needs.

The initial model has been expanded later in order to acknowledge the importance of other related factors such as the quality of the healthcare system, the external environment, measures of healthcare use, personal health practices and consumer satisfaction (Andersen 1995, 2008).

Based on the Andersen's model, we assume that healthcare utilization in Sri Lanka is mainly determined by demand, which in turn follows from individual's preferences, their income, their healthcare needs and the costs of access which are in turn related to healthcare supply. In line with the economics literature we assume that income and costs enter the budget constraint. In other words, households make an optimal choice, given their preferences, their income and the prices of those goods they draw utility from. Preferences provide an ordering of alternative choices based on their relative utility, they are determined purely by taste factors and are independent of prices, income or the availability of goods (Mas-Colell et al. 1995). In this paper, we focus explicitly on the difference between public and private formal healthcare supply, which are treated as imperfect substitutes. There might be quality differences between both as well as differences in the costs of access.

Hence, if healthcare needs arise, individuals have to make a choice between public and private healthcare services providers. Private care is typically associated with much higher direct treatment costs than public care, however private costs might be associated with lower indirect costs, if for instance, the travel time is shorter, the waiting time is shorter and the quality is better. Quality may differ because the health workers may work according to a different incentive structure or because the private sector can offer medicines, tests and other auxiliary services that the public sector cannot provide. The underlying individual preferences with respect to private and public healthcare might be driven by beliefs regarding quality differences, health-related attitudes, values, culture, trust and knowledge towards the healthcare system. These factors might in turn be related to individuals' demographic and socio-economic characteristics, e.g. older or rural people may have different attitudes than younger and urban people.



The costs of access to healthcare play plausibly a major role with respect to healthcare utilization even if consumers are less price sensitive when it comes to healthcare compared to other consumption goods (Ringel et al. 2002). We assume that the cost of access to healthcare is determined by public funding targeted at public sector healthcare. More funding should lead to a higher level of healthcare both in terms of quantity and quality and hence a lower price for instance through reduced waiting times; although consumers' may realize that this comes at the cost of higher taxes. This should however matter only little for demand as for each single individual there is no direct link between the quantity and quality of public healthcare and paid taxes. This is different in the private sector where people directly pay for the services received. Here, individuals consider the availability, accessibility, quality as well as opportunity costs of time. Again, the costs of access to healthcare will vary with demographic and socio-economic characteristics of individuals, including gender, for example because people differ in their opportunity cost of time and the location they live.

We assume that healthcare utilization is influenced by both demand side factors and supply side factors. Demand side factors include three sets of variables: individual and household socio-demographic characteristics and individual health status. Supply side factors include five sets of variables (Gravelle et al. 2003; Morris et al. 2005): factors related to the quality of public sector healthcare supply at the district level, the quantity of public sector healthcare supply at the district level, the use of health-care services at the district level, the accessibility of public sector healthcare facilities at the household level and the accessibility of private sector healthcare facilities at the household level.

We believe there are good reasons to believe that these patterns are different. For example, the effect of distance to the nearest public hospital may differently affect men's and women's healthcare choice.

In addition, we conduct an LCA to elicit whether there are any specific behavioural patterns of utilizing healthcare among population subgroups. LCA is increasingly used in empirical analysis of healthcare utilization (Deb and Trivedi 1997, 2002; Atella et al. 2004; Bago d'Uva 2005, 2006; Bago d'Uva and Jones 2009; Schmitz 2012) as it can account for heterogeneity that cannot be captured fully by usual covariates in the estimation models. We use health status indicators with respect to chronic diseases such as heart diseases, hypertension, cancer, diabetics, asthma and natural disability to identify the latent classes. Based on these indicators we estimate a model with three latent classes. Following the literature (Atella et al. 2004; Nylund et al. 2007), we used the Bayesian information criterion (BIC), the consistent Akaike information criterion (CAIC) and the adjusted BIC as model selection criteria to determine the number of classes that is the most suited to explore the patterns of both outpatient and inpatient healthcare demand.

Outpatient healthcare utilization

The pooled model suggests that older individuals are significantly less likely to use outpatient care. This effect is mainly driven by men. The results also show that there is a strong income effect; richer individuals are significantly more likely to use outpatient healthcare. Individuals in urban areas are less likely to use outpatient healthcare compared to individuals in rural and estate areas. We also find lower outpatient healthcare usage among the Tamil population. Women, individuals in households with higher educated household heads and respondents suffering from chronic diseases or a disability are substantially more likely to seek outpatient healthcare. Larger households use less outpatient care, yet the more children a household has the higher the demand for outpatient care

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Turning to the supply side factors, we find that the time needed to access the nearest clinic increases outpatient healthcare utilization, yet the effect is very small and only significant for women. Intuitively, we would obviously expect a negative effect, but unobserved differences in healthcare needs that are correlated with remoteness might explain this finding. Public sector hospital beds and public sector doctors per 100 000 population are associated with a lower usage of outpatient healthcare. Yet, public sector gynaecologists and the number of nurses per 100 000 population have statistically positive effects on outpatient healthcare utilization. We also find different signs with respect to outpatient attendance, clinic visits and inpatient admissions per 100 000 population. Although we focus here on both public and private outpatient care, we would expect negative signs associated with these variables if congestion was an issue. Yet, we only find a negative effect associated with outpatient attendance per 100 000 population, whereas we find positive effects associated with public clinic visits and public sector inpatient admissions.

Private outpatient healthcare utilization

The marginal effects associated with private sector outpatient healthcare utilization conditional on individuals who used outpatient healthcare. Age is negatively associated with the usage of private outpatient healthcare. Individuals from high income households are more likely to use private outpatient healthcare. The income elasticity of 0.22 suggests that a 1% increase in income is associated with an increase in the probability of using private outpatient healthcare by 0.22%. Compared to urban and rural areas, individuals in the estate areas are less likely use private outpatient care even controlling for income. Women and chronically ill individuals also tend to use

less private outpatient care despite using more outpatient care in general. The education level of the household head as well as more adult household members is positively correlated with the probability of using private sector outpatient healthcare.

Easy access to private sector health facilities seems to increase the use of private sector outpatient care. The shorter the time needed to reach the nearest private sector healthcare facility the higher the usage. Estimated coefficients for district level public sector healthcare supply indicators such as number of beds and the number of doctors per 100 000 population are highly statistically significant and show the expected negative sign, except for the number of nurses per 100 000 population. Districts with a well-developed public healthcare sector seek less usage of private outpatient care. Finally, we find that congestion, measured by higher public clinic visits per 100 000 population, is associated with significant higher private sector outpatient healthcare utilization.

Inpatient healthcare utilization

The marginal effects associated with inpatient admissions indicate a contrast to what we found for outpatient healthcare, inpatient healthcare use increases with age. It also increases with household income. Compared to rural areas, individuals in urban and estate areas are less likely to seek inpatient healthcare, as are Tamils (similar to what we found for outpatient care). While women are more likely to seek inpatient treatments, education of the household head matters mainly for men. People with chronic diseases are also more likely to use inpatient healthcare as are households with more children.

The coefficient associated with the number of available surgical beds per 1000 population is statistically significant and positive. In contrast, we find inpatient care being higher in those districts with fewer public sector doctors and surgeons per population.

Private inpatient healthcare utilization

To analyse the choice behaviour between private and public inpatient admissions, the marginal effects of private sector inpatient admissions conditional on individuals who used inpatient healthcare is used.

Again we find a strong income gradient. The estimated income elasticity of 0.07 suggests that 1% increase in income is associated with a 0.07% increase in the probability of using private inpatient care. Even after controlling for income and public healthcare supply, we still find a strong negative coefficient for people living in the estate areas. In contrast to outpatient healthcare, there is no significant difference between males and females. The education level of the household head seems to matter especially for women's usage of private inpatient care. Tamils are also more likely to use private inpatient care as are individuals from smaller families. People with chronic diseases or disabilities are more likely to utilize private inpatient care. Most of the coefficients for supply side factors are not statistically significant, suggesting that these factors are not very relevant for the choice between private and public inpatient care.

Income effects associated with private healthcare utilization

As we found substantial income effects associated with the choice between private and public healthcare, we further illustrate how demand for private healthcare varies with income by calculating predicted probabilities of using private care at different income deciles holding all other variables at their mean. There is an increasing trend of using private care across the income distribution, in particular for outpatient care, where the predicted probability of using private care increases from about 20% to about 80%.² For inpatient care, recall, the general usage level is lower; we note an increase from about 3–10% over the first nine deciles. Only in the last decile the usage probability increases to 20%. We do not find any striking differences by gender.

Regional differences in healthcare utilization

To explore regional differences, we re-estimate the model of Equation (2) adding district effects using Colombo as the reference. This in turn implies that we drop all district-specific variables from the regression as these effects are now captured by the fixed effect.

These results suggest that districts in the northwest and southern regions have higher private sector outpatient healthcare utilization relative to the Colombo district. Districts situated in the northern, eastern and central regions have lower private sector outpatient healthcare utilization.

Districts in northern and eastern regions have higher private sector inpatient healthcare use than Colombo despite the lower supply of health facilities in these districts. Finally, districts in the central and southern parts of the country have lower rates of private sector inpatient healthcare utilization compared to the Colombo district.

Exploring heterogeneity in healthcare utilization using LCA

For outpatient healthcare, 89, 8 and 3% of the sample are attributed to class one, class two and class three. Similarly, for inpatient healthcare 88, 8 and 4% of the sample are attributed to class one, class two and class three. According to the estimated item response probabilities for each latent class, respondents in the class one, class two and class three can be referred as people not chronically ill (class one), people suffering from hypertension (class two) and people suffering from heart diseases (class three).

For the users of outpatient healthcare, it appears that Tamils are more likely to be in the class with the not chronically ill rather than in the class of people suffering from hypertension. Also the probability of being in the not chronically ill class is positively correlated with a larger number of adult family members in the household. This probability is also higher in districts with a higher utilization of public inpatient care. In contrast, urban and estate sector individuals are more likely to be in class three

(with heart disease) compared to class two (with hypertension). For users of inpatient healthcare, the most important determinant of being in the class of not chronically ill people compared to the class with hypertension is ethnic affiliation. Finally, relative to those in the hypertension class, the class with heart disease is also largely dominated by Tamils and individuals who live in the urban sector.

We find that most coefficients differ quite significantly over the three classes. The income effect is somewhat an exception as it is quite similar in all three classes indicating that individuals with higher income are more likely to use private outpatient healthcare. Age has a sizeable negative impact on private sector outpatient healthcare usage only for the individuals of latent class one (not chronically ill) indicating that younger people with no chronic diseases are less likely to use private outpatient healthcare. Similarly, females who belong to class one (not chronically ill) are less likely to seek private sector outpatient healthcare. Overall, household size is negatively correlated with the usage of private outpatient healthcare again with different orders of magnitude across classes. Easy accessibility of private sector health facilities increases the private sector outpatient healthcare across different classes but respondents who suffer from heart diseases are more responsive.

Similar to outpatient healthcare, household income is highly significant and positive across all classes confirming individuals with high income seek private sector inpatient healthcare regardless of their chronic health conditions. Urban individuals from class two (hypertension class) are less likely to use private inpatient healthcare compared to individuals in the other two classes. Being in an estate sector negatively affects the use of private inpatient care for individuals in class one (not chronically ill). Household size only matters for individuals belonging to the group of not chronically ill persons. Similar to outpatient care, easy accessibility of private sector health facilities increases the private inpatient care except for individuals in class one (not chronically ill). Compared to outpatient healthcare, district level supply side factors do not have much effect on utilizing private sector inpatient healthcare. Overall, the evidence suggests that the income effect on using private healthcare is consistent

across classes and people who suffer from more severe chronic diseases are clearly more sensitive to supply side factors.

We found that income was a key determinant of demand for both outpatient and inpatient care, as has been reported elsewhere ([Van Doorslaer et al. 1997](#); [Gerdtham and Johannesson 2000](#); [Morris et al. 2005](#); [Bonfrer et al. 2014](#)). However, we also find that households tend to substitute public healthcare with private healthcare as their income increases. Similar evidence has for instance been reported by the SHIELD project for Ghana, South Africa and Tanzania ([McIntyre and Mills 2012](#)). As [Rannan-Eliya et al. \(2015b\)](#) argued in the case of Sri Lanka, this shift to private care is likely to be driven by non-clinical quality aspects of treatments such as doctors and other workers' interpersonal communication and consultation time as well as quality aspects of physical facilities like cleanliness and the luxurious environment. Moreover, the analysis above showed that the quality in terms of service availability and quantity of public sector health services affects the usage of private sector healthcare at least for outpatient treatments; people tend to use private outpatient health facilities more often if they live closer to them.

We do not find general evidence for congestion in the healthcare sector, yet we find that congestion, measured by higher public clinic visits per 100 000 population, is associated with significant higher private sector outpatient healthcare utilization. The results also indicated a positive correlation between the travel time needed to the next clinic and the use of outpatient care. This is counterintuitive to what one would expect, yet the effect is very small and only exists for women. This correlation is also not present for smaller types of healthcare facilities. Hence, we suspect unobserved healthcare needs correlated with remoteness to drive this correlation. Indeed, clinics refer dominantly to maternity and infancy health clinics that are operated by the public sector. Pregnancy health check-ups, child vaccinations and weight check-ups are conducted free of charge in these facilities. Women in Sri Lanka, more than in many other countries in the sub-region, are in general aware of the importance of these exams and may know that they and their children are at a higher risk of contracting

health problems than women and children in urban areas. This may explain the positive correlation between travel time (or remoteness) and usage. More generally, this also confirms what other authors have emphasized previously, healthcare choices are very complex and they are correlated with gender, perceptions of quality, women's knowledge and cultural norms and beliefs. We also find that conditional on income (and all the other covariates) higher educated persons are less likely to seek healthcare suggesting that they are healthier. We believe this is plausible and in line with the literature: they are likely to have less risky jobs and invest more in preventative measures including better and healthier food and consume less tobacco and alcohol. Yet, more educated individuals tend to use more often private care suggesting that higher education is associated with a better sense for quality or a higher preference for quality and possibly also higher time costs and hence value particularly shorter waiting times.

The LCA showed that the choice between private and public sector care significantly differs between people with and without chronic diseases. We find especially that chronically ill people rely for their day-to-day care on the public sector, probably also for cost reasons, but for their inpatient care they turn more often than non-chronically ill people to the private sector. It may have to do with shorter waiting times, for example to get a surgery, and better quality care. This is worrying as it penalizes chronically ill persons financially, i.e. persons who anyway because of their illness may have already a limited capacity to generate income.

We also see higher outpatient healthcare usage in rural areas and estate areas which might be an indication of the in general less favourable health environment in these areas such as unsafe drinking water, low quality sanitation as well as lower knowledge of basic health practices. It is partly also a reflection of a possible substitution of inpatient care by outpatient care. This was for example also found by [Liu et al. \(2007\)](#) for rural China. Yet, we find lower usage rates of private healthcare, which at least partly also has to do with the lower density of private healthcare facilities in rural areas compared to urban areas. The analysis of regional differences suggests that

districts in the northwest and southern regions have higher private sector outpatient healthcare utilization relative to the Colombo district. This might be due to the fact that these districts provide a lower supply of public sector healthcare (MOH 2012).

We also find some interesting patterns along ethnic lines. Tamils who live predominantly in the northern and eastern regions seem to differ in their healthcare seeking behaviour from the predominantly Sinhalese in other areas as they use over proportionally private inpatient healthcare. Indeed, the literature confirms that different ethnic and religious groups often show clearly distinct healthcare usage behaviours. The literature also shows that people of different ethnic groups even rate their own health differently. Individual norms and beliefs, prior experience, trust and confidence, opportunity costs, healer-patient communication barriers also affect the individual healthcare choice behaviour. In the case of Tamils, limited trust in public healthcare institutions and discrimination might be particularly important issues and may explain their higher demand for private inpatient healthcare services.

Our findings have two important implications. First, even with universal public healthcare policy, richer individuals tend to use private sector health services. If this trend continues it may not only increase the income-health gradient in Sri Lanka but it may also lead to a situation where richer people and the middle class completely opt out from the public healthcare system. Consequently, it may undermine their willingness to pay taxes to finance public healthcare which may negatively affect the sustainability of the public sector healthcare system. Second, regional and ethnic discrepancies still exist both on the demand side and the supply side, again despite the universal public healthcare policy. This obviously bears the risk of triggering popular perceptions of ethnic and regional discrimination that may provoke ethnic tensions, in particular in an ethnically heterogeneous country like Sri Lanka and where a long civil war ended only recently.

2.4 New health hazards (Seneviratne, 2018)

By 2020, the health status has undergone a few changes in the developed world, but there is a trend of increasing health risks in the developing world and in Sri Lanka. Intrusion of new diseases, an increase of viral and respiratory diseases and traumatic injuries are recorded in many nations.

The good services of the public health sector, fairly high literacy on the selection of the proper treatment system by the populace (65 percent) and support of private medical services has led to a nation of good health. However, the risk of infectious diseases remains high and chronic diseases are on the increase in Sri Lanka. Risk of infectious diseases is mainly a result of low health literacy of the populace and policy makers. Increase in chronic diseases is mainly a result of life style change and low health literacy of the policy makers.

Problem Environment

Changing Life style

Globally, two major types of life style factors result in increase in both infectious and chronic diseases.

Increased mobility is one of the major factors in creating a new global disease environment. Motorised transport has increased the percentage of people on the move and spread of disease. Developed nations have managed to limit the impact of new infectious diseases with their advancement in medical sciences and creating safer living environments. However, the developing world is unable to manage their health properly due to inefficient and poor governance practices.

Chronic diseases have become a serious problem in both developed and developing due to increase in stress originating from climate change, high demands for efficiency and evolution of complex life styles.

Intra- regional, national and international travel in Sri Lanka has increased by about 30 percent in the last 10 years.

This increase is mainly associated with combined trips made on tourism – pilgrimage habit in Sri Lanka. Availability of cheap fares in group travel has led to about 2000 to 3000 trips made by a total of about 3 million people on the move across climatic and cultural boundaries in Sri Lanka. Distant destinations like Katharagama, Anuradhapura, Polonnaruwa, Nuwaraeliya and Jaffna are connected by express bus services and group type smaller units on van services. Accommodation and food supply facilities of towns of these destinations have grown by about 50 percent in the last 10 years, with Katharagama and Anuradhapura recording about 30 percent growth in accommodation and food supply facilities. Small towns along the routes to Anuradhapura and Katharagama have seen a growths between 20 to 40 percent in the last 10 years. The tourists on these routes have limited health protection due to poor quality water, food and toilet facilities available to them and produce a high quantity of waste along the route and at destination. About 80 percent of the people in this category are from low and lower middle income group with limited capacity to obtain proper healthy services and are at risk of infectious diseases. Though deadly infectious diseases are rare, about 15 to 20 percent of this group are subjected to viral or bacterial infections, which require outpatient type treatment resulting in increased morbidity recorded in health statistics.

There is notable increase in mobility of population resulting from long distance travel to work and education, which results in an increase of traumatic injuries, fatalities from accidents and viral and bacterial diseases contracted from unhealthy town and city environments. Town and city environments of Sri Lanka record unhealthy air pollution levels resulting from poor waste disposal and vehicle emissions. All major cities (over 2 million) record continuous occurrence of smog with an increased prevalence of respiratory diseases (asthma and bronchitis) diarrhoea and various types of fevers.

Dengue fever is mainly associated with urban areas and notably the urban conglomeration of Colombo and the surrounding districts due to inability of urban planners to provide a solution to problem of drainage and low environmental literacy of the population, which boasts of a general literacy rate over 90 percent. It should be mentioned here that either there is a serious error in the variables used in Sri Lanka to calculate literacy rate or people provide incorrect answer to the question on literacy or though they have the literacy on the basis of their education, the education system has failed to instil proper environmental knowledge in them. Detailed investigations indicate that people give incorrect information on their educational level in the surveys conducted and education system which allows students to “just proceed” to GCE OL, without any serious measure of knowledge level has created a majority of citizenry (about 60 percent of the total population) without a proper understanding of environmental cleanliness.

Further, the policy makers and politicians have forgotten the use of environmental laws, to achieve political success. With reference to cities and towns, planning for parking space (vehicles of visitors and commercial sector), waste disposal (liquid and solid) and issuance of building permits frequently have no logical explanation. These activities are conducted at free will of the people, making traffic congestion and rotting waste a serious health hazards. It is the responsibility of the policy makers to keep the city and town environment clean to avoid an increase in morbidity and fatalities from traffic accidents.

Traumatic injuries are at all time high in both developed and developing world due to increased density of motorised transport, terrorism and industrial accidents.

Sri Lanka has recorded a massive increase in traumatic injuries, Heart related situations, diabetes and cancer in the last ten years.

Increasing of traumatic injuries is related to traffic accidents and gang violence. The low literacy level and traffic accidents have a significant relationship, as most of the

fatal accidents caused by drivers under the influence of alcohol or hard drugs. Second most important reason for increased traffic accidents is over work and falling asleep while driving. There is no significant increase in homicides, industrial and domestic accidents.

Heart related illnesses, diabetes, cancer and many other chronic diseases are related to multitude of factors. Stress, lack of exercises and use of chemicals in farming and industrial production have contributed to increase in these diseases.

Reduced walking and manual work may be the major reason for obesity.

High level of diesel vehicle emissions can contribute to high prevalence of respiratory diseases and cancer.

The effect of mobile phones on ear is noticed by researchers.

Diseases related to Addiction to alcohol and drugs and sexually transmitted diseases continue to increase slowly.

The complex social structures built by globalisation have influenced the global health and morbidity. However, the developed world with their health insurance schemes and advances made in medical sciences has managed to limit the effects of new diseases.

Non- availability of Holistic National planning in Sri Lanka leads to its underdevelopment. Sri Lanka is blessed with all the basic resources, but the financial mismanagement in the political system has led the populace to disregard any meaningful stable development process. Majority of the populace have no proper understanding on the basic premise of development and believe higher income will lead to development. The political authority is always in disorder and inefficient. Therefore populace has a way of by-passing the proper operational system and engage

in disorderly practices to achieve their goal. Therefore, it is the vicious cycle of disorder and failure, which leads to a nation still troubled with poor health.

Poor governance, corruption and lack of rule of law prevent the establishment of a comprehensive health care and insurance system in Sri Lanka. The public health care system is based on age old methods of organisation with hospital or clinic based system, which prevents the service to be society oriented. Therefore all types of patients flock in a chaotic form to hospitals and waste many valuable hours staying in queue.

Folk knowledge and Treatment scenario

Global interest on the traditional medicine originates from the advancements made in the extraction of medicinal products from herbal sources. Genetics have paved way to extract and test biological material with precision in the last decade. These advances have led to extract highly valuable medical products, which are safer and sometimes more virulent than the chemical products.

Originating from the knowledge accumulated from the traditions of Yakkha and Naga and additions from Auyrveda, there is a massive folk knowledge base with reference to diagnosis and treatment system in Sri Lanka. Some of this knowledge have been tested by modern scientific method and proven safe.

Both bio-medicine and traditional medicine face a challenge in treatment of diseases of unknown aetiology. Further, the privacy and related ethical values restrict the administration of treatment.

In Sri Lanka myths and beliefs also prevent people from seeking proper medical care. Myths in relation to chronic diseases lead to delay in treatment which sometimes results in loss of life.

In a sample of 210 members in an extended family, there are two serious cases of disease within a span of 10 years, which were a result of avoiding regular medication for disease. These two individuals (aged 54 and 56) were changing and stopping medication and breaking the treatment cycle at their will. Today, these two are yet to recover from cancer and undergo heavy medication. There were about six other members (aged 30, 54, 60, 68, 64, and 63) who have recovered well by adhering to medical advice.

Two members who neglected the treatment have high literacy and a good financial capacity, but they were identified by the family as arrogant and careless.

This is common situation in Sri Lanka, where some people mix treatments as they wish, without listening to expert medical advice.

The study of the sample given above for 20 years, it was clear that there is always a possibility of mixing of treatment system and achieving good results when the mix is performed by proper expert advice.

2.5 Need for new systems (Rannan-Eliya et al, 2016)

The hybrid or mixed public-private financing model Despite necessary realism or pessimism about whether the Beveridge or Bismarck models offer viable routes to UHC in developing countries with limited money, there is evidence that a few developing countries (and also advanced economies) have been able to progress substantially towards UHC, despite modest levels of government spending and using approaches that do not fit either the Beveridge or Bismarck models. These cases include Jamaica and many of its English-speaking Caribbean neighbours, Sri Lanka, Malaysia, Hong Kong, Ireland and Australia. All of these are either members of the Commonwealth, or have close links with Commonwealth nations. Their experiences have been given scant attention in the global discussion, and they are rarely cited as potential role models for UHC. Yet, the evidence shows that they tend to out-perform

in overall health outcomes, achieve high levels of equitable access to healthcare and good financial protection, whilst spending less than their peers. Their experiences are examined in greater detail in the paper. Although these health systems come from all parts of the world and all stages of economic development, we show that they share many common features, indicating that they represent an unrecognized third approach to financing progress towards UHC. In all the cases reviewed, governments have focused on maximizing universal or equal access to services for both rich and poor, and reducing exposure to financial risk, whilst minimizing government spending. Government financing has been exclusively tax-based, with no adoption of social health insurance mechanisms. In all the cases, government funding is used to pay for a universal package of services available at zero or minimal cost on an equal basis to both rich and poor. In Jamaica, Sri Lanka, Malaysia and Hong Kong, governments have funded a public delivery system, whilst Australia and Ireland also use public funding to pay for access to private doctors and hospitals. The publicly funded package in each case includes substantial funding for hospitals and inpatient treatment, ensuring that the poor are not exposed to significant financial risk. Governments have also taken steps to ensure that the publicly funded set of services is genuinely available to the poor by building a widely dispersed delivery network where necessary. Despite the strong emphasis on public funding, the need to minimize government spending has meant that all the governments have been unable to increase spending to emulate either the Beveridge or Bismarck models. Instead they have had to allow private financing and provision to fill the gap. However, unlike most developing countries, where under-funded public systems benefit the rich more than the poor, these health systems have managed to ensure that their limited public funding benefits the poor more than the rich. This has generally been achieved not by explicit targeting or means testing, but by using differences in consumer quality to encourage the non-poor to voluntarily seek out and pay for private care. Richer patients desire greater doctor choice, shorter waiting times and better amenities in their hospitals and clinics. In these hybrid systems, the government has generally skimmed on providing these aspects of service, whilst focusing on maintaining the availability of the core clinical components of care. Consequently, richer patients have gone to the

private sector to obtain these, allowing the limited amount of public funding to pay for comprehensive services, albeit with lower consumer quality, for the poor. Whilst the rich end up using more private services than the poor, the pro-poor reach of the public scheme in each case has ensured reasonable equity in overall access to medical care.

The hybrid systems exist in quite diverse settings, yet use similar mechanisms to combine public and private funding to maximize coverage and financial protection. Their very diversity strengthens the case for these cases representing a common approach that has wider lessons for the world. Their ability to successfully expand coverage despite low levels of public spending is particularly relevant to poor countries facing the challenge of expanding coverage whilst constrained by limited fiscal resources. Amongst low and middle-income economies, these hybrid systems have also been amongst the best health performers, and they have generally done better than the better-known UHC success stories. Their experience can provide important lessons and relevant experience to contemporary developing countries thinking about how to achieve UHC. They also represent an important, but until now unappreciated, third route to achieving UHC in the developing world. This is not to claim these systems are without problems. In all the cases, the need for the non-poor to seek out and pay for better consumer quality in the private sector causes considerable dissatisfaction and regular demands for private or social health insurance. This creates problems for political leaders to manage. However, none of these systems have been able to change. The constraining factor has been the importance of maintaining universal access to their public schemes. In each case, introduce new insurance mechanisms would require the non-poor to pay additional taxes to extend insurance coverage to the poor. Whilst the non-poor demand better consumer quality, governments have not been able to overcome the resistance of the same groups to increased taxation. Most of these cases are also either Commonwealth nations or have close links to the Commonwealth. This is not a coincidence. It reflects common institutional histories and sets of shared values. This makes their experience not only particularly relevant to the Commonwealth as a whole, but also places a special

responsibility on the Commonwealth to share that experience with the wider global community.

The challenge of achieving UHC – equitable access to quality healthcare combined with financial risk protection – has been accepted by the global community as a shared goal over the next two decades. In order for this goal to be realized, developing countries need realistic options to expand coverage. Realism requires finding strategies that are compatible with the limited fiscal capacity that is an inevitable corollary of being a developing nation. The evidence indicates that the standard Beveridge and Bismarck models are not fiscally feasible in most developing nations. They both require substantial spending of tax monies that poor countries cannot realistically afford. The global community and developing countries in particular need additional options that help extend coverage without breaking the bank.

There is sufficient evidence to indicate that the hybrid systems we have detailed have found one answer to this challenge of improving coverage with limited fiscal resources. We recommend that the Commonwealth and the wider global community:

1. Give more serious attention and prominence to the experience of these hybrid health systems as potential role models for achieving UHC in developing countries.
2. Support efforts to systematically document and assess these experiences in order to identify lessons that can be transferred to other countries.
3. Support the sharing of these experiences between Commonwealth nations as part of the Commonwealth's shared heritage.

With the transition from the Millennium Development Goals (MDGs) to the Sustainable Development Goals (SDGs) in 2016, the global community and all nations, including all Commonwealth members, have committed to a goal of achieving universal health coverage (UHC) by 2030. This goes beyond the MDG era concern with specific health targets to encompass the view that access to health services and protection from the financial risks involved in accessing needed healthcare for all people are an essential and appropriate developmental goal for countries everywhere.

UHC is not only seen as a means to end – such as longer life expectancy or fewer child deaths, but as an end in itself. This global goal of universal access to services and financial protection in the health sphere is not new. It echoes and builds on successive international commitments, which have articulated the concept that universal rights in health are more than simply ensuring that everyone achieves a good state of health or lack of sickness.

The human right to health is recognized in many international instruments. Article 25.1 of the Universal Declaration of Human Rights affirms that: “everyone has the right to a standard of living adequate for the health of himself and of his family, including food, clothing, housing and medical care and necessary social services.” Expanding on this, the International Covenant on Economic, Social and Cultural Rights (ICESCR) states in Article 12: a) The State Parties to the present Covenant recognize the right of everyone to the enjoyment of the highest attainable standard of physical and mental health. b) The steps to be taken by State parties to the present covenant to achieve the full realization of this right shall include those necessary for: (i) The provision for the reduction of the still-birth rate and of infant mortality and the healthy development of the child; (ii) The improvement of all aspects of environmental and industrial hygiene; (iii) The prevention, treatment and control of epidemic, endemic, occupational and other diseases; (iv) The creation of conditions which would assure to all medical service and medical attention in times of sickness. The ICESCR embodies the notion that countries have an obligation to take appropriate actions to move towards full realization of these rights, in particular access to medical services and attention in times of sickness. The overwhelming majority of Commonwealth members have ratified the ICESCR, and so accept the obligation to progressively move towards full realization of these rights. However, the principle of progressive realization embodied in these international commitments explicitly conditions progress on the available resources.

The challenge facing developing countries, and by extension the majority of Commonwealth nations, is that achieving UHC requires not only substantial resources

but also appropriate means. To a large extent, as this paper explains, the constraints are real and most conventional means are unlikely to permit achievement of the goal in any reasonable time frame in most developing nations. This is where the experience of several Commonwealth nations is of particular relevance. Many have been able to make substantial progress towards UHC despite spending far less than their peers, suggesting an alternative means or route to moving towards UHC. This paper explores that experience, which has received little global attention, and identifies lessons for the wider global and Commonwealth community about how resource-constrained nations can move substantially towards UHC.

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The objective of shielding people from financial risk when accessing healthcare addresses the problem of people being forced to spend large amounts of money out-of-pocket when obtaining healthcare. Empirically, there is a close relationship between financial risk measures and reliance on out-of-pocket financing for health. Out-of-pocket spending can cause considerable financial hardship, as well as contribute directly to poverty. The general consensus is that this requires countries to use financing mechanisms that pool money to pay for healthcare for large groups of people, and which ensure that people pre-pay for healthcare. The objective of equitable access stems from the problem that if people have to self-finance their use of

healthcare, then access and use will vary according to people's ability to pay. Since income inequality is universal, this means that poor people will have less access to services than rich people, something that the notion of UHC explicitly treats as undesirable. Addressing this problem requires that countries use collective or public financing mechanisms to pay for healthcare, which can break the link between the ability to pay and access, and which can redistribute money from the rich and healthy to the poor and sick.

Traditional approaches

There is general consensus that these central objectives of UHC and the likely financing requirements mean that countries should rely on public financing, either taxation or social health insurance, to pay for most healthcare, with public financing being used to reduce the proportion of out-of-pocket financing in total financing to low levels. The choice available to countries is often expressed as being between following the "Bismarck model" or the "Beveridge model". The Bismarck model is named after the late 19th-Century German chancellor of the same name, who enacted social legislation to ensure that workers and their employers paid a proportion of their wages into state regulated sickness funds that would pay for medical care when the workers or their dependents needed it. Many European nations and Japan and Korea in Asia later adopted this system of social health insurance, and many others in all regions of the world. This approach of social health insurance was often sufficient to extend coverage – access to services and protection from financial risk – to most of the population, but it usually failed to cover those in the population who were not in the formal sector, including most of the chronically sick, elderly and poor. Consequently, in the late-20th Century, many nations modified their social health insurance systems by contributing additional financing from general revenue taxation to extend insurance coverage to the segments of the population unable to pay for insurance coverage (Hsiao and Shaw 2007). With this important modification, most advanced nations relying on social health insurance were able to extend coverage to all or almost all their population, thus achieving UHC. The Bismarck approach to UHC is best

understood as this later modification, which combines both contributory insurance financing and general revenue taxation in public financing to achieve coverage of the whole population. Examples of this modified or 20th Century version of the Bismarck model include Germany, Japan and Mexico. It is also worth noting that in recent decades that most nations that have adopted this modified version of the original Bismarck scheme have tended to increase the contribution of financing from general revenue taxation, including countries such as Germany and Japan.

The Beveridge model is named after William Beveridge, whose 1942 report laid the basis for the British National Health Service, which was established in 1948. It refers to an approach that relies not on contributory insurance as in the Bismarck model, but on general revenue taxation to mobilize the public financing required to pay for healthcare services for the whole population. Typically, in the Beveridge model, government institutions also provide the healthcare services, although this is not necessarily always the case or even a requirement. Because of the historical association of this approach with the British NHS, the Beveridge model is often called the NHS model, but it should be noted that the UK was not the first country to adopt such an approach, New Zealand for example doing so earlier. Other contemporary examples of the Beveridge model include Sweden and Italy. Although there are vocal constituencies that advocate the superiority of one model over the other, and consequently frequent disputes in countries and between international development partners and experts on the advice that they give developing countries, there is a consensus at the highest levels that either approach can work, and that the choice ultimately depends on a particular country's circumstances and history (Rannan-Eliya 2009, World Health Organization 2010, 2011). These disputes have nevertheless obscured significant limitations in both models, and discouraged thinking about alternatives. As guides to the routes that developing countries might follow to achieve UHC, both the Bismarck and Beveridge models suffer from significant deficiencies. The most important one is that the level of economic development and the capacity of governments to raise taxes severely constrain the feasibility of both models in the poorest countries.

Limitations of the Beveridge model in poor countries The Beveridge model depends on substantial mobilization of general tax revenues and their allocation to health in the government budget. The British NHS cost the UK treasury around 3% of GDP when it was established in 1948. Advances in medical knowledge and technology, increased population expectations and demographic change mean that the British NHS today needs much more than that to barely function, perhaps 5 to 6% of GDP in public funding.¹ The key problem is that a Beveridge system, in which general revenue taxation finances most healthcare spending and most healthcare services (typically more than 85% in each case), would in most developing countries cost a minimum of 3 to 5% of GDP in tax financing. The UK cost experience in 1948 is consistent with the recent experience of developing countries that are often cited as UHC success stories in recent years. All of them report tax-financed expenditures of 3% of GDP or higher, for example Rwanda (3%), Thailand (5%) and Brazil (4%) (World Bank 2016). A 3% of GDP spending level is just the minimum, and actual requirements will be much greater in countries where healthcare delivery is inherently expensive, such as in many dispersed, island nations, such as the Maldives or Solomon Islands, or in countries where medical costs are particularly high, such as South Africa.

Unfortunately, an allocation of 3% or more of GDP from the government budget to health is simply not realistic in low-income countries, and is challenging in most middle-income developing countries. The fundamental problem is that the ability to raise taxes is weaker in poorer countries, since the factors that promote the availability of taxes – greater formality in the economy and state administrative capacity – are both linked with the level of economic development. The poorest countries on average are only able to raise taxes equivalent to 13% of GDP, far less than the average of 24% of GDP actually raised in the richest countries. For the typical low-income country without substantial overseas development aid (ODA), adopting the Beveridge model would thus require allocating one quarter of the government budget to health. This is a higher proportion than in Europe and high-income nations, and is not at all realistic. Given the many other legitimate and justified (and also often unjustified)

competing demands on a country's fiscal resources, it is not surprising that poor countries cannot and will not do that. The Beveridge model has thus proven unfeasible in low and lowermiddle income nations

Of course, as was implied, a low-income nation with substantial ODA inflows for health might be able to use ODA to overcome the fiscal barrier to allocating more public finances to health. Indeed, many aid-dependent nations, particularly in Africa, do this. However, none of these countries that have raised public spending levels to 4% of GDP or more have been able to achieve the service coverage levels required for UHC. The reasons include the likely upward distortion of costs in the health sector by large ODA flows, sectoral inefficiencies often arising from multiple large ODA flows, as well as exceptional demands on financing, such as mass provision of treatment for HIV/AIDS, which raise the minimum needed to implement the Beveridge model. Another factor that often mentioned as preventing the adoption of the Beveridge model is weak government capacity to effectively organize and operate a delivery system using the public sector, even if funding is available. Although this is sometimes used as an argument in favour of using public funds to finance private sector delivery, the latter typically requires more state capacity than required to directly deliver services using the public sector (Mills, Rasheed, and Tollman 2006). Although fiscal realities mean that no low-income country can implement the Beveridge model, the astute reader will note that many developing countries claim or are described as having NHS-type health systems. This includes a large number of Commonwealth nations. However, the systems in these countries do not equate in practice to the Beveridge model, and UHC is certainly not achieved. Close inspection will inevitably reveal that the public systems in these countries neither provide the bulk of healthcare services as occurs in a genuine NHS healthcare system, nor are able to deliver the volumes of service access that UHC would require (Box 1). In most cases, the shortfall in public financing results in significant gaps in the public scheme, which can range from lack of critical inputs such as medicines to lack of basic infrastructure in rural areas. This in turn results in lack of effective access to public

services for large segments of the population and by extension inequitable access to care, and a large private sector funded by private financing.

Access to needed healthcare is not easy to define or measure. It is challenging to quantify how much healthcare an individual needs in practice. It would require data on a person's health status that would only be available through extensive medical examinations, and even then doctors and experts might still disagree on what is appropriate. Relying on whether individuals have legal or contractual rights to care is also not useful. Quite often, people can have a legal right to care, but not have effective access because the relevant services are not physically accessible to them when they need. In addition, lack of awareness or personal choice can result in sick people under-using services. To the extent that lack of awareness is a factor that an effective health system should address, under-use in these circumstances represents a form of lack of access. A more practical way of thinking about and assessing whether people have access to adequate care is to simply look at how much healthcare they actually use and use as benchmarks the amounts of healthcare that people in countries with UHC use or the levels of service that there is strong global consensus about, e.g., every mother should have skilled medical care when giving birth. Comparisons with advanced nations generally yield estimates that the average person should be visiting a physician or skilled healthcare provider at least 4 times a year, and making use of inpatient care once in ten years, and that more than 95% of children should receive basic immunizations. These come from countries with good health indicators, where the average person presumably has less need for medical care, but these utilization rates are much higher than in poor countries. In general, people in poor countries are sicker than in rich countries, but make far less use of medical care. This would suggest that adequate access in a poor country might entail people making more frequent use of services. However, how much more is hard for experts to quantify in general and for specific countries. Nevertheless, benchmarks such as use of a physician 4 times a year provide useful measures to assess whether a country meets even minimum conditions to be considered as achieving UHC (McIntyre et al. 2015).

Limitations of the Bismarck model in poor countries

The Bismarck model does not depend only on general revenue taxation, but it also utilizes payroll levies on formal sector workers. For this reason, it is often sold as being able to mobilize additional resources that government taxation systems cannot tap into. However, the difference is often not a real one in developing countries. If a government can enforce deductions from formal sector wages as contributions for insurance, they can just as easily deduct income taxes from wages. In this sense taxation and insurance contributions are merely substitutes for each other. A second reason that is often claimed as an advantage of the Bismarck model is that social health insurance creates a direct link between the contributions and the benefits, making it politically easier to collect money for health in this way. At the same time, this can also be a disadvantage from a UHC perspective. It can and often does make it politically difficult to extend social health insurance to the whole population, since those in the formal sector can object to providing coverage to others who do not contribute.

Nevertheless, the Bismarck model still suffers from the same realities that constrain the Beveridge model. Social health insurance schemes depend primarily on collecting payroll taxes from formal sector workers and their employers. The capacity of countries to do this effectively is as dependent on the level of economic development as the capacity to raise general revenue taxes. Poor countries have smaller formal employment sectors and weaker state capacity to enforce collection of contributions. So as with general revenue taxation, poor countries are able to generate less money through social health insurance than richer countries. In practice this has meant essentially no low-income developing nation has been able to increase public financing for health to a level of 3% of GDP by supplementing taxation with social health insurance.

The other major factor limiting adoption of the Bismarck model is that many countries lack experience in operating social security schemes based on payroll contributions or in using insurance to pay healthcare providers. They thus face large start-up costs to

introduce social health insurance, which can make the option unworkable. For historical reasons, most Commonwealth nations have not adopted social insurance schemes to deliver welfare benefits, relying instead on tax-funded options or individual self-reliance. Britain rarely established or introduced such mechanisms in its colonies to pay for social benefits, relying either on taxation or other mechanisms. For example, in the case of insurance for employee injuries, the UK and most Commonwealth nations have relied on the employer legal liability to provide protection, and not social insurance mechanisms. Consequently, Commonwealth nations are far less likely to use social health insurance than other countries. One other observation is needed on the role of the Bismarck model. Many policy-makers, particularly in Commonwealth nations, are attracted to the idea of adopting social health insurance as they think it can provide more effective financial protection than the Beveridge model. However, this is not the case. WHO analysis shows that relying on social health insurance does not lead to better financial risk protection in developing countries than not having social insurance (Xu et al. 2007).

The implication of this short review of the usual approaches recommended to developing countries to achieve UHC is that all the standard options suffer from significant shortcomings. This has not prevented extensive discussion, indeed is probably behind the increasing global buzz around how to achieve UHC and whether this or that innovation has solved the problem. Yet, how much money governments in practice can mobilize for health remains far less than needed to achieve full population coverage through the Beveridge or Bismarck models. Such spending probably needs to reach 3% of GDP or more in most cases. Doing so remains an overwhelming constraint. Consequently, developing countries remain unable to increase use of healthcare services to the minimum levels required for UHC, unable to ensure equal access to basic services, and unable to provide the levels of financial protection needed. Coverage and financial protection disparities by country income categories. Source: Measles immunization and skilled birth attendance statistics for 2013 from WHO (2015). Household catastrophic spending statistics are for 1990s as computed by WHO (Xu et al. 2007).

The hybrid or mixed public-private funding model

Evidence for a third route to UHC

Despite the needed realism or pessimism about whether the Beveridge or Bismarck models offer viable routes to UHC in developing countries with limited money, there is evidence that a few developing countries (and also advanced economies) have been able to progress substantially towards UHC, despite modest levels of government spending and using approaches that do not fit either the Beveridge or Bismarck models. These cases include Jamaica and many of its English-speaking Caribbean neighbours, Sri Lanka, Malaysia, Hong Kong, Ireland and Australia. These health systems are rarely mentioned in the global discussion or subject to investigation, and do not belong to commonly cited lists of countries that can act as role models for UHC, such as Brazil, Rwanda, Thailand, Mexico and Turkey, which were examined in the recent World Bank study looking at country UHC experiences (Giedion, Andrés Alfonso, and Díaz 2013). Most of these neglected but alternative experiences are, and not by coincidence, in the Commonwealth or have strong links with it. For example, although Sri Lanka was known since at least the 1970s as a low-income country that had achieved good health outcomes despite its low income (Halstead, Walsh, and Warren 1985, Caldwell 1986), it is rarely mentioned in current global discussions of relevant UHC experiences. Yet, Sri Lanka maintained its performance to today and continues to have the best health indicators for its income level and in its region, despite the much greater attention given to UHC reforms in its richer neighbour Thailand. What is even less appreciated is that its better performance is achieved despite its government spending much less on health as a share of the national income than the better known UHC role models. Similarly, amongst middle-income countries, Malaysia continues to achieve excellent health indicators despite its government spending far less than comparable nations, including Thailand its neighbour (Rannan-Eliya et al. 2016). And at high-income levels, Hong Kong (not a Commonwealth member, but sharing many links), Ireland and Australia offer examples of high-income economies that out-perform their peers in health outcomes and coverage, and yet

maintain government spending at below average levels. None of these high performers represent examples of the Beveridge and Bismarck models. None of them have substantial social health insurance funding, so they clearly are not cases of the Bismarck approach. At the same time, none of them have implemented the full Beveridge model. Private sector financing and provision remain substantial in all of them, and the public sector does not provide all, or almost all, healthcare delivery. Because they combine public financing and delivery with a substantial reliance on private spending, specifically out-of-pocket expenditure, we will term them “hybrid” systems to denote their mixed public-private funding approach.

We argue that these hybrid systems are not unique. They represent a subset of health systems sharing common features, mostly in or with links to the Commonwealth, which have independently arrived at similar solutions to the common challenge of expanding coverage with limited fiscal resources. We will identify distinctive features of these systems, and we will explain why their examples represent a possible third route to UHC for countries with limited fiscal resources. We will start by examining the historical routes that three developing countries with hybrid systems – Sri Lanka, Malaysia and Jamaica – took. We then make reference to Australia, Hong Kong and Ireland to show that the key features in these hybrid systems are not confined to developing countries. Hong Kong and Ireland are not members of the Commonwealth, but both share a common history with many other members of the Commonwealth. All these systems, which span the globe and levels of economic development, are characterised by exceptional performance on health outcomes, low levels of government spending, and a high out-of-pocket spending share in total financing.

Sri Lanka’s route to expanding coverage Sri Lanka is the poorest country in Asia to have achieved universal coverage³, and was able to do so whilst its per capita GDP was still below US\$500. The use of healthcare services by its people is comparable to advanced economies, but its government has spent on average just 1.5% of GDP on health during the past four decades. It has done so by relying on tax-financed and government operated health services in the public sector and private providers financed by out-of-pocket payments in the private sector. As for social health

insurance, Sri Lanka has never adopted this option (Rannan-Eliya and Sikurajapathy 2008). In the 1920s, Sri Lanka was a British Crown Colony, and the colonial administration was only concerned with provision of medical services in urban areas to European residents and a small urban middle-class. However, following constitutional reforms in the 1930s, successive elected governments rapidly expanded provision of free government health services into rural areas. These consisted initially of dispensaries and small hospitals, but as the system expanded most facilities were gradually enlarged into larger hospitals and institutions. The Sri Lankan government financed the expansion of healthcare delivery through increased funding from general revenue taxation, and by introducing new taxes and increasing overall taxation from 1932. By 1950, Sri Lanka had built an infrastructure that was more extensive in rural areas than is the case in other South Asian countries today, which in turn encouraged high levels of use by the poor. The use of government health services expanded from around 1 outpatient visit per capita in the 1920s to the equivalent of 2 outpatient visits per capita per year, and 10 inpatient admissions per 100 capita per year by the 1950s. These levels can be contrasted with levels today that are only one half to one quarter of these in countries such as Indonesia, Bangladesh and India. Owing to the large number of facilities constructed, government health services became physically accessible to most of the rural population, and offered a comprehensive range of services from outpatient care to secondary hospital services. After 1951, the most important remaining barrier to access – user charges – was abolished, and government health services became genuinely accessible by the poor. Subsequently, as the poor have become used to the availability of these services, overall utilization of government services by the poor has increased to a level where they are now greater than the richest households, indicating that equality of use has been achieved. In addition, the wide availability of hospital care including inpatient services has meant that rural Sri Lankans rarely face catastrophic expenses in accessing medical care, and that the system achieves a high degree of risk protection. The reaching the poor element of UHC in Sri Lanka has depended on providing the rural poor effective access to health services including inpatient care, by eliminating price barriers, reducing the distance that they have to travel to reach facilities, reducing supply

constraints, and minimizing social and non-financial barriers that may discourage the poor from using services. The government has also emphasized hospital and inpatient treatment in its budget allocations, so that poor people obtain a comprehensive range of services in the public sector. Spending has been also relatively equitable distributed across districts.

Markers of the extent to which universal coverage has been achieved include not only the high rates of medical services utilization in the poorest quintiles, but such statistics as the 99% of all child births which now take place in hospitals, and close to 100% immunization rates for key childhood diseases. There were three motivating factors for the very substantial expansion in government health services that took place from the 1930s. First, from 1931 free elections were introduced in Sri Lanka, and this created significant intense pressures on politicians to provide tangible state services to the rural poor who comprised the bulk of the electorate. Second, from the 1930s onwards, Sri Lankan governments faced significant political competition from Marxist political parties, and were pushed to expand social welfare services in response. Third, in a series of events which have their parallel to developments in Japan at the same time, Sri Lankan government officials in the mid-1930s realized from reviews of the situation in rural areas that lack of health care services was a major cause of impoverishment of the rural population. As in Japan (Hasegawa 2005), the impoverishment was significantly increased at the time owing to the deleterious impact of the global recession on the rural economy, as well as a serious malaria epidemic. They concluded that provision of free government hospital services was required to mitigate this situation, and this reinforced existing political pressures. Sri Lanka did once consider shifting to a social insurance strategy and pursuing the Bismarck model. In 1947, a government commission investigated the need for social insurance, including social health insurance. However, it concluded that the provision of free hospital services funded by taxation represented a form of insurance, and that an alternative insurance mechanism would be impossible to implement since the bulk of the population live in rural areas and worked outside the formal economy (Commission on Social Services 1947).

Nevertheless, despite the emphasis on a strong public sector delivery system, Sri Lanka is neither a replica of the UK NHS nor an example of the Beveridge model. Although its initial public delivery system expansion was established by substantially increasing government health spending from around 1% in the 1920s to around 2.5% of GDP in the early 1950s, the government was neither able nor willing to maintain such high levels of public spending, let alone increase it. Reasons included resistance from richer Sri Lankans to paying high levels of taxation and increasing stringent fiscal constraints as the economy stagnated from the late 1950s. So unlike the UK which expanded public financing in 1948 to bring private doctors into a public scheme as it established its NHS, Sri Lanka retrenched and reduced public spending to 1.5–2.0% of GDP from the 1960s. This necessitated and allowed expansion of a substantial private sector to fill the gap in public provision. Today, the private healthcare sector is large, and operates alongside the public sector unimpeded. The private sector delivers half of all ambulatory care services and around 5% of all inpatient care, as well as financing and distributing half of all medicines consumed in the country. In practice, this large private sector has been critical to allowing the government to achieve high levels of coverage despite low levels of spending. By ensuring free public services are in reality accessible to the poorer patients, Sri Lanka has been able to effectively target the tax subsidy for health care services to the poor, since the richer patients voluntarily choose to use private services and pay for these out-of-pocket. This has resulted in pro-poor gradients in the use of public sector services, and pro-rich gradients in the use of private sector services. This can be contrasted with the general situation in developing countries, which is that both public and private medical services are used more by the rich than the poor. What this means in practice is that approximately half of health service expenditures in Sri Lanka has come from household spending since the 1960s, but the bulk of this spending has been by richer households who opt to not use government services and instead pay for equivalent private provision. The other important aspect of this is that most private spending is for outpatient services. Richer households tend to choose private provision typically for ambulatory care, but when they face expensive inpatient care choose public services, owing to the lack of

insurance. The government emphasis on inpatient services in its budget matches this demand, since government outpatient services only reach the poorer half of the population, whilst its inpatient services are used by 95% of the population.

Unlike in other countries, this has not led to significant differences in care between the richer and poorer patients. Recent research indicates that the quality of clinical care given to the poorer public sector patients matches or is even better than the quality of care provided in the private sector to richer patients (RannanEliya et al. 2014, RannanEliya et al. 2015). Where quality differs is in the domain of consumer quality – those elements that relate to patient experience and convenience, such as doctor choice, the quality of clinic or hospital amenities, the amount of time a doctor spends with a patient, and general courtesy. In addition, despite a high share of out-of-pocket financing in total health spending, financial risk protection in Sri Lanka's system is reasonable, although there is room for improvement.

The following factors have been critical in Sri Lanka:

- (i) physical access to free government health services is more of a reality in Sri Lanka than in many other low and low-middle-income countries, because the government has emphasized the construction of a high density, but low cost network of rural facilities to ensure almost all Sri Lankans are within one to two kilometres of a facility;
- (ii) Sri Lanka has focused on minimizing price barriers, and not only user fees not levied in government facilities, but active measures have been taken to minimize illegal fees being charged by staff;
- (iii) Sri Lanka has emphasized the importance of risk protection in budget allocations over cost-effectiveness, so the poor have been provided with a full range of services instead of a restricted range, so encouraging their support and confidence in the system;
- (iv) Sri Lanka has emphasized access over quality, and reduced costs by tolerating reductions in consumer aspects of quality which are less important to the poor;

(v) this in turn has encouraged the richer patients to voluntarily choose private care, thus reducing the financial burden on the government.

Malaysia's route to expanding coverage

Malaysia's experience and approach have many parallels to that of Sri Lanka, although the development of its system took place two to three decades after that in Sri Lanka and in quite a different ethnic and cultural milieu. Malaysia has also enjoyed much more robust economic growth than Sri Lanka since the 1960s, which has propelled it to upper-middle income status and to the verge of becoming a high-income economy. At the same time, its healthcare system has changed very little in structure from the time it was a low-income economy, demonstrating that the key elements in its success were not dependent on a high level of economic development. Prior to independence from the British in 1957, Malaysia's constituent states were independently responsible for health, and each provided a range of limited tax-subsidized health services, mainly for the benefit of the expatriate community and civil servants in urban areas. In this respect, the situation largely resembled that in Sri Lanka in the 1920s. After independence, health care was made a federal subject, and health services came under the new central government, with government healthcare services delivered and controlled using civil service arrangements. Malaysia from the 1960s substantially expanded its network of free government health facilities into rural areas in order to make access to the poor a reality. As in Sri Lanka, political pressures for redistribution and social equity were important. The electoral process ensured that the rural electorate remains important in Malaysia. The Malay community, which was at the time of independence economically disadvantaged, but is politically important by being the majority, has also been concentrated in rural areas, increasing the attention of policy-makers to the problems of rural and poor populations. In addition, as in Sri Lanka, internal security and stability considerations have played some role, with rural health services being seen as one measure that could forestall leftist political groups. Similarly, there has been an emphasis on providing more than basic primary care services to the poor, and budget allocations to hospitals have remained substantial. The end result has been a highly dispersed network of public healthcare

facilities, genuinely accessible to all Malaysians, including the poor, and the availability of a comprehensive set of services in the public sector. As in Sri Lanka, once basic services were provided, these have been incrementally upgraded over time. Public sector provision now ranges from basic maternal and preventive services to the provision of Herceptin® for treatment of breast cancer, and cardiac angioplasty for heart patients, although the public sector supply of these more expensive treatments can be limited. British colonial policy did not generally consider the social insurance schemes of continental Europe as a potential policy instrument, so social insurance had not been established in Malaysia at the time of the initial expansion of government services into rural areas. Instead, Malaysia has relied to date on government, tax-financed provision to achieve universal coverage. However, the ability or willingness of Malaysia's government to increase tax financing for its public delivery system has remained limited. Government spending on health has remained at 2% of GDP since the 1970s – higher than in Sri Lanka, and reflecting a more robust fiscal base. Yet, this has not been sufficient, as with the lower level of spending in Sri Lanka, to pay for high levels of access to services for all Malaysians. Instead policy has implicitly relied on ensuring that free public services are genuinely accessible by the poor, whilst depending on richer patients opting out to seek and pay for care in the private sector. By doing this, Malaysia has shifted half the burden of financing and delivery to the private sector, whilst ensuring that poor retain access to healthcare services. How this has worked has recently been extensively assessed by Malaysian and international researchers (RannanEliya et al. 2016). WHO statistics and other studies show that population health outcomes are better than expected in Malaysia, given the country's income level, and that key indicators such as infant mortality and life expectancy approach those of OECD nations. Child and maternal health indicators have improved dramatically, with child mortality falling more than 75% between the 1970s and 2010s. Malaysia provides universal access to preventive and essential care and maternal and child health interventions (antenatal care and skilled birth services, well-child visits, and child immunizations). The public sector provides these services at no charge, and rates of using the services are similar to those in high-income countries.

Individual use of ambulatory and inpatient medical treatment is also high in Malaysia, with the average.

Malaysian visiting a physician four times a year, and being admitted to a hospital once every ten years. These rates, as those in Sri Lanka, are comparable to those in advanced economies, such as the USA and Sweden. This high utilization of health services is equally distributed across income groups, but with contrasting gradients in the public and private sectors. As in Sri Lanka, Malaysia separates demand for healthcare services between public and private sectors based on income differences of patients, but without explicit means testing. Use of private services is pro-rich in that the use of these services increases with household income, while use of public services is pro-poor in that the use of those services increases the poorer the household.

The poorest 50% of the population accounts for two-thirds of outpatient visits to public facilities, while the richest 50% accounts for two-thirds of private visits. As noted in the case of Sri Lanka, the greater use of private services by the rich is unremarkable, but the greater use of public services by the poor is exceptional, and public services in Malaysia are more pro-poor than is the case in most Asian countries.

The available data also indicate considerable stability in these utilization patterns since at least the 1970s (Rannan-Eliya et al. 2016). Like Sri Lanka, the parallel provision of services by public and private sectors in Malaysia is associated with a high ratio of out-of-pocket financing in total health spending (35–40%). However, this is not reflected in high levels of financial risk exposure. Standard indicators for this risk indicate that financial protection in Malaysia is not only better than in Sri Lanka, but also better than many countries that the global community regards as role models for UHC, such as Brazil, Mexico, Thailand and Turkey, and indeed more comparable to nations in Western Europe, such as Denmark and Sweden. This of course raises the question as to how Malaysia (like Sri Lanka) combines high reliance on out-of-pocket financing with effective financial risk protection. The explanation appears to be that the ratio of out-of-pocket spending to the total expenditure on health is not always a

reliable proxy indicator for financial protection of households. Better proxies would be the ratios of out-of-pocket spending to national or household resources, since financial risk is ultimately related to the resources that a household or population has to absorb any given medical expense. The level of out-of-pocket spending in GDP in Malaysia (1.7% in 2009) is low by global standards, average for the members of the OECD, and comparable to countries such as Austria (1.8%) and Sweden (1.6%). Given that this ratio in Malaysia is similar to those in most European nations, it should not be surprising that Malaysia's level of financial risk is comparable to the levels in those nations. An additional explanation for financial protection in Malaysia is that although out-of-pocket spending is substantial, it is concentrated in the richest households. Out-of-pocket spending is progressive, in that its percentage of household budgets increases with income. The poorest 60% of the Malaysian population accounts for only 20% of out-of-pocket spending, while the richest 20% of the population accounts for 59% of such spending. Items more likely to result in catastrophic expenses, such as private inpatient care, are even more concentrated in the richest households. This pattern stems directly from the hybrid structure of Malaysia's system, in which poorer Malaysians can always obtain potentially catastrophic care from the government's health facilities, which provide a full range of health care services, while better-off Malaysians—who are less likely to suffer hardship—can choose to use private care.

Jamaica's route to expanding coverage The development of healthcare in Jamaica bears many similarities to both Sri Lanka and Malaysia. Like Sri Lanka and most of the constituent states of Malaysia, Jamaica entered the 20th Century as a British Crown Colony. Colonial administrators largely concerned themselves with basic quarantine measures to safeguard the population as a whole, and ensuring provision of medical treatment for the military, public servants and formal sector workers (primarily working in the sugar plantations) (McCaw-Binns and Mondy 2001). The demands and welfare of the majority and poor Jamaicans were largely ignored. As in Sri Lanka and Malaysia, the shift to elected governments and self-rule, concerns about internal security and pressure from growing popular and leftist political parties led to a shift in government policy. From the 1940s, the Jamaican government began to build and expand an extensive delivery network of public healthcare facilities, rather

uniformly distributed and ensuring widespread access to care. These were financed by general revenue taxation, and public care was available essentially, although subject to modest user charges. Further expansion and high levels of public spending were sustained through to the 1970s by intense political competition between Jamaica's major political parties. However, a long period of economic stagnation, growing fiscal problems and a large foreign debt burden from the 1970s led to retrenchment of government spending, and increases in user fees in the public sector.⁴ Since the 1980s, the Jamaican government was only able to devote 2% of GDP in its own budgetary resources for health.

Far less than the minimum we have suggested is needed to implement the Beveridge model. Jamaica was never able to expand public financing to build a full NHS system, and instead private medical services and private financing have filled the gap. In recent decades, private financing has accounted for more than half of all national health expenditure, and private medical services have accounted for more than half of all healthcare use (Chao 2013). Nevertheless, the Jamaican government has continued to make efforts despite its fiscal constraints to improve access to service for lower-income Jamaicans and improve overall financial protection. This has included introducing a special scheme to pay for private purchases of medicines, known as the National Health Fund (Barrett and Lalta 2004). However, unlike most developing countries, Jamaica has been able to ensure that its public sector medical services remain accessible to the poor, even as funding has been constrained. As in Sri Lanka and Malaysia, public services have remained pro-poor, whilst private services remain pro-rich, ensuring rough equality in overall utilization (Bourne et al. 2010).

Studies of quality of care in Jamaica indicate two important elements in its arrangements. First, quality appears to be fairly uniformly distributed across the public sector. Second, whilst consumer quality appears to be better in the private sector, overall clinical quality of care appears similar or even better in some public clinics than private clinics (Peabody et al. 1993). This would suggest that as in Malaysia and

Sri Lanka, consumer quality differences act to segment patient demand between the two sectors, without affecting substantially overall access to quality clinical services. In addition, the evidence indicates that the differentiation of services on the basis of consumer quality in this way contributes to better targeting of public spending in Jamaica, by persuading richer Jamaicans to pay for private healthcare, or to purchase private medical insurance to do that (Gertler and Sturm 1997).

Examples of hybrid systems in high-income economies

The cases examined so far are all developing countries. They illustrate that developing countries with limited fiscal resources can ensure high and equal levels of access to healthcare, decent financial protection and good health outcomes by using a judicious mix of public and private financing and delivery. In the case of advanced or high-income economies, the problem of fiscal constraints is generally not so severe, and such economies, with a few exceptions, are generally regarded as being quite capable of generating sufficient public financing to achieve UHC. That is not to say that these countries face fiscal constraints – they do, but shortfalls in funding generally only affect the quality of care or the provision of services at the margin. However, there are several examples of high-income economies that have never adopted either the complete Beveridge or Bismarck models, but yet report the attributes of UHC, including high levels of healthcare coverage and good health outcomes. All these cases also report substantially less public spending on health than their peers and much higher private shares in financing. An overview of three of these systems – Australia, Hong Kong and Ireland, is given in, with some comparative indicators for three comparable economies following either the Beveridge or Bismarck approach. As will be noted, each of these cases identified spend substantially less in public funding than peers, have higher reliance on private funding, and yet report similar or better levels of coverage and health outcomes. Further investigation of how this is achieved reveals similar policy strategies and system features to Jamaica, Malaysia and Sri Lanka.

Hong Kong

China Hong Kong, until its transfer to Chinese sovereignty in 1997, was a British Crown Colony. During the early part of the 20th Century, the colonial administration, as in Jamaica and Malaysia, largely neglected the bulk of the population, providing only minimal support to largely charitable ventures delivering healthcare to the population. However, from the 1950s in a context of pressure from leftist political groups and concerns about internal security, the Hong Kong government increased public financing for health, and expanded the public delivery system, but allowing a large private sector to remain. Although Hong Kong experienced rapid economic growth from the 1960s that propelled it to high-income economy status, it did not use the fruits of development to adopt social health insurance, but has instead maintained a mixed model of public–private finance and provision of health care. In terms of the delivery of care, 95% of total bed-days in Hong Kong are provided in the public sector. Provision of outpatient services is shared between private and public sectors in the ratio of 70:30, respectively (Lu et al. 2007). Although Hong Kong, as an advanced, high-income economy, is capable of raising taxation and public spending on health, political pressures have constrained the government from doing this, and it has had to constrain public spending at around 2–3% of GDP. This has not been sufficient to raise the level of quality of public sector services to a level sufficient to satisfy the preferences of better-off residents. These have then opted to utilize private treatment, paying directly out-of-pocket or via private insurance. In this situation, the poor continue to have good access to public services – which are cheap and widely distributed, and so they dominate use of the public sector. Surveys reveal that like in the hybrid systems mentioned previously, the use of public services is pro-poor, and use of private services is pro-rich, resulting in overall pro-poor utilization of medical care.

Hong Kong experts have extensively discussed the dilemmas that the government faces (Leung, Tin, and O'Donnell 2009). Although there is dissatisfaction in middle and upper-income residents with the lower consumer quality of public services, the government is constrained from increasing public spending, because the same groups would oppose the necessary tax increases. So the government has achieved universal

access by using the lower consumer quality of public services to implicitly target these to poor patients, whilst allowing richer patients to pay for private services. At the same time, because even richer patients may find hospital care too expensive, inpatient care is predominantly provided by the public sector.

Australia

The Australian government has only played a significant role in the health system since the 1940s. In 1946, a fiercely contested Constitutional amendment allowed the Commonwealth – the national government of Australia – to make laws affecting health including providing sickness, pharmaceutical and medical and dental benefits and services. The 1953 National Health Act established public financing for the Pharmaceuticals Benefits Scheme, the Hospital Benefits scheme (which funds public hospitals) and the Medical Benefits Scheme (which pays private doctors). This system remains largely in place today, with one subsequent reform. In 1975, the government established a universal tax-financed health insurance system called Medibank (which later became Medicare). Australia's multiple public schemes do not represent an implementation of the full Beveridge model. Like the UK in 1948, Australia has adopted tax financing to pay for Australians to use private doctors. However, the level of public funding is less. Government spending on health in Australia has generally been 1.0–1.5% of GDP less than in the UK. Unlike in the UK, where private GPs essentially became fully-funded by the government in 1948 and had to accept government contractual conditions, public funding in Australia has not been sufficient to bring all GPs under public financing. Instead, GPs are free to charge patients higher than the price reimbursed by Medicare. In practice, if patients want choice of doctors or better doctors, they need to pay privately the difference in cost. Generally, richer Australians are more likely to do this. Similarly, whilst the public insurance system provides everyone with access to comprehensive hospital treatment, if patients want to choose their hospital doctor or obtain a higher level of amenities, such as a private room, they must pay the additional costs themselves. Australian regulations also restrict private medical insurance to paying only for those services and elements not covered by the public insurance scheme.

The end result of this approach is that Australia depends on significant private financing, made voluntarily by citizens, to ensure a high level of access to services. Poorer Australians generally have access to comprehensive care funded through taxation, but richer Australians who prefer greater choice end up paying privately for a substantial part of their costs. Overall coverage has been found to be generally equitable, although richer patients make greater use of specialist care and elective services (Van Doorslaer et al. 2008)⁰. In addition, despite or because of this mixed funding strategy, Australia has been an outperformer in recent decades in the OECD region, improving its population health outcomes faster than most of its peers, and achieving above average health indicators.

Ireland

The Irish health system provides a useful historical contrast to the UK NHS. Until the 1940s, the Irish health system, reflecting their common origins, was largely a replica of the British system. During the Second World War, Irish leaders considered the option of establishing a national health service, similar to that being discussed in the UK at the time. However, the Beveridge model was not adopted, as such a system was resisted by elements within the medical profession, and due to strong opposition to the notion of “socialized medicine” from civil society. Instead, from the 1950s through the 1970s, the Irish government used tax financing to extend free public provision to the poorer bulk of the population, whilst encouraging the richer part of the population to obtain private medical insurance. Under current regulations, older and lower-income residents are entitled to free care from public sector hospitals and private GPs. Richer residents have free access to free secondary hospital services, but must bear the full cost of GP services and make some contribution to the costs other primary and community services. As in the Australian system, the Irish system focuses public financing to ensure that there is universal access to basic hospital services for all, and access to primary care for those of lower income. At the same time, richer individuals, identified by means testing, have to pay out-of-pocket or via insurance for some of their costs, but principally non-hospital costs which are less likely to create financial

risk. Studies indicate that this system largely achieves equity in access to services and low levels of financial risk. In addition, Ireland now outperforms the UK in overall health indicators.

Critical elements in the hybrid funding model

We have identified a number of diverse economies, at all income levels and across the globe, which use a mixed public-private financing and delivery approach to maximize equitable access to healthcare services whilst minimizing financial risk that their people are exposed to.

They share a number of common elements, which we now summarize. 1. Common prioritization of goals In all the cases studied, governments have prioritized three goals:

1. Maximizing equal access to adequate volumes of medical services by poor and rich.
2. Minimizing exposure to financial risk.
3. Minimizing government expenditures.

In contrast to many other countries, they have placed less emphasis on other potential goals, such as: (i) prioritizing public financing to primary care before hospital services; (ii) focusing spending on priority diseases or interventions; (iii) expanding coverage first to the the formal sector; (iv) giving everyone access to free choice of doctors; and (v) equalizing access to a high level of amenities and consumer luxuries in the delivery system. In all the cases, this particular choice of priorities appears to reflect sensitivity to what the population as a whole wanted. In Sri Lanka, Jamaica and Malaysia, the change in priorities is clearly linked to political changes that made governments accountable to the whole population and shifted power from colonial administrators to elected governments. When the franchise was made universal, voters placed more emphasis on access over immediate quality, and on reducing financial risk. In Australia and Ireland, the link exists but is less evident, but democratic pressures from voters and civil society have clearly influenced overall decisions. Hong Kong on the surface might appear to be an exception given the limited extent of representative government, but in practice from the 1950s the British colonial

administrations and their successors were acutely sensitive to public pressure and adjusted policy priorities accordingly, and today goal setting remains highly sensitive to public pressure (Leung, Tin and O'Donnell 2009).

The emphasis on minimizing government spending in all the cases stems from political economy factors, which include sensitivity paradoxically to higher income taxpayers and business interests (Sri Lanka, Malaysia, Hong Kong, Australia), and in some cases private medical providers (Australia, Ireland). This particular prioritization of goals does pose its own challenges in implementation and how to make the tradeoffs.

Across the cases studied, there are some common solutions.

1. Achieving pro-poor access through an emphasis on universality and minimizing financial and physical access barriers

Most governments who build public delivery systems intend these to be preferentially accessible by the poor. Countries have attempted a number of strategies to achieve this. They include means testing access and charging tiered user fees based on income level. Many countries have also devoted much effort into designing programs that specifically target the poor. However, most developing countries fail to achieve pro-poor public systems. Common reasons include the practical difficulty in assessing the income levels of patients, and practical barriers that prevent ostensibly free services being accessed by the poor. In these hybrid systems, governments have generally eschewed explicit targeting and instead emphasized universal access. So in Sri Lanka, Jamaica, Malaysia, Hong Kong, Australia and Ireland (only in case of secondary hospital care), government funded services are available to both rich and poor on the same basis. At the same time, in most of these cases, governments have emphasized minimizing user charges and maximizing physical access by building extensive delivery systems that reach into rural areas (Sri Lanka, Jamaica, Malaysia). Hong Kong is an exception to the latter point as it is essentially a city, but even in Hong Kong, public facilities are widely distributed. These complementary actions ensure

that access for the poor is real and not merely on paper, since for poor people distance and cost tend to be the most important barriers to access.

2. Emphasising hospital care and risk protection in budget allocations

In all the cases studied, governments have given an implicit or explicit emphasis to financial risk protection when deciding where to put their money. In many developing countries, experts and policy makers have emphasised spending money first on primary or basic ambulatory services, or improving health outcomes before financial protection. In contrast, Sri Lanka, Malaysia and Hong Kong have allocated above average shares of their government health budget to hospital delivery, and ensured that inpatient treatment is more dominated by the public sector than ambulatory care. In Ireland the only publicly funded benefit that is universal in access is secondary hospital care, and not primary care services. Similarly, whilst Australia does use public financing to support access to the full range of services, the degree of public subsidy is greatest for hospital services.

3. Prioritizing expansion coverage to the poor before the non-poor

In many countries, governments have pursued UHC by first focusing on extending coverage to the non-poor. This is particularly the case in the Bismarck model. With this approach, public spending first benefits the non-poor most, and pro-poor coverage is only achieved at the end. In all the hybrid cases, policy has instead emphasized equal or universal access to all, and if not that have extended access to the poor first, e.g., Ireland restricts access to free publicly funded primary care to lower income and elderly residents. This has meant these systems have reversed the sequencing of coverage expansion, focusing on ensuring public money covers the poor before the non-poor. This is reflected in the pro-poor utilization of publicly funded services in all the cases.

4. Exploiting differences in the demand for consumer quality to shift richer patients out of public funding

The main challenge that these hybrid systems have faced is how to maximize access whilst keeping public spending low. They have all done this by focusing public spending on the poor, and shifting the non-poor to the private sector where they self-pay. In general, these systems have done this not by explicit assessment of patient incomes, but by relying on differences in the demand for consumer quality and voluntary opting-out of the public sector. An important benefit of this voluntary shifting of patients is that it is politically less problematic than explicit exclusion of the non-poor from public services, or mandatory collection of additional money from the non-poor through increased taxes or social insurance premiums. In Sri Lanka, Jamaica, Malaysia and Hong Kong this approach is quite clear since public and private provision are separate. In all of them, the major difference between public and private providers is not the range of services provided, but the level of consumer quality and convenience of access. In Australia, where the government finances patients to use private doctors, the separation arises from the capping of Medicare GP reimbursements. If patients want to use doctors giving better consumer quality or other conveniences, these doctors usually charge more, and richer patients are more likely to make such a choice and end-up-paying the difference in cost. Similarly in the hospital sector, where everyone receives a basic subsidy from the Australian government, if richer patients want to choose their own doctor or use a private hospital, they must pay the difference in costs themselves. These hybrid systems provide a real-world validation of a theory expounded by Timothy Besley and Stephen Coate (1991). They argued that under certain conditions, a system of public service provision that is equally available to all citizens can effectively redistribute health services from rich to poor and equalize access as long as the non-poor have a higher demand for consumer quality than the poor do and voluntarily choose, on the basis of inadequate consumer quality, not to use the free public service. Besley and Coate also showed that such an approach might be the most efficient way of ensuring equitable provision of public services, if the government's budget was insufficient to provide the service to

everyone, and if it was difficult to assess an individual's income so as to means-test access. Such Besley-Coate arrangements appear to operate in all our hybrid systems. What these hybrid cases add is evidence that these arrangements might also be effective in combining high levels of access to health care with good financial risk protection, despite limited government spending.

5. Better than average health performance

A below-average level of public funding is the critical driver of the choices that each of the hybrid systems have made. Paradoxically, this less than adequate funding has not been at the expense of overall population health outcomes. In general, these hybrid systems do as well as their peers across the range of observable health indicators or even better. Indeed in each income category, some of the best health performers in the world are hybrid systems. This is illustrated in which compares the performance of selected hybrid systems on one health indicator – infant mortality – with other well known UHC success stories and all other countries. Why these systems turn in such good performances is not entirely clear, and requires more analysis. However, their common emphasis on equalizing access to healthcare services between rich and poor may likely be a key part of the explanation.

Common problems

A discussion of the common success factors in these hybrid models would remiss without noting that they do share a common problem. In all these cases, public financing is kept below the level that would be needed to keep most people satisfied with the publicly funded option. Whilst the better-off may opt out and seek and pay for private care, this engenders considerable dissatisfaction with the arrangements in those opting out. Consequently, in all these cases, there is a perennial demand by the middle-income or upper-middle income segment of society for government financing to assist them to access private services, which most of the time presents as a demand for government-assisted insurance schemes. In Australia, this was clearly met by policy reforms that have expanded access to private insurance through subsidies and

extensive regulation. At the same time, the government facilitation of insurance usually runs counter to the strong pressures in these systems for universal access to the public scheme. So introduction of social insurance for only a segment of the population is usually not politically feasible. At the same time, introduction of social insurance for the whole population would require increases in tax financing to pay the premiums of the poor and those outside the formal sector. The burden of this increased tax-funding will usually fall on the better-off. Since the original constraint in these systems is the inability to increase tax-financing of health due to resistance of the betteroff, this universal social insurance option, essentially the Bismarck UHC model, usually dies (Leung, Tin and O'Donnell 2009).

Implications For the global community

This short review has identified a number of health systems at all levels of economic development that have adopted a common approach to financing and delivering healthcare that differs significantly from the standard Beveridge and Bismarck models. In all these systems, governments spend much less on healthcare than their peers. Yet, we have noted that they generally out-perform their peers in terms of access to healthcare and ultimate population health outcomes. The challenge of achieving UHC – equitable access to quality healthcare combined with financial risk protection – has been accepted by the global community as a shared goal over the next two decades. In order for this goal to be realized, developing countries need realistic options to expand coverage. Realism requires finding strategies that are compatible with the limited fiscal capacity that is an inevitable corollary of being a developing nation. The evidence indicates that the standard Beveridge and Bismarck models are not fiscally feasible in most developing nations. They both require substantial spending of tax monies that poor countries cannot realistically afford. The global community and developing countries in particular need additional options that help extend coverage without breaking the bank. There is sufficient evidence to indicate that the hybrid systems we have detailed have found one answer to this challenge of improving coverage with limited fiscal resources. However, they have generally not been the object of the intensive global search for solutions. The leading international

organizations – the World Bank, WHO and other bilateral development agencies, as well as countless independent initiatives and academic investigations, have paid little attention to these examples. There is little awareness of what they have achieved, or how they have done this. Given the enormity of the challenges facing poor countries as they strive towards UHC the time has come for a proper look at these experiences to identify what has been critical and what can be learnt and transferred.

For the Commonwealth Almost all the cases identified have their roots in the Commonwealth, and are either members of the Commonwealth or have strong links with Commonwealth nations. This is not a coincidence. It stems from a fortuitous combination of common institutional legacies and shared policy discourses. We have noted that the global community has tended to ignore these experiences, despite their great relevance to contemporary development challenges. This has been a loss not only to the global community as a whole, but also Commonwealth nations.

The large majority of Commonwealth nations still face the challenge of how to move towards UHC whilst still economically developing and managing with limited fiscal resources. Yet, it is unfortunately true that most of these Commonwealth nations know more about the success stories outside the Commonwealth than the hidden success stories within the Commonwealth. This represents a loss not only for the Commonwealth as a whole, but also a failure to realize the benefits that flow from a shared history and common sets of values. Given the past failure of the global community to look more closely at these success stories in the Commonwealth, we urge Commonwealth nations to (i) look more closely themselves at this experience within the Commonwealth, and (ii) to work with and encourage others to take more seriously these experiences. Practical actions include fostering a systematic program of investigation to understand and document these hybrid systems better, and creating mechanisms to share understanding of the critical elements of these systems with other Commonwealth nations.

The rise of private medicine in South Asia (Sengupta et al, 2017)

Healthcare services in South Asia are characterised by low public investment, dependence on services provided by the private sector, and very high rates of out of pocket (OoP) expenses as the principal source of health financing. Only the sub-Saharan Africa region has worse public health indicators than those seen in South Asia (with the exception of Sri Lanka), such as life expectancy, malnutrition, and infant and child mortality rates.¹ South Asia is the only region in the world where health expenditure fell between 2000 and 2006.

Current trends in private health expenditure

The majority of people in South Asia depend on private healthcare services, and this trend is accompanied by stagnant public investment in health.

Government expenditure on health as per cent of gross domestic product (GDP) in the region is just above 1% (with the exception of Nepal)—well below the average for low and low middle income countries, and significantly lower than the global average (4.9%). There has been a small increase in government expenditure (as per cent of GDP) in India, a definite increase in Nepal and Pakistan, but a sharp decline in Sri Lanka.

Private health expenditure (PHE) accounts for about two thirds of total health expenditure (THE) in the region, similar to trends in low and low middle income countries but much higher than the global average (42.4%). Economic growth in the region over the last decade is the highest for all regions.

The rapid rise in GDP in countries in the region and the stagnation in the proportion of public expenditure (only Nepal shows a notable increase) translates into an enormous increase in private expenditure on health. OoP spending, widely acknowledged as the most regressive form of financing, accounts for well over 80% of all private expenses, indicating very low penetration of financial protection

mechanisms. As a consequence, in India for example, 55 million people are pushed below the poverty line as a result of healthcare expenses.

In Nepal an estimated 1 million people fall below the poverty line for similar reasons,⁵ while in Bangladesh 7% of households spend more than 25% of monthly non-food expenditure on healthcare.

A significant driver of the growth of private expenditure is the private purchase of drugs. In Nepal, in the case of acute illnesses and injuries, around two thirds of OoP expenses are on drugs, and this share goes up to more than four fifths in the case of chronic illnesses.

In Bangladesh nearly 62% of health-care expenditure (a major portion of which is met by OoP expenses) is on purchasing drugs and medical consultations.⁸ In India 72% of OoP in rural areas and 68% in urban areas is accounted for by drugs.

Current trends in size, structure, and growth of private sector

Private healthcare in South Asia encompasses large for-profit corporate entities, not-for-profit trusts (private and religious), general practitioners (both qualified and unqualified), chemists, and diagnostic laboratories.

In all countries in the region, a major proportion of primary care is accessed through private practitioners, often unqualified. The organised private sector, primarily the hospital sector, is mostly located in large towns and cities as the paying clientele are concentrated in these areas. In Nepal three quarters of hospital beds are located in the Central Region where access is relatively good, compared with virtually no private hospitals in the Far Western Region. An interesting trend is emerging in India where private facilities are expanding to smaller towns and cities. Currently 48% of all private hospitals and two thirds of corporate hospitals are in smaller cities. In India about 80% of outpatient services and 60% of inpatient services are provided by the private

sector.⁴ In Nepal 55% of patients access private facilities for acute illnesses and 57% for chronic illnesses. In Bangladesh 13% of patients use government services, 27% access qualified practitioners in the private or nongovernmental organisation (NGO) sectors, and 60% access unqualified private practitioners. In a survey conducted in Pakistan in 2010¹¹, 71% of people who had consulted a health provider in the past two weeks reported going to a private facility.

The majority of people in South Asia depend on private healthcare services, and this trend is accompanied by stagnant public investment in health

The growth of private medicine in the region is a function of both active and passive measures instituted by governments

There is an urgent need to expand public provision of healthcare and public funding of medical education

It is necessary to curb the abuse of social health insurance mechanisms which further strengthen for-profit private care facilities

OoP expense on drugs is the most significant driver of private expenses and needs to be addressed by public procurement and regulation of medicine prices

Sri Lanka provides a contrast with 66% reporting that they visited a public healthcare facility.²⁵ Of the estimated 1.2 million private providers in India, four out of five are run by a single person and half were located in rural areas. This pattern is now changing and the share of sole enterprises declined from 96% to 90% between 1980 and 2004. In Nepal, before 1991 there were only two private hospitals but the situation has since changed. The number of public and private hospitals in Nepal has grown: from 78 and 69 respectively in 1995 to 97 and 350 in 2014.

In Bangladesh around 50% of doctors, 42% of nurses, and 65% of paramedics work exclusively in the private sector. Overall spending on hospital care in Bangladesh has increased from 17% to 27% of total healthcare expenditure, driven by increasing expenditure at private hospitals. In Sri Lanka, private hospital provision increased by more than 120% between 1990 and 2011, accompanied by a shift in the private sector from smaller to larger (100+ bed) facilities. There is a growing trend towards private sector participation in medical education in the region, accompanied by high costs. In India the share of seats in private medical colleges grew from 1.4% in 1950 to 52.1% in 2014.³⁰ In Nepal, 19 out of 23 medical colleges are in the private sector and a large proportion of hospital beds in private facilities are located in private medical colleges. In Bangladesh there were no medical colleges in the private sector in 1996, but by 2011 there were 44 private medical colleges.

Provision of care by private notforprofit providers.

While forprofit private facilities are currently the major providers of healthcare in the region, faith based groups and NGOs provide a large proportion of care in some parts of the region. Historically Christian missionary hospitals played a prominent role in the Indian subcontinent and in 1920 Christian institutions ran nearly half of the hospitals in the region. In 1947 there were around 900 of these hospitals in the region. The number has now dwindled to around 200. Mission hospitals still play a role in providing healthcare in India, especially in underserved areas. Currently Christian healthcare networks manage over 3731 healthcare facilities and around 80 895 beds. However, they also face challenges—such as dwindling donor support from external missions and difficulty attracting personnel—that threaten their survival. Other faiths do not have a similarly strong tradition of investing in healthcare but some instances do exist. In Pakistan local NGOs providing healthcare are funded by philanthropic contributions and the Islamic Zakat (charity tax) from citizens and private companies. In Bangladesh healthcare provided by NGOs plays a significant role. An estimated 4000 NGOs, including international and large national organisations, provide healthcare services. In India the Public Charitable Trust Act 1950 was enacted to

enable private entities to set up charities and the act includes a waiver for income tax. While, historically, many philanthropists invested in setting up charitable hospitals (also called trust hospitals), the act is now being misused widely by commercial hospitals, and some of the biggest private hospitals in Mumbai operate as trust hospitals.

Government policies that drive expansion of private healthcare

A number of public policies foster the growth of the private sector—several forms of input subsidies in land, electricity, import of capital goods, and technologies are available; while a wide range of clinical and nonclinical services in public facilities are being outsourced. In India, since the liberalisation of Foreign Direct Investment (FDI) norms in the hospital sector in 2000 (100% FDI permitted under the automatic route) FDI inflow to the sector increased from \$6.93m (£5.52m; €6.39m) in 2001¹⁰² to \$684.58m in 2013-14. The promotion of medical tourism, particularly in India, is also a driver in the growth of large corporate hospitals. Since 2006, the government has issued medical visas to patients and the accompanying spouse. In 2009, the Ministry of Tourism extended its market development assistance scheme to cover hospitals certified by Joint Commission International, an international organisation that accredits healthcare facilities.³⁸ Tax funded health insurance schemes have become a recent mechanism for transferring public funds to strengthen private facilities. India introduced several public funded insurance schemes about ten years ago, but coverage and benefits are weak. In 2014 only 13% of rural and 12% of urban households were covered. Coverage extends only to selected packages for hospital based care and an assessment of the oldest public funded scheme shows that 25% of the state's health budget dedicated to the scheme addressed only 2% of the burden of disease. These schemes involve outsourcing a major proportion of care to private facilities. There have been several reports of unscrupulous private facilities milking these insurance schemes by conducting unnecessary procedures. Horrific incidents have been reported, for example, of unnecessary hysterectomies performed on young women. Notwithstanding such reports, other countries in the region are starting to follow suit.

In 2015 the government of Nepal signalled the initiation of social health insurance involving public funding and mixed provision of care, and the first phase of the scheme is to be piloted in three districts. In Pakistan, under the prime minister's National Health Insurance Programme, which covers families earning less than PKR200 (£1.5; €1.76; \$1.9) per day, soft loans of PKR510m will be provided to empanelled private hospitals.⁴³ Instances of unethical behaviour by providers, given increasing private sector involvement in public funded insurance schemes, is a known risk in the absence of effective measures to regulate private facilities. The Indian parliament adopted the Clinical Establishments Act in 2010. It was designed to regulate standards of care in all facilities but its implementation has been virtually stalled in parts of the country because of lobbying by private physicians. Recently, the government of Maharashtra was admonished by the state's High Court for nonimplementation of the Act.

Pakistan, Bangladesh, and Nepal report that existing regulations are ineffective. In Sri Lanka the Private Medical Institutions (Registration) Act was adopted in 2006 but implementation of its provisions remains weak. Private practice by doctors employed in public services is rampant in the region and acts as a conduit for the transfer of patients to private facilities. In Pakistan, though publicly employed doctors receive nonpractising allowances, a significant number use their work in the public sector to boost their private practice. In Bangladesh a substantial number of government doctors practise privately after office hours. In Sri Lanka the number of government doctors working part time in private hospitals is reported as 2100. In India rules regarding private practice by government doctors vary—some states have completely banned such practices while others allow private practice during “off duty hours.”

The growth of private medicine in the region is a function of both active and passive measures instituted by governments. Poor public funding has led to the vacuum being filled by a large and unregulated private sector. The growth is also driven by concessions and subsidies provided to set up private facilities, public funded insurance where care is largely outsourced, and weak efforts to regulate private providers. The

absence of a robust public sector also acts as a barrier to regulation, as private facilities do not have to compete with a well functioning public system. The end result is a segmentation of healthcare services into a poorly resourced public system for the poor, and a growing private system for the rich. The rich, while opting out of the public system, also draw resources, political clout, and accountability away from it. Given that forprofit commercial enterprises target the hospital sector, resources—both financial and human—have a tendency to shift towards tertiary care at the expense of primary care.

Several characteristics of private provision have a negative impact on the quality of care. For example, unnecessary interventions reduce the quality, efficiency, and accessibility of care, and increase OoP expenditure. The private sector, furthermore, absorbs a disproportionate share of the health workforce, and is inaccessible to most of the population. Two other points merit attention. Private procurement of drugs is the single largest component of high OoP healthcare expenses, signifying poor access to public facilities. Secondly the rapid commercialisation of medical education draws young professionals into the private commercial sector, as they seek to recover the high cost of private medical education.

Goal 3 of the Sustainable Development Goals is a call to “Ensure healthy lives and promote wellbeing for all at all ages.” More specifically Goal 3.8 calls upon countries to “Achieve universal health coverage, including financial risk protection, access to quality essential healthcare services, and access to safe, effective, quality, and affordable essential medicines and vaccines for all.” It is unlikely that the unregulated and rapid growth of private medicine in South Asia provides an enabling environment to meet these goals. South Asian countries need to take action if they are to achieve universal health coverage that includes financial risk protection.

It is recommended the following steps as priority areas for policy makers:

- Progressively increase public spending on health and expand the role of public services in health systems

- Reduce the burden of out of pocket expenses through the regulation of private sector provision and through direct public provision of comprehensive healthcare services at all levels of care
- Address the abuse of social health insurance mechanisms for the growth of forprofit private care facilities
- Increase public investment in medical education to support the growth of public services
- Regulate drug prices effectively and ensure drug availability in public facilities to reduce the impact of purchase.

If the growth of the private sector continues unregulated, the outcomes will include healthcare funded through OoPexpenses in the absence of effective financial protection measures, uneven and poor quality care in the absence of the regulation of private facilities, and lack of access to healthcare services for a large proportion of the population.

2.6 Asian example (Phan Thanh Hai et al, 2021)

The role of private hospitals is increasingly important in Vietnam. The study aims to determine associations between service quality and hospital brand image with satisfaction and patient loyalty, revisit intention at private hospitals in Vietnam. Quantitative cross-sectional data were collected from 268 patients in DaNang city, Vietnam. Scales to measure hospital service quality, hospital brand image, patient satisfaction, loyalty, and patient revisit intention were developed. The methods used to test the hypotheses of the study include exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and structural equation modeling (SEM). One notable finding in this study provides practical evidence on the relationship of hospital service quality and hospital brand image with patient satisfaction and loyalty. In addition, service quality has a direct influence on patient satisfaction and revisit intention as the indicator of patient loyalty. Meanwhile, hospital brand image has a direct influence on patient loyalty, although it did not influence patient satisfaction.

Results of this study help providing the basis for the marketing and customer care programs of private hospitals in DaNang city, Vietnam. The role of private hospitals is increasingly important in Vietnam. The study aims to determine associations between service quality and hospital brand image with satisfaction and patient loyalty, revisit intention at private hospitals in Vietnam. Quantitative cross-sectional data were collected from 268 patients in DaNang city, Vietnam. Scales to measure hospital service quality, hospital brand image, patient satisfaction, loyalty, and patient revisit intention were developed. The methods used to test the hypotheses of the study include exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and structural equation modeling (SEM). One notable finding in this study provides practical evidence on the relationship of hospital service quality and hospital brand image with patient satisfaction and loyalty. In addition, service quality has a direct influence on patient satisfaction and revisit intention as the indicator of patient loyalty. Meanwhile, hospital brand image has a direct influence on patient loyalty, although it did not influence patient satisfaction. Results of this study help providing the basis for the marketing and customer care programs of private hospitals in DaNang city, Vietnam.

The healthcare sector in the market economy is witnessing competition among hospitals in attracting patients to use medical services at these hospitals. The patient-centered philosophy requires hospital managers and leaders to have appropriate strategies in attracting new customers, as well as ensuring patient satisfaction and loyalty, thereby ensuring business success. Previous studies have shown that loyal customers tended to pay more when using medical services, as well as having less resistance with the service delivery process (Evanschitzky et al., 2012). The cost to retain the patient was also significantly less than the cost to attract new patients. However, characteristic of the healthcare field is that most patients only visit the hospital when they have a desire to have their illness diagnosed and treated, and they mostly have no desire to return hospital if not for their illness (Liu et al., 2021). This has created great challenges in maintaining the loyalty of patients. Studies investigating factors related to patient satisfaction and loyalty have been performed

around the world (Al-Damen, 2017; Aliman and Mohamad, 2016; Bentum-Micah et al., 2020; Nguyen and Nguyen, 2014; Juhana et al., 2015; Liu et al., 2021; Wu, 2011; Yesiladaand Direktor, 2010; Zarei et al., 2012; Zarei et al., 2015). These studies play an important role in deciding the right marketing strategy for each hospital. Several previous studies have shown the important role of factors such as hospital brand image and service quality in patient satisfaction and loyalty (Aliman and Mohamad, 2016; Ware et al., 1978). However, in each country and each sector, the degree of influence of these factors is different. Therefore, understanding the relationships between these factors is necessary to support the efforts of hospitals in improving the performance of their service delivery.

Vietnam is one of the countries with fast economic growth, leading to a rapid increase in people's demand for high-quality healthcare. It is estimated that the healthcare market in Vietnam reached 19.9 billion USD in 2020 and is expected to reach 22.7 billion USD in 2021 with an annual growth rate of 12.5% (Spire Research and Consulting Pte Ltd, 2020). However, the healthcare market in Vietnam is mainly dominated by public hospitals, while the private sector accounts for only a small proportion with an estimated total market of USD 8.7 billion by 2020 (Spire Research and Consulting Pte Ltd, 2020).

According to the report of the Ministry of Health, in 2019, the total number of private hospitals increased from 102 hospitals (2010) to 231 hospitals with approximately 16,000 beds, accounting for 19.4% of the total number of hospitals in Vietnam (Vietnam Ministry of Health, 2019). Currently, private hospitals have advantages over public hospitals in making quick decisions and optimizing resources, as well as the ability to deploy extensive marketing activities and medical services which public hospitals do not have the financial and administrative capacities to perform (Nguyen and Wilson, 2017). However, some studies have revealed significant disparities in the service quality provided by public hospitals and private hospitals (Nguyen and Nguyen, 2014; Tran et al., 2005). In addition, the Vietnamese government is promoting the autonomy of public hospitals in terms of administrative and financial

aspects (London, 2013). This could diminish the existing advantages of private hospitals and increase competitiveness among hospitals. Therefore, determining the factors affecting patient loyalty is a key for the survival and sustainable development of private hospitals. Currently, no studies have been conducted to evaluate the factors related to patient loyalty and revisit intention in Vietnam. Therefore, this study aims to identify some associated factors, namely hospital service quality and hospital brand image, with patient satisfaction, patient loyalty, and revisit intention at private hospitals in DaNang city, Vietnam.

Hospital brand image is defined as an intangible asset of the hospital, formed from the quality that patients perceive and the value of the hospital, in other words, the impression of patients and customers about the hospital (Yagci et al., 2009). Hospital brand is a factor that helps to ensure the sustainable development of the hospital, as well as the uniqueness of the hospital in the perception of patients (Roberts and Dowling, 2002). A positive hospital image helps to position the hospital brand in the market, demonstrating patient trust in the hospital (Kim et al., 2008a). However, the hospital brand image always changes depending on the patient's perception and experience. Therefore, a good hospital brand image promotes the patient choice of hospital services.

Service quality is widely recognized as one of the key factors affecting the business performance and outcomes of service organizations (Liu and Tsai, 2010; Mei-Liang and Kuang-Jung, 2013). Service quality refers to the customer or patient assessment of the actual service compared to their expectations (Bitner et al., 1991; Parasuraman et al., 1988; Zeithaml, 1988). In fact, before using a service, patients will have expectations about what they will get when they use that service, then they compare this expectation with the actual service they receive (Wu, 2011). Service has quality when it ensures to meet the patient's expectations (Lytle and Mokwa, 1992).

Patient satisfaction refers to the patient attitude during the whole process of using healthcare services, including before, during, and after utilization (Kim et al., 2008b).

Patient satisfaction is also related to whether the service meets the patient's expectations. It is an important metric in monitoring and evaluating hospital performance, which is used by healthcare facility leaders in their decision-making processes. Patient satisfaction is related to the doctor-patient relationship and affects the treatment process and the re-visit of the patients (Hekkert et al., 2009).

Loyalty is defined as a deeply held commitment to rebuy or patronize a preferred product/service consistently in the future, thereby causing repetitive same-brand or same brand-set purchasing, despite situational influences and marketing efforts having the potential to cause switching behavior (Oliver, 1999). Due to the distinguishing characteristics of the healthcare industry from other service industries as mentioned above, theories regarding customer loyalty to other services may not be applicable in the healthcare field (Liu et al., 2021; Sheth and Park, 1974). In this study, the information that will be collected from patients will help determine their perception of patient loyalty, thereby building tools and scales to measure patient loyalty. In addition, the study results also help to provide evidence on the mechanisms of patient loyalty formation, which will assist hospitals in developing effective marketing strategies and business models.

Revisit intention is considered as an aspect of loyalty and several previous studies in the healthcare sector have shown a strong association between behavioral intentions and the actual behavior of this concept. Evaluation of revisit intention is also a metric used to determine patient loyalty (Boshoff and Gray, 2004; Kim et al., 2008b).

Effect of hospital service quality on satisfaction and revisit intention of patients

In several previous studies, hospital service quality has a positive relationship with patient satisfaction and it depended on hospital characteristics such as facilities, equipment, professional qualifications of medical staff, and administrative procedures (Aliman and Mohamad, 2016; Ware et al., 1978). Kim et al. (2008b) conducted a study showing the relationship between these factors and patient satisfaction and this

relationship applied in both public and private hospitals (Yesilada and Direktor, 2010). In addition, there have been many studies conducted showing that hospital service quality had a positive impact on patient loyalty. High hospital service quality increases the likelihood of revisit as an indicator of patient loyalty (Boulding et al., 1993; Cronin et al., 2000). Hospital service quality can affect patient intention to revisit directly, or impact indirectly through patient satisfaction (Wu, 2011; Wu et al., 2008).

Effect of hospital brand image on satisfaction and loyalty of patients

In other industries, some studies showed that brand image was not associated with customer satisfaction and loyalty (Davies and Chun, 2002; Hoq et al., 2012). However, in the healthcare sector, the majority of studies showed that the hospital brand image of the preferred service provider had a positive effect on patient satisfaction (Aliman and Mohamad, 2016; Wu, 2011). Therefore, a good hospital brand image can increase patient satisfaction. In addition, previous studies showed that hospital brand image had a positive effect on patient loyalty directly or indirectly through patient satisfaction

(Aliman and Mohamad, 2016; Da Silva and Syed Alwi, 2008; Davies and Chun, 2002; Wu, 2011).

Effect of satisfaction on loyalty and patient revisit intention

In previous studies, customer satisfaction was considered an important predictor of loyalty with organizations. Many studies in the healthcare sector also show the same thing. Kim et al. (2008b) showed that patient satisfaction also had a positive impact on their intention to revisit. At the same time, patients often express their satisfaction through the evaluation of the hospital service (Bendall - Lyon and Powers, 2004); hence, patients having satisfaction with the service were more likely to reuse that service.

The relationship between hospital service quality and facilities, staff, price, and medical examination and treatment process

Previous studies have mentioned that the factors related to service quality are composed of two visible components (such as facilities, human resources, equipment, administrative processes, etc.) and invisible (such as responsiveness, transparency, empathy, etc.) (Parasuraman et al., 1988; Zaim et al., 2013). In particular, visible components play an important role when these are the factors that the patient feels and observes immediately upon arrival at the hospital. es, equipment, administrative processes, etc.) and invisible (such as responsiveness, transparency, empathy, etc.) (Parasuraman et al., 1988; Zaim et al., 2013). In particular, visible components play an important role when these are the factors that the patient feels and observes immediately upon arrival at the hospital.

With the increasing health care needs of people in Vietnam, the involvement of the private hospitals in this industry plays an important role, supporting public health facilities in ensuring protect the health of the people. The development of medical examination and treatment services at private hospitals will help people have more choices about the best healthcare services that are suitable depending on the conditions of individuals and families.

This study was conducted to examine the relation-ship between hospital service quality and hospital brand image with patient satisfaction, loyalty, and intention to revisit (Liu et al., 2021; Bentum- Micah et al., 2020; Al-Damen, 2017; Aliman and Mohamad, 2016; Juhana et al., 2015; Nguyen and Nguyen, 2014; Zarei et al., 2015; Zarei et al., 2012; Wu, 2011; Yesilada and Direktor, 2010).

Results showed a direct impact of hospital service quality and hospital brand image on patient satisfaction, loyalty, and revisit intention. These results are suitable with results of some previous studies that supported these relationships, suggesting a key role of hospital service quality in enhancing patient satisfaction (H1) and revisit intention

(H2), and the role of hospital brand image in improving patient loyalty (H3). Research results provide practical evidence for the process of building appropriate marketing and public relations strategies to increase competitiveness for private hospitals. Results showed that hospital brand image has a direct positive impact on patient loyalty. This finding echoed the previous results about the association between brand image and patient loyalty (Aliman and Mohamad, 2016; Wu, 2011). A positive brand image will make patients have a positive perception and attitude towards the hospital, thereby increasing their loyalty to the hospital. Previous studies have shown that brand image could affect patient loyalty indirectly through patient satisfaction and service quality (Wu, 2011). However, in this study, hospital brand image is not significantly associated with patient satisfaction (H4). This result differed from some previous studies that showed that hospital brand image might be directly or indirectly related to patient satisfaction (Aliman and Mohamad, 2016; Wu, 2011). This can be explained that the hospital brand image only acted as a value of the hospital in the patient's perception, or, in other words, just an invisible factor that contributes to service quality. For patients, the hospital brand image may be important in deciding to use a service, but it is not an important factor determining their satisfaction. Satisfaction is determined by service quality including equipment, facilities, human resources, transparent and clear service prices, and medical examination and treatment process, which does not come from the brand image. Several suggestions can be drawn from the study results. Firstly, the hospital brand image acts as a factor that directly affects patient loyalty, leading to the promotion of the patient intention to re-examine.

Therefore, in the operational strategy of private hospitals, brand image management should be concentrated and prioritized, especially in building a positive and valuable brand image for patients. Possible measures include online advertising, building good customer relations, or training in branding for key medical staff. In addition, the hospital can deploy special and modern medical services, thereby helping to position the value of the hospital. Second, hospital service quality has an important impact on patient satisfaction and revisit intention, indicating that service quality is a factor that needs attention and improvement in private hospitals. Hospital leaders need to develop

customer- oriented health service delivery strategies to help customers have high-quality medical service experiences. These strategies need to be implemented synchronously, systematically, and comprehensively from equipment, facilities, human resources, transparent and clear service prices, and medical examination and treatment processes. These improvements will ensure the sustainability of patient satisfaction and patient loyalty, thereby helping to increase revenue and profit for the hospital.

Kumar (2019) explains that, a fast-growing private health sector flourishes in parallel to the public system, accounting for over half of national health expenditures, much higher than its contribution to actual healthcare delivery in Sri Lanka. In 2015, 54% of health spending came from private sources: 85% of this paid out-of-pocket, 5–8% comprised employer benefits, 5% health insurance, and 2–3% from the non-profit sector. Despite 40 to 45% of total health spending being financed out-of-pocket, catastrophic and impoverishing health expenditures have remained comparatively low because the public system still covers the bulk of (more expensive) inpatient care.

The ever-expanding for-profit private sector fills a critical gap in public-sector ambulatory services. As state investment in the public system is grossly inadequate to address the demand for health services, users are compelled to pay out-of-pocket for services from the private sector. With an escalating burden of non-communicable diseases (NCD), and a rapidly aging population, the burden of out-of-pocket expenses is expected to rise further. In October 2018, the Ministry of Health adopted a new policy, “Healthcare Delivery for Universal Health Coverage (UHC)”, setting out expansive healthcare reforms to improve population coverage, financial risk protection, and service comprehensiveness. Reforms aimed at streamlining health-service delivery in the public sector include plans for contracting-in private providers to improve healthcare coverage. As Sri Lanka now embarks on reforming its long-acclaimed “free” healthcare system, this article questions public financing of private delivery as a path to achieving UHC.

Private healthcare services have operated in parallel to the public system since its early days, when the British colonial government encouraged private practice among public-sector specialists to maintain low wages for physicians in the public system. As dual practice created a channel through which private patients gained entry to government hospitals, it paved way for a private sector that became reliant on the public system for human resources. Even today, most private-sector doctors, whether specialists or general practitioners (GPs), hold full-time positions with the Ministry of Health.

Successive governments in the post-independence period attempted to restrict private practice. A ban was imposed in the 1950s on newly qualifying public-sector specialists and medical officers engaging in private practice. The government implemented the ban quite loosely, and the 1960s saw public-sector specialists regaining some private-practice privileges as a result of strike action by the public-sector physicians' union. Specialist private practice was subsequently permitted at designated state-administered centers which generated revenue for the government. In the 1970s, the leftist alliance in government attempted to phase out dual practice by prohibiting such practice at stations where specialists were available full-time in the private sector. Implementation of this policy resulted in specialists leaving state service en masse, to work full-time in the private sector. In 1977, with economic liberalization, these restrictions were removed; dual-practice privileges were extended to general doctors and, later, other categories of health professionals.

The private health sector grew steadily through the 1980s and 1990s, although the availability of resource-intensive tertiary care was limited until the Board of Investment extended its privileges to the healthcare industry by offering tax holidays, concessionary rates on corporate income tax, import-duty exemptions, and concessionary lease terms on state lands. Several large-scale private hospital projects were approved by the Board of Investment, changing the landscape of private healthcare, particularly in the commercial capital, Colombo. The small private-health insurance market has expanded steadily, its contribution to private health spending

rising from 1 to 5% between 1990 and 2009. The end of the civil war in 2009 meant a major boost for the private health sector, facilitating expansion in the ensuing decade.

The private sector comprises an ad hoc range of healthcare facilities, from general practitioner (GP) clinics and specialist consultation centers to smaller-scale in-patient facilities and large commercial hospitals. These facilities are supported by numerous private pharmacies and diagnostic centers of varying standard and quality. The non-profit sector plays a very small role in healthcare delivery, contributing mostly to contraceptive service provision, and addressing other service gaps, including for people with disabilities. A few cooperative hospitals and faith-based organizations offer a limited set of healthcare services.

Out-of-pocket payments are the primary barrier to accessing private healthcare. A greater share of out-of-pocket spending goes toward outpatient consultations, except in the highest wealth quintile, where spending on inpatient care is substantial. The President's Fund, a humanitarian initiative under the auspices of the President, offers (limited) financial assistance for a predefined set of resource-intensive procedures in the private sector, including cardiac, renal, and orthopedic surgery and cancer therapy. As the Fund does not cover outpatient care and provides capped disbursements for inpatient care, economically disadvantaged healthcare users often cannot access these benefits.

A national health insurance scheme has not been introduced to date in Sri Lanka. A contributory health insurance scheme covers a specified set of health benefits for some public-sector employees. Since 2017, a publicly-financed school health insurance scheme covers all students, with caps on claims. A small but growing private health insurance industry covers mostly private sector employees with pre-paid insurance plans accounting for about 5% of private expenditure. Certain companies offer reimbursement schemes, but, taken together, employers contribute less than 10% to private spending.

Private healthcare services are available on a walk-in basis. GPs—many of them public-sector physicians working after hours—operate from independent clinics, spread across urban and rural settings. A specialist opinion may be obtained fairly easily at a specialist consultation center, with no requirements for referral. However, private specialist services tend to be concentrated in urban areas. As most private practitioners are employees of the Ministry of Health, users move easily between sectors, opting for private out-patient care, and turning to public hospitals for (more expensive) in-patient treatment.

The commercial hospital industry is mostly confined to Colombo and larger cities where wealth is concentrated. A major proportion of the private healthcare market, as much as 75% according to some estimates, is concentrated among four or five healthcare firms operating out of Colombo. This distribution of private healthcare has led to markedly different utilization patterns. For instance, in 2016, 21% of deliveries in Colombo District took place in the private sector, compared with a national average of <6%. This form of urban-centric private health sector development has implications for UHC as healthcare professionals increasingly opt for full-time private practice, causing a dearth of human resources for healthcare in rural areas.

The “Free Health” policy still enjoys wide public appeal in Sri Lanka. As health economist William Hsiao highlighted nearly two decades ago, healthcare is a politically contentious issue in Sri Lanka “so much so that [user-fees] will not be officially debated in public”. “Free Health” is frequently endorsed by politicians at all levels. For instance, the incumbent Minister of Health spoke of “Free Health” at the 2018 World Health Day celebrations in Colombo in this way:

Sri Lanka has a state funded and run health care system providing health care, free of charge at the point of delivery, to each and every citizen. The health budget is funded by the public sector, has a pro-poor health service that facilitates access to lower socio-economic strata of society. With a wide network of facilities ... the Government provides a comprehensive package of services to the population. In spite of this

situation, patients, especially those in the private sector, have to bear significant out of pocket expenditures To address this situation we have taken action to reduce the price of essential, mostly used drugs.... We have also lifted the price ceiling on cancer drugs to be provided free at the government facilities. ... We have also extended similar benefits towards eye care, providing quality eye lenses to patients free of charge. Similar packages have been introduced for expensive, urgently needed cardio-thoracic care, including cardiac stents.” – Rajitha Senaratne, Minister of Health, Nutrition and Indigenous Medicine.

Not surprisingly, the 2018 UHC policy reaffirms the government’s support for “free” healthcare. Unique, however, are references to “free health” couched in the language of PPPs—specifically, public financing of private delivery. Under the strategic directions listed in the UHC policy document, 5.9 mentions “State recognition and regulation of Private Providers (Private General Practitioners), who can be purchased to provide health care free at the point of delivery to identified/opted persons,” and 5.13, “Effective engagement of the private sector and the involvement of the private General Practitioners in first contact care, ensuring provision of healthcare free at the point of delivery....” (emphasis added).

This departure from public financing of public delivery is contentious. First and foremost, where will the money come from? Government health expenditure as a proportion of GDP is very low, at less than 2%. Without market-oriented profit- and rent-seeking, and by adopting a strategy of over-subscription, the government has thus far controlled healthcare delivery costs through the public system. Given budgetary constraints, the Ministry of Health is rolling out the UHC policy incrementally, commencing with the development of a few strategically located primary-care centers. Contracting-in private-sector services as planned in the next phases will invariably increase pressure on the health budget, particularly given the price differentials between public and private healthcare services.

A second question is whether Private – Public Partnership (PPP) s can address existing gaps in public healthcare, particularly the human resource and service deficits in remote and rural areas, without adverse impacts on the public system. Where implemented, PPPs have drained funds and other resources from public systems, without yielding the expected gains in equity or “efficiency”. In Sri Lanka too, contracting-in private services will divert much-needed resources from the public sector, weakening the very system that offers a semblance of UHC.

Contracting-in private providers may intensify human resource deficits in the public sector. At present, most private sector healthcare professionals in Sri Lanka hold on to public sector positions because of the security, benefits, and career advancement opportunities offered by the latter. This situation may change with the bolstering and expansion of private healthcare, as seen in India. As private GPs—many of whom serve as medical officers at government hospitals—are contracted-in to work after hours at primary care centers, the availability of a fixed remuneration package financed by the government may drive at least some of these doctors to leave public service for full-time private practice. Similarly, contracting-in private pharmacy and laboratory services may result in a parallel weakening of these facilities in the public sector.

Despite its implications for the public system, a constellation of actors and forces favor PPPs as a health policy directive in Sri Lanka. In the domestic sphere, institutionalization of private interests within structures of governance has bestowed tremendous power in the hands of business. The government’s consistent failure to raise direct taxes—essential for mobilizing revenues for publicly financed and delivered UHC—reflects opposition by vested class interests. Moreover, the state–healthcare industry nexus manifests starkly in the health policy domain. The government introduced a publicly financed health insurance scheme in 2017 to cover the private healthcare expenses of schoolchildren in spite of the availability of “free” healthcare and a functioning preventive health program in all schools. Offering capped benefits for hospitalization, outpatient services (for specified chronic illnesses), and

some accident/disability cover, the scheme was administered by a state-owned corporation in its first year. Amid allegations of corruption, the government doubled the scheme's benefits in 2019 and handed over its administration to a multinational insurance company.

Publicly financed health insurance or other forms of demand-side financing are imperative to expand the market for private healthcare. At present, the bulk of private healthcare is financed out-of-pocket, limiting its expansion to wealthier urban areas. Providing health insurance coverage or contracting-in private providers will undoubtedly raise levels of private healthcare use across the country. Moreover, separating healthcare purchasing from provision (“purchaser–provider split”) will enable public funds to be channeled for private profit as the government bankrolls healthcare expenditures, relying on private health insurance to carry out the purchasing function, generating massive profits for the industry.

The push for PPPs is implicitly supported by sections of the medical establishment. The Sri Lanka Medical Association (SLMA)—a professional medical body representing physicians in public and private sectors—has taken a leadership role in UHC advocacy. However, in promoting its vision for a “people-centered” healthcare delivery system, the SLMA has maintained a neutral stance on private delivery. Meanwhile, the public-sector physicians’ union—otherwise vocal on all matters relevant to the health sector—has remained mute on the UHC reform. There is no reason to believe that the medical profession will hold out against efforts to integrate public and private healthcare delivery, because dual practice—an “informal” public–private arrangement—already constitutes a lucrative source of income for physicians.

The Ministry of Health’s backing of PPPs may also be understood in light of its collaboration with the World Bank over the past two decades. Since 2000, the World Bank has rolled out three health-sector development projects in Sri Lanka. The first project (2003–2010), initiated during a cessation of hostilities between the government

and the Tamil Tigers, was small in scope and scale. Although the project proposal contained plans for assessing the feasibility of alternative healthcare financing options, this was not followed through. When the 30-year civil war ended in 2009, the incumbent government embraced a rhetoric of post-war development. The ensuing National Health Development Plan 2013–2017, which coincided with the second World Bank-sponsored health-sector development project, laid out plans for PPPs, including a national health insurance scheme that was never implemented. The third (ongoing) World Bank health-sector development project, the “Primary Health Care System Strengthening Project,” was formulated in parallel with the 2018 UHC policy. The World Bank’s project appraisal report explicitly states that the proposed reforms will make way for a “public–private partnership enabling environment”, reflecting their ideological thrust.

Promoting public financing of private delivery towards achieving UHC in Sri Lanka goes hand-in-hand with the broader shift towards PPPs at the global level. International health and development agencies pay lip service to other avenues for financing UHC, such as raising taxes or increasing aid flows, but in practice, the focus has been on establishing PPPs, supposedly to “expand access to higher-quality health services by leveraging capital, managerial capacity, and knowhow from the private sector”. The underlying impetus for this direction of health-sector development comes from global finance capital. UHC has opened avenues for accumulation for private healthcare and health insurance industries as well as a myriad of global health consultancies vying for the clientele of national governments. Driven by profit-oriented rent-seeking, however, PPPs have been shown to perform poorly on equity.

Given the support for PPPs at the global level, it is hardly surprising that the WHO has evaded the issue of public versus private delivery in its advocacy for UHC. On introducing UHC in 2010, it recommended national governments to “ensure that all providers, public and private, operate appropriately and attend to patients’ needs cost effectively and efficiently”. More recently, the 2018 Astana Declaration placed the responsibility for protecting the “right to health” with governments, but similarly

skirted the issue of public or private delivery. Supporting public financing without specifying a role for governments in health services delivery ignores the reality that bona fide universality, or even a semblance of it, has been achieved in low- and middle-income countries (LMICs) largely through publicly financed and delivered healthcare systems. The WHO position today has served to mask (for-profit) private sector incursion and its consequences for healthcare systems and users in LMICs—contrasting sharply with its championing of Health for All at the 1978 Alma Ata Conference, with universal access to be achieved by strengthening comprehensive primary care within “national health systems”. Reverting to a vision of universal access that places people’s health and social justice aspirations at the center will require radical transformation at the global level

Sri Lanka’s publicly financed, administered, and delivered state-centric healthcare system has made critically important contributions to the country’s access achievements. Following decades of underinvestment and incentivized private-sector expansion, the public health sector is now struggling to meet the demand for services. The private health sector has stepped in to fill service gaps, but rising out-of-pocket expenditures are a major challenge, not least under the growing burden of NCDs in a rapidly aging population. The 2018 UHC policy is aimed at strengthening primary healthcare and providing access to an essential-services package through a mixed public–private “shared-care cluster system.”

Supported by the World Bank and others, the 2018 UHC policy addresses critical gaps in Sri Lanka’s healthcare system. Streamlining referral pathways can increase the utilization of primary-care facilities and reduce congestion at secondary- and tertiary-care centers. Implementing an essential services package should improve service comprehensiveness, population coverage, and financial risk protection. In addition to these well-devised strategies, however, there are also plans for formal partnerships with the private sector (PPPs) to advance UHC.

Does Sri Lanka need PPPs in the health sector? It is unclear how existing deficits in public healthcare can be addressed by PPPs. Expanding the role of the private sector in healthcare delivery will consume substantial public funds and channel scarce resources away from the ever-weakening public sector. Where implemented, PPPs have not delivered the expected gains in equity or “efficiency.” Instead of venturing into unexplored and potentially dangerous territory, the government would do well to inject more funds and strengthen the existing (and proven) model of UHC already operating in Sri Lanka. After all, the country’s access achievements have been largely due to this system.

PPPs are supported as a health sector development strategy for LMICs by a constellation of powerful actors and forces at the global level. Yet, UHC is a social goal that simply cannot be achieved by enabling profiteering and rent-seeking in the guise of expanding healthcare coverage. Re-envisioning UHC in ways that can meet people’s aspirations for health and social justice—that is the need of the moment.

2.7 Summary

Population has increased rapidly in the period between 1950 and 1980 due to vaccines, satisfactory level of environmental management and availability of cheap public health care. Eradication of epidemics and good service cover enabled the entry of people with many congenial or body system weaknesses, which otherwise would have died early.

The period between 1980 to present the nation lost its ability to manage a healthy living environment and provide a good preventive health care due to inefficient and corrupt governance. Within this scenario the policy makers were unable to establish a sustainable development plan in health.

The emergence of new infectious diseases and rapid increase in chronic diseases is basically a result of non-availability of natural and societal environmental management.

Most nations have lost control of their population numbers

They have poor governance systems

Health environment has entered a chaotic existence.

As Pallegedara (2017) indicates, in many other developed and developing countries, private healthcare services co-exist with the public services, providing both outpatient and inpatient care. Private healthcare in Sri Lanka is a mainly profit-oriented business which can range from informal private practice by doctors in the after-hours of their regular working hours in the public sector in a poor rural area to a state of art private hospital providing sophisticated care for upper middle class in a rich urban area. Private services seem to cater the growing demand for the healthcare by the Sri Lankan population. What exactly is driving this demand has not yet been studied in detail, but it may have to do with limited supply of public services, rising income, social status as well as a perceived higher quality of private services including possibly more flexible opening hours and shorter waiting times.

However, some form of private health care existed since the beginning of civilisations as archaeological evidences support the existence of specialized care for rich and nobility. Wealth and private health insurance will drive the need for private healthcare which cannot be controlled for the sake of achieving targets set by universal health care policies.

Expenditure on health in Sri Lanka is full of amazing stories. In most cases, when in need people rally around their kith and kin to help the sick. Families save for the treatment of their aged parents. Except for the poorest group, the rest attempt to seek private health care by limiting other household expenses. Children working abroad help their parents to seek private health care. All the well-established private

enterprises have reliable health insurance schemes. Almost all in middle and rich group have some form of reliable health insurance. Religious and philanthropic organisations provide help in extreme cases. All the above create a demand for private health care, which is on a continuing demand and preference over public facilities.

Though public health care system in Sri Lanka is commendable for its status, archaic system of operation and inefficiency in public health care drives people with means to attend private health care away from public utilities. The existing system in public health is not expected to change in the near future due to poor policy planning and socio-political mismanagement.

Private health care market is expected to expand in the next decade as population pressure on public health utilities will increase beyond capacity and the public health system is highly disorganised. Present status of economy may retard the growth of private health care, but once the economy stabilises, market share of private health care will definitely increase.

In real terms a strong and a reliable private health care system is a supportive network to any existing public health care system. Therefore, any private health care organisation has to be competitive, trustworthy and reliable in its operation utilising ever changing market strategies. In the utilisation of strategies as noted in the literature, the organisation has to be equipped with a strong supportive network of human resources and knowledge, especially in the present serious economic crisis.

Chapter 3

Methodology

3.1 Introduction

Selecting methodology for the study was based on the structure of studies provided by Cooper and Schindler (2007) and SPSS13 analytical tool. These documents gave the researcher the strategy of the preparation of questionnaire, conducting his survey and data analysis. Further many materials were collected on the theory and practice of methodology.

3.2 Global experiences and local learning: Big data and health care (<https://www.datapine.com>, 2020)

Big data has changed the way we manage, analyze, and leverage data across industries. One of the most notable areas where data analytics is making big changes is healthcare.

In fact, healthcare analytics has the potential to reduce costs of treatment, predict outbreaks of epidemics, avoid preventable diseases, and improve the quality of life in general. The average human lifespan is increasing across the world population, which poses new challenges to today's treatment delivery methods. Health professionals, just like business entrepreneurs, are capable of collecting massive amounts of data and look for the best strategies to use these numbers.

In this article, we're going to address the need for big data in healthcare and hospital big data: why and how can it help? What are the obstacles to its adoption? We will then look at 18 big data examples in healthcare that already exist and that medical-based institutions can benefit from.

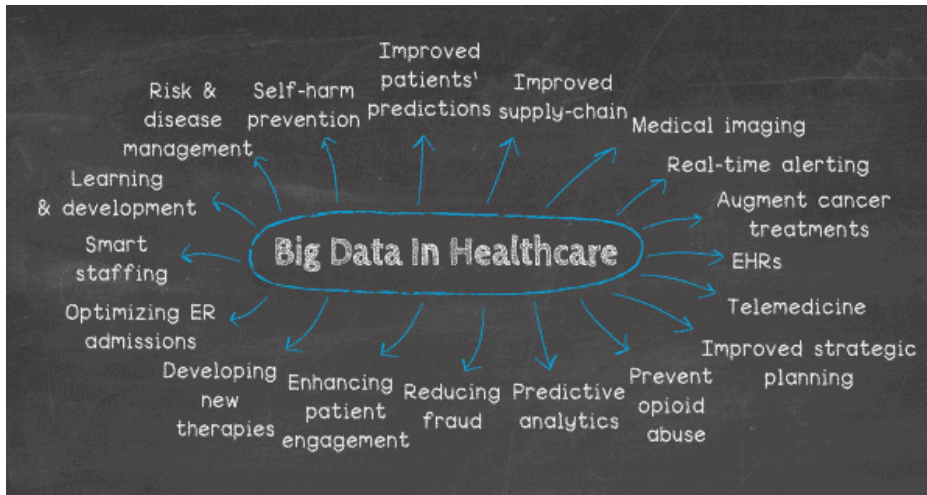
Big data in healthcare is a term used to describe massive volumes of information created by the adoption of digital technologies that collect patients' records and help in managing hospital performance, otherwise too large and complex for traditional technologies.

The application of big data analytics in healthcare has a lot of positive and also life-saving outcomes. In essence, big-style data refers to the vast quantities of information created by the digitization of everything, that gets consolidated and analyzed by specific technologies. Applied to healthcare, it will use specific health data of a population (or of a particular individual) and potentially help to prevent epidemics, cure disease, cut down costs, etc.

Now that we live longer, treatment models have changed and many of these changes are namely driven by data. Doctors want to understand as much as they can about a patient and as early in their life as possible, to pick up warning signs of serious illness as they arise – treating any disease at an early stage is far more simple and less expensive. By utilizing key performance indicators in healthcare and healthcare data analytics, prevention is better than cure, and managing to draw a comprehensive picture of a patient will let insurance provide a tailored package. This is the industry's attempt to tackle the siloes problems a patient's data has: everywhere are collected bits and bites of it and archived in hospitals, clinics, surgeries, etc., with the impossibility to communicate properly.

Indeed, for years gathering huge amounts of data for medical use has been costly and time-consuming. With today's always-improving technologies, it becomes easier not only to collect such data but also to create comprehensive healthcare reports and convert them into relevant critical insights, that can then be used to provide better care. This is the purpose of healthcare data analytics: using data-driven findings to predict and solve a problem before it is too late, but also assess methods and treatments faster, keep better track of inventory, involve patients more in their own health, and empower them with the tools to do so.

Figure 3.1 18 Big Data Applications In Healthcare



Now that you understand the importance of health big data, let's explore 18 real-world applications that demonstrate how an analytical approach can improve processes, enhance patient care, and, ultimately, save lives.

1) Patients Predictions For Improved Staffing

For our first example of big data in healthcare, we will look at one classic problem that any shift manager faces: how many people do I put on staff at any given time period? If you put on too many workers, you run the risk of having unnecessary labor costs add up. Too few workers, you can have poor customer service outcomes – which can be fatal for patients in that industry.

Big data is helping to solve this problem, at least at a few hospitals in Paris. A white paper by Intel details how four hospitals that are part of the Assistance Publique-Hôpitaux de Paris have been using data from a variety of sources to come up with daily and hourly predictions of how many patients are expected to be at each hospital.

One of the key data sets is 10 years' worth of hospital admissions records, which data scientists crunched using "time series analysis" techniques. These analyses allowed the researchers to see relevant patterns in admission rates. Then, they could use

machine learning to find the most accurate algorithms that predicted future admissions trends.

Summing up the product of all this work, the data science team developed a web-based user interface that forecasts patient loads and helps in planning resource allocation by utilizing online data visualization that reaches the goal of improving the overall patients' care.

2) Electronic Health Records (EHRs)

It's the most widespread application of big data in medicine. Every patient has his own digital record which includes demographics, medical history, allergies, laboratory test results, etc. Records are shared via secure information systems and are available for providers from both the public and private sectors. Every record is comprised of one modifiable file, which means that doctors can implement changes over time with no paperwork and no danger of data replication.

EHRs can also trigger warnings and reminders when a patient should get a new lab test or track prescriptions to see if a patient has been following doctors' orders.

Although EHR is a great idea, many countries still struggle to fully implement them. U.S. has made a major leap with 94% of hospitals adopting EHRs according to this HITECH research, but the EU still lags behind. However, an ambitious directive drafted by the European Commission is supposed to change it.

Kaiser Permanente is leading the way in the U.S. and could provide a model for the EU to follow. They've fully implemented a system called HealthConnect that shares data across all of their facilities and makes it easier to use EHRs. A McKinsey report on big data healthcare states that "The integrated system has improved outcomes in cardiovascular disease and achieved an estimated \$1 billion in savings from reduced office visits and lab tests."

3) Real-Time Alerting

Other examples of data analytics in healthcare share one crucial functionality – real-time alerting. In hospitals, Clinical Decision Support (CDS) software analyzes medical data on the spot, providing health practitioners with advice as they make prescriptive decisions.

However, doctors want patients to stay away from hospitals to avoid costly in-house treatments. Analytics, already trending as one of the business intelligence buzzwords in 2019, has the potential to become part of a new strategy. Wearables will collect patients' health data continuously and send this data to the cloud.

Additionally, this information will be accessed to the database on the state of health of the general public, which will allow doctors to compare this data in a socio-economic context and modify the delivery strategies accordingly. Institutions and care managers will use sophisticated tools to monitor this massive data stream and react every time the results will be disturbing.

For example, if a patient's blood pressure increases alarmingly, the system will send an alert in real-time to the doctor who will then take action to reach the patient and administer measures to lower the pressure.

Another example is that of Asthmapolis, which has started to use inhalers with GPS-enabled trackers in order to identify asthma trends both on an individual level and looking at larger populations. This data is being used in conjunction with data from the CDC in order to develop better treatment plans for asthmatics.

4) Enhancing Patient Engagement

Many consumers – and hence, potential patients – already have an interest in smart devices that record every step they take, their heart rates, sleeping habits, etc., on a

permanent basis. All this vital information can be coupled with other trackable data to identify potential health risks lurking. Chronic insomnia and an elevated heart rate can signal a risk for future heart disease for instance. Patients are directly involved in the monitoring of their own health, and incentives from health insurance can push them to lead a healthy lifestyle (e.g.: giving money back to people using smartwatches).

Another way to do so comes with new wearables under development, tracking specific health trends, and relaying them to the cloud where physicians can monitor them. Patients suffering from asthma or blood pressure could benefit from it, and become a bit more independent and reduce unnecessary visits to the doctor.

5) Prevent Opioid Abuse In The US

Our fourth example of big data healthcare is tackling a serious problem in the US. Here's a sobering fact: as of this year, overdoses from misused opioids have caused more accidental deaths in the U.S. than road accidents, which were previously the most common cause of accidental death.

Analytics expert Bernard Marr writes about the problem in a Forbes article. The situation has gotten so dire that Canada has declared opioid abuse to be a "national health crisis," and President Obama earmarked \$1.1 billion dollars for developing solutions to the issue while he was in office.

Once again, an application of big data analytics in healthcare might be the answer everyone is looking for: data scientists at Blue Cross Blue Shield have started working with analytics experts at Fuzzy Logix to tackle the problem. Using years of insurance and pharmacy data, Fuzzy Logix analysts have been able to identify 742 risk factors that predict with a high degree of accuracy whether someone is at risk for abusing opioids.

To be fair, reaching out to people identified as "high risk" and preventing them from developing a drug issue is a delicate undertaking. However, this project still offers a

lot of hope towards mitigating an issue which is destroying the lives of many people and costing the system a lot of money.

6) Using Health Data For Informed Strategic Planning

The use of big data in healthcare allows for strategic planning thanks to better insights into people's motivations. Care managers can analyze check-up results among people in different demographic groups and identify what factors discourage people from taking up treatment.

The University of Florida made use of Google Maps and free public health data to prepare heat maps targeted at multiple issues, such as population growth and chronic diseases. Subsequently, academics compared this data with the availability of medical services in most heated areas. The insights gleaned from this allowed them to review their delivery strategy and add more care units to the most problematic areas.

7) Big Data Might Just Cure Cancer

Another interesting example of the use of big data in healthcare is the Cancer Moonshot program. Before the end of his second term, President Obama came up with this program that had the goal of accomplishing 10 years' worth of progress towards curing cancer in half that time.

Medical researchers can use large amounts of data on treatment plans and recovery rates of cancer patients in order to find trends and treatments that have the highest rates of success in the real world. For example, researchers can examine tumor samples in biobanks that are linked up with patient treatment records. Using this data, researchers can see things like how certain mutations and cancer proteins interact with different treatments and find trends that will lead to better patient outcomes.

This data can also lead to unexpected benefits, such as finding that Desipramine, which is an antidepressant, has the ability to help cure certain types of lung cancer.

However, in order to make these kinds of insights more available, patient databases from different institutions such as hospitals, universities, and nonprofits need to be linked up. Then, for example, researchers could access patient biopsy reports from other institutions. One of the potential big data use cases in healthcare would be genetically sequencing cancer tissue samples from clinical trial patients and making these data available to the wider cancer database.

But, there are a lot of obstacles in the way, including:

- Incompatible data systems. This is perhaps the biggest technical challenge, as making these data sets able to interface with each other is quite a feat.
- Patient confidentiality issues. There are differing laws state by state which govern what patient information can be released with or without consent, and all of these would have to be navigated.
- Simply put, institutions that have put a lot of time and money into developing their own cancer dataset may not be eager to share with others, even though it could lead to a cure much more quickly.

However, as an article by Fast Company states, there are precedents to navigating these types of problems and roadblocks while accelerating progress towards curing cancer using the strength of data analytics.

8) Predictive Analytics In Healthcare

We have already recognized predictive analytics as one of the biggest business intelligence trends two years in a row, but the potential applications reach far beyond business and much further in the future. Optum Labs, a US research collaborative, has collected EHRs of over 30 million patients to create a database for predictive analytics tools that will improve the delivery of care.

The goal of healthcare online business intelligence is to help doctors make data-driven decisions within seconds and improve patients' treatment. This is particularly useful in the case of patients with complex medical histories, suffering from multiple conditions. New BI solutions and tools would also be able to predict, for example, who is at risk of diabetes and thereby be advised to make use of additional screenings or weight management.

9) Reduce Fraud And Enhance Security

Some studies have shown that 93% of healthcare organizations have experienced a data breach. The reason is simple: personal data is extremely valuable and profitable on the black markets. And any breach would have dramatic consequences. With that in mind, many organizations started to use analytics to help prevent security threats by identifying changes in network traffic, or any other behavior that reflects a cyber-attack. Of course, big data has inherent security issues and many think that using it will make organizations more vulnerable than they already are. But advances in security such as encryption technology, firewalls, anti-virus software, etc, answer that need for more security, and the benefits brought largely overtake the risks.

Likewise, it can help prevent fraud and inaccurate claims in a systemic, repeatable way. Analytics help to streamline the processing of insurance claims, enabling patients to get better returns on their claims and caregivers are paid faster. For instance, the Centers for Medicare and Medicaid Services said they saved over \$210.7 million in fraud in just a year.

10) Telemedicine

Telemedicine has been present on the market for over 40 years, but only today, with the arrival of online video conferences, smartphones, wireless devices, and wearables, has it been able to come into full bloom. The term refers to the delivery of remote clinical services using technology.

It is used for primary consultations and initial diagnosis, remote patient monitoring, and medical education for health professionals. Some more specific uses include telesurgery – doctors can perform operations with the use of robots and high-speed real-time data delivery without physically being in the same location with a patient.

Clinicians use telemedicine to provide personalized treatment plans and prevent hospitalization or re-admission. Such use of healthcare data analytics can be linked to the use of predictive analytics as seen previously. It allows clinicians to predict acute medical events in advance and prevent deterioration of patient's conditions.

By keeping patients away from hospitals, telemedicine helps to reduce costs and improve the quality of service. Patients can avoid waiting in lines and doctors don't waste time on unnecessary consultations and paperwork. Telemedicine also improves the availability of care as patients' state can be monitored and consulted anywhere and anytime.

11) Integrating Big-Style Data With Medical Imaging

Medical imaging is vital and each year in the US about 600 million imaging procedures are performed. Analyzing and storing manually these images is expensive both in terms of time and money, as radiologists need to examine each image individually, while hospitals need to store them for several years.

Medical imaging provider Carestream explains how big data analytics for healthcare could change the way images are read: algorithms developed analyzing hundreds of thousands of images could identify specific patterns in the pixels and convert it into a number to help the physician with the diagnosis. They even go further, saying that it could be possible that radiologists will no longer need to look at the images, but instead analyze the outcomes of the algorithms that will inevitably study and remember more images than they could in a lifetime. This would undoubtedly impact the role of radiologists, their education, and the required skillset.

12) A Way To Prevent Unnecessary ER Visits

Saving time, money, and energy using big data analytics for healthcare is necessary. What if we told you that over the course of 3 years, one woman visited the ER more than 900 times? That situation is a reality in Oakland, California, where a woman who suffers from mental illness and substance abuse went to a variety of local hospitals on an almost daily basis.

This woman's issues were exacerbated by the lack of shared medical records between local emergency rooms, increasing the cost to taxpayers and hospitals, and making it harder for this woman to get good care. As Tracy Schrider, who coordinates the care management program at Alta Bates Summit Medical Center in Oakland stated in a Kaiser Health News article:

“Everybody meant well. But she was being referred to three different substance abuse clinics and two different mental health clinics, and she had two case management workers both working on housing. It was not only bad for the patient, it was also a waste of precious resources for both hospitals.”

In order to prevent future situations like this from happening, Alameda county hospitals came together to create a program called PreManage ED, which shares patient records between emergency departments.

This system lets the ER staff know things like:

- If the patient they are treating has already had certain tests done at other hospitals, and what the results of those tests are.
- If the patient in question already has a case manager at another hospital, preventing unnecessary assignments.
- What advice has already been given to the patient, so that a coherent message to the patient can be maintained by providers.

This is another great example where the application of healthcare analytics is useful and needed. In the past, hospitals without PreManage ED would repeat tests over and over, and even if they could see that a test had been done at another hospital, they would have to go old school and request or send long fax just to get the information they needed.

13) Smart Staffing & Personnel Management

Without a cohesive, engaged workforce, patient care will dwindle, service rates will drop, and mistakes will happen. But with big data tools in healthcare, it's possible to streamline your staff management activities in a wealth of key areas. By working with the right HR analytics, it's possible for time-stretched medical institutions to optimize staffing while forecasting operating room demands, streamlining patient care as a result.

Too often, there is a significant lack of fluidity in healthcare institutions, with staff distributed in the wrong areas at the wrong time. This imbalance of personnel management could mean a particular department is either too overcrowded with staff or lacking staff when it matters most, which can develop risks of lower motivation for work and increases the absenteeism rate. An HR dashboard, in this case, may help:

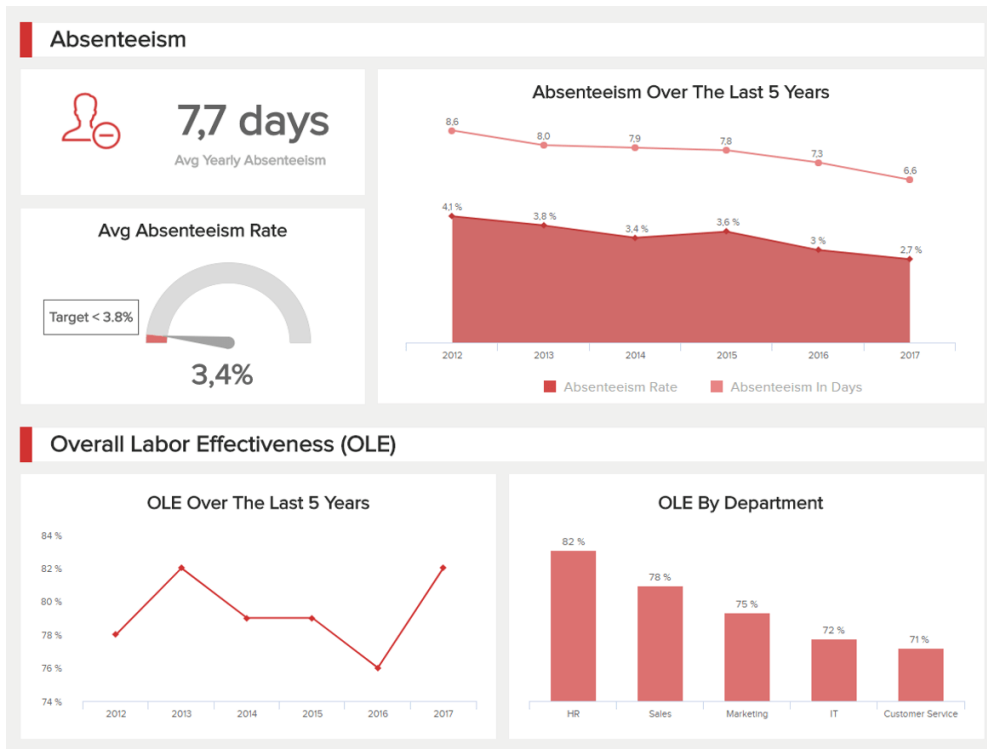


Figure 3.2 HR dashboard proposed

Though data-driven analytics, it's possible to predict when you might need staff in particular departments at peak times while distributing skilled personnel to other areas within the institution during quieter periods.

Moreover, medical data analysis will empower senior staff or operatives to offer the right level of support when needed, improve strategic planning, and make vital staff and personnel management processes as efficient as possible.

14) Learning & Development

Expanding on our previous point, in a hospital or medical institution, the skills, confidence, and abilities of your staff can mean the difference between life and death. Naturally, doctors and surgeons are highly skilled in their areas of expertise. But most medical institutions have a range of people working under one roof, from porters and admin clerks to cardiac specialists and brain surgeons.

In healthcare, soft skills are almost important as certifications. To keep the institution running at optimum capacity, you have to encourage continual learning and development. By keeping track of employee performance across the board while keeping a note of training data, you can use healthcare data analysis to gain insight on who needs support or training and when. If everyone is able to evolve with the changes around them, you will save more lives — and medical data analytics will help you do just that.

15) Advanced Risk & Disease Management

Big data and healthcare are essential for tackling the hospitalization risk for specific patients with chronic diseases. It can also help prevent deterioration.

By drilling down into insights such as medication type, symptoms, and the frequency of medical visits, among many others, it's possible for healthcare institutions to provide accurate preventative care and, ultimately, reduce hospital admissions. Not only will this level of risk calculation result in reduced spending on in-house patient care, but it will also ensure that space and resources are available for those who need it most. This is a clearcut example of how analytics in healthcare can improve and save people's lives.

As a result, big data for healthcare can improve the quality of patient care while making the organization more economically streamlined in every key area.

16) Suicide & Self-Harm Prevention

Globally, almost 800,000 people die from suicide every year. Plus, 17% of the world's population will self-harm during their lifetime. These numbers are alarming. But while this is a very difficult area to tackle, big data uses in healthcare are helping to make a positive change concerning suicide and self-harm. As entities that see a wealth of

patients every single day, healthcare institutions can use data analysis to identify individuals that might be likely to harm themselves.

In a 2018 study from KP and the Mental Health Research Network, a mix of EHR data and a standard depression questionnaire identified individuals who had an enhanced risk of a suicide attempt with great accuracy. Utilizing a predictive algorithm, the team found that suicide attempts and successes were 200 times more likely among the top 1% of patients flagged according to specific datasets. Speaking on the subject, Gregory E. Simon, MD, MPH, a senior investigator at Kaiser Permanente Washington Health Research Institute, explained:

“We demonstrated that we can use electronic health record data in combination with other tools to accurately identify people at high risk for suicide attempt or suicide death.”

This essential use case for big data in the healthcare industry really is a testament to the fact that medical analytics can save lives.

“If somebody tortures the data enough (open or not), it will confess anything.” – Paolo Magrassi, former vice president, research director, Gartner\

17) Improved Supply Chain Management

If a medical institution’s supply chain is weakened or fragmented, everything else is likely to suffer, from patient care and treatment to long-term finances and beyond. That said, the next in our big data in healthcare examples focus on the value of analytics to keep the supply chain fluent and efficient from end to end.

Leveraging analytics tools to track the supply chain performance metrics, and make accurate, data-driven decisions concerning operations as well as spending can save hospitals up to \$10 million per year.

Both descriptive and predictive analytics models can enhance decisions for negotiating pricing, reducing the variation in supplies, and optimizing the ordering process as a whole. By doing so, medical institutions can thrive in the long term while delivering vital treatment to patients without potentially disastrous delays, snags, or bottlenecks.

18) Developing New Therapies & Innovations

The last of our healthcare analytics examples centers on working for a brighter, bolder future in the medical industry. Big data analysis in healthcare has the power to assist in new therapy and innovative drug discoveries. By utilizing a mix of historical, real-time, and predictive metrics as well as a cohesive mix of data visualization techniques, healthcare experts can identify potential strengths and weaknesses in trials or processes.

Moreover, through data-driven genetic information analysis as well as reactionary predictions in patients, big data analytics in healthcare can play a pivotal role in the development of groundbreaking new drugs and forward-thinking therapies. Data analytics in healthcare can streamline, innovate, provide security, and save lives. It gives confidence and clarity, and it is the way forward.

How To Use Big Data In Healthcare

All in all, we've noticed three key trends through these 18 examples of healthcare analytics: the patient experience will improve dramatically, including quality of treatment and satisfaction levels; the overall health of the population can also be enhanced on a sustainable basis, and operational costs can be reduced significantly.

Let's have a look now at a concrete ex

a) Big Data In Healthcare Applied On A Hospital Dashboard

This healthcare dashboard below provides you with the overview needed as a hospital director or as a facility manager. Gathering in one central point all the data on every

division of the hospital, the attendance, its nature, the costs incurred, etc., you have the big picture of your facility, which will be of great help to run it smoothly.

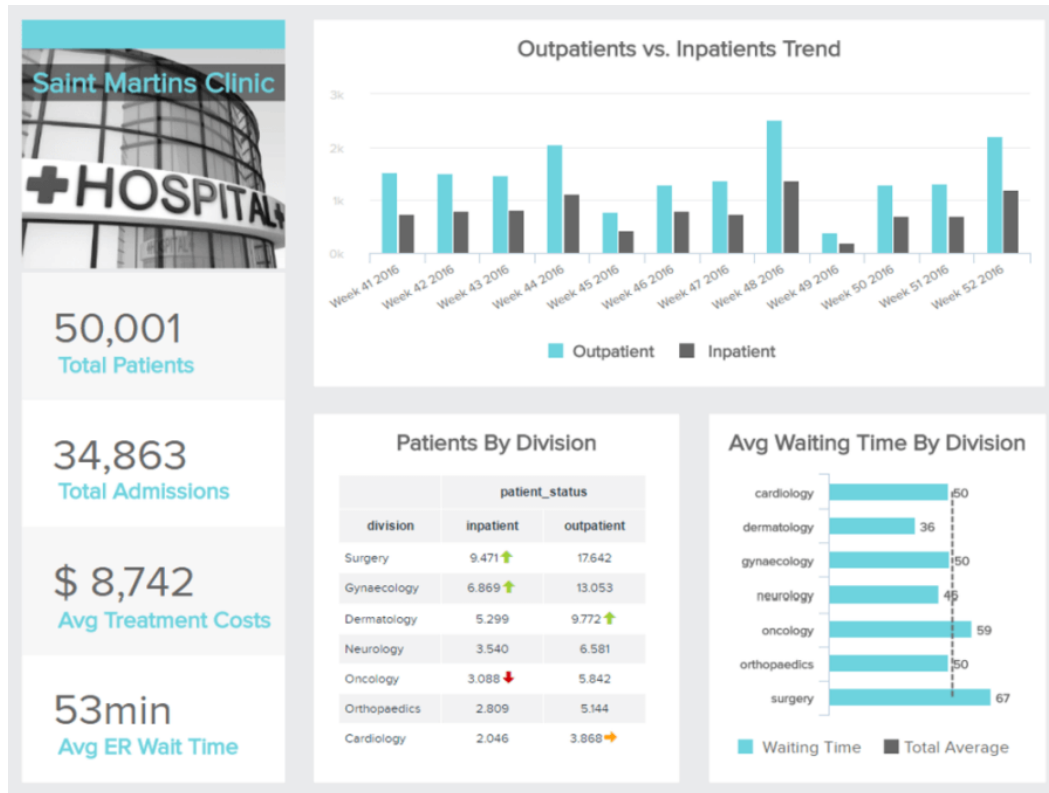


Figure 3.3 Big data application system

You can see here the most important metrics concerning various aspects: the number of patients that were welcomed in your facility, how long they stayed and where, how much it cost to treat them, and the average waiting time in emergency rooms. Such a holistic view helps top-management identify potential bottlenecks, spot trends, and patterns over time, and in general assess the situation. This is key in order to make better-informed decisions that will improve the overall operations performance, with the goal of treating patients better and having the right staffing resources.

b) Big Data Healthcare Application On Patients' Care

Another real-world application of healthcare big data analytics, our dynamic patient dashboard is a visually-balanced tool designed to enhance service levels as well as treatment accuracy across departments.

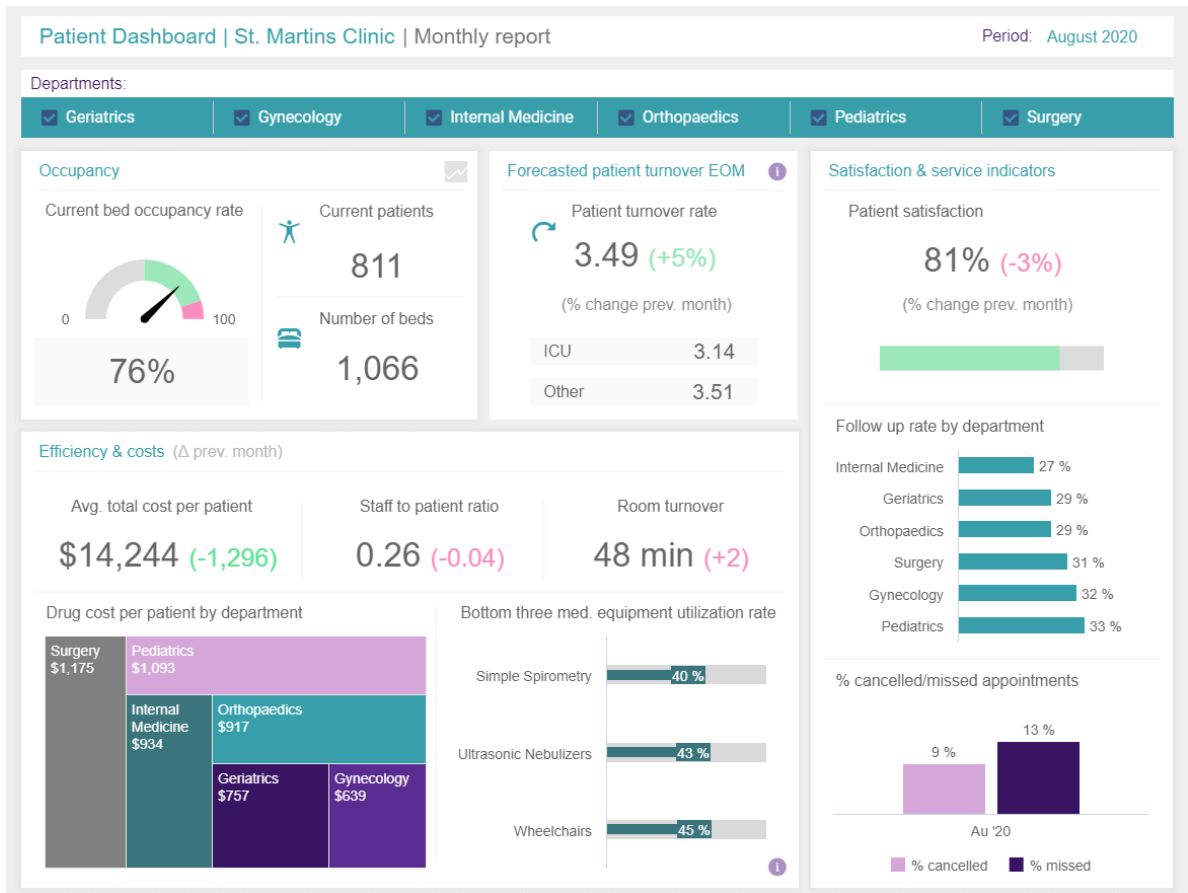


Figure 3.4 application on care

By offering a perfect storm or patience-centric information in one central location, medical institutions can create harmony between departments while streamlining care processes in a wealth of vital areas. For instance, bed occupancy rate metrics offer a window of insight into where resources might be required, while tracking canceled or missed appointments will give senior executives the data they need to reduce costly patient no-shows.

Here, you will find everything you need to enhance your level of patient care both in real-time and in the long-term. This is a visual innovation that has the power to improve every type of medical institution, big or small.

Why We Need Big Data Analytics In Healthcare

There's a huge need for big data in healthcare as well, due to rising costs in nations like the United States. As a McKinsey report states: "After more than 20 years of steady increases, healthcare expenses now represent 17.6 percent of GDP — nearly \$600 billion more than the expected benchmark for a nation of the United States's size and wealth."

In other words, costs are much higher than they should be, and they have been rising for the past 20 years. Clearly, we are in need of some smart, data-driven thinking in this area. And current incentives are changing as well: many insurance companies are switching from fee-for-service plans (which reward using expensive and sometimes unnecessary treatments and treating large amounts of patients quickly) to plans that prioritize patient outcomes

As the authors of the popular Freakonomics books have argued, financial incentives matter – and incentives that prioritize patients' health over treating large amounts of patients are a good thing. Why does this matter?

Well, in the previous scheme, healthcare providers had no direct incentive to share patient information with one another, which had made it harder to utilize the power of analytics. Now that more of them are getting paid based on patient outcomes, they have a financial incentive to share data that can be used to improve the lives of patients while cutting costs for insurance companies.

Finally, physician decisions are becoming more and more evidence-based, meaning that they rely on large swathes of research and clinical data as opposed to solely their schooling and professional opinion. As in many other industries, data gathering and management are getting bigger, and professionals need help in the matter. This new treatment attitude means there is a greater demand for big data analytics in healthcare facilities than ever before, and the rise of SaaS BI tools is also answering that need.

Obstacles To A Widespread Big Data Healthcare

One of the biggest hurdles standing in the way to use big data in medicine is how medical data is spread across many sources governed by different states, hospitals, and administrative departments. The integration of these data sources would require developing a new infrastructure where all data providers collaborate with each other. Equally important is implementing new online reporting software and business intelligence strategy. Healthcare needs to catch up with other industries that have already moved from standard regression-based methods to more future-oriented like predictive analytics, machine learning, and graph analytics.

However, there are some glorious instances where it doesn't lag behind, such as EHRs (especially in the US.) So, even if these services are not your cup of tea, you are a potential patient, and so you should care about new healthcare analytics applications. Besides, it's good to take a look around sometimes and see how other industries cope with it. They can inspire you to adapt and adopt some good ideas.

The industry is changing, and like any other, big-style data is starting to transform it – but there is still a lot of work to be done. The sector slowly adopts the new technologies that will push it into the future, helping it to make better-informed decisions, improving operations, etc. In a nutshell, here's a shortlist of the examples we have gone over in this article. With healthcare data analytics, you can:

- Predict the daily patients' income to tailor staffing accordingly
- Use Electronic Health Records (EHRs)
- Use real-time alerting for instant care
- Help in preventing opioid abuse in the US
- Enhance patient engagement in their own health
- Use health data for a better-informed strategic planning
- Research more extensively to cure cancer
- Use predictive analytics
- Reduce fraud and enhance data security
- Practice telemedicine
- Integrate medical imaging for a broader diagnosis

- Prevent unnecessary ER visits
- Smart staffing & personnel management
- Learning & development
- Advanced risk & disease management
- Suicide & self-harm prevention
- Improved supply chain management
- Developing new therapies & innovations

“Most of the world will make decisions by either guessing or using their gut. They will be either lucky or wrong.” – Suhail Doshi, chief executive officer, Mixpanel.

3.3 Techniques of data collection processing and analysis

In the collection of data and analysis two major techniques were utilized which are presented below. Likert scale and SWOT measures were used to measure the responses and analytical method was taken from jaqm.ro (2007). These documents were studied and the methodology was determined in the preparation of the questionnaire with structured and non-structured questions. The questions were prepared with an intention of collecting the most relevant information and the non-structured questions were aimed at free response of the respondents.

Likert scale

Likert scale is a psychometric scale commonly involved in research that employs questionnaires. It is the most widely used approach to scaling responses in survey research, such that the term is often used interchangeably with rating scale, or more accurately the Likert-type scale, even though the two are not synonymous. When responding to a Likert questionnaire item, respondents specify their level of agreement or disagreement on a symmetric agree-disagree scale for a series of statements. Thus, the range captures the intensity of their feelings for a given item, while the results of analysis of multiple items (if the items are developed appropriately) reveals a pattern that has scaled properties of the kind Likert identified.

Likert scaling is a bipolar scaling method, measuring either positive or negative response to a statement. Sometimes an even-point scale is used, where the middle option of "Neither agree nor disagree" is not available. This is sometimes called a "forced choice" method, since the neutral option is removed. The neutral option can be seen as an easy option to take when a respondent is unsure, and so whether it is a true neutral option is questionable. A 1987 study found negligible differences between the use of "undecided" and "neutral" as the middle option in a 5-point Likert scale.

Likert scales may be subject to distortion from several causes. Respondents may avoid using extreme response categories (central tendency bias); agree with statements as presented (acquiescence bias); or try to portray themselves or their organization in a more favorable light (social desirability bias). Designing a scale with balanced keying (an equal number of positive and negative statements) can obviate the problem of acquiescence bias, since acquiescence on positively keyed items will balance acquiescence on negatively keyed items, but central tendency and social desirability are somewhat more problematic.

After the questionnaire is completed, each item may be analyzed separately or in some cases item responses may be summed to create a score for a group of items. Hence, Likert scales are often called summative scales. Whether individual Likert items can be considered as interval-level data, or whether they should be treated as ordered-categorical data is the subject of considerable disagreement in the literature, with strong convictions on what are the most applicable methods. This disagreement can be traced back, in many respects, to the extent to which Likert items are interpreted as being ordinal data.

Given the Likert Scale's ordinal basis, summarizing the central tendency of responses from a Likert scale by using either the median or the mode is best, with 'spread' measured by quartiles or percentiles. Non-parametric tests should be preferred for statistical inferences, such as chi-squared test, Mann–Whitney test, Wilcoxon signed-rank test, or Kruskal–Wallis test. While some commentators consider that parametric

analysis is justified for a Likert scale using the Central Limit Theorem, this should be reserved for when the Likert scale has suitable symmetry and equidistance so an interval-level measurement can be approximated and reasonably inferred.

Responses to several Likert questions may be summed, providing that all questions use the same Likert scale and that the scale is a defensible approximation to an interval scale, in which case they may be treated as interval data measuring a latent variable. If the summed responses fulfill these assumptions, parametric statistical tests such as the analysis of variance can be applied. These can be applied only when 4 to 8 Likert questions (preferably closer to 8) are summed. Data from Likert scales are sometimes converted to binomial data by combining all agree and disagree responses into two categories of "accept" and "reject". The chi-squared, Cochran Q, or McNemar test are common statistical procedures used after this transformation.

Consensus based assessment (CBA) can be used to create an objective standard for Likert scales in domains where no generally accepted or objective standard exists. Consensus based assessment (CBA) can be used to refine or even validate generally accepted standards.

3.4 Data Processing - Use of percentage scale

With the help of literature on different types of scales of measurement, the researcher decided to utilize a percentage scale, within which the respondents can place the performance of their organisation (Table 3.1).

Table 3.1 Scales for the study

Likert scale / used scale	Number allocated in analysis
Strongly Disagree and Disagree/ Not good	1

Agree/Good	2
Strongly Agree/Very Good	3

3.5 The primary null hypothesis

The primary null hypothesis of the study (H1) is that “there is a possibility to develop a sustainable business in the firm in the next decade”

Questionnaire with structured questions is utilized for the collection of data for the study (Appendix1). The questionnaire recorded data on selected variable set on a percentage scale. Second part was a general study on the view of the respondents on the present status of firm operations. Third part was a study of SWOT status of the firm at present.

3.6 Variables constructed

Main analysis of the status of the firm was studied under three major variables given below:

Present nature of the firm is OK = present status OK

Last visit is OK = Last visit OK

Will use the services again = Will visit again

The present status of disease scenario and future trends were calculated with the utilization of secondary data collected from records of the firm and Ministry of Health (2018). Spearman’s correlation statistics, F statistic and Factor analysis are used in the analysis to test hypothesis.

Chapter 4

Present status of private Hospital system

4.1 Introduction

Private hospital management (PHM) data can be used to evaluate how effectively managers are engaging their employees to set expectations, clarify roles, plan development, and address performance concerns. It provides a way to measure if managers are doing the things required to be good managers.

Values allocated for the variables are based on the system given in Table 3.1 data. Out of 100 respondents, 89 returned the filled questionnaire.

21 percent of the sample were women and only 8 percent of them were in the senior manager category.

The basic responses are aligned with research results of the literature given in chapter 2, in the last 5 to 10 years, with problems related to changing nature of the private hospital industry by the effects of service availability.

4.2 General environment

Table 4.1 Pearson correlation statistics for general environment

Correlations

		Present status OK	Last visit OK	will visit again
Present status OK	Pearson Correlation	1	.340**	.350**
	Sig. (2-tailed)		.001	.001
	N	89	89	89
Last visit OK	Pearson Correlation	.340**	1	.126
	Sig. (2-tailed)	.001		.241
	N	89	89	89
will visit again	Pearson Correlation	.350**	.126	1
	Sig. (2-tailed)	.001	.241	
	N	89	89	89

** . Correlation is significant at the 0.01 level (2-tailed).

The correlation analysis (Table 4.1) indicates that there is a strong link between Present nature of the firm is OK = present status OK and Last visit is OK = Last visit OK, with $r = 0.340$ significant at 0.01 (99.99 percent) level. The relationship with more visits to follow (Will use the services again = Will visit again) is also significant at 0.01 (99.99 percent) level with $r = 0.350$. it indicates that the service provider under study is popular with the customer base.

Table 4.2 Model summary for general environment

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.460 ^a	.212	.193	.58986

a. Predictors: (Constant), will visit again, Last visit OK

Table 4.3 Analysis of variance and F statistic for general environment

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.033	2	4.016	11.544	.000 ^a
	Residual	29.922	86	.348		
	Total	37.955	88			

a. Predictors: (Constant), will visit again, Last visit OK

b. Dependent Variable: Present status OK

Table 4.4 Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.637	.286		2.225	.029
	Last visit OK	.316	.101	.300	3.112	.003
	will visit again	.314	.097	.313	3.241	.002

a. Dependent Variable: Present status OK

The results of linear regression model indicate that R of 0.460 and R squared of 0.212 (Tables 4.2, 4.3 and 4.4), which is on the low side of R squared value as given in statistics. However, this type of result is generally found in investigations of large samples of perception data. The F statistic value 0.000 is significant 99.99 level indicating that, though the R squared value is low the result is highly significant and can be taken as a valid conclusion to the null hypothesis.

4.3 Factor Analysis

Table 4.5 Communalities

	Initial	Extraction
Present status OK	1.000	.518
Last visit OK	1.000	.518

Extraction Method: Principal Component Analysis.

a. Only cases for which will visit again = 2 are used in the analysis phase.

Factor analysis is a type which aids the researcher to identify the level of association between a large set of variables. In this investigation Pearson's correlation indicated the close association of the variable set and F test provided the level of significance in relation to grouped sets of variables.

Communalities (Table 4.5) show the proportion of each variable's variance that can be explained by the factors. For principal components extraction, this is always equal to 1.0 for correlation analyses. The higher than 0.5 r in two variables entered indicate that

the variable is contributing to a well-defined factor, though loading is low. Therefore variables Present nature of the firm is OK = present status OK, Last visit is OK = Last visit OK and Will use the services again = Will visit again have explained the variance well. This is an indication that the private hospital is operating well and records a value less than 0.5 r. As indicated in literature review the increasing value of private hospital is shown in the analysis.

Table 4.6 Total variance explained

Total Variance Explained ^a						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.037	51.837	51.837	1.037	51.837	51.837
2	.963	48.163	100.000			

Extraction Method: Principal Component Analysis.

a. Only cases for which will visit again = 2 are used in the analysis phase.

Table 4.6 indicates the variance explained by the factor 1 is 51.837. In the total variance explained we have to select components whose Eigen value is at least 1. Applying this rule to the Table 4.6 it measures one factor. This is because component 1 has an Eigen value of 1.037. The other components -having low quality scores- are not assumed to represent real connections underlying our questions. Such components are considered “scree” or fallen out variables. The result implies that the strength of present PM system is acceptable. However, other component explain about 48 percent of the variance indicating there is some controlling effect from them. Therefore, Present status of private hospital is affected by changing nature of business and having some effect though not statistically significant.

Table 4.7 Component matrix

Component Matrix^{a,b}

	Component
	1
Present status OK	.720
Last visit OK	.720

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

b. Only cases for which will visit again = 2 are used in the analysis phase.

Table 4.7 shows the raw component in true values and rescaled component in coefficients. Factor analysis by Principal Component Analysis has indicated that the relationships rotate around 1 axis (1 component extracted – indicated at the bottom of Table 4.7) strongly. The input variables have identified 1 factor (Table 4.6). This confirms the closed association of factors and indicates that the factors associated with variables are very closely related to Importance of private hospital in the present health care delivery system in Sri Lanka.

The prospect of private hospital systems are understood by the respondents well as indicated with a scores in the correlation analysis (Table 4.1) and factor analysis (Tables 4.7 and 4.8), indicating that though present systems are sufficient upgrade is required.

Chapter 5

Conclusion

5.1 Introduction

Marketing of services involves the managing or manipulation of seven marketing-mix elements namely: product, price, promotion, place, people, process and physical evidence. From among the three variables incorporated in this study under product strategy, it was established from the data collected in an effort to improve hospital performance, private hospitals place more importance in using customer service as a central element in the hospital's service strategy followed by the hospitals strategizing to offer a considerable range of health services and lastly by making an effort to introduce new health services in the marketplace. Deducing from the findings, marketing strategies have a relationship with the performance of private hospitals in Nairobi county. The balanced score card supplements traditional financial measures as well as meeting several managerial needs. Customer perspective has been taken into consideration when hospitals use customer service as a central element in the hospital's service strategy while others include encouraging patients to use word of mouth communication to recommend hospital services to other patients, patient satisfaction with the provider of the medical service and ensuring patients are satisfied with the staff's knowledge and explanation of medical conditions. Secondly, from the internal business perspective of the balanced score card, hospitals engage in availing 24-hour health services, assuring confidentiality and privacy about patient cases. Thirdly, in order to continually improve and create value through innovation and learning, hospitals engage in getting patient feedback in order to improve health services as well as offering a considerable range of health services.

Finally, when it comes to financial measures, hospitals mostly price their services based on a predetermined rate that the hospital is looking for. Marketing resources

ultimately drive long-term marketing performance. However, it is difficult for marketing managers to convince executives in the absence of valid, reliable and credible marketing performance assessment systems. Marketing managers, in addition to corporate executives are often unable to uncover and confidently support cause-and-effect relationships between marketing inputs, marketing processes, marketing performance and organizational performance outcomes (Morgan, Clark and Gooner, 2002). Based on the conclusions the study recommends that private hospitals should start adapting principles of strategic marketing for those that are reluctant or have not implemented their marketing strategies. Marketing strategies should be formulated in light of the external environment which is made up of elements that are uncontrollable to an organization. The external environment elements that are uncontrollable include political and legal factors, environmental, technological, social-cultural and ecological factors.

5.2 Summary

The impact of marketing strategies in healthcare systems (<https://www.ncbi.nlm.nih.gov>, 2019)

The dynamic evolution of life has inevitably affected the healthcare systems generating significant changes and imposing healthcare marketing as an indispensable element of health brands. Healthcare is a field in a permanent evolution, the plethora of opportunities stimulating creativity, enthusiasm, and will exploit the specialists in the field.

As the philosophy and marketing techniques in other fields cannot find applicability in the healthcare services, healthcare need their own approach and present certain features that are not found in other industries.

Through its specificity, healthcare marketing is an interdisciplinary field because it uses certain concepts, methods, and techniques specific both to classical and social marketing. The specificity of healthcare marketing is that there are services and markets but no money equivalent. This means the effectiveness of its application can

be found in the image of a healthy population, the detection of a chronically ill category of people, ensuring the treatment of ill people by going through the whole rehabilitation process, professional reintegration, social reintegration of ill people, etc. The application of marketing in the field of healthcare was imposed by the problems in the health of the society.

An effective marketing approach involves in-depth investigation of the patients' needs, identifying latent needs and offering new health services that patients have not explicitly requested.

Patients' involvement in the achievement of the medical act has become a necessity of present life with wide and complex meanings, not only beyond changing the mentality of the providers but also with significant changes like lifestyle, consumption habits and medication of beneficiaries. As the daily process evolves, change will be fundamental to the fundamental purpose of our existence: life. In addition, this will undoubtedly bear the hindrance of how the relationship will harmonize the need for health. Structural changes forces health systems to accelerate towards the future, considering the current needs, and the future strategy cannot be viable without performing management and marketing abilities.

The marketing of healthcare services differs primarily through the nature of demand for health services. Secondly, the beneficiary may not be the target of the marketing campaign, the physician being the one who decides what, where, when, and how much will be provided for a particular service. The decision-maker may be the doctor, the health plan representative, a family member. Healthcare services also differ where the product can be very complex and may not be easily conceptualized. Many of the procedures used in healthcare, especially those based on technology, are complicated and difficult to explain to a person who is not specialized in that particular field.

Another healthcare challenge, especially for service providers, is that not all potential clients are considered "desirable" for a particular service. While service providers are

required to provide services to all applicants, regardless of their ability to pay, there are certain categories of patients whom the marketer may not encourage to request a particular service. The marketer faces the challenge of attracting customers to healthcare organizations, however, without attracting too many from the category of those who are likely to represent economic debts.

Over the past decade, healthcare has experienced many marketing trends that have fundamentally altered marketing. These trends are the follows:

- — From a mass marketing approach to a more specific approach.
- — From image marketing to service marketing.
- — From “one measure for all” to personalization.
- — From the emphasis on a health episode to a long-lasting relationship.
- — From “ignoring” the market, to market intelligence.
- — From low-tech to high-tech (Thomas, 2008)

Marketing plays an important role in helping healthcare professionals to create, communicate, and provide value to their target market. Modern marketers start from customers rather than from products or services. They are more interested in building a sustainable relationship, than in ensuring a single transaction. Their aim is to create a high level of consumer satisfaction so that they return to the same supplier. Marketers have used many traditional methods that include marketing research, product design, distribution, pricing, advertising, promotional sales, and sales management. These methods need to be joined by new ones, related to new technology and new concepts, to attract customers through messages and offers.

Although the consumer typically receives most of the information about a product through the commercial media, the most important information comes from recommendations or from publicly available independent authorities. The two categories of sources provide complementary functions; commercial media – informs, while personal or expert sources legitimize or potentiate the evaluation process. For

example, physicians often find out about new drugs from commercial sources, but they turn to other physicians for legitimate opinions.

Although much has been written about subliminal decisions, current models look at the process from a cognitive perspective, which means the consumer/patient, makes his own judgements on a rational basis (Kotler, et al. 2008).

In an attempt to meet a need, the patient expects certain benefits from the chosen health service and provider. The patients' attitudes, judgements, and preferences about certain brands through a procedure of evaluating the attributes of these brands, develop a set of beliefs about the attributes that correspond to each brand (Kotler, et al. 2006).

The main actor who marks the process of production and delivery of healthcare services is the patient and his presence is part of the delivery system. In the field of healthcare services, the performance occurs only in the presence of the healthcare consumer and his wiliness to the service. Thus, the consumer becomes an indispensable factor for any service; the consumer interacts with the supplier, becomes co-provider of the service, participating with time and effort in the delivery process (Popa, et al. 2007).

Healthcare consumers are actively or passively involved in delivery, but their presence has implications for the medical organization's activity because any specialist who meets the patient will contribute to the service production. In addition, any tangible element, which the healthcare consumer meets, is part of the health service delivery process; in fact, any changes occurring at the place of service delivery, will lead to changes in the patient's behavior.

From a marketing perspective, the process of providing healthcare services must be conducted in full compliance with patient requirements, activities are being designed to meet these requirements. However, achieving such a goal implies the identification

of all points of interference of healthcare staff with the healthcare service consumers and the assessment of the extent to which the activities carried out at these points correspond to the needs and expectations expressed by the patients. Since the behavior of the health services consumer is difficult to predict, the presence of the patient in the delivery process may be a source of major uncertainty.

Far from having a passive behavior, the consumer has multiple functions in the production of services as a “co-producer”, which determines many specialists to consider him an “external human resource”.

Patient satisfaction must be the main objective of any healthcare organization and this requires a thorough knowledge of their needs and expectations. Providing a high-quality healthcare service is based on meeting certain requirements so that the service attains the level desired by the patient. In order to gain the trust of healthcare consumers, the specialized staff of the organizations in the field must be more receptive to the wishes, suggestions, patient complaints and, at the same time, become more sensitive to their concerns. The effectiveness of this approach depends on how the medical organization has an effective communication with patients, presents a correct image of the health service, and delivers the promised service properly, and presents a permanent concern for the continuous improvement of the service provided to exceed the expectations of the patients (Ciurea, et al. 2010).

By acting in a dynamic and unpredictable environment, (in order to survive) the health service provider must be able to detect the opportunities and threats of the market on which it operates. In this context, the formulation of a realistic, coherent, and explicit strategy by the medical unit is of crucial importance in anticipating its future and reducing uncertainty in the activity.

The marketing strategy is the way an organization acts under the influence of environmental factors. In practical terms, marketing strategies outline a path following the analysis of environmental factors. The marketing policy defines its general

framework of action in order to carry out its entire activity, including several strategies.

Developing the marketing policies and strategies specific to health services providing units is a complex process. Taking into account many internal and external factors, the interdependencies and conditioning links between them, as well as the favorable or unfavorable impact they can exert on the health unit, they must be analyzed in depth, interrelated, and interpreted for making strategic and firm decisions regarding the future development of the medical institution.

The core of the marketing strategy in the field of health services is represented by the quality of services. Successful organizations in the healthcare field have a clear, competitive, strategy that empowers and forces them to adapt to environmental conditions. The marketing strategy in the healthcare services field is in fact the attitude of the medical organization in relation to the marketing environment and, at the same time, its position in relation to its components.

At present, patients have so many options regarding the choice of healthcare services and providers that the only way the healthcare practices can really be distinguished is by establishing a well-differentiated, memorable, and unique proposal alongside a marketing strategy adapted to the digital era.

A valuable proposal must have the following characteristics:

- — It is true
- — The value offered is superior to the one of the competition
- — It is important to the target public
- — It is memorable and easy to remember
- — It is difficult to copy by the competition.

According to a Harvard Business Review, 64% of the consumers have “genuine common values” as the main influence on their relationship with the brand (Hirsch, 2017).

Today, major healthcare organizations focus on content to win the race of digital supremacy. Content marketing strategies for the healthcare field are not just about blogging and producing tangible results. Since hospitals are linked to patients and physicians, digital marketing is the way to bring this process to a completely new level.

At present, digital content helps build positive brand impressions. The use of new digital marketing strategies is essential to maximize the efficiency of marketing expenses and generate higher return rates. By applying innovative health marketing principles to reinvigorate the medical organization's marketing initiatives, organizations will be able to better position their service offers to consumers. For healthcare providers, the use of informative blogs or articles published on social media can be effective ways to stay relevant to patients. Moreover, infusing targeted keywords into the content can add a marketing boost.

For organizational marketing to be effective, the digital platforms in which the organization will operate on must be identified, the target public will have to be segmented correctly, and customized marketing messages will have to resonate with the audience.



Figure 5.1:

Marketing strategies for marketing a healthcare practice in the healthcare field. Source: Hirsch Healthcare Consulting, <https://hirschhealthconsulting.com/8-important-marketing-strategies-healthcare-practice-part-1/>.

To understand the impact of marketing strategies on the quality of healthcare services, it is important to understand today's medical consumer who prefers to look for medical information online, where he also has a wealth of healthcare services, healthcare providers, reviews from patients who contacted the provider, etc.

With digital marketing, almost everything can be tracked and measured. Healthcare professionals and healthcare organizations no longer need to insight what works and what does not work. With the help of marketing performance information, healthcare professionals, and healthcare organizations can make an informed decision on how to improve their efforts, along with the ability to continually measure and evaluate them.

The healthcare industry has the potential to significantly increase its coverage and effectively engage consumers with digital marketing tactics.

As the marketing progress grows, organizations are moving towards more digital approaches to remain relevant to consumers. Digital marketing expenses have been the highest of all time, with healthcare companies spending over \$ 2.5 billion on marketing, estimated at \$ 4 billion by 2020 (Health Works Collective, (2018).

In this context, 44% of the marketing costs for health-related products and services are dedicated to mobile and digital platforms. TV advertising costs have dropped to less than 33% and are expected to continue to decrease, as the cost-effectiveness of placing a product or service on TV seems to no longer justify the investment.

The way consumers use the internet to find hospital units and healthcare providers evolves in favor of smart devices. With more than 80% of the patients who frequently use smartphones, to either identify or interact with physicians, it is essential to reconfigure marketing initiatives to better fit the era we live in. In addition, as Google reconfigures its search algorithms to favor mobile-friendly websites, now it is the right time to prioritize rethinking digital ads.

At the same time, the marketing mix strategy is necessary in medical organizations to ensure their success. Thus, the strategy leads to a significant impact on the medical organization, including its performance measured by patient satisfaction, the coordination of planned marketing efforts to address organizational performance being essential.

Therefore, the benefits of implementing marketing strategies are

- — to improve the competitive advantage,
- — to increase the visibility,
- — to create a solid reputation among patients,
- — to understand the needs and expectations of consumers,

- — to understand the patients’ perceptions of the quality and results of their experience within the medical organization, offering memorable experiences to patients and, of course, building a strong, effective, dominant brand on the health services market.

Planning Your Healthcare Marketing Strategies (<https://healthcaresuccess.com>, 2022)

Doctors tell patients all the time that an ounce of prevention beats a pound of cure. It’s better to have a marketing strategy in place now than to wait until you find out your patient marketing CRM database is nearly empty.

What is healthcare marketing?

Healthcare marketing is a strategy for doctors, hospitals, healthcare networks, health practitioners, caregivers, healthcare providers, and healthcare marketing executives.

It is a process of strategic outreach and communications built to bring in new healthcare consumers, shepherd them through their healthcare journey, and keep them engaged with the healthcare system.

The best healthcare marketing plans integrate omnichannel, highly-segmented, and specific online and offline efforts to drive engagement and growth, all focused on certain market-specific key performance indicators and return on investment.

Healthcare marketing, when done properly can help your practice:

Keep patients engaged with relevant, personalized, and timely outreach during their journey

Retain patients over the long-term and improve loyalty in your healthcare community

Drive more qualified leads to generate revenue

Evaluate your productivity and re-align strategy

Increase your strategic advantage to attract patients in an increasingly competitive marketplace

Rapid changes in the healthcare industry markets require agility and focus. You may have to hire outside help and plan for a larger budget than you have in the past. But in the end, it's worth it for that peace of mind—and to see your patient population volumes grow faster than ever before!

To help you along, we provided our top 15 items to include with any well-planned healthcare marketing strategy.

Healthcare marketing is an investment for doctors, healthcare networks, and healthcare marketing professionals. You may have to hire outside help and plan for a larger budget than you have in the past. But in the end, it's worth it for that peace of mind—and to see your patient volume grow faster than ever before! To help you along, we provided our top 15 items to include with any well-planned healthcare marketing strategy.

15 Things to Include in Your Healthcare Marketing Strategy

1. Use consistent healthcare branding

You might feel confident your expertise sets you apart from other healthcare providers, doctor practices or hospitals. But let's face it—to a patient, one white coat looks just like the next, and consumers famously are unwilling to buy a product or service from someone they don't know or trust.

When you build a strong and recognizable brand and promote awareness of your brand, you go a long way towards bringing down your overall cost-per-acquisition.

You need to first figure out what your brand is all about. What's unique about your healthcare network, hospital or medical practice? Is it the way you treat patients? Your family-friendly office? A spa-like environment? There is at least one thing that makes your medical teams unique, and that's what helps patients remember your healthcare organization's name.

Promoting any awards for sort of achievement is one great way of building trust in your brand when you're essentially asking consumers to trust you with their health.

It may take time to figure out what works for your brand. But eventually, your healthcare marketing strategy comes together smoothly because you learn how best to represent your brand with any marketing materials.

2. Evaluate the online patient experience

A decade ago, simply having a website was enough to impress prospective patients and help them find your healthcare brand identity. But now, a website is healthcare's new front door. It's the first thing patients often see, and if it's not optimized for user experience, it may also be the last time a person considers your hospital or healthcare practices.

Put yourself in a patient's shoes. If someone were to land on any page of your site, would they know your practice's location, or your medical practices' multiple locations, and primary services in about 5-10 seconds? Would they be able to contact the right person quickly? Do the imagery and wording represent your healthcare clinic's, or practice's, average patient?

User experience is an important consideration in website design. But sometimes, designers are so focused on making the website look good, they forget to focus on the patient experience. We often find that websites need to be completely redone. However, it might help to make small changes, like positioning the "Contact Us" form higher up on the page.

Patient experience also means taking note of how patients typically begin engaging with you, which could include channels such as your website-a third-party listing service, online ads, etc. Consumers these days want to interact with you on their own

terms, and your healthcare marketing strategy needs to account for the different ways people can connect with your business.

Examine the path consumers take after first engaging with your health system, whether they end up calling you or signing a form or not. Mapping your patients' journey can give you a better understanding of what consumers are looking for and what can trigger a conversion.

3. Build a responsive healthcare website

A responsive website is one that automatically adjusts to the size of a screen, so the experience is the same whether the site is accessed on a computer, tablet, your phone, or any mobile device. It's the norm [FYI: Google has committed to a mobile-first index all websites, including Healthcare websites, since September 2020] in website design today—but more than that, it's something search engines are looking for when crawling any medical website to determine how and where you'll rank.

Google cares about the user experience, and it will prioritize competitors who have a site optimized for mobile users. In general, responsive sites work best for the mobile digital healthcare experience. But even if you currently have a responsive site, you should check that both your content and imagery continue to load properly (and promptly!) on mobile devices.

4. Test site speeds

Healthcare marketers who study user (that is, prospective patients) behaviors online have proven that patients today are less willing to put up with slow loading times than ever before. It only takes 5 seconds to lose a prospective patient who decides to navigate elsewhere to their healthcare thanks to your slow site.

In fact, it's another user experience (or patient experience) issue that may cause your medical or healthcare website to fall in the search engine results. You can test your site speed at Google's PageSpeed Insights [here](#). If load times are slow, speak to your

web developer about ways to speed it up. And, another healthcare marketing tip, to remember — check the site speeds of your competitors, within your “healthcare neighborhood”, or within you medical services niche.

5. Optimize for prospective patients search engine results

Search engine optimization is a powerful tool for getting your medical practices or hospital network to the top of the search engines. However, it’s a lot more complex than most marketing professionals realize. You cannot simply use the term “healthcare practice” 100 times throughout your website and hope to rank #1 on Google among doctors providing healthcare services in your area.

A large part of SEO involves using the right optimal phrases and keywords so that Google can understand your healthcare organization’s websites and be sure you rank for the proper, relevant and pertinent healthcare-related search terms (e.g., medical conditions, healthcare professional treatment of any type). But it also means using those terms naturally throughout your content, as Google cares about readability first and foremost. And this is only the beginning of healthcare marketing best practices for SEO, which also include:

Having links pointing back to each page on your healthcare website.

Gaining backlinks from reputable health sites.

Managing your site index or sitemap.

Claiming your healthcare website on Google My Business.

Submitting your website to Google.

6. Utilize PPC and display ads for Healthcare Marketing

Google web page displaying dentist in Tulsa search result

Pay-per-click advertisements appear first in search results.

Search Engine Optimization (i.e., “Healthcare SEO) is the organic marketing strategy to earn a healthcare practice, hospitals, or hospital networks (or hospital systems)

greater visibility online. However, even if your site ranks number one for a search term like “dentist in Tulsa,” there are still 3 or 4 paid advertisements above that number one search that people will see first.

These are pay-per-click advertisements, paid advertisements that are laser-targeted to appear first for a set of search terms. With pay-per-click advertising (also known as PPC or paid search), you can manage your budget and decide what you’d be willing to spend to keep your site visible at the top of the search engines. Your return on investment is clear and defined with both PPC ads and display ads that appear on the sidebar or top of other websites.

7. Leverage social media (the right way)

Too many hospitals and healthcare practices rely on organic social media for a large part of their digital healthcare marketing strategies. Organic social media means posting photos, updates, events, and more directly to Facebook, Twitter, or YouTube, and it’s a valid strategy to build your brand and let patients know what’s new. [Speaking of new, or topical Social Media and YouTube, here’s a Healthcare Marketing during COVID webinar.]

However, it shouldn’t be your only social strategy. Paid advertising on social media is a better way to reach the right people who may be looking for your services—even if you’re not already connected. Let’s face it: few people share posts from local healthcare organizations online unless they are already engaged with that group, or better yet, employed by it.

Paid social media is about more than pressing the “Boost Post” button that appears when you post from your business page. Like PPC or display advertising, it involves strategizing and budgeting to target the audience you want.

8. Ask for reviews from patients

More than half of Americans report that patient reviews are at least somewhat important when choosing a physician. Consumers want to see that others like them have had a good experience with you before scheduling a visit, making it critical that you obtain positive reviews from your satisfied patients.

Typically, patients only leave reviews when they are motivated to do so, or if they had an above-average (or extremely poor) experience. Unless you ask for reviews of your healthcare services, you miss an opportunity to feature positive feedback from patients who were satisfied with their office visit. This might be difficult for your front office staff to do—and they should not be required to evaluate each patient’s level of satisfaction as they walk out the door.

That’s why we recommend automated reviews as part of hospitals and medical practices’ Healthcare Marketing strategy. Here’s a brief overview of automated reviews: patients use a computer or tablet at the office to rate the quality of service they received on a scale of 1-10. High scores automate a follow-up email asking the patient to leave a review on their site. Those positive reviews show up directly on your website and can potentially counteract any negative reviews left elsewhere online.

Poor scores allow healthcare practices or hospitals a chance to ask the patient to elaborate and, hopefully, reach out and resolve the issue.

9. Follow up with patient feedback in your marketing efforts

You can’t help it when patients have a poor opinion of your practice and leave reviews on outside sites such as Yelp. What you can do, however, is follow up with any patient feedback and show that you are working on the problem. Sites like Yelp allow you to respond to patient feedback directly. With the right follow-up, patients may be motivated to update their review to let others know the problem was resolved in a timely fashion.

Reputation management should be part of any Healthcare Marketing strategy, but this doesn't mean you should get defensive about negative reviews. It means upgrading processes and equipment and ensuring the best possible patient experience moving forward based on prior patient feedback.

10. Look into traditional media options

Many hospitals, healthcare groups, and practices are afraid to invest in external media opportunities: traditional advertising sources like radio, television, billboards, and newspapers. These are a major investment, and you must be careful about where you spend your money to see the best, tangible results.

Having trustworthy healthcare media buyers to make these decisions for you is the best way to make sure your advertisements get seen by the right people at the right time. A billboard in the middle of nowhere does little to bring in patients, but a television advertisement that runs on a channel with demographics that represent your average patient can do wonders for your ROI.

11. Build doctor referrals into your marketing plans

How does your practice reach potential referring doctors? If you're not using a physician liaison, you're not getting what you need. Too many healthcare practices and medical specialty groups trust the front desk to reach out to doctors who may choose to refer their practice—but the front desk simply does not have the time to commit to this!

Doctor referrals are some of your best organic marketing strategies for bringing in new patients. Your physician liaison should be visiting hospitals, licensed caregivers and medical practices every day, scheduling lunches with potential referral bases, and keeping in touch with potential sources.

12. Check in with your current patients

Though it may not compare to digital advertising, word-of-mouth referrals should always be part of your overall healthcare marketing strategy.

Follow up with patients after an appointment or procedure to see how they're doing. Ask about your patients' families, or send out birthday cards with a personalized touch. Send emails and mail reminders for follow-up appointments (in-person or via telemedicine), and do whatever you can to maintain a healthcare relationship. Patients will always appreciate that you took the time and may make a point to recommend your local medical practice to their friends and family.

13. Become an authority in your specific field of medicine

Prospective patients remember you when you establish yourself as an authority in your medical specialty. Your PR (public relations) strategy should involve reaching out to the appropriate media outlet when you have something to share—it's free advertising for your healthcare brand!

Stay up-to-date with your specific healthcare industry niche through LinkedIn groups and other online forums. Consider following sites like HARO (Help a Reporter Out) to learn about interview opportunities. Submit healthcare community press releases from time to time—and consider hiring outside help to boost your visibility.

14. Track your marketing strategy

You should continuously monitor how your medical marketing strategy pays off in terms of ROI. Each year, your Healthcare Marketing budget should adjust in terms of what you want to focus on this year, based on a careful study of your metrics (performance analytics) so far. There are many ways to do this type of patient marketing tracking:

Use a CRM (customer relationship management system) like HubSpot to track how patients engage with your campaigns, via emails, call centers, or targeted landing pages.

Use Google Analytics to find out what terms you rank for in the search engines, and which terms you're missing out on.

Track your pay-per-click campaigns by setting up Google AdWords.

Use a HIPAA-compliant call-tracking system to see how paid advertising is paying off and to monitor your front desk.

See also: The HHS/CDC's Gateway to Health Communication.

15. Audit your front desk's response to your healthcare marketing initiatives

You can have the best healthcare marketing strategy for anyone in your area...but if your front desk staff cannot handle calls properly, you lose money and opportunities. An audit of your healthcare patients' front desk, or your call centers, may reveal any of the following:

Long hold times for potential patients

Confusion or patient misinformation

A slow patient scheduling system

An inability on the part of your staff to discuss, or "sell", your healthcare services

No strategy in place to get patients to book an appointment

We strongly believe that no Healthcare Marketing strategy is complete if you don't take the time to train the front office staff properly! strategy comes together smoothly because you learn how best to represent your brand with any marketing materials.

5.3 Findings

Woolf (2019) indicate that, the health of Americans is in decline, a crisis that has been building for some years. Since the 1980s, US life expectancy has risen at a slower pace than in other countries. United States life expectancy peaked in 2012 and is now falling, while life expectancy in other countries continues to increase. Shorter lifespans are not the only US health disadvantage. For many years, other industrialized countries have been outperforming the United States on a long list of health

conditions. All this despite lavish US spending on health care, which far exceeds that of any other country.

The reason why nations that spend less on health care can experience better health is obvious: health is about more than health care. Studies suggest that medical care accounts for only 10% to 20% of variation in premature mortality. Based on 4 prior studies, they conclude that health care accounts for 5% to 15% of the variation in premature mortality, centered on 10%. Other studies have examined this issue and researchers will continue to refine this point estimate, but more data are unlikely to change the bottom line: the major influences on health lie outside the clinic. The decline in US health will not be solved by more bench science, more drugs, or more spending on health care—none of these have slowed the decline in US health. The average lifespan of Americans will probably continue to shorten unless society quickly shifts its focus from health care to root causes.

Health is shaped by 5 domains—(1) health care, (2) health behaviors, (3) the physical and social environment, (4) socioeconomic status, and (5) public policy—all of which have complex interrelationships. For example, risky behaviors (eg, unhealthy diet, physical inactivity) precipitate chronic diseases but are themselves shaped by the environment. People can only make the choices they have: they cannot eat well if they live in a food desert, they cannot exercise or play outside if the built environment is unsafe. The social environment—eg, domestic trauma, social isolation, residential segregation, structural racism—can also harm health.

Socioeconomic status may be the greatest influence on health. In a knowledge economy like the United States, education—and the income and wealth it provides—opens the doors to opportunity and health, enabling people to afford medical care, nutritious foods, and homes in healthy neighborhoods. The fifth domain, public policy, influences all of these domains: national, state, and local leaders in public and private sectors influence access to good schools, jobs, and economic opportunity. Policy choices also shape social divides; they either correct or perpetuate inequities

among marginalized populations (eg, people of color, immigrants) and neglected neighborhoods.

The complex interlinkages between these 5 domains make it challenging, if not misleading, to quantify how much each domain matters. For example, Hood et al estimated that the relative contributions of socioeconomic factors, health behaviors, clinical care, and the physical environment were 47%, 34%, 16%, and 3%, respectively. These domains, however, are not independent: health behaviors and clinical care are determined by socioeconomic and environmental factors, and socioeconomic factors determine one's environment. Putting a number on each domain can help set priorities, but meaningful health improvements are difficult to achieve without addressing them all. These interrelationships have important implications for public policy outside of health care, as well as for health care systems and individual clinicians

The complex ecosystem that shapes the health of a community explains why health care accounts for only 5% to 15% of premature mortality, but such evidence should not be used to diminish the importance of health care. Universal health care insurance coverage, access to primary care, and innovations to improve quality remain vital. Everyone relies on clinicians for the prevention, diagnosis, and treatment of illness and injury. Health care is necessary but not sufficient to improve population health or correct health inequities. Spending lavishly on health care will not solve the US health disadvantage. It began in the 1980s and will continue unabated until that lesson is learned.

Population numbers and rate of growth are highly contributory to ability to provide sufficient health care facilities. The following positioning (Table 5.2) give evidence for link between low population, low rates of growth of population and level of health care.

Table 5.2 Which country has best medical facilities?

- No. 8: Netherlands. ...
- No. 7: United Kingdom. Quality of Life Rank: 12. ...
- No. 6: Switzerland. Quality of Life Rank: 4. ...
- No. 5: Canada. Quality of Life Rank: 3. ...
- No. 4: Norway. Quality of Life Rank: 5. ...
- No. 3: Sweden. Quality of Life Rank: 1. ...
- No. 2: Germany. Quality of Life Rank: 7. ...
- No. 1: Denmark. Quality of Life Rank: 2

In all these nations' private hospitals and research organization play an important role in providing healthcare and hospitals. Therefore in a developing country like Sri Lanka also, there should be full freedom to operate private hospitals and research, provided that organisations operate within internationally acceptable guide lines. It is clear that they have performed well since there origin in Sri Lanka and have to allow to continue their progress.

5.3.1 General Trend

Table 5.1 Expected Trend of major diseases and health problems

	present	5 to 10 years	beyond 10 years
traumatic	1	1	1
undecided and admissions required	2	2	2
obstretric	3	4	6
respiratory	4	3	3
viral	5	5	5
gastro-intestinal	6	6	4

Figure 5.2 Expected Trend of Major diseases and health problems

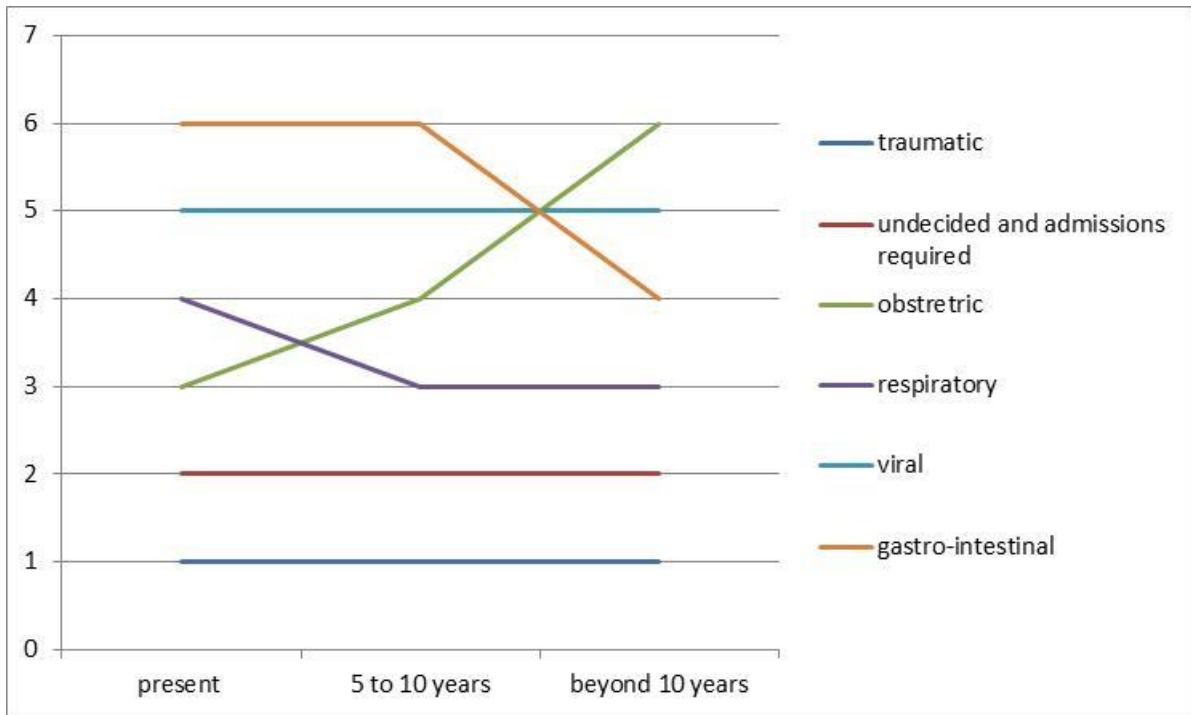


Table 5.1 and Figure 5.2 constructed from the available data on disease scenario and ability to establish a clean environment indicate that present disease scenario will continue into the next decade. On the basis of the economic problem faced some less significant changes may occur in the short term.

Statistical analysis indicates that there is an agreement between the users and the firm under study in relation to its service. However, the relationships are not supported by high level of statistical significance indicating there is some external factors affecting choice of health facility. Therefore, though the null hypothesis is accepted with confidence, the firm has to continue to improve its services in the future.

5.4 Recommendations

In general the demand for private hospitals is on the increase in Sri Lanka due to three major reasons.

Inefficiency of the public sector health services

Public sector health services are faced with much administrative and financial inefficiency related to its age old traditions emanating from political and social factors. Though the public sector is moderately equipped and staffed the operations are hindered by its poor organizational structure, which prevents its capacity to serve. 74 percent of the respondents indicate that waiting time and nonchalance of the public service health sector have directed them to seek the assistance of the private hospitals to avoid loss of time and financial gains from their businesses. Though this practice has affected their financial status in the short run, they were satisfied that private hospital has provided a proper care to their patients.

Inflow of cash from people working abroad and excess cash from undisclosed incomes 34 percent of the respondents indicate that they were supported by family working abroad to utilize private hospitals. According to information these families have saved time and resources of their businesses by utilizing private hospitals. Most of these families have obtained private health insurances, which helped them to support their expenses. The information relation to funding indicate that there is extra cash with middle class and some low income families, due to non-payment of any form of tax as the present taxation system is highly inefficient and irregular.

Private health insurance

The middle class group has taken health insurance to support their usage of private hospitals, either through their employment system or privately. 41 percent of the respondents which attended the private hospitals had insurance cover provided by their employment.

The value of elderly in housekeeping and child care

At present, elderly parents are a primary source of child care or day time caretaker in most of the lower middle and middle class families in Sri Lanka. They even travel abroad to countries like UK, Australia, Canada and New Zealand to care for children of their siblings. This group parents save large amount of financial resources of their siblings and siblings will support the health of their parents by utilizing best available

private health care. 12 percent of the respondents have utilized this type of support system.

In summary, it is evident that the demand for private hospitals is steadily increasing, though there are short term setbacks emanating from economic problems. As 98 percent of the respondents indicate the nonchalance and inefficiency of the public health service is the major reason for them to use private hospitals, though it is expensive.

The firm under study is visited by all the above types of respondents and as the analysis indicate they were satisfied of the services provided. However, as the competition is set to increase in the future, with the rise in population numbers firm has to adjust its organizational capacity and service system.

The firm utilizes many auxiliary services at present to enhance its services, such as provision of ambulance service, use of alternative medicine, discount systems and public support work. These should continue and it has to be ready with Emedical system utilizing internet links with its patients as there will be need for such a system in near future.

The most important for the firm is to continue with the present status of services with utmost efficiency and support.

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Appendix A

Questionnaire for general data- from customer base

No information on the name of respondent, firm or any private information is necessary. Attempt to give your sincere feeling. Your privacy is strictly maintained and this data is only for a statistical analysis of a research.

Tick in the box of your preference

1. Present service level is OK

Likert scale / used scale	Tick your choice
Strongly Disagree and Disagree/ Not good	
Agree/Good	
Strongly Agree/Very Good	

2. Last service received was OK

Likert scale / used scale	Tick your choice
Strongly Disagree and Disagree/ Not good	
Agree/Good	
Strongly Agree/Very Good	

3. Will visit again

Likert scale / used scale	Tick your choice
Strongly Disagree and Disagree/ Not good	
Agree/Good	
Strongly Agree/Very Good	

Free response

Why do you prefer private hospital?

How do you finance the treatment?