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## **Rational Study on “Health Economy” during COVID-19 Pandemic**

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### Abstract

The World has been gripped by a pandemic over the first half of 2020. It was identified as a new corona virus (severe acute respiratory syndrome corona virus 2, or SARS-CoV-2), and later named as Corona virus Disease-19 or COVID-19. While COVID-19 originated in the city of Wuhan in the Hubei province of China, it has spread rapidly across the world, resulting in a human tragedy and tremendous economic damage. By mid-June, there had been over 8 million cases of COVID-19 globally, with over 436,000 deaths. Given the rapid spread of COVID-19, countries across the World have adopted several public health measures intended to prevent its spread, including social distancing (Fong et al. (2020)).<sup>1</sup> As part of social distancing, businesses, schools, community centre's, and non-governmental organization (NGOs) have been required to close down, mass gatherings have been prohibited, and lockdown measures have been imposed in many countries, allowing travel only for essential needs.<sup>2</sup> The goal is that through social distancing, countries will be able to “flatten the curve”, i.e., reduce the number of new cases related to COVID-19 from one day to the next in order to halt exponential growth and hence reduce pressure on medical services (John Hopkins University, 2020a). The spread of COVID-19 is expected to result in a considerable slowdown of all economic activities but rapid growth in “Health/Medical Economy” in all medical domains from Hospitalization, Ventilators, Oxygen, Medicines, Injection and vaccination including mass business of cleaning products, masks and sanitizers with giving lots benefit to pharmaceutical and medical sectors only and this paper overview to it.

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Keywords: Health Economics, Medical Economics, Micro Medical Economy, Pandemic, COVID-19, QALY (Quality Adjusted Life Years).

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### **Introduction to Health Economics**

Economics is the science of scarcity. It analyses how choices are structured and prioritized to maximize welfare within constrained resources. We all use economics on a daily basis ('Do I buy the cheaper car, or pay a bit more for the nicer one?') as we work within our own resource constraints (our desires say, 'Buy the nicer one'; our resources say, 'Buy the cheaper one'). By comparing the costs and benefits arising from the purchase of the competing cars, we are able to optimize our decision-making. If we routinely use such economic techniques in our private lives, then surely it is not too great a 'leap of faith' to apply them in our lives as health professionals? This is the basis of health economics. It is universally acknowledged that the technical ability of healthcare systems to provide care (the wide array of new and expensive health technologies available) far exceeds the ability of any healthcare system to afford all such technologies. Once healthcare decision-makers have accepted the need for choice, they must inform that choice by prioritizing competing interventions through the analysis of their costs and benefits. However, it is important to recognize that healthcare exhibits a range of special characteristics that will fundamentally affect such analyses. Health economics reflects a universal desire to obtain maximum value for money by ensuring not just the clinical effectiveness, but also the cost-effectiveness of healthcare provision.

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### **Cost-effectiveness**

Health economics is dominated by a simple theoretical concept, that of cost-effectiveness. In general, the concept of cost-effectiveness implies either a desire to achieve a predetermined objective at least cost or a desire to maximize the benefit to the population of patients served from a limited amount of resources. To achieve this aim, we use the tools of economic evaluation to select the most cost-effective options from a range of healthcare alternatives. An associated concept is that of efficiency.

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### **Efficiency**

Efficiency evaluates how well resources are used to achieve a desired outcome. It has a number of different aspects.

**Allocative efficiency** measures the extent to which resources are allocated to the groups or individuals who can benefit most.

For example, the benefits of statin treatment provided to high-risk patients (for example, patients who have already had a heart attack) are far in excess of the benefits that arise when they are prescribed to low-risk patients. Allocative efficiency therefore requires the high-risk patients to be targeted as a priority (primary prevention), resulting in an improved level of health associated with statin treatment.

**Technical efficiency** measures either the extent to which resources are combined to achieve maximum outcome, or alternatively the minimum amounts of resources that are combined to achieve a given outcome (for example, identifying the least expensive way to effectively heal a peptic ulcer). The prescribing of unnecessarily long courses of drugs or unnecessarily expensive drugs implies the existence of technical inefficiency.

### Defining and measuring ‘health outcomes’

Defining and measuring health outcomes are fraught with difficulties, but such measures are the essential bedrock of health-economic evaluations. In addressing health outcomes, economists talk in terms of utility, which measures the strength of an individual’s preferences for specific outcomes for further discussion). Outcomes are assessed in terms of enhanced survival (adding years to life) and enhanced quality of life (QoL) (adding life to years). There is a range of measures to assess the impact of treatment on survival (lives saved, life-years gained or five-year survival rates), but increasingly health services are focusing on improving QoL (reduced pain, greater mobility, improved sensory function). Health-related QoL analyses measure the impact of treatments on the social, emotional and physical aspects of life from the patients’ perspective. Many techniques have been developed to place values on various states of health which can be held to be representative of the values of society as a whole.<sup>4</sup> These QoL ‘weights’ are then integrated with survival data to produce a single combined measure of the quantity and quality of life generated by healthcare interventions. Quality-adjusted life-years (QALYs) apply weights that reflect the QoL being experienced by the patient (perfect health is equivalent to 1, death is equivalent to 0 and health states that may be regarded as worse than death have negative valuations). It is important to recognize, however, that such analyses are still at an early stage of development and many methodological difficulties remain to be resolved. An entertaining but informative introduction to the debate concerning the social value of the QALY can be read in an article by Brouwer *et al.*

### COVID-19 Pandemic

The COVID-19 outbreak (previously 2019-nCoV) was caused by the SARS-CoV-2 virus. This outbreak was triggered in December 2019 in Wuhan city in Hubei province of China. COVID-19 continues to spread across the world. Initially the epicenter of the outbreak was China with reported cases either in China or being travelers from China. At the time of writing this paper, at least four further epicenters have been identified: Iran, Italy, Japan and South Korea. Even though the cases reported from China are expected to have peaked and are now falling (WHO 2020), cases reported from countries previously thought to be resilient to the outbreak, due to stronger medical standards and practices, have recently increased. While some countries have been able to effectively treat reported cases, it is uncertain where and when new cases will emerge. Amidst the significant public health risk COVID-19 poses to the world, the World Health Organization (WHO) has declared a public health emergency of international concern to coordinate international responses to the disease. It is, however, currently debated whether COVID-19 could potentially escalate to a global pandemic.

In a strongly connected and integrated world, the impacts of the disease beyond mortality (those who die) and morbidity (those who are incapacitated or caring for the incapacitated and unable to work for a period) has become apparent since the outbreak. Amidst the slowing down of the Chinese economy with interruptions to production, the functioning of global supply chains has been disrupted. Companies across the world, irrespective of size, dependent upon inputs from China have started experiencing contractions in production. Transport being limited and even restricted among countries has further slowed down global economic activities. Most importantly, some panic among consumers and firms has distorted usual consumption patterns and created market anomalies. Global financial markets have also been responsive to the changes and global stock indices have plunged. Amidst the global turbulence, in an initial assessment, the International Monetary Fund.

### Growth in Health/Medical Economics

Examining the health economies of other countries enhances our understanding of the U.S. health economy. Many countries have large health care sectors and face the same major issues. Table given below shows how health care spending as a share of GDP grew rapidly in most countries between 1960 and 1980. A more mixed picture emerges after 1980. The health care share in the United States continued to grow in each period after 1980 shown in Table 1-1, but growth was more modest in most other countries. The data also indicate the relative size of the U.S. health economy compared to that of other countries. For example, health care’s share of GDP in the United States is nearly twice as large as the share in the United Kingdom—a country with national health insurance. Is care costlier in the United States? Is it higher quality care, or are we simply consuming more.

Country	1960	1970	1980	1990	2000	2009 <sup>a</sup>
Australia			6.3	6.9	8.3	8.5
Austria	4.3	5.2	7.5	8.4	9.9	11.0
Belgium	3.9	6.3	7.2	8.6	10.4	10.9
Canada	5.4	6.9	7.0	8.9	8.8	11.4
Czech Republic				4.7	6.5	8.2
Denmark			8.9	8.3	8.3	11.5
Finland	3.8	5.5	6.3	7.7	7.0	9.2
France	3.8	5.4	7.0	8.4	9.6	11.8
Germany		6.0	8.4	8.3	10.3	11.6
Greece		5.4	5.9	6.6	7.8	9.7
Hungary					6.9	7.4
Iceland	3.0	4.7	6.3	7.8	9.5	9.7
Ireland	3.7	5.1	8.3	6.1	6.3	9.5
Italy				7.7	8.1	9.5
Japan	3.0	4.6	6.5	6.0	7.7	8.1
Korea			3.4	4.0	4.6	6.9
Luxembourg		3.1	5.2	5.4	5.8	7.8
Mexico				4.8	5.6	6.4
Netherlands			7.4	8.0	8.0	12.0
New Zealand		5.2	5.9	6.9	7.7	10.3
Norway	2.9	4.4	7.0	7.6	8.4	9.6
Poland				4.8	5.5	7.4
Portugal		2.5	5.3	5.9	8.8	10.2
Slovak Republic					5.5	9.1
Spain	1.5	3.5	5.3	6.5	7.2	9.5
Sweden		6.8	8.9	8.2	8.2	10.0
Switzerland	4.9	5.4	7.3	8.2	10.3	11.4
Turkey			3.3	3.6	4.9	6.2
United Kingdom	3.9	4.5	5.6	6.0	7.2	9.8
United States	5.1	7.0	8.7	11.9	13.2	17.4

## Conclusion

Throughout the world, during pandemic COVID-19 there is growing recognition of the importance of public health to sustainable, safe and healthy societies with proper treatments, medicines, vaccines, cleaning and safety products. The achievements of public health in twenty first-century were for much of the twentieth century overshadowed by advances in personal care, in particular in hospital care. Now, in the twenty-first century, there is increasing understanding of the inevitable limits of individual health care and of the need to complement such services with effective public health strategies. Major improvements in people's health will come from controlling communicable diseases, eradicating environmental hazards, improving people's diets and enhancing the availability and quality of effective health care. To achieve this, every country needs a cadre of knowledgeable public health practitioners with social, political and organizational skills to lead and bring about changes at international, national and local levels. Hence the pharmaceuticals industries, hygiene and cleaning products industries, vaccines & injections industries has ample scope of growth if offer QALY (Quality Adjusted Life Years) medicines, products, vaccines, surgical products, sanitizers and life support systems to boost "Health/Medical Economy".

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