

# The Economics of Healthcare: Challenges and Reform

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### Abstract

We have made an attempt to study The Economics of Healthcare as the science of evaluating and acknowledging the impact of Economic factors on the Healthcare systems globally, its beneficial effects and the shortcomings, with the intention to suggest effective measures to improve existing procedures. The evaluation and comparison of Pharmaceutical and Drugs Industries systems existing in successful Healthcare geoeconomic zones, globally. Different countries and pockets within countries have highly developed Health Education systems, haeverly encouraging processes and Insurance systems supporting Healthcare with excellent statistical data maintained. We have also dealt with the Challenge of the efficacy of Healthcare economics to efficiently deliver Healthcare at the optimum price, with very controlled costs and in shortest possible time.

### Methods

The methodology used to arrive at the results was referencing the data from the defined sources, like Articles on the subject, Related works/Books, Medical Journals and Published Reference Tomes like 'Merck', some media reports published in the 'Hindu', specifically relating to India and the subcontinent and findings published by WHO were also gleaned and compared.

### Results

The Major findings of this study are; The Healthcare workforce employed worldwide is far short of the WHO defined workforce requirement of 44.5 per 10,000, whereas in India the figures are still more distressing at 20.8 per 10,000, much below even the threshold requirement of 22.8 per 10,000. Together with the fact that at least 20% of the trained professionals are not active in the field of Healthcare. The World Health Organization (WHO) estimates a projected shortfall of 10 million health workers by 2030.

### Conclusions

The conclusions we have drawn from the study have focussed mainly on the employability factor, trained professionals, have not been able to get proper niche-based employment or the remunerations are not commensurate with their qualifications and experience. Personnel is only part of the issue, Healthcare equipment is in short supply, not because of dearth of availability of quality equipment, but the Economics of procuring and maintaining one is beyond the feasible capabilities of many institutions. Governmental intervention is imperative, as in UK and Canada, where the facilities are offered free to the citizens, there are other problems, like unacceptable delays in healthcare delivery, in these countries, giving rise to Medical Tourism.

## Reforms Suggested

1. The Chronic shortfall in Healthcare Education and Training has to be focused upon by the authorities on a war footing, by providing more Medical Colleges and training Institutes.
2. The Trained Professionals migration from healthcare needs to be circumvented by providing more lucrative incentives.
3. Special Healthcare Industrial zones need to be designed and promulgated, where Production and manufacturing of medical devices, should be given tax holidays and duty exemptions.

## Introduction

The Economics of Healthcare is described as the theories and methodology of Economics applied to areas related to Health and Healthcare systems.

Healthcare is a matter of concern and priority, to be addressed with a concerted approach and focus by the world and its collective efforts. Healthcare comprises of not only the medical treatment support system but a whole plethora of interconnected phenomena, causes, events and conditions on one hand and a global effort in devising advancements to support, prevent and treat problems associated with Health.

Healthcare includes the creations of conditions which will preserve and enhance the living conditions and health, prevent the harmful and dire effects of climate change e.g. and release of chemicals in the atmosphere. The use of toxic elements in agriculture getting absorbed in the produce of the earth. Due diligence is to be applied to prevent long term use of harmful and toxic chemicals as also to find out through careful research, the long-term side effects of pharmaceutical products and take corrective action in time. The broad areas affecting Health and Healthcare are enumerated herewith for perusal;

- Atmospheric Emissions
- Effects of Industrialization on Health
- Diseases
- Epidemics
- Education of Hygiene
- Medical facilities, clinics, Hospitals, Nursing Homes
- Availability of Medical Equipment
- Availability of Skilled Medical and Paramedical Personnel
- Advancements in Medical Equipment and Research Funding
- Pharmaceutical Industries and Easy availability and costing of Drugs
- Governmental active support for the creation of Academic and Research Institutions
- Governmental financial support in Health Care budgeting and disbursement
- Administrative Pricing support on Medicines
- Provision of Free Healthcare Treatment and Palliative Care and its Economics
- Medical Insurance
- Availability of Healthcare Finance

- Evaluation of Healthcare systems in different countries
- Reforms to Enhance the Efficacy of Healthcare Delivery Systems

## Atmospheric Emissions

Atmospheric Emissions have been affecting the health of people extensively over a long period of time all across the world. Anthropogenic causes, like Industrial Emissions, Vehicular Emissions, Deforestation, Urbanization, are believed to be the primary sources of Atmospheric pollution together with the Greenhouse gases, and other natural causes, like volcanic activity.

**Respiratory Diseases:** Pollutants and particulate matter in the Atmosphere increase the risk of developing lung diseases like Asthma, Emphysema, susceptibility to major diseases like Pulmonary Koch's (TB), and even Lung Cancer.

**Cardiac Diseases:** Ischemic Heart Disease is a well-documented and researched effect of Pollution, besides conditions like Cardiomegaly – is one of the major complications related to Emphysematic Lung disease, as the amount of oxygen required by the Myocardium to operate competently, is severely compromised. Stunted oxygen supply to the Coronary arteries promotes and exacerbates atherosclerosis and eventual blockage, resulting in a crippling condition or death.

**Cancer:** Particularly Lung Cancer is the most predominant resultant of Air pollution. The Pollutants contained in the Atmosphere, like Particulate matter, some microorganisms are found to be affecting cancerous growth, due to cell damage of the Lung tissue. Long term exposure to greenhouse gases and other toxic pollutants are also known risk factors for lung cancer.

**Effect on Mental Health:** The effect of Atmospheric pollutants is not limited to Diseases and the Physical Health. Recent research indicates that brief susceptibility to air llution may worsen children's mental health.

**Effect of Climate Change:** Atmospheric emissions are the prime drivers of Air pollution and climate change. The impact of Fossil fuel combustion, majorly affects the factors contributing to global climate change. Efforts are being made on a massive scale to mitigate the effects of climate

change worldwide, and this obviously positively affects the Air pollution as well.

For Instance, meeting the goals of the Paris Agreement could save about a million lives annually by 2050 through the reductions in air pollution alone

**Economic Burden:** The burden on healthcare affected only by Atmospheric Pollution is quite substantial, especially in countries with uncontrolled Greenhouse gas emissions, air pollution alone impacts healthcare costs to more than 4% of GDP. Countries Investing in cleaner energy, transport, and food systems has paid off dividends by reducing health-related expenses (WHO).

Regardless of the geographical location on the planet, Atmospheric emissions promoted Air pollution affects all Human Life everywhere. Efforts to combat it are crucial for our well-being and the health of our planet (Arfin et al.).

### Effects of Industrialization on Health

Industrialization has unarguably contributed Immensely to the growth of the Economy worldwide, and to the advancement of Human life, to its wellbeing as well to its Health.

However, there are some negative impacts of Industrialization, many of them because of thoughtless, badly planned processes. Some examples are of Chemical waste being dumped into rivers, Toxic pesticides being absorbed into the earth and finding their way into plants and through them into food and fruits. Heavy metals getting leached by roots of plants and trees, indirectly getting ingested by animals as well as Humans. The absorption by Humans, was found to have reached even the foet uses, effectively creating physical and mental issues in the children still in their mothers' womb. A recent survey of Autistic children, provided shocking statistics, the mercury levels in these children were found to be abnormally high (Ryu et al.). These and other reasons have given rise to unprecedented health issues in the recent so called modern age.

The toxic emissions being released into the atmosphere unabated since the last several centuries, have given rise to Air pollution to an extent never seen, before the industrial era.

Ozone layer depletion is the direct effect of Industrialization with its related Health issues like Skin diseases, Cancers, Eye problems e.g. the

incidence of cataract formation due to the incremental UV radiation.

A major concern for the global community today is the Climate change and problems associated with it. Healthcare costs have soared with a tremendous burden on the tax payers' money. Unforeseen Floods, torrential rains, earthquakes, droughts, famines, hurricanes, Melting Polar Ice, rising sea levels, all threaten to engulf the world in dire health and economic problems.

**Health Economics and the Burden of Disease:** The Primary focus of all Healthcare are Diseases affecting the Health of Human beings. The Economics of Healthcare revolves around the whole gamut of activities which have posed a challenge to human intellect which has faced and conquered those challenges incessantly. Challenges related to: The prevention of Diseases, The Diagnoses of Diseases, The Treatment of Diseases, and Palliative Care. The research related to Diseases prevention, Diagnoses and treatment. The advancement and development of Equipment for Diagnoses and Treatment. The Quest to find new cures for Diseases and promote longevity.

Humanity has breached many of the frontiers, we still have a long way to go, with new challenges cropping up every day. The Covid Challenge was one such unforeseen and unprecedented frontal attack of nature that recently we had to face and although a heavy human cost was incurred a terrible tragedy was averted by the sheer courage of the doctors, healthcare professionals and front line workers.

Health Economics Involves the Measurement and Statistical Analysis of Health-related metrics like Quality Adjusted Life years and Disability adjusted Life Years, and the Management of the metrical Records.

Efficient and effective Management of Health and Healthcare services. Effective Healthcare Management involves existence of competent Healthcare delivery systems, which stand the test of time during normal times and during the emergence of Epidemics and Pandemics.

The recent Pandemic of COVID which assaulted the foundations of the global Healthcare system, found the world wanting. Healthcare systems in some developed countries also were found to literally collapse. Millions of lives were lost across

the world, simply because the world did not expect such a widespread assault and was not ready for it.

Medical Interventions, have to be analysed on its cost effectiveness. Therefore, the preparedness involves cost benefit and cost utility analysis, which lost out in the above case, precipitating a colossal global tragedy.

### **Medical Education**

Medical Education is imperative for healthcare preparedness together with the development of the required skills, including Nursing and Paramedical personnel, to deliver it. We also need to have medical professionals catering to the population available in the right proportion. Some countries have seen appointments have a waiting period of more than three months, even for a Dental appointment. This condition is totally unacceptable, but it has given rise to a phenomenon called, Medical Tourism, However, it is fortunately limited to countries boasting Free Healthcare, to the advantage of countries like India, having exceptionally good, skilled and widespread availability of healthcare. India has its own economic issues, the provision for Governmental support in medical education is wanting. The funding for expensive medical equipment is drying up as the Medical Equipment advances and new breakthrough technologies has upped the financial ante and made the cost of procurement prohibitive.

### **Health Insurance**

There is an acute need of an all-pervading Health Insurance system, at all economic levels of the populace, especially in India, as the availability of Free and/or cheap Healthcare from the government is limited, and that again mostly in urban areas. India is also lacking in Health Insurance sector, with a lacklustre existence, without proper, professional availability, possibly because of certain administrative and governmental policies.

The healthcare Insurance requirement in India is two fold; One is the provision of financial support, and the other the creation of healthcare delivery systems, like Insurance companies developed Hospitals, Nursing homes, clinics and Hospices and Sanatoriums. Examples of these types of Insurance provisions are in existence, especially in the USA.

Health economics intersects with epidemiology, public health, and policy-making. Tools like cost-benefit analysis, econometric modelling, and decision-making analysis are routinely used to analyse healthcare policies and improve resource allocation.

While it's mainly an epidemiological concept, it has implications for health economics, especially regarding healthcare financing and the cost of illness (Greß).

Health economics plays a vital role in shaping healthcare policies, resource allocation, and improving overall health outcomes. As healthcare costs continue to rise globally, understanding these economic aspects becomes even more critical (Hall).

### **Pharmaceuticals and the Economics of Drug Industry**

The Pharmaceutical Industry worldwide has contributed around 550-600 billion US dollars to the worlds GDP. Which is nearly 1% of the global GDP. Moreover, the industry directly employed over 5.5 million highly productive individuals worldwide, which is comparable to Switzerland's total workforce (Merck).

Whereas, the pharmaceutical industry also supports jobs, indirectly along the supply lines. This indirect support is approximately 50 million jobs, in various geographical regions, more particularly benefitting developing countries. Procurement from other sectors, including, plant and machinery, and other non-pharmaceutical products like Raw or Bulk Drugs, gases, chemicals, catalysts, reagents as also fuels and many other products; is worth nearly 800 billion US dollars, amounting to about 790 billion US dollars contribution to the Global GDP.

The Global pharmaceutical industry contributes to the UNs "Sustainable Development Goal 8" through its Economic activity. The developing countries and the Emerging Economic powers like India, have increasingly shown a rising consumer income and hence an increased per capita usage of Medicines. Medicine spending in these areas is expected to grow at five to eight percent through 2023 (Ostwald et al).

### **Challenges for the Pharmaceutical Industry**

The industry certainly drives Economic growth, however, it has to face the challenge of rising costs,

and the pressure to maintain - and in some countries reduce - the prices, as in the case of India, where a government mandate has put a price slab on certain drugs. Balancing innovation, research, and development with affordability and accessibility is an ongoing concern (Ostwald et al.). The Pharmaceutical Industry has impacted the global Economic scene and influenced not only the GDP, as discussed, but also Employment and sustainable goals. It is a vital sector for addressing Health Challenges while driving economic growth (Merck).

**Challenges and Reforms of Economic Healthcare**

The Healthcare Industry globally, needs to deal with a plethora of challenges, from dealing with the rising costs and reining in the spiralling consumer prices, from the demands of spending on research to keeping pace with technical advances. Many different sectors of the Healthcare Industry have to face a host of different challenges in conjunction as well as independent of the other. Some of the challenges that the industry faces are enumerated here

- Rising Procurement costs of Raw Materials.
- Consumer pressure for Controlling prices, and balancing against the varying demands.
- Governmental policies curbing the pricing with pricing slabs, on medicines.
- Availability of trained medical professionals and skilled technicians.
- Prohibitive medical professional compensation packages.
- Providing a complete Insurance package under restrictive laws.
- Dearth of service providers and service institutions which delays the service rendered to consumers and patients.
- Availability of Health Finance at cheaper costs.

The Healthcare and Medical Industry is evolving at a very fast pace and therefore needs to change and modify its preset norms and policies. The performance of the Healthcare Industry needs to be more prolific, efficient, effective and competent.

A study based on the ‘National Sample Survey Organization (NSSO)’, India has 20.6 health workers for every 10,000 people. While this is an improvement from the 2012 figure of 19 health workers per 10,000 people, it still falls short of the

World Health Organization’s (WHO) minimum threshold of 22.8. The study further states that India has a total of approximately 5.76 million health workers, which includes;

- Allopathic doctors: 1.16 million
- Nurses/midwives: 2.34 million
- Pharmacists: 1.20 million
- Dentists: 0.27 million
- Traditional medical practitioners (AYUSH): 0.79 million

Unfortunately, the NSSO estimation (2017-18) of actual active workforce is far lower, at only 3.12 million with Allopathic Doctors: 0.80 million and Paramedics like Nurses/ OT Technicians: 1.40 million. These estimates are well below the WHO threshold of 44.5 doctors, nurses, and midwives per 10,000 population. (The Hindu).

The Healthcare workforce is further, unevenly distributed in India, across states and heavily loaded in favour of Urban areas as compared to Rural areas. Also, about 20% qualified professionals are not active in the healthcare labour markets.

The global Healthcare scenario is similarly affected by financial and budgetary shortfalls, Although the ‘World Health Organisation (WHO)’, recognizes the importance of investing in human resources to achieve global health coverage. SDG 3c sets a target to “substantially increase health financing and the recruitment, development, training, and retention of the health workforce in developing countries, especially in least developed countries and small island developing States”.

**Table 1 Stock of SDG3.c Health Workers (Medical Doctors, Nurses, Midwives, Dentists, Pharmacists in 2020 by WHO Region (in Millions)**

Region	Dentists	Medical Doctors	Midwise	Nurses	Pharmacists
African region	0.04	0.33	0.25	1.19	0.09
Region of the Americans	0.59	2.49	0.10	8.27	0.59
Eastern Mediterranean region	0.19	0.80	0.09	1.11	0.23

European region	0.57	3.41	0.40	7.39	0.60
South-East Asia region	0.30	1.55	0.55	3.58	1.32
Western Pacific region	0.84	4.07	0.81	7.56	0.85
Global*	2.54	12.65	2.20	29.10	3.69

\*The total of the five occupations is  $2.54 + 12.65 + 2.20 + 29.10 + 3.69 = 50.1$  million.

SDG, Sustainable Development Goal.

**Table 2 Estimation of the Global Health Workforce Shortage (in Millions) in 2013, 2020 and projected in 2030 by Occupation**

	2013	2020	2030 (Projected)
Dentists	0.49	0.26	0.22
Medical Doctors	3.05	2.66	1.94
Midwifery Personnel	0.36	0.41	0.31
Nursing personnel	9.89	7.07	4.50
Pharmacists	0.33	0.29	0.19
Other occupations	6.02	4.69	3.08
Total	20.15	15.37	10.23

Source: Boniol et al.

India and the global health workforce face challenges related to distribution, skill-mix, and active participation. Investment in professional education, technical training, and encouraging qualified health professionals to join the labour markets are crucial steps to address these issues in India and abroad (The Hindu).

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