LIFE, DEATH, AND PHARMA IN INDIA: A CASE STUDY

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ABSTRACT
"The health of the people is really the foundation on which all their happiness and all their powers as a state depend." - Benjamin Disraeli.

A healthy society is obviously a healthy nation. Being healthy is a result of various factors such as lifestyle, income, choices, society, access to medical facilities, culture, and family. The life expectancy (LE) (i.e., average years a person is anticipated to live has almost doubled) in the past century and medical breakthroughs had a profoundly positive impact on human LE. The average LE of the people in India was 49.7 years during 1970-1975 gradually increased to the level of 68.45 years in 2016 according to the world LE reports. The objective here is to understand the factors determining LE and whether there are any possibilities for considerable improvements in LE in India due to various economic policies by the government. Statistical reports from various organizations are analyzed, and the conclusion is that the government spending on health care and awareness is to be enhanced.

Keywords: Life expectancy, Health care, Mortality, Birth rate, Death rate, etc.

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INTRODUCTION
India is a land of villages. According to the reports from the Government of India, 2011, the Annual Exponential Growth Rate of India’s population is 1.21 billion of which 623.72 million are males (51.54%) and 586.46 million females (48.46%), as compared to the population of 381 million in 1951. The majority of the people live in villages and the rural and urban population constitute 68.9% (83.3 crore) and 31.1% (31.1 crore) respectively of the whole population of the country [1].

There is a major improvement in the life expectancy (LE) of the people in India over the last century. Bhat (1987) has identified the reasons like reduction in the death rates (DRs) of children, mothers, and infants [2]. Saikia and Thomas (2011), in their study, have pointed out that LE in India has drastically changed due to declining DRs among elders and adults [3].

WHAT CAUSES DEATH?
In India, there are many reasons for death to occur; but some of the common reasons are 38% of the death is due to a communicable disease such as malaria, tuberculosis, maternal, prenatal, and nutritional disorders. 10% of the death is due to injuries and 52% of the death is due to noncommunicable diseases (NCDs) such as diabetes, mental illness, hypertension, and cancer which is more common among the elderly group. Due to environmental and socioeconomic factors, developing countries like India are very much prone to virus related diseases such as Zika, HINI, and SARS [4] Fig. 1.

HOW MUCH DO COUNTRIES SPEND ON HEALTH CARE?
The total health-care spending varies across countries and US ranks high as 17% of the gross domestic product (GDP) is spent on the health care, whereas the level of spending as a percent of GDP has increased from 3.8% to 4.3% in India, in 2012. The basic health needs are met at least when a country spends atleast 5-6% of its GDP on health care [5] Table 1.

It is evident that a country needs to contribute more on social health care and 73% of the current health expenditure (CHE) is contributed by the households. Individuals pay from out of pocket (OOP) and that accounts to 69% by households. High OOP spending is due to the lack of government spending on health, constituting just 1.15% of GDP which accounts to 30% of CHE - lowest among the BRICS nations.

In 2013-2014, the total health-care expenditure (THE) of India was Rs. 4.5 lakh crores, a third of all money Rs. 1.5 lakh crores (35.7%) was spent in pharmacies. Rs. 60.5 thousand crores 21% was spent in private hospitals, almost double compared to that of government hospitals which consume 41.7 thousand crores (9.9%). Around Rs. 28 thousand crores (6.7%) was spent in labs and medical diagnostics. The estimated total government health expenditure in FY 2013-2014 is Rs. 129,778 crores. This equates to 1.15% of GDP, 3.8% of General Government Expenditure, 28.6% of THE, and Rs. 1042/capita. The Union Government share of the total government health expenditure (including health insurance schemes through Union government) is Rs. 44,564 crores, which equates to 0.4% of GDP, 34% of the total government health expenditure and Rs. 356/capita. The share of the total government health expenditure of States/UTs and local Governments (combined) and health insurance schemes through state government is estimated at Rs. 85,215 crores, which equates 0.75% of GDP, 66% of total government health expenditure and Rs. 684/capita.

HOW HEALTHY IS INDIA?
The health statistics have shown considerable progress over time and by 2013 there was a gradual decrease in birth rate, death rate, total fertility rate, maternal mortality ratio and infant mortality ratio when compared to the vital statistics of 1951. The life expectancy of male in 1951 was 36.1 years has considerably improved to 65.8 by 2013 (Table 2). The “Technical Group on Population Projections” has anticipated that by 2050 LE of male is expected to arrive at 68.8 years and 69.8 years by 2025 from the existing level. The LE of female population is expected to reach 71.1 years by 2020 and 72.3 years by 2025.

THE INDIAN PHARMACEUTICAL COMPANIES
India is the fastest and the fifth biggest economy in the world according to the reports of Euromonitor. The Indian Pharmaceutical Industry occupies a significant position globally, and Indian companies enjoy a strong presence in the US generics market, commanding a share of 19% in 2014 as against 13% in 2010. It is ranked eighth by value (USD 29 bn) and continues to intensify high growth rate, between 15 and 20%, strongly in competition with China [6]. As on 31st March 2015, there are 153,655 sub centers, 5396 community health centers, and 25,308 primary health centers implemented in the country to.
cater to the needs of the people [7]. The Government of India plays a steadfast role in implementing the “Health for All” program. The Indian Pharmaceutical Market (IPM) has developed enormously and is now anticipated that the IPM will touch around USD 55 billion by 2020. The top ten pharma companies from India have captivated the global markets (Table 3). Statistics show that investments in research and development of the top 25 Indian companies have grown from INR 5060 crores (USD 102 million) in FY 2012-2013 to INR 6103 crores (USD 1110 million) in FY 2013-2014 [7]. India is the fourth leading manufacturer of medical equipment in the Asian continent after Japan, China, and South Korea [8]. The inclination of pharmacoeconomics is in designing affordable health-care packages for India [9].

**A GLIMPSE OF THE INITIATIVES OF THE GOVERNMENT TO ENHANCE HEALTH SECTOR**

Recent policy decisions taken by the Ministry of Health and Family Welfare have yielded creditable results. The outflow in health care is Rs. 22,476 crore for the year 2013-2014 and the projected expenses for the year 2016-2017 are Rs. 31,300 crore. The focus is on providing standard health-care facilities to all sectors of the society at affordable rates.

**Table 1: Health spending and governmental health spending, 2000 and 2012**

| Countries       | Total health spending as % of GDP | Government health spending |
|-----------------|----------------------------------|---------------------------|
| Total percentage | Percentage of total health spending | Percentage of total government spending |
| 2000 | 2012 | 2000 | 2012 |
| India | 4.3 | 3.8 | 27.0 | 30.5 | 4.3 |
| Germany | 10.4 | 11.3 | 79.5 | 76.7 | 19.3 |
| Mexico | 5.1 | 6.1 | 46.6 | 51.8 | 15.8 |
| China | 4.6 | 5.0 | 38.8 | 56.0 | 12.5 |
| Singapore | 2.7 | 4.2 | 45.0 | 35.0 | 11.1 |
| United Kingdom | 6.9 | 9.1 | 79.1 | 80.0 | 16.2 |
| United States | 13.1 | 17.0 | 43.0 | 47.0 | 20.0 |

Source: WHO, World Health Statistics, 2015. Accessed June 27, 2015. GDP: Gross domestic product

**Table 2: Vital statistics on BR, DR, TFR, MMR, IMR**

| S. No. | Parameters | 1951 | 1981 | 1991 | 2001 | Current levels |
|--------|------------|------|------|------|------|---------------|
| 1 | Birth rate (per 1000 population) | 40.8 | 33.9 | 29.5 | 25.4 | 21.4 (2013) |
| 2 | Death rate (per 1000 population) | 25.1 | 12.5 | 9.8 | 8.4 | 7.0 (2013) |
| 3 | TFR | 6.0 | 4.5 | 3.6 | 3.1 | 2.3 (2013) |
| 4 | MMR (per 100,000 live births) | NA | NA | 398 (1997-1998) | 301 (2001-2003) | 167 (2011-2013) |
| 5 | Infant mortality rate (per 1000 live births) | 146 (1951-1961) | 110 | 80 | 66 | 40 (2013) |
| 6 | Life expectancy at Birth (in years) | NA | 55.4 | 59.4 | 63.4 | 67.5 |
|     | Person | 37.1 | 55.4 | 59.0 | 62.3 | 65.8 |
|     | Male | 36.1 | 55.7 | 59.7 | 64.6 | 69.3 |
|     | Female | (1951) | (1981-1985) | (1989-1993) | (1999-2003) | (2009-2013) |

Source: The office of the Registrar General and Census Commissioner, India. http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1. NA: Not available, BR: Birth rate, DR: Death rate, LE: Life expectancy, TFR: Total fertility rate, MMR: Maternal mortality ratio, IMR: Infant mortality ratio
registration, and permit to import small quantities of drugs for personal use.

- Swasth Bharat Mobile App provides information on symptoms, disease conditions, treatment, public health alerts, first aid, and healthy lifestyle.

- Mission Indradhanush was launched on December 25, 2014, to ensure full immunization and cover all children up to the age of 2 years [10].

**INSIGHT TO THE FUTURE**

Countries such as Brazil, Korea, and Thailand had poor health-care systems, OOP spending was too high, low per capita income and so on. Combating all the challenges, these countries have made significant reforms in their health care and now they are successful in their endeavors. India’s health-care needs a tremendous change for its future development and can look up to the success stories of countries that had a turnaround in their strategies. Investments, efficiency, cost burden, sound policy, and public-private partnership in health care is the need of the hour.

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**Table 3: Top 10 Pharma companies in India 2016**

| Ranks | Name of the company   | Year of establishment | Market capitalization as on 16th January, 2016 (in crores) |
|-------|-----------------------|-----------------------|---------------------------------------------------------|
| 1     | Sun pharmaceuticals   | 1983                  | Rs. 189,139                                             |
| 2     | Lupin                 | 1968                  | Rs. 76,613                                              |
| 3     | Dr. Reddy’s laboratories | 1984              | Rs. 50,102                                              |
| 4     | Cipla                 | 1935                  | Rs. 48,788                                              |
| 5     | Aurobindo             | 1986                  | Rs. 47,578                                              |
| 6     | Cadila                | 1951                  | Rs. 31,541                                              |
| 7     | Divis Laboratories    | 1990                  | Rs. 28,609                                              |
| 8     | GlaxoSmithKline       | 1924                  | Rs. 26,954                                              |
| 9     | Glenmark              | 1977                  | Rs. 23,410                                              |
| 10    | Torrent Pharma        | 1969                  | Rs. 22,392                                              |

Source: Listz.in

**Author Queries???

AQ1: Kindly provide author initial

AQ2: Kindly provide publisher details and year