

Development and Evaluation of Hospital Management in India

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ABSTRACT

The hospital industry is emerging very rapidly due to progression in technology and growth in various diseases across the country. Earlier people use to trust on Government Doctors and Hospital but due to globalization and accessibility of better facilities and treatment in Private Hospitals, they have become quite common too. Across the country, there are various Private Hospitals which treats the patients not only from the country but are also famous for their experienced Doctors and treatment facilities all around the world. The purpose of this study was to develop and evaluate hospital performance measures to include aspects of hospital behavior beyond the traditional use of hospital profit margins for policy analysis. A number of measures have been used in the literature that are purported to reflect a variety of hospital behaviors. The reliability and validity of these and new measures were assessed using descriptive statistics and factor analysis on a sample of hospitals for a 3-year period. The sample consisted of all hospitals for which there were Medicare Cost Report and balance sheet data during the federal fiscal years 1987 through 1989. Using a subset of three hospital groups, 33 measures were evaluated, from which five were selected to represent the critical aspects of hospital performance important for policy analysis. The measures are: TEM, a new technical efficiency measure using data envelopment analysis techniques; the current ratio, depicting short-term financial performance; the ratio of long-term debt-to-net fixed assets, representing long-term viability; total margin, portraying profitability; and Medicare margin, characterizing Medicare's contribution to hospital financial position. Each represents different aspects of hospital efficiency and financially viability.

Keywords - Hospital Management, Artificial intelligence, Electronic Health record, Hospital development and HMIS

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I. INTRODUCTION

HOSPITAL MANAGEMENT & HISTORY OF HOSPITAL MANAGEMENT

Medicine and surgery date back to the beginning of civilization because diseases preceded humans on earth. Early medical treatment was always identified with religious services and ceremonies. Priests were also physicians or medicine men, ministering to spirits, mind and body, Priests/doctors were part of the ruling class with great political influences and the temple/hospital was also a meeting place. Medicine as an organized entity first appeared 4000 years ago in the ancient region of Southwest Asia known as Mesopotamia. Between the Tigris and Euphrates rivers, which have their origin in Asia Minor and merge to flow into the Persian Gulf.

The first recorded doctor's prescription came from Sumer in ancient Babylon under the rule of the dynasty of Hammurabi (1728-1686BC) Hammurabi's code of law provides the first record of the regulation of doctors cures were related to miracles and divine Intervention, the Greek recognized the natural causes of diseases and rational methods of healing were important Hippocrates is usually considered the personification of the rational non-religious approach to medicine, and in 480 BC, he started to use auscultation, perform surgical operations and provide historians with detailed records of his patients and descriptions of diseases ranging from tuberculosis to ulcers.

The temples of Saturn, Hygeia and Aesculapius, the Greek god of medicine all served as both medical schools for practitioners and resting places for patients under observation or treatment The Roman talent for organizations did not extend as readily to institutional care of the sick and injured Although infirmaries for the sick were established, it was only among the military legions that a system for hospitalization was

developed. After the injured were cared for in field tents, the soldiers were moved to valetudinarians, a form of hospital erected in all garrisons along the frontiers. Apparently those stone and wooden structures were carefully planned and were stocked with Instruments, supplies and medications.

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The development of efficient hospitals was an outstanding contribution of the Islamic civilization. The Roman military hospitals and the few Christian hospitals were no match for the number, organization and excellence of the Arabic hospitals. The Arab's medical inspiration came largely from the Persian Hospital in Djoundisa bour (sixth century Turkey), at which many of them studied. Returning to their homes, some of the best known of the great hospitals in the middle ages were in Baghdad, Damascus and Cairo. In particular, the hospitals and medical schools of Damascus had elegant rooms, an extensive library and a great reputation for its cuisine. Separate wards were set aside for different diseases, such as fever, eye conditions, diarrhea, wounds and gynecological disorders. Convalescing patients were separated from sicker patients and provisions were made for ambulatory patients. Clinical reports of cases were collected and used for teaching Indian Hospitals.

Historical records show, especially the Chinese traveler Fa Hein who reported in his books, that efficient hospitals were constructed in India by 600 BC. During the splendid reign of King Asoka (273-232

BC), Mughal emperor Feroz Shah Tughlaq. Indian hospitals started to look like modern hospitals. They followed principles of sanitation and cesarean sections were performed with close attention to technique in order to save both mother and child. Physicians were appointed -one for every ten villages-to serve the health care needs of the populations and regional hospitals for the infirm and destitute were built by Buddha.

The middle ages: Religion continued to be the dominant influence in the establishment of hospitals during the middle age. From the early fourth century to the fifteenth century trade was almost totally suppressed and many city dwellers returned to the land. Religious communities assumed responsibility for care of the sick. The rational nonreligious approach that characterized Greek medicine during the era of Hippocrates was lost, as hospitals became ecclesiastical, not medical institutions. Only the hopeless and homeless found their way to these hospitals, in which the system of separation of patients by diseases was eliminated, three to five patients were accommodated in each bed and principles of sanitation were ignored Surgery was avoided, with the exception of amputation, in order not to disturb the body and to avoid the shedding of blood per the church edict of 1163 that, in effect, forbade the clergy from performing operations. Religious order emphasized nursing care, the first religious order devoted solely to nursing is considered to be the St Augustine nuns, organized in approximately 1155. Yet hospital construction increased in Europe during the middle ages for two reasons. First, Pope Innocent III in middle ages for two reasons. First, Pope Innocent III in 1198 urged wealthy Christians to build hospitals in every town and second, increased revenues were available from the commerce with the crusaders. The oldest hospital still in existence are the Hotel-Dieu in Lyons and Paris, France. The term Hotel-Dieu indicates that it is a public hospital. The earliest mention of the Hotel-

Dieu in Lyons is found in a manuscript of 580 AD, in which its establishment by Childebert is recorded.

The Hotel-Dieu of Paris was founded by Bishop Landry in 660, on the LLe de la Cite. In 1300, the hospital had an staff of physicians and surgeons caring for 800-900 patients, and its capacity was doubled in the fifteenth century. In these hospitals more attention was given to the wellbeing of the patient's soul than to curing bodily ailments. The growth of hospitals accelerated during the crusades, which began at the end of the 11th century. Pestilence and disease were more potent enemies than the Saracens in defeating the crusaders. Military hospitals came into being along the traveled routes: the knights Hospitalers of the Order of St John in 1099 established in the Holy Land, a hospital that could care for some 2000 patients. It is said to have been especially concerned with eye disease and may have been the first of the specialized hospitals. This order has survived through the centuries as the St John's Ambulance Corps.

In contrast, in Asia and Africa, during the same period, construction of effective and efficient hospitals was spurred by Islamic rule and the Crusades. The two hospital systems enforced sanitary measures performed surgery and separated patients according to disease: the Islamic hospitals because they were still following the Greek and early Roman traditions, and the hospitals created by the Crusaders because injuries sustained in combat necessitated surgery and the presence of pests and contagious disease necessitated sanitary conditions and the strict separation of patients. For the first time, medical systems of the East and the West vied for the supremacy of medical care. Arab hospitals were notable for the fact that they admitted patients regardless of religious belief, race or social order.

DEVELOPMENT OF HOSPITALS IN INDIA.

After Independence there was growth of industrialization and population expansion which caused a lot of medical and health problems. At that time there were 7400 hospitals and dispensaries in India there were 1,13,000 beds, 19 medical colleges and 19 medical schools in India. Considering the rise in poverty and limited resources Committees like the Bhore Committee, Mudaliar Committee, Jain Committee, Shrivastava Committee, Siddhu Committee, Rao Committee, Bajaj Committee. According to Health Information India (1995-96) as on 1st January 1996 there were 146 medical colleges, 15,097 hospitals, 623819 beds admitting 30 million in patients every year. The out patients were countless. Out of these there were 421 rural hospitals, 10416 urban hospitals, 4473 government hospitals and 10289 private and voluntary, 335 local hospitals. The patient to bed ratio as suggested by Mudliar committee is 1 be per 1000 population but it is 0.67 which is below the required ratio. This will lead to overcrowding and mismanagement in hospitals. 6000-7000 beds need to be added every year to maintain the ratio. History of Government and Private Hospitals (Year1800-2012) Health care is a social sector and it is provided at State level with the help of Central Government. In the Constitution of India, health is a state subject. Central governments intervention to assist the state government is needed in the areas of control and eradication of major communicable & non communicable diseases, policy formulation. international health, medical & para-medical education along with regulatory measures, drug control and along with regulatory measures, drug control and prevention of food adulteration, besides activities concerning the containment of population growth Including safe motherhood, child survival and immunization Program. Another major component of the central sector health programme is purely Central schemes through which financial assistance is given to institutions engaged in various health related

activities. These institutions are responsible for contribution in the field of control of communicable & non communicable diseases, medical education, training research and parent-care. Government hospitals are owned and governed by governments, State or Central. These hospitals rely on subsidies and grants for part of their operations and perform more charity than other hospitals. Because these hospitals are tax supported, government agencies are likely to monitor operations and have the authority to increase or decrease funding through budgeting processes Other nonprofit hospitals are privately owned and usually community hospitals or physician group hospitals. Physician Influence tends to be stronger in these hospitals. These hospitals rely also on patient fees and public donation. Hospital Management provides a direct link between healthcare facilities and those supplying the services they need. This procurement and reference resource provides a one-stop-shop for professionals and decision makers within the hospital management, healthcare and patient care industries.

A hospital is a health care institution providing patient treatment by specialized staff and equipment. Government of India website data from the Health ministry site upto 2009 mentions that Eleven thousand six hundred and thirteen (11,613) allopathic hospitals are existing in India. Today the total value of the healthcare sector is 6% of GDP. 15,393 Hospitals were there in year 2002 in India. Indian Scenario.

A recent study in India indicates that healthcare is delivered by a multitude of public and private providers. The government infrastructure is large in both rural and urban India. In rural areas, the government has a vast base of primary healthcare centers, community health centers and sub centers. The public infrastructure in urban India consists of tertiary medical colleges, district and taluka hospitals and urban health posts. The private healthcare delivery sector consists of a large number of private

practitioners, for profit hospitals and nursing homes and charitable institution. The average size of such hospitals is less than 22 beds-much lower than developed countries.

The purpose of for profit, investor owned hospitals was primarily to increase the value of invested capital. Prior research finds that for profit hospitals tend to locate in more profitable areas and are smaller than nonprofit hospitals. For profit hospitals obtain fewer donations and are not tax subsidized and so rely primarily on patient fees. Church hospitals are owned and governed by religious organizations; they were originally organized to provide services for church members, to restrict procedures that are contrary to religious beliefs and to permit patients to follow the tenets of the religion for last rites and other ceremonies These hospitals rely on both patient fees and donations. Government hospitals are owned and governed by governments, State or Central. These hospitals rely on subsidies and grants for part of their operations and perform more charity than other hospitals. Because these hospitals are tax supported, government agencies are likely to monitor operations and have the authority to increase or decrease funding through budgeting processes. Other nonprofit hospitals are privately owned and usually community hospitals or physician group hospitals. Physician influence tends to be stronger in these hospitals. These hospitals rely also on patient fees and public donation.

Non- profit firms may earn profits. In fact, many, including hospitals, do. Rather nonprofit firms are precluded from distributing profits to persons who exercise control over the firm. Although such firms can pay reasonable compensation to suppliers of inputs, resulting earnings cannot be distributed. Such earnings must be retained and used by the firm. Because of the non- distribution constraint, nonprofit firms have no owners, that is, persons who control and share residual earnings. Ownership form and

hospital behavior: The social welfare implications of for-profit versus nonprofit ownership, and private versus public ownership, have been of interest to economists for decades. In stylized microeconomic models of organizations, theory predicts that the for profit organizational form is efficient because of the high powered incentives that arise from the presence of a well- defined residual claimant with legally enforceable property rights. Researchers exploring the effects of for profit, private, non-profit and public hospital ownership on productivity have reported a wide range of empirical results. On one hand, some researchers report that the for-profit form achieves greater productive efficiency, on the other hand, many studies find that for-profit hospitals have higher costs or markups than do nonprofits. And a substantial literature argues that nonprofit hospitals have costs and /or quality similar to that of for profits, concluding that hospitals are socially indistinguishable on the basis of ownership status.

In 2021, Hospital Management Information System (HMIS) implemented in all the 695 hospitals and health units of Indian railways across the country

- RailTel, Miniratna Central Govt. PSU of Ministry of Railways, executed the project in record time during the peak pandemic period The milestone will make Railway health system more transparent, effective, efficient, accountable & patient-friendly
- HMIS is a web-based, multi-module, feature-rich, extraordinarily sophisticated, complex software system giving a unique, novel and improved experience to hospital administration and patients
- HMIS solution fully compliant with Ayushman Bharat Digital Mission
- HMIS is another important step in country's journey towards digital transformation which will have a positive impact on the lives of more than 75 lakh railway men

In India too, the above conclusion stands true. There are hospitals both in the private and public who

extend service quality par excellence. Due to the unregulated system, there are also the extreme cases of poor quality healthcare provided by hospitals, many operating with unskilled medical staff and in substandard facilities. Rather than the ownership model, it would be prudent to mention that the leadership and the resultant vision mission and goals of the organization, is what determines the outcome and its quality in organization.

Healthcare industry is one of the most challenging industries in India with projected revenue of US\$ 30 billion, it constitutes 52% of India's GDP The Indian health industry has had a growth of over 12% pa in the past four years and is expected to grow at 15% per annum to US\$786, reaching 6 1% of GDP and employing 9 million people by 2012 The private sector plays a significant role by contributing 4 3% of GDP and 80% share of healthcare provision However, there is deficit with respect to access, affordability, efficiency quality and effectiveness, in spite of the high spending on overall private and public health in order to be comparable with the healthcare parameters of other developing countries India's healthcare sector faces many challenges For example, to reach a ratio of two beds per 1000 population by 2025, an additional 177 billion beds will be required which will need a total investment of US\$86 billion There is an acute shortage of doctors, nurses, technicians and healthcare administrators and an additional 0.7 million doctors are needed to reach a doctor population ratio of 1 1000 by 2025 This paper concentrate on

1 To study Need and Scope of Service Quality in Healthcare sector

2. To present the Role of Government in Healthcare management

3. To analyze Service Quality in Hospitals

1.To study Need and Scope of Service Quality in Healthcare sector

The hospital system in India faces three major challenges — improving quality, increasing access, and reducing costs. While all three elements are important, there is growing evidence that the perceived quality of health care services has a relatively greater influence on patient behaviors (satisfaction, referrals, choice, usage, etc.) compared to access and cost. In Nepal, for example, the government made substantial investments in health care to increase access. Yet, according to Lafond (1995), utilization of the facilities remained low because of clients' negative perceptions [of quality]. Guldner and Rifkin (1993) also showed that in Vietnam and Uganda, poor quality of services in the public sector led to greater use of private providers.

Quality problems are also pervasive in Bangladesh where government allocations to health care were increased between 1991/92 and 1994/95 by almost US \$70 million (Kawaine, Killingsworth & Thomas, 1995). While the authors do not provide actual figures, they indicate that the proportion of GDP allocated to this sector was more than doubled between 1985/86 and 1995/96. In addition, private health care has also been encouraged since 1982, leading to the establishment of 346 private hospitals in the country by June 1996 (Khan, 1996). Even with these improvements in allocation and access, however, there is evidence that those who can afford it are obtaining health care services in neighboring countries. The burden it places on the country's foreign exchange reserves is also not insignificant; one estimate (Bayes, 1999) places the loss of foreign exchange to health care providers in other countries at Tk.10 billion (US \$1= Tk.50). Despite the overwhelming personal costs and inconveniences of going abroad, people in need of health care are doing so. In the process, they are conveying a strong message: they want quality services.

The fact that quality perceptions have a strong influence on one's inclination to avail health services is beyond dispute. Thus, expanding access or holding the line on costs is not enough if one's confidence in the quality of health care services is low. Perceptions of poor quality of health care may, in fact, dissuade patients from using the available services because health concerns are among the most salient of human concerns. If the system cannot be trusted to guarantee a threshold level of quality, it will remain underutilized, be bypassed, used only for minor ailments, or used as a measure of last resort.

Unfortunately, the quality of health care services in Bangladesh has often been severely criticized. In 1987, a World Bank assessment of the health sector suggested that overall performance of the sector was unacceptably low by all conventional measures (The World Bank, 1987). At the root of the performance gap were many problems: critical staff were absent, essential supplies were unavailable, facilities were inadequate, and the quality of staffing was poor. Problems of supervision and accountability exacerbated the problems. Ten years later, Sen and Acharya (1997) noted some improvements in several health indicators such as infant mortality and life expectancy at birth and concluded that most of the improvements were made in preventive and not curative care. But they also concluded that "poor quality of health services...are persistent concerns." (p. 25). The Ministry of Health and Family Welfare also admits to this failure, stating that "Other issues of concern are poor utilization of government services...and quality of services" (HAPP-5: 1998–2003, p. 1).

The ever-growing population in Bangladesh is expected to place greater demands on the country's health care services. Unless quality improvement becomes a priority, the consequences are grim: In addition to preventing patients from quick recovery, thereby increasing their costs, poor quality also elevates the psychological barriers of using the system.

Patients may hold out from availing healthcare services until their condition deteriorates irreversibly, or they may bypass the system in search of alternatives — mainly in other countries — that assure better quality of care. It is imperative, therefore, for healthcare providers to focus on and deliver quality services to regain patient confidence. In turn, such measures should bring patients back to a system that is designed to serve their needs as well or better than the services abroad.

To deliver quality services it is important, first, to understand what constitutes this concept. To this end, our study represents a preliminary effort at helping delineate the factors and measures of service quality in the context of a developing country — Bangladesh.

2. Role of government in public health:

Health system strengthening Important issues that the health systems must confront are lack of financial and material resources, health workforce issues and the stewardship challenge of implementing pro-equity health policies in a pluralistic environment.[5] The National Rural Health Mission (NRHM) launched by the Government of India is a leap forward in establishing effective integration and convergence of health services and affecting architectural correction in the health care delivery system in India.

Health information system The Integrated Disease Surveillance Project was set up to establish a dedicated highway of information relating to disease occurrence required for prevention and containment at the community level, but the slow pace of implementation is due to poor efforts in involving critical actors outside the public sector. Health profiles published by the government should be used to help communities prioritize their health problems and to inform local decision making. Public health laboratories have a good capacity to support the government's diagnostic and research activities on health risks and threats, but are not being utilized efficiently. Mechanisms to monitor epidemiological

challenges like mental health, occupational health and other environment risks are yet to be put in place.

Health research system There is a need for strengthening research infrastructure in the departments of community medicine in various institutes and to foster their partnerships with state health services.

THE ROLE OF PHARMACOECONOMICS IN CURRENT INDIAN HEALTHCARE SYSTEM

Pharmaeconomic studies compare costs, clinical, and humanistic outcomes associated with different therapies. The evaluation mechanisms delineated are often helpful in demonstrating the cost impact of innovative treatments, granting greater acceptance by healthcare providers, administrators, and the public.

There are four major types of pharmacoeconomic analysis:

- A: Cost-minimization analysis
- B: Cost-effectiveness analysis
- C: Cost-benefit analysis
- D: Cost-utility analysis

Pharmacoeconomic evidences can be utilized to support decisions on licensing, pricing, reimbursement, and maintenance of formulary procedure of pharmaceuticals Hence, it is a challenge for healthcare professionals to provide quality patient care with minimum cost. Given the limitations on healthcare resources, there is increased interest in assessing the value for money, or economic efficiency of healthcare treatments and programs. Economic evaluation, analyzing costs and outcomes of several alternative therapies can also be a useful approach; though can be very difficult to accomplish.[2]

ROLE OF ARTIFICIAL INTELLIGENCE IN INDIA

Artificial Intelligence (AI) is defined as intelligence that is demonstrated by machines which mimic human cognitive functions (Jiang et al., 2017). Nowadays, AI is being used in several fields such as

defense, healthcare, banking and more. In order to provide quality healthcare, AI will be mainly utilized to tackle structural factors such as shortage of professionals, discriminatory access to healthcare or concentration of healthcare facilities in Tier 1 and Tier 2 AI is a game-changer, and the healthcare sector will be able to avail several opportunities from this technological development. The areas where AI has been rapidly emerging include machines that can sense, comprehend, learn and act in order to execute administrative and clinical healthcare functions (Radick, 2017). AI increases the scope of activities that can be done by machines such as natural language processing, chatbots, computer vision or machine learning. For example, machine learning can be deployed to understand the overwhelming healthcare data while reducing the decision processing time (Westgate, 2017). IBM's Watson is used in oncology procedures to prescribe the treatment which is more suitable for the patients (Reddy et al., 2015). There are new startups in India using AI to address challenges related to the quality delivery, automatic diagnosis, detection and screening of diseases or predictive healthcare diagnosis. Similarly, it will be conducive towards the eradication of discriminatory treatments based on social or structural backgrounds..

For example, Manipal Group of Hospitals implemented such technological advancements in order to help doctors to provide accurate treatments to cancer patients through IBM Watson, in its oncology specialization. private and public hospitals and ensuring the smooth distribution of healthcare benefits to the beneficiaries AI is being used in hospitals to detect diseases, handle pharmacy supply chain management, detect fraudulent activities, and organizing numerous administrative activities. Ayushman Bharat, one of the Indian government's flagship schemes, seeks to provide healthcare insurance to all the citizens of India. The scheme is likely to succeed as AI has and will play a major role

in its smooth functioning. In order to provide quality healthcare to rural India, telemedicine has been deployed and data securitization is confirmed by using AI.

ROLE OF STANDARD ELECTRONIC HEALTH RECORD (EHR) FRAMEWORK FOR INDIAN HEALTHCARE SYSTEM

Healthcare levels in India follows different approaches to manage the patient health information. Traditionally in India, most of the hospitals manage patient health information in paper based format, including PHC, SHC and THC level. In paper based approach, healthcare providers are unable to provide better care mainly because extremely useful patient health information is unavailable during episode of care. This is mainly due to the unstructured way of keeping the records in paper based system. Presently most of the secondary and tertiary care hospitals have started using computer based record system for managing the health care information (Dick et al. 1997). It allows healthcare professionals to manage medical information in a significant way compared to paper based chart. Healthcare provider can use this technology to store the data such as symptoms, treatment and prescriptions details of each visit of the patient in the hospital data repository. Electronic Medical Record(EMR) is an electronic version of patient health related information gathered from a single healthcare service provider. Hybrid record represents the individual patient health information in both paper based and electronic format. Today, majority of the hospitals maintain and manage health records in the hybrid format (Stausberg et al. 2003; Lærum et al. 2003). Some of the tertiary health centers have moved from the paper-based medical records to the electronic repository, which connects different departments of tertiary health centers to a centralized data warehouse. This electronic repository allows healthcare professionals to access the patient data irrespective of departments. This system assists the healthcare professionals in

receiving and sending patient data within the hospital and also controlling the flow of information at the point of care.

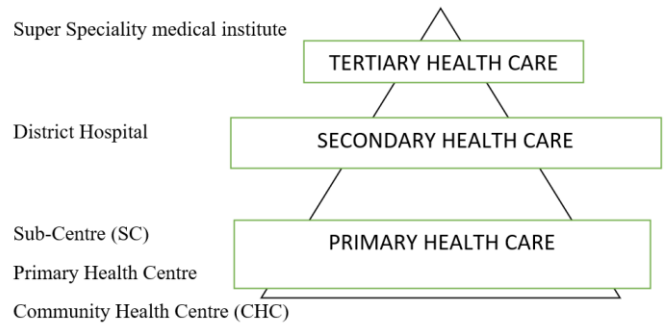
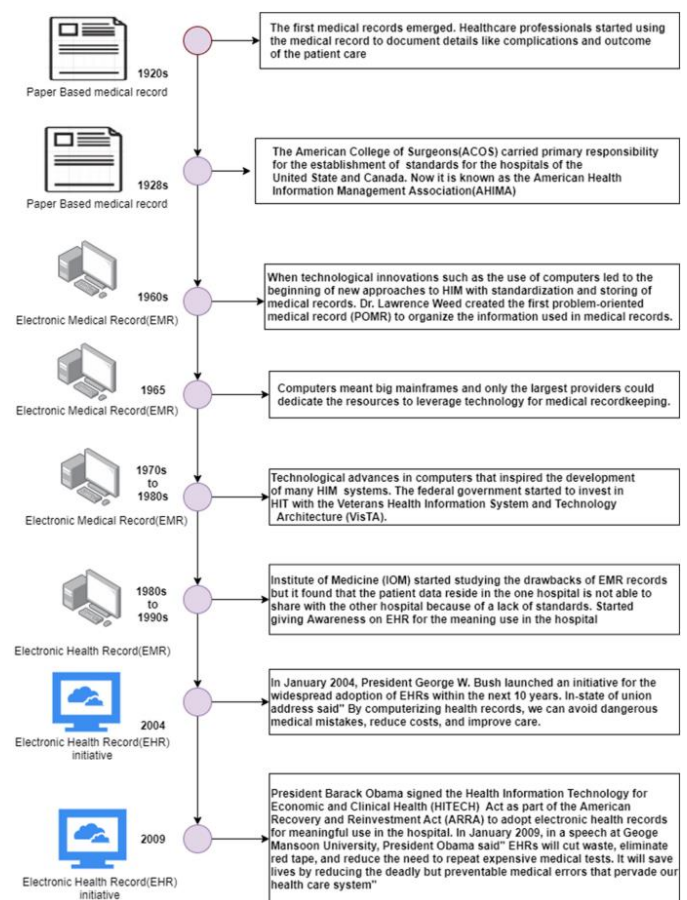


Figure 1 : Levels of healthcare system



DISCUSSION AND CONCLUSION

India has made prominent progress in health standards in the post-independence era. Still, many feel that the financial resources for the health sector should be increased. International developments in information technology need to be applied at the national level in an attempt for health data

documentation. The continued efforts to control the country's population and the political determination to march towards the millennium development goals in health will help India to make a noteworthy impact on the international health scene.

Taking into account this particular growth of Indian healthcare, it is estimated that there will be an inherent need for more healthcare and hospital administrators to properly supply the manpower needed to supplement the growth of the industry. Hence there will be an increase in the need for education in this particular field. Keeping in mind this particular need, there will be a fresh wave for the education courses imparting knowledge about hospital administration, healthcare management as well as public health.

In contrast to this growth of healthcare industry, all of the calculation has been disrupted due to the Coronavirus pandemic. Although the importance of the need for an established healthcare industry and the presence of skilled healthcare workers and administrators is more evident now. We urge our readers to stay safe at homes and also salute those workers who are working in various health-setups, risking their life every-day to control the pandemic.

The models presented here have permitted the construction, using personnel and laboratories within the hospital, of a system of models that permit a response in appropriate time to the needs of the HS and HTA evaluations in the hospital environment. Furthermore, the standardization of the schedules, reports and methodologies permits the hospital management to plan the number of requests and increase the in-hospital evaluation team through a training itinerary. The evaluative activity has had a strong increase, especially for the speedy evaluations (1-week report), in the second semester of activity, after its centralization in the first semester had been for the design and development of the models themselves. Regarding the applicable case of the IORT,

the requests have been completely satisfied. The evaluation had a high and punctual participation by the in-hospital users involved in the analyses (6/7), in addition to the development of a supporting report that albeit producing specific information, gives the in-hospital decision-maker a "capacity for movement and planning" for its own strategic analyses. In fact, the example supplied by the estimated cost of purchase of used equipment, shows how the report, though supplying quantitatively clear elements, allows the calculation of the precise figure for the in-hospital planning and expected and/or predicted activity (number of yearly operations). The health-based clinical evaluation of the IORT shows a clinical efficacy comparable to traditional techniques, identifies expected improvements for the impact, the weight of the illness and the social aspect as well as considering it, in the specific analyzed context, a strategic element for the territory. Finally, the criticalities of the technology are the negative impact of its installation on the in-hospital organization, for the necessity of specific training of the medical technologist personnel as well as the alterations of the itineraries and process of hospital care.

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