Chapter 2

Literature Review

Knowledge can never be gained in isolation. A research is a humble attempt to add to the existing knowledge in the universe. The present study explores two very important scientific domains, management and health sciences, with a common denominator of quality. Therefore literature is reviewed in a three dimensional approach. First the body of knowledge regarding ‘Quality’ as a management concept is explored. Secondly the health care industry and healthcare delivery systems at all the levels of international, national, state, individual providers (Hospitals, Doctors, Nurses, Hospital Administrators); and the end beneficiary - the patients, is discussed. In the third dimension, the concept of quality in health care service is discussed. The information compiled during the review of the literature is arranged in topics as follows:

(1) The Origin & Development of the Concept of ‘Quality’.
(2) The Gurus of Quality.
(3) Health Is Wealth.
(4) The Center for Healthcare Delivery – A Hospital.
(5) The Global Scenario - “Towards a Healthy World”.
(6) Medical Tourism Industry.
(7) Indian Health Care Delivery System.
2.1 The Origin & Development of the Concept of ‘Quality’

2.1.1 Defining the word ‘Quality’

A few definitions of ‘Quality’ are as follows:-

- The Collins English Dictionary defines quality as ‘A distinguishing characteristic, property, or attribute, or the basic character or nature of something. It may be a trait or feature of personality. It is also a degree or standard of excellence, especially of a high standard.’

- The ISO’s (ISO 9000:2014) quality management definition states that the adjective ‘quality’ applies to objects, referring to the degree by which a set of inherent characteristics meet a set of requirements. The quality of an object can be evaluated by comparing a set of inherent characteristics, against the set of requirements. If the characteristics meet all the requirements, a high or an excellent quality is achieved, but if the characteristics do not meet all the requirements, a low or poor level of quality is established. Therefore according to ISO’s definition the quality of an object depends on how well the set of characteristics comply with the set of requirements.

- Joseph M. Juran (1988) describes ‘Quality is fitness for use’.

- Armand Feigenbaum (1961), stated that ‘Quality is a customer determination’ and depends on his actual experience with a product or service, evaluated against the requirements - stated or unstated, conscious or merely sensed, technically operational or entirely subjective - and always representing a moving target in a competitive market.’
2.1.2 Etymology
It is interesting to trace the origin of a word and study the historical development of its meaning. The word quality has originated from the Latin word ‘Qualis’ and ‘Qualitas’ which was used for describing ‘of what kind?’ or ‘of such a kind’. In the year 1300, old French used the word ‘qualite’ to mean "temperament, character or disposition," and the Latin used the word ‘Qualitatem’ to mean ‘a quality, property; nature, state or condition’. Marcus Tullius Cicero, the roman philosopher, coined the word ‘Qualitas’ before Christ was born (Patrick, 2007).

2.1.3 The History of Quality
The literal meaning of the word quality as mentioned in dictionaries makes the concept of quality as old as origin of life itself. It was the traits or specific ‘qualities’ of a species that the ‘Father of Genetics’ Gregor Mendel studied in his experiments, that were passed on from one generation to the other, governed by laws of segregation and independent assortment. Charles Darwin, who is called the ‘Father of Evolution’ in his book ‘The Origin of Species’, describes his theory of ‘Natural Selection’ or ‘Survival of the Fittest’. It implies preservation of favorable individual variations, and the destruction of those characteristics which are injurious, from one generation to the next. In other words ‘Nature’ selects the best quality available and allows it to survive, thus ‘Nature’ is the best ‘quality controller’ of life (Darwin, 1872).

One of the best examples of quality control in Indian mythology is the story in Ramayana of ‘Shabri’, who tastes each berry to check if it was sweet enough to offer Lord Ram. One of the earliest examples of legal control of quality was the code of Hammurabi (2000 BC) in ancient Mesopotamia. Until the early 19th century, quality in the industrialized world tended to follow the ‘Craftsmanship model’, where there were guilds for control of product quality. The master craftsmen trained apprentices to a satisfactory level, after which they were allowed to join the guild and become the next generation of craftsmen. The factory system,
with its emphasis on product inspection, started in Great Britain in the 1750s and grew into the ‘Industrial Revolution’ in the early 1800s. Quality, in the factory system was ensured through the skill of laborers supplemented by audits and inspections. Defective products were either reworked or scrapped.

In World War II, quality became a very important factor. For instance in the United States, bullets made in the factories of one state, had to perform satisfactorily in guns made in another state. Initially each bullet was inspected by the army but this was inconvenient and time consuming. To simplify and expedite this process without compromising on safety, army began to use ‘sampling techniques’ for inspection, and published ‘military-specification standards’.

The atomic bombing of Hiroshima and Nagasaki brought World War II, to an end and left Japan devastated. The rebuilding of the Japanese economy is a major lesson for the world, on Quality. Japan’s resurrection strategy represented the new ‘Total Quality’ approach, because rather than relying purely on product inspection, Japanese manufacturers focused on improving all organizational processes through the workers. As a result, Japan was able to produce higher-quality exports at lower prices, benefiting consumers throughout the world. Japanese manufacturers began increasing their share in American markets, causing widespread economic effects. US manufacturers began losing market share, organizations began shipping jobs overseas, and the economy suffered unfavorable trade balances. As years passed, price competition declined, while quality competition continued to increase. Western managers now realized that ‘quality was more important than quantity’ and understood the importance of ‘Total Quality Management’ (TQM).

The ISO 9000 series of quality-management standards were published in 1987. In early 1990s, quality management principles started finding their way in service industry like FedEx and The Ritz-Carton Hotel Company. TQM became recognized worldwide as countries like Korea, India, Spain and Brazil started making efforts to increase quality awareness. In 2000, the ISO 9000 series of quality management standards was revised to increase emphasis on customer
satisfaction. ‘Six Sigma (6σ)’, which was a set of techniques and tools for process improvement, was introduced by engineer Bill Smith at Motorola in 1986 and Jack Welch made it central to his business strategy at General Electric in 1995. ISO sector specific versions were drafted for automotive, aerospace, telecommunications and environment management. Quality slowly advanced past the manufacturing sector into newer areas of service, banking, healthcare, education and governance.

2.1.4 Product Quality
When the word ‘Quality’ is used for a ‘Product’ it means - The group of features and characteristics of a saleable good which determine its desirability and which can be controlled by a manufacturer to meet certain basic requirements. There are eight dimensions of product quality as defined by David A. Garvin (2008), Professor of Business Administration at the Harvard Business School and author of the impactful book ‘Managing Quality: The Strategic and Competitive Edge.’ These are:

1. **Performance**: This means the product's primary operating characteristics that involve measurable attributes.
2. **Features**: The appeal of the product or service to the user would be enhanced by these additional characteristics called ‘Features’.
3. **Reliability**: The measure of likelihood that a product will continue to function properly, or not fail within a specific period of time.
4. **Conformance**: The degree to which the product or service will meet the pre-decided specific standards.
5. **Durability**: The total length of a product’s life.
6. **Serviceability**: When the product breaks down, the speed with which it can be put into service once again.
7. **Aesthetics**: The subjective dimension or an individual’s personal preference that reflects the kind of overall response a user has to a product.
8. **Perceived Quality**: When indirect measures are utilized, the quality attributed to a good or service, is the perceived quality. Garvin emphasized- "If quality is to be managed, it must first be understood."

### 2.1.5 Service Quality

Service quality means how well a service is delivered compared to customer expectations. Businesses that meet or exceed expectations are considered to have high service quality. Evans and Lindsay (1994) identified the following eight dimensions of service quality in the form of questions:

1. Time: How much time a customer has to wait?
2. Timeliness: Will a package be delivered by the promised time?
3. Completeness: Is everything demanded by the customer provided?
4. Courtesy: How the Employees treat the customer?
5. Consistency: Is the same level of service provided to each customer, each time?
6. Accessibility and convenience: How easy it is to obtain the service?
7. Accuracy: Is the service performed right, the first time?
8. Responsiveness: How quickly the company reacts to problems?

When question of measuring ‘Service Quality’ arises, it is noted that the expected service and the perceived service often may not be equal, thus leaving a ‘Gap’. The service quality model or the ‘SERVQUAL’ developed by a group of researchers, Parasuraman, Zeithaml and Berry in 1988, highlighted the main requirements for delivering high service quality. They identified the ‘Gaps’ that cause unsatisfactory service delivery. Initially ten determinants were described, viz. reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding the customer and tangibles. Later, the determinants were reduced to five, viz. Reliability, Assurance, Tangibles, Empathy and Responsiveness in the so called ‘RATER’ model.

Due to increased complexity, specialization and competitive nature of service industries, the market for business services has boomed. Business services like
hospitality, research, industrial relation, accountancy, taxation, legal services, healthcare and many others are in great demand. Hospitals provide ‘Healthcare Service’ and therefore ‘Service Quality’ is important for the hospital sector. The consumer remains loyal to the organization based on the quality of service provided. Highly satisfied or even delighted customers are the loyal ambassadors of the service industry as they consolidate their buying with one supplier, and spread the positive word of mouth. The opposite is also true, as dissatisfaction drives customers away and is a key factor in customer switching the service provider. The ‘Satisfaction- Loyalty Relationship’ can be divided into three main zones. (Wangenheim, 2005)

1. **Defection**: When there is such low satisfaction level that customers will switch to another service provider, even if switching costs are very high. Customers in this zone will speak abundance of negative word of mouth for the service provider.

2. **Indifference**: When there is intermediate satisfaction level, where customers are neutral, they will not leave the service provider, but be willing to switch if they find a better alternative.

3. **Affection**: This zone has customers with very high satisfaction levels and high attitudinal loyalty that they do not look for alternative service providers; they praise the firm in public and refer others to the firm.

### 2.2 The Gurus of Quality

‘Guru’ is a Sanskrit term, also included in English dictionaries, that connotes someone who is a ‘teacher, guide, expert, or master’ of certain knowledge or field. Few of the pioneers, thinkers, gurus and champions of quality who have
significantly contributed to the concept of quality through their work are highlighted in the following few paragraphs here.

2.2.1 Walter A. Shewhart: The Father of Modern Quality Control

Walter A. Shewhart was an American physicist, engineer and statistician. His work is summarized in his book ‘Economic Control of Quality of Manufactured Product (1931).’ He preached the importance of adapting management processes to create profitable situations for both businesses and consumers. He developed the Statistical Process Control (SPC) chart and the ‘Shewhart Cycle’ or the ‘Learning and Improvement cycle’. Shewhart stressed that bringing a production process into a state of ‘Statistical control’, where there is only chance-cause variation, and keeping it in control, is necessary to predict future output and to manage a process economically.

2.2.2 J. M. Juran: The Father of Quality & Pareto

Dr. Joseph Moses Juran is recognised as the person who added the human dimension to quality, differentiating it from its statistical origins. In 1937, Dr. Juran conceptualised the ‘Pareto Principle’, which means that 20% of the ‘vital few’ can influence the 80% of ‘useful many’ and is commonly referred to as the ‘80-20’ principle. It is applied universally and is one of the most useful tools for managers even today.

2.2.3 Armand V Feigenbaum: The Originator of Total Quality Control

Dr Armand V Feigenbaum argued that for a systematic or total approach to quality, the involvement of all functions in the quality process is required and not just manufacturing. He advocated the need for quality-mindedness throughout all levels and especially the complete support of top management. A famous Quote of Feigenbaum is: “Quality is everybody’s job, but because it is everybody’s job, it can become nobody’s job without the proper leadership and organization.”
2.2.4 Dr Genichi Taguchi: Concept of the Quality Loss Function

Taguchi was the first person to equate quality with cost and he revolutionized the manufacturing process in Japan through cost savings. He advocated ‘The Loss Function’, which is an equation to quantify the decline of a customer's perceived value of a product as its quality declines. He also introduced the ‘Orthogonal Arrays and Linear Graphs’ that was used to evaluate a production process to identify outside factors or noise which cause deviations from the mean. Taguchi devised a way to use orthogonal arrays to isolate these noise factors from all others, in a cost effective manner. Taguchi referred to the ability of a process or product to work as intended, regardless of uncontrollable outside influences, as ‘robustness’.

2.2.5 William Edwards Deming: Father of Japanese post-war industrial revival

Deming's business philosophy is summarised in his famous ‘14 Points’, listed here:

1. **Constancy of Purpose**: Create constancy of purpose to improve the product and / or service, with the objective to become competitive, to continue in business and to create jobs.
2. **Adopting the new philosophy**: Deming emphasized that in this new economic age, the western management must realize and face the challenge, must accept their responsibilities, and take on a leadership role for change.
3. **Cease dependence on ‘Mass Inspections’**: By building quality into the product in the first place we can eliminate the need for massive inspections.
4. **Stopping the practice of allotting business contracts on basis of price tag**: Instead, minimize total cost by working with a single supplier for any one item, on a long-term relationship of loyalty and trust.
5. **Improving constantly and forever the system of production and service**: to improve quality and productivity, and thus constantly decreasing the costs.
6. **Institute Training for management**: Start the practice of ‘training on the job’.
7. **Adopt and institute leadership**: with the aim to help people, machines and gadgets do a better job. Overhaul the supervision of production workers.

8. **Drive out fear**: so that everyone may work effectively for the company.

9. **Break down barriers between staff areas**: People in research, design, sales, and production should work as a team, to predict problems of production and functioning that may be encountered with the product or service.

10. **Eliminate slogans, exhortations, and targets for the work force**: instead motivating them for zero defects and achieving new levels of productivity. He opined that exhortations only created adversarial relationships, as the major causes of low quality and low productivity belonged to the system and thus was beyond the power of the work force.

11. **Eliminate numerical goals**: Deming specially emphasized the removal of work standards or quotas on the factory floor and was not in favour of management by objective or management by numbers and numerical goals. He wanted these practices to be substituted with effective leadership.

12. **Remove barriers that rob people of pride of workmanship**: The responsibility of supervisors should be changed from ensuring sheer numbers to promoting quality. Deming wanted abolition of the annual merit rating systems.

13. **Encourage Education and self-improvement for everyone**: He advocated instituting a vigorous program of education and self-improvement for everyone.

14. **Take action to accomplish Transformation**: Deming suggested putting everybody in the company to work with the goal to accomplish the transformation. The transformation was everybody's job.

Deming championed the work of Walter Shewhart, including statistical process control, operational definitions, and what Deming called the ‘Shewhart Cycle’, which has evolved into PDSA (Plan-Do-Study-Act) model, but many remember it only as ‘Deming Cycle’.
2.2.6 Kaoru Ishikawa: Pioneer of the Quality Circle Movement.

Dr Ishikawa made many contributions to quality, most noteworthy being his ‘Total Quality Viewpoint’, ‘Companywide Quality Control’, ‘Human Side of Quality’, ‘Ishikawa Diagram’ and use of “Seven Basic Tools of Quality” which are:

i. **Histograms:** It is a bar graph that shows frequency of data. Histogram provides the easiest way to evaluate the distribution of data.

ii. **Pareto charts:** They are actually histograms added by 80/20 rule adapted by Joseph Juran. The 80/20 rules states that approximately 80% of the problems are created by approximately 20% of the causes. Pareto charts are used to identify and prioritize problem to be solved. Pareto charts are specially used when products are suffering from the different defects but the defects are occurring at different frequency or only a few accounts for most of the defects presents and different defects incur different cost. Though the product line may experience a range of defects, the manufacturer could concentrate on reducing the defects which make up a bigger percentage of all the defects or focus on eliminating the defect that causes most monetary loss.

iii. **Cause and effect diagrams:** It is also called the ‘Ishikawa diagram’ or the ‘fishbone diagram’. It is a tool for analyzing all the possible causes for a particular problem. The major aim of this diagram is to act as a first initial step in problem solving by creating a list of possible causes.

iv. **Scatter Diagram:** These are used to study and identify the possible relationship between the changes observed in two different sets of variables. It is a diagram with horizontal and vertical axes. It is conventional that the ‘cause’ variable is labelled on the X axis and the ‘effect’ variable be labelled on the Y axis. Then the plotting of the data pairs is done on the diagram and interpretation is done by studying the direction and strength.

v. **Flow Charts:** It is a pictorial representation showing all of the steps of a process. It is created by using flow chart symbols and filling in detail about
each element. Next step is to analyze the flow chart to determine which steps add value and which don’t, in the process of simplifying the work.

vi. **Run Charts**: These are used to analyze processes according to time or order. It is created by organizing data that is divided into two sets of values X and Y. X values represent time and values of Y represent the measurements taken from the manufacturing process or operation. Interpretation of the data is done to draw any conclusions that will be beneficial to the process or operation.

vii. **Control Charts**: is a graph used to study how a process changes over time. Data is plotted in time order and there is a central line for the average, an upper line for the upper control limit and a lower line for the lower control limit. By comparing current data to these lines, one can draw conclusions about whether the process variation is consistent (in control) or is unpredictable (out of control, affected by special causes of variation).

### 2.2.7 Philip B. Crosby: ‘Doing Right - First Time’

Crosby was both an illustrious philosopher and pragmatic practitioner of quality management. He argued that ‘doing it right- the first time’ is less expensive than the cost of detecting and correcting nonconformities. In 1984, he wrote a book ‘Quality without Tears’ in which he developed pragmatic concepts that are considered foundational elements of the body of quality knowledge, including his ‘Four Absolutes of Quality Management’. These are:

1. Quality means conformance to requirements, not goodness.
2. Quality is achieved by prevention, not appraisal.
3. Quality has a performance standard of Zero Defects, not acceptable levels.
4. Quality is measured by the Price of Non-conformance, not indexes.

He summarized the importance of quality by his famous quote “When you're out of quality, you're out of business”.
Crosby developed a tool of fourteen steps for quality improvement. The aim of quality improvement program (QIP) is to set preplanned objectives which help an organization when it comes to quality management. The steps are:

i. **Management commitment:** The top Management must be committed to quality and this should be communicated downward by a written policy. Everyone is expected to perform according to the requirements of the company and the customers’ need.

ii. **Quality improvement team:** Is formed with department head as leader to oversee and judge improvement in their departments and in whole company.

iii. **Quality measurement:** Measurement tools used to establish appropriateness of all the activities in order to identify areas where improvement in needed.

iv. **Cost of quality:** Is defined in advance, in order to point out areas where improvement would be profitable.

v. **Quality awareness:** Employees are the foundations of any process or change. Management must raise ‘quality awareness’ among employees especially about the importance of product performance and cost of non-conformance.

vi. **Corrective action:** It was important to take positive and correct steps to solve the problems identified from previous steps.

vii. **Zero defects planning:** Preferably done by a committee, which will plan a program suitable to the company and its culture.

viii. **Supervisor training:** A training program should in place for all levels of management that will focus on implementation of their part in the quality improvement program.

ix. **Zero defect days:** Management can schedule a day to indicate to all employees that the company has a new standard to be achieved on a particular day.

x. **Goal setting:** This implies that the individuals should establish improvement goals for themselves as well as for their groups.
xi. Error cause removal: If any problem occurs that prevent employees from performing error free work there should be a clean, transparent policy to inform top management.

xii. Recognition: For those who meet their goals efficiently and effectively, they should be rewarded.

xiii. Quality counsel: This consists of quality professionals and team leaders who should meet on a regular basis to share their experiences, problems and ideas.

xiv. Do it all over again: Crosby wanted to ensure continual quality improvement and suggested that a continuous process be followed by repeating again and again, steps i to xiii.

2.2.8 Shigeo Shingo: The Master of Lean Manufacturing

Shigeo Shingo was an industrial engineer who specialized in industrial processes and helped to form the ‘Toyota Production System’. He coined the term ‘Poka-yoke’ which means ‘mistake-proofing’ a system, where defects are examined, and the production system stopped and immediate feedback given, so that the root causes of the problem may be identified and prevented from occurring again. Shigeo Shingo was also strongly associated with ‘Just-in-Time’ manufacturing, and was the inventor of ‘Single Minute Exchange of Die’ (SMED) system, in which set up times are reduced from hours to minutes. One of his famous quote is “When you buy bananas all you want is the fruit not the skin, but you have to pay for the skin also. It is a waste. And you the customer should not have to pay for the waste.”

2.3 Health is Wealth

After reviewing the literature on the first dimension of ‘Quality’ we proceed to discuss about the second dimension of ‘Health, Health Care Service sector and Hospital’ from few important perspectives.
2.3.1 Defining Health

The word ‘health’ was derived from the old English word ‘hoelth’, which means a state of being sound, generally used to mean a soundness of the body. According to the World Health Organization (WHO), Health is defined as “A state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity; and ability to lead a socially and economically productive life”.

2.3.2 The Wellness continuum

It is unrealistic to have complete wellness all of the time. Wellness is a continuum ranging from death to optimal health and health and wellness are always changing. A person’s health at any point of time can be denoted as a point on a sliding scale:

<table>
<thead>
<tr>
<th>Premature Death</th>
<th>Illness</th>
<th>Comfort Zone</th>
<th>Wellness</th>
<th>High Level of Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic Disorder</td>
<td>lack of Energy</td>
<td>…</td>
<td>Moderate energy</td>
<td>Optimal Energy</td>
</tr>
<tr>
<td>Disability</td>
<td>Symptoms</td>
<td>Signs</td>
<td>Neutral</td>
<td>Awareness</td>
</tr>
</tbody>
</table>

2.3.3 The Concept of Health

An understanding of health is the basis of all the health care. Health is not perceived the same way by all the members of a community including various professional groups, giving rise to confusion about the concept of health. The various changing concepts of health are:

i. Biomedical Concept: If someone was free from disease, then that person was considered healthy. It is based on the ‘germ theory of the disease’.
ii. Ecological Concept: Health is a dynamic equilibrium between man and his environment; the disease is maladjustment of the human organism to environment.
iii. Psychosocial Concept: Health is influenced by social, psychological, cultural, economic and political factors of the people concerned.

iv. Holistic Concept: The holistic model is a synthesis of all the above concepts and recognizes the strength of social, economic, political and environmental influences on health. It is a multidimensional process involving the wellbeing of the person as a whole.

Better health is important to human happiness and well-being. It also makes a major contribution to economic progress, as healthy populations live longer, are more productive, and save more. Good health boosts labor productivity, educational attainment and income, and so reduces poverty.

Most countries have made good progress in the battle against communicable diseases through improved living standards, better sanitation, and wider access to health care and vaccinations. However, rapid urbanization, sedentary lifestyles, pollution, non communicable diseases, stressful environment and rising obesity levels are causing worldwide increase in chronic diseases.

2.4 The Centre for Healthcare Delivery- A Hospital

2.4.1 The History of Hospitals

The word ‘hospital’ is derived from Latin ‘hospes’, meaning a stranger, foreigner, or a guest. Another noun derived from this is ‘hospitium’ which means ‘hospitality’, and is the relation between guest and the sheltered. The earliest hospitals can be traced back as far as the 5th Century BC, to the ancient ‘Sinhalese’ (Sri Lankans). According to the ‘Mahavamsa’, written in the 4th century B.C., King ‘Pandukabhaya’ had ‘Sivikasotthi Sala’ or ‘lying in homes’ as hospitals built in various parts of the country (Naik, 2017). In ancient Greece, temples dedicated to
the healer-god ‘Aslepius’, known as ‘Asclepieia’ functioned as centers of medical advice, prognosis, and healing. ‘Fa Xian’, a Chinese Buddhist monk who travelled across India around A.D. 400, recorded in his travelogue, that institutions created specifically to care for the ill existed in India. Around A.D. 325, with Christianity becoming an accepted religion in the Roman Empire, the construction of a hospital in every cathedral town was begun. They were called the ‘Basilias’, and resembled a town, that included housing for doctors and nurses, and separate buildings for various types of patients. The first hospital established in India was the ‘Royal Hospital’ in Goa, established by Portuguese in 1510. The Government General Hospital, Chennai was started in 1664, as a small hospital to treat the sick soldiers of the East India Company, and it later became the first medical institution in India ‘Madras Medical College’. In 1854, Crimean War started, and the soldiers of the British army were staying in barracks at Scutary. The barracks were converted into a temporary military hospital, after the troops left for battle. On 4th November 1854, Florence Nightingale arrived in Scutari with 37 volunteer nurses. Her style of work at Scutari hospital reformed the entire British health care system over the succeeding five decades. She transformed the ‘barrack hospital’ from a haphazardly managed building that originally had been designed for some other purpose, into a Hospital, specifically designed to care for patients. The title of ‘The Mother of All Hospital Administrators’ is bestowed upon the Lady with the Lamp: Florence Nightingale.

2.4.2 The Hospital: Definition and function

The Hospital is the established point of ‘Health Care Delivery’. WHO defines Hospitals as health care institutions that have an organised medical and other professional staff, inpatient facilities, and deliver medical, nursing and related services 24 hours per day, 7 days per week. Hospital is a formal institution developed by the society for patient care to meet the complex health needs of its members. Hospital protects the family from many of the disruptive effects of caring
for the ill at home. Professionally & technically skilled people apply their knowledge and skill with the help of complicated equipment and appliances - to provide quality health care to the patient.

The functions of a Hospital can be summarized under 4 broad headings:

1. **Patient Care** - Hospital provides diagnosis and treatment of diseases to both inpatients and outpatients and provides facilities for hospitalization, immunization and rehabilitation.

2. **Training** – Hospitals act as training centres for medical and allied health professional (Doctors, nurses, pharmacists, technicians) and educate the people regarding lifestyle modifications, risk avoidance and general healthcare.

3. **Medical Research** – Hospital provides facilities for research like clinical trials, integrate and co-ordinate various disciplines of medicines to improve the standards of medical practice.

4. **Public Health Awareness**– Hospital by its community outreach programs, early detection, treatment and advice, lowers the incidence of diseases and takes care of the community at large and contributes a lot in prevention of diseases.

A hospital is a multifaceted organization comprising many committees, departments, types of personnel, and services. It requires highly trained employees, efficient systems and controls, necessary supplies, adequate equipment and facilities and of course physicians and patients. The physician is the leader of the clinical team and his responsibility is to diagnose the patient's condition accurately and to prescribe the best and most cost-effective treatment plan. Nursing staff are responsible for carrying out the treatment plan developed by the physician. There are separate clinical departments in a multispecialty hospital like - General Medicine, General Surgery, Orthopedics, Obstetrics and Gynecology, Pediatrics, Ophthalmology, Otolaryngology, Dermatology, Psychiatry, Pulmonary Medicine, Anesthesiology, Radio Diagnosis, Dentistry and Pathology. Administrative services
are necessary to run the hospital's business and operations. The hospital Medical Superintendent or CEO leads these administrative services and is directly responsible for the day-to-day operations of the facility. There are other departments of Human Resource, Accounts, Medical Record Keeping, General Maintenance, Biomedical Engineering, Information Technology, Marketing, Public Relations, Materials Management, Fund-Raising, Housekeeping and Security.

2.5 Global Scenario: ‘Towards a Healthy World’

Human beings may be restricted by international boundaries, but the pathogens and microorganisms that cause disease and the lifestyle issues that promote non-communicable diseases, know no boundaries. Diseases are not limited to one or two nations only, and an outbreak of any sporadic disease at one remote corner of the world, if not properly managed, soon engulfs several countries and becomes a pandemic. The efforts at fighting disease and promoting health should therefore be global, to achieve the desired results. Such cooperation was difficult in the ancient world but in the present era of information technology revolution and easy travelling facilities available to any corner of the globe, it is now possible to have global synergy in the activities that promote health.

2.5.1 The World Health Organization (WHO)

The World Health Organization (WHO) is a specialized agency of the United Nations that is concerned with international public health. It was established on 22\textsuperscript{nd} July, 1946, with headquarters in Geneva, Switzerland. WHO’s Constitution came into force on 7\textsuperscript{th} April, 1948 – a date that is now celebrated every year as World Health Day. The Goal of WHO is to build a better, healthier future for people all over the world. WHO secretariat staff work alongside governments,
NGOs, Professional associations and regulating bodies in more than 150 countries, to ensure the highest attainable level of health for all people. The WHO is led by several boards. The World Health Assembly is composed of representatives from all member countries and is the supreme decision making body of WHO. The Executive Board has 34 members, primarily doctors, who advise the Assembly. The head supervisor of WHO is a Director-General, who is elected every five years. There are 193 member countries today and they are segregated into six regions, each with its own ‘regional office’ at Africa, Europe, South-East Asia, Americas, Eastern Mediterranean and the Western Pacific. The 6 official languages are Arabic, Chinese, English, French, Spanish, and Russian.

2.5.2. WHO: A Healthy History of Effectiveness

In 1958, the USSR proposed a WHO-led smallpox eradication programme which was highly successful, and by 1977, the last confirmed case of smallpox was identified in Somalia and Smallpox was officially declared by WHO as eradicated in 1980. It was the first disease to have been fought on a global scale. In the 1960s WHO promoted mass campaigns against yaws, endemic syphilis, leprosy, and trachoma. It helped control a major cholera pandemic in Asia and the Western Pacific and the large epidemic of yellow fever in Africa. In 1978, WHO adopted the ‘Declaration of Alma-Ata’, requesting all governments to make high-quality ‘Primary Health Care’ an essential feature of their national health system and in 1981, WHO adopted a global strategy for achieving health for all by 2000. In 1988, WHO formulated an ambitious plan to achieve global eradication of poliomyelitis by 2000. Now WHO is a partner in the ‘Global Polio Eradication Initiative’, the largest private-public partnership for health that has reduced polio by 99%. In 2000, at the Millennium Summit, the United Nations adopted Millennium Development Goals (MDGs) with specific goals for health. In 2003, WHO adopted the “5 by 5” initiative for controlling HIV by proper treatment. In 2004, a ‘Strategic Health Operations’ center was built to coordinate health emergency alert and
response globally. In 2008, The World Health Statistics report noted a global shift from infectious diseases to non-communicable diseases, with heart disease and stroke emerging as the world’s number one killers. This new evidence prompted WHO to strengthen its focus on non-communicable diseases. In 2014, the biggest outbreak of Ebola virus disease ever experienced in the world struck in West Africa. The WHO Secretariat activated an unprecedented response to the outbreak, and successfully controlled it. In 2015 Delegates from around the world met at the UN Summit to sign on ‘2030 Sustainable Development Goals (SDGs)’, which apply to all countries worldwide and move beyond the MDGs to ensure a sustained healthy world. The Director General of WHO is Dr Tedros Adhanom Ghebreyesus of Ethiopia, who started his five-year term on 1st July, 2017. Dr Soumya Swaminathan, who was Director General of the Indian Council of Medical Research (ICMR), has been appointed as the Deputy Director General, Programmes, of the World Health Organisation on 3rd October 2017.

2.5.3 Quality of Healthcare and WHO

The WHO’s definition of quality of health care is “the extent to which health care services provided to individuals and patient populations improve desired health outcomes”. In order to achieve this, health care must be “safe, effective, timely, efficient, equitable and people-centered.”

1. **Safe**: Delivering health care that minimizes risks and harm to service users, including avoiding preventable injuries and reducing medical errors.
2. **Effective**: Providing services based on scientific knowledge and evidence-based guidelines.
3. **Timely**: Reducing delays in providing and receiving health care.
4. **Efficient**: Delivering health care in a manner that maximizes resource use and avoids waste.
5. **Equitable:** Delivering health care that does not differ in quality according to personal characteristics such as gender, race, ethnicity, geographical location or socioeconomic status.

6. **People-centred:** Providing care that takes into account the preferences and aspirations of individual service users and the culture of their community.

### 2.5.4 Quality practices in Healthcare in select Countries

The world is divided into nations based on historical arrangements but the population of one country gets united into cultural and linguistic similarities that make them unique. Therefore the efforts of individual countries towards quality in health care are different and unique. The ‘Quality and Accreditation in Healthcare Services, A Global Review: (WHO)’ lists the ‘National societies’ that promote or regulate quality in few select countries of the world and is given in Table no. 2.1.

Table 2.1 National Organizations that promote or regulate quality

<table>
<thead>
<tr>
<th>S.no.</th>
<th>Country</th>
<th>Quality Regulating Organization</th>
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<tbody>
<tr>
<td>1</td>
<td>Australia</td>
<td>Australasian Association for Quality in Health Care</td>
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<td>2</td>
<td>Austria</td>
<td>Society for Quality in Health Care</td>
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<td>Denmark</td>
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<td>Germany</td>
<td>Gesellschaft für Qualitäts Management in der &amp; Gesundheitsversorgung</td>
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<td>Greece</td>
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<td>Hungary</td>
<td>Hungarian Society for Quality Assurance in HealthCare</td>
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<td>Ireland</td>
<td>Irish Society for Quality in Health Care</td>
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<td>9</td>
<td>Italy</td>
<td>Società Italiana per la Qualità dell’Assistenza Sanitaria</td>
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<td>10</td>
<td>Japan</td>
<td>Japan Society for Quality in Health Care</td>
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<td>11</td>
<td>Jordan</td>
<td>Jordan Society Quality in Healthcare</td>
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<td>12</td>
<td>Malaysia</td>
<td>Malaysian Society for Quality in Health</td>
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<td>13</td>
<td>Mexico</td>
<td>Sociedad Mexicana de Calidad de la Atención a la Salud</td>
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<td>S.no.</td>
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<td>14</td>
<td>Netherlands</td>
<td>Dutch Society for Quality and Care</td>
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<td>15</td>
<td>New Zealand</td>
<td>New Zealand Organisation for Quality</td>
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<td>16</td>
<td>Norway</td>
<td>Norwegian Forum for Quality in Health Care</td>
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<td>Peruvian Society for Quality in Health Care</td>
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<td>18</td>
<td>Philippines</td>
<td>Philippine Society for Quality in Health Care</td>
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<td>19</td>
<td>Spain</td>
<td>Sociedad Española Calidad Asistencial</td>
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<td>20</td>
<td>Sweden</td>
<td>Swedish Society for Health Care Quality</td>
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<tr>
<td>21</td>
<td>Switzerland</td>
<td>Swiss Association for Quality Assurance and Continuous &amp; Quality Improvement in Healthcare &amp; National Alliance for Quality</td>
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<td>22</td>
<td>United Kingdom</td>
<td>Clinical Audit Association UK &amp; Association for Quality in Healthcare</td>
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<tr>
<td>23</td>
<td>United States</td>
<td>National Association for Healthcare Quality</td>
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<tr>
<td>24</td>
<td>India</td>
<td>National Accreditation Board for Hospitals &amp; Healthcare Providers (NABH)</td>
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2.6 Medical Tourism Industry

Medical tourism can be defined as the process of traveling outside the country of residence for the purpose of receiving medical care. Originally, the term referred to the travel of patients from less-developed countries to developed ones in pursuit of the treatments not available in their homeland. Today we are experiencing reverse phenomena as people travel from richer to less-developed countries in order to access health services because of the relative low-cost of treatments, no delay of appointments, and the availability of inexpensive flights. There is increased marketing and online consumer information provided about the availability of such medical services. The word ‘tourism’ is added because patients, after their treatment can take advantage of their visit by sightseeing, taking day trips or participating in any other traditional tourism activities. Medical tourism represents a worldwide, multibillion-dollar phenomenon that is expected to grow considerably in the next decade.
2.6.1 History of Medical Tourism

The practice of travelling for health and medical reasons has a long history. Even the ancient civilizations recognized the therapeutic effects of mineral thermal springs and sacred temple baths. For example, the Sumerians constructed health complexes around hot springs more than four thousand years ago, which included temples with flowing pools. Ancient Romans built resorts with thermal health spas, and therapeutic temples thrived during the Greek era. Ancient Greeks were known for their travels to the sanctuary of the healing god, Asklepios, believed to reveal remedies for different ailments in the dreams. This sanctuary was in fact a small territory in the Saronic Gulf named Epidauria – today considered as the birthplace of medical tourism as we know it.

2.6.2 Medical Tourism: Advantage India?

India holds an advantage as a Medical Tourism destination due to the following:

1. Most of the medical practitioners at important Indian hospitals are well trained or have worked at some time in the leading medical institutions of the world.
2. Indian doctors and nurses are quite fluent in English.
3. Availability of advanced medical and diagnostic equipments of global standards at important hospitals in India.
4. The cost of treatment and healthcare services is much low in India when compared to other international hospitals in the world.

According to the National Tourism Policy, published by Ministry of Tourism (2002), Medical Tourism market in India is estimated to be valued at a whopping $4 billion (Rs 25,600 crores). India hosts about 1.27 million tourists from countries such as the US, UK, and Canada in addition to visitors from neighboring countries like Bangladesh, Sri Lanka, and China. Medical Tourism market also benefits the secondary players from the tourism industry. The International Yoga Day
celebrations on 21st of June, by the United Nations and the separate AYUSH ministry and departments in all states, facilitate this unique advantage. The Indian government is also taking steps to reducing barriers for visiting India for medical purposes. The government has introduced medical visa to ease medical tourism. In order to further expand the healthcare system and enhance its quality, the government also actively provides incentives and is giving special approvals to foreign firms for direct investments in this sector. The year 2015 witnessed the growth of 140% of foreign tourist’s arrival on medical visa from 2013, where more than 50,000 people visited India.

2.7 Indian Healthcare Delivery System

Indian healthcare delivery system can be classified into two major components - public and private. The Government, i.e. public healthcare system has been developed on the World Health Organization’s (WHO) model of ‘Primary Health Care’ and therefore comprises secondary and tertiary care referral institutions in urban areas, and focuses on providing basic healthcare facilities in the form of Primary Healthcare Centres (PHCs) and Community Health Centres (CHCs) in rural areas. The private sector plays an important role in providing secondary, tertiary and quaternary care, through institutions with a major concentration in urban parts of India, especially the metropolitan cities.

2.7.1 The Rural Healthcare Scenario

The health care infrastructure in rural areas has been developed as a three tier system and is based on the population norm of 1 Sub-centre for 5000 people, 1 PHC for 30000 people, 1 CHC for 120000 people. For hilly, tribal or difficult areas the norms have been revised to 3000, 20000 and 100000 respectively. As on 31st
March, 2016, according to the statistics of HMIS, Ministry of Health, GOI, there are 1,55,069 Sub Centres, 25,354 Primary Health Centres (PHCs) and 5,510 Community Health Centres (CHCs) functioning in the country. PHC is the first contact point for village community and provides an integrated curative and preventive health care to the rural population with emphasis on preventive and promotive aspects of health care. CHCs are established and maintained by the State government and are supposed to have four medical specialists i.e. Surgeon, Physician, Gynaecologist and Paediatrician. An existing facility like the District Hospital, Sub-divisional Hospital or even a Community Health Centre can be declared a fully operational ‘First Referral Unit’ (FRU) only if it has 24 x 7 availability of Emergency Obstetric Care including surgical interventions like caesarean sections, new-born care and blood storage facility.

National Rural Health Mission (NRHM) was launched on 12\textsuperscript{th} April 2005, with the objective of providing Accessible, Affordable and Quality healthcare to the rural population. The availability of manpower is one of the important pre-requisite for the efficient functioning of the rural health services. Notable point is that, as per the official data of government, overall 25.8\% of the sanctioned posts of Doctors were vacant. The role of the allopathic doctors (MBBS) at PHC is of the team leader to implement all the health care schemes at the grass root level, and as on 31\textsuperscript{st} March, 2016, there was a shortfall of 12.8\% of the total requirement. The scenario becomes very grim at the CHC level, where the current position of specialists manpower reveal that as on 31\textsuperscript{st} March, 2016, out of the sanctioned posts, 68.2\% of Surgeons, 61.9\% of Obstetricians & Gynecologists, 70.2\% of Physicians and 63.6\% of Pediatricians were vacant. Overall 65.3\% of the sanctioned posts of specialists at CHCs were vacant. The shortfall of specialists is significantly high in most of the States. The major reason for this shortage, in spite of India having one of the largest medical education systems in the world, is that the medical graduates are not inclined to serve in rural areas, where the facilities of electricity and good roads are
still not developed. There are strategies developed by different state governments to motivate doctors to serve in rural areas that include reserved quotas in post-graduation courses, special allowances and promotion schemes. There are also strategies to force the MBBS graduates to work in rural areas by financial bonds and ideas of making a year-long rural posting mandatory for all MBBS students before they officially graduate and get registered to become practicing doctors.

2.7.2 The Urban Health Care Scenario

As per Census 2001, 28.6 Crore people used to live in urban areas, and in 2011 this population has increased to 37.7 crores. The urban growth has also led to rapid increase in number of urban poor population, many of whom live in slums and temporary settlements. Despite the supposed proximity of the urban poor to urban healthcare facilities, their access to them is severely restricted. Limited government facilities, social exclusion, lack of information and assistance, and lack of economic resources are the factors that inhibit or restrict their access to the available private facilities. With the mission to bring about sustainable improvements in the health conditions of the urban poor by influencing policies and programmes and empowering the community, National Urban Health Mission (NUHM) has been approved by the Cabinet on 1st May 2013. The Mission will work in all 779 cities having population of above fifty thousand. This will complement NRHM’s efforts and avoid duplication of services. Areas with less population than 50,000 will be looked after by NRHM.

In urban areas, the health care providers significantly include the private sector which consists largely of sole practitioners or small nursing homes having 1-20 beds, serving an urban and semi-urban clientele and are focused on curative care. There is no organized system and the patients are free to choose the providers, depending upon multiple factors like, proximity, affordability, advertisements and severity of the disease. This leads to serious supply gaps and distributional
inequities, no uniform standards or treatment protocol, no cost control and no quality assurance mechanism. There is another subset of healthcare providers in the form of NGOs and charitable trusts which have the capability to provide reasonable quality care at affordable rates and the potential to serve the poor in under-served areas. The parallel unorganized and often illegal system of health care of unqualified doctors or quacks, adds to the complexity of the situation in the urban slum areas.

The strategy of NUHM is referral linking of all existing hospitals, maternity homes, state government hospitals, medical colleges, and private hospitals by making them empanelled / accredited to act as referral points for different types of healthcare services. Collaboration with local Medical Colleges is promoted for strengthening the training support and supplement human resource.

In the urban areas are located the Corporate Sector Hospitals and Super-specialty Hospitals. Since the 1980s, the liberalization policy of India and the economic resurgence that increased the paying capacity of a large section of individuals especially in urban areas, had led to creation of an opportunity for profit-making in the healthcare sector. Private corporations began investing in the hospital sector. While the demand for hospital care was increasing, the public and private hospital care providers were not able to deliver in terms of volume and quality of care. With this untapped market and favorable regulatory environment, corporate world saw a growth potential and in 1983, the first corporate hospital - Appolo Hospital was started in Chennai. This was the first ever hospital to be registered as a publicly listed company in India and the Chairman of Appolo Hospital Group, Mr. Prathap Reddy is recognized as the pioneer of corporate hospitals in India. There were chains of corporate hospitals that became functional in most of the cities – Wockhardt, CARE, Fortis, Max, Artemis, Rockland, Manipal, Narayan Hridulaya, Escorts, Columbia Asia, HCG and Sterling. These corporate hospitals began attracting the best medical teams, commissioned the best available medical
equipments and especially catered to the insured, upper middle class and wealthier patients. Though they are still out of the reach of the poor, they have established benchmarks in quality of care. The business of corporate and big private hospitals in urban cities also flourished because of the slowly and steadily increasing health insurance industry. These corporate hospitals are the tertiary and quaternary level of referral for healthcare, but are not affordable to common citizens. In India more than two thirds of expenditure on health is through Out of Pocket (OOP) which is the most inefficient and least accounted way of spending on health.

The Central government has endeavored to bridge this gap of poor people not affording the available hospital care in private sector by schemes like the ‘Rashtriya Swasthya Bima Yojana’ (RSBY) a health insurance scheme for the below poverty line (BPL) families. The government pays the premium for BPL families and an Insurance company is tied up along with a Third Party Administrator (TPA), to empanel private clinics and hospitals, where cashless healthcare is provided to the valid RSBY card holder. The family floater system of insurance is followed with a limit of Rs 30,000 per family per year. The State Government of Gujarat has launched a tertiary care scheme for BPL population ‘Mukhyamantri Amrutam’ (MA) Yojana for Super specialty health care in fields of Burns, Cardiology, Cardiothoracic Surgery, Cardiovascular Surgery, Renal Surgery, Neurosurgery, Pediatric Surgery, Polytrauma, Medical Oncology, Radiation Oncology and Surgical Oncology. The assured financial help through cashless system is up to 2 lacs. This is a 100 % State funded scheme where the fund directly goes to the empanelled service providers.

2.7.3 The important Role of Medical College Hospitals in India

The government of India has established apex teaching and research hospitals like All India Institute of Medical Sciences (AIIMS) in New Delhi, and now AIIMS has been established in other cities like Patna, Bhopal, Jodhpur, Bhubaneshwar,
Rishikesh, Raipur, Guntur (Andhra Pradesh) and Nagpur (Maharashtra). There are central government hospitals like Post Graduate Institute (PGI) Chandigarh, Sanjay Gandhi Post Graduate Institute (SGPGI) Lucknow, Jawaharlal Institute of Post Graduate Medical Education and Research (JIPMER) Puducherry, and few others, that provide the super-specialty services to the masses at minimal or no cost, and form the highest referral centers. But these few institutions are restricted to tier 1 cities of India, where the rural population reach only seldom, in cases which require super-specialty interventions. It is this niche between the district hospitals and the premium institutions like AIIMS that the 477 Medical College Hospitals in India are situated. These institutions are governed by the Indian Medical Council (MCI) Act 1956 and they serve three very important functions of Academics, Treatment and Research in the healthcare scenario.

2.7.3.1 The Academic Role

Medical Colleges are the Teaching hospitals where the health care team leaders - Doctors are produced. Through a grueling four and half years of training in preclinical basic sciences, para-clinical subjects and clinical subjects in medicine and surgery and their allied branches, and finally with a year long hands on exposure on patients during internship- an ‘Indian Medical Graduate’ or MBBS Doctor is produced. This MBBS graduate is a registered medical practitioner who becomes the team leader at the PHCs or the General Practitioner or Family Physician. Most of the medical colleges offer MD or MS post graduation courses in medical specialties where the MBBS doctors are further trained for 3 years, in a single specialty and thus the consultants or specialists working in all the CHCs, district hospitals, corporate hospitals, and entrepreneurs with their own private hospitals are produced. They also join as faculty in the medical colleges. Many of these same medical colleges offer super specialty courses of D.M. and M.Ch. in the departments of Cardiology, Neurology, Nephrology, Urology, Gastroenterology, Oncology, Cardio thoracic surgery, Neurosurgery, Pediatric surgery, Plastic
surgery, Onco-surgery and many more super specialties. These super-specialists are providing the Tertiary and Quaternary levels of health care in corporate hospitals and apex institutions in public & private sector.

2.7.3.2 The Curative & Preventive Role

Medical Colleges are associated with ‘Teaching Hospitals’, which are the tertiary level health referral centers where patients are treated by the faculty, Professors, Associate Professors, Assistant Professors and senior and junior residents- working in unit pattern in all the clinical departments. The medical college hospitals are mostly offering free services and therefore the poor people who cannot afford the private specialty hospitals are opting for treatment here in great numbers. The resident doctors hone their clinical skills under the guidance of the professors while medically or surgically treating these patients. The treatment protocols are always evidence based and the diagnosis is most accurate. The department of community medicine specially teaches social and preventive medicine.

2.7.3.3 The Medical Research and Innovation Role

Every postgraduate medical student completes a dissertation project that initiates him into the art of medical research. The medical college and hospitals are the centers for research and innovation in the medical field, where clinical trials for new drug molecules is done, new treatment protocols are experimented and newer surgical methods are innovated. Disease patterns and disease causing organisms are constantly evolving and there is a race between the curative medicines and the drug resistance fast developing amongst the pathogenic microorganisms and parasites. New Pharmacological molecules have to be continuously developed through research and trials for mankind to stay ahead in the race. The changing environment, pollution and lifestyles are affecting the human body in so many adverse ways, and it is through systematic research studies that the preventive
measures can be taken. Medical Colleges are cradles for research and innovation in health care.

Medical colleges are mostly in the public sector, but private charity trust owned, societies or corporations managed, Public-private partnership model, and recently even corporate have started to venture into starting medical colleges.

It is the academic role of training the healthcare leaders at all levels and the curative role of providing tertiary and quaternary level of referral facilities to the poor masses and the medical research and innovation incubator’s role that make the Medical College Hospitals a very important part of the health care system in India today.

2.7.4 Hospital is a ‘Service Industry’

Hospitals have been considered to have a very special and sacred place in the society since times immemorial, because the service provided by the hospitals, through their Doctors and Nurses often leads to saving of lives and healing the diseased, and reducing the suffering of the masses. Doctors have been considered next to God and the hospitals as temples of healing since a long time and so questioning the doctor, or doubting his treatment was considered unethical in society. Hospitals today are organizations employing huge manpower including doctors, nurses and technicians, support staff etc and make use of a lot of machinery, biomedical equipments, testing kits, pharmaceutical products and medical devices. They are also promoted by corporate houses, managed and lead by professionals and are even listed in stock exchanges. It was ambiguous if a hospital providing healthcare services was a ‘Service Industry’, and the divergent opinions were ended, once the High Court of Bombay in litigation case of Hospital Mazdoor Sabha Vs. State of Bombay clarified that hospital services, research products and training services are indeed ‘services’, hence they are within the purview of industry. Therefore a Hospital is now considered as a ‘Service Industry’.
When hospital is accepted as a service industry, the application of all the laws like ‘The Industrial Disputes Act, 1947’, the ‘Contract Labour Act (1970)’, ‘Employers Liability Act’, ‘Workmen compensation act’ and other legislations like ‘Consumer Protection Act’ are to be considered. At multiple occasions the courts have divergent views. However it is now established that the doctors and nurses are providing ‘service’ to the patients and are therefore ‘workmen’. It cannot be said that the doctor is rendering services only to an employer who owns an industry but he/she renders service to the society at large. According to WHO, ‘Health services include all services dealing with the diagnosis and treatment of disease, or the promotion, maintenance and restoration of health.’

It is relevant for this present study that after reviewing ‘Quality’ as a management concept and reviewing the basics of healthcare and hospital from various perspectives and specially as a service industry, it is logical to now review the third dimension of ‘Quality in Healthcare Service’.

### 2.8 Quality in Health Care Service

The WHO has published ‘Quality of care, a process for making strategic choices in health systems’ in 2006, where it has identified six dimensions of healthcare quality, which are- Effectiveness, Efficiency, Accessibility, Acceptability or patient-centeredness, Equity and Safety.

1. **Effectiveness**- means delivering health care that is evidence based and actually results in improved health outcomes for individuals and communities, based on need.
2. **Efficiency**- stands for delivering health care in a manner which maximizes resource use and avoids waste, or ensures maximum outcome from minimum inputs of resources.
3. **Accessibility**- Implies delivering health care that is provided on time and is geographically reasonably located, and is provided in a setting where skills and resources are appropriate to medical need.

4. **Acceptability / or patient-centeredness**- This means delivering health care which takes into consideration the preferences, choices and aspirations of individual service users and the cultures of their communities.

5. **Equity**- It implies delivering health care which does not vary in quality based on personal characteristics such as gender, race, ethnicity, geographical location, or socioeconomic status.

6. **Safety**- Requires delivering health care in a way that minimizes risks and harm to users.

The Agency for Healthcare Research and Quality (AHRQ) is the US federal government’s leading agency charged with the responsibility of improving the quality, safety, efficiency and effectiveness of health care for all Americans. It defines quality health care as: ‘doing the right thing for the right patient, at the right time, in the right way to achieve the best possible results’, and ‘the degree to which health care services for individuals and populations increase the likelihood of desired health outcomes’. The Institute of Medicine (IOM-USA) in 2001 defined quality health care as ‘safe, effective, patient-centered, timely, efficient and equitable.’

From the health care provider’s perspective, health care quality can be assessed by the ‘Donabedain model’. It identifies three domains in which health care quality can be assessed: Structure, Process, and Outcomes. The Structure can be equated to the hospital or clinic environment and all the tangibles that are associated with the health care. The process may be equated to the ‘technical performance’ which is the extent to which a health professional conformed to the best practices established by medical guidelines. Clinical practice guidelines, are protocols that are scientifically based, to assist providers in following a ‘best practice’ approach in
delivering health care for a given illness condition. Standardizing the practice of healthcare improves quality of care by simultaneously promoting lower costs and better outcomes. It is presumed that the providers following medical guidelines are giving the best care and give the best hope for a good outcome. However technical performance is assessed from a quality perspective without regard to the actual outcome - so for example, if a physician provides treatment according to the best practice, but even if the patient's health does not improve, then by this measure, the quality of the ‘technical performance’ is still high. ‘Outcome’ is a change in patients' health, such as reduction in pain, relapses, complete cure or death. Significant initiatives to improve healthcare quality outcomes have been undertaken that include clinical practice guidelines, standard operating procedures, cost efficiency, critical pathways, and risk management.

However from the Patient’s perspective, it is the satisfaction surveys that are the main qualitative measure of the health care quality. Patients often judge quality on the basis of practitioner's concern and demeanor, among other things as they may not have the clinical judgment of physicians. As a result, patient satisfaction surveys have become a somewhat controversial measure of quality care. On one hand the proponents argue that patient surveys can provide the needed feedback to physicians to assist on improving their practice, it correlates with patient involvement in decision making and can improve patient-centered care. Health expenditure in industrialized countries has doubled in the last 30 years; however, the highest-spending countries are not always those with the best results (Leatherman and Sutherland, 2004).

2.8.1 Historical Perspective of Quality in Health Care

In 1854, during the Cremian war, there were substantial deaths of British troops due to cholera and diarrhea, so the British government sent a group of nurses under the leadership of Florence Nightingale to Turkey, to help care for the soldiers.
Within six months of arrival of Florence Nightingale, the mortality rate due to disease, dropped from 42.7% to 2.2% (Joint Commission Resources, 1999). Therefore the history of healthcare quality begins with the ‘Lady with the Lamp’.

Nightingale’s specific improvements were aimed at spacing the beds 3 feet apart to ensure no cross infection and reduce overcrowding, provision of good air ventilation, the relocation of cavalary horses that were stabled in the hospital basement, ensuring that the sewers leading from the hospital were flushed clean several times a day and disinfection of the latrines and drains using peat charcoal. She found that that if improvements had been implemented before admitting soldiers to the hospital, a large number of needless deaths would have been prevented. Florence Nightingale’s meticulous records are a key to present day statistical measurements for quality, and she was a brilliant innovator in the collection, tabulation, interpretation, and graphical display of descriptive statistics. Nightingale named the graphical data display as “Coxcomb” which is the forerunner of today’s pie-chart. It is thought that Florence Nightingale was most likely influenced by evidence, linking hand-washing and cleanliness to disease reduction, discovered by Dr. Ignaz Semmelweis in Vienna’s maternity wards during the 1840s.

During the American civil war 1861, the ‘Sanitary Commission’ was established based on lessons learned from the Crimean War and Clara Barton was the civilian volunteer who supervised nursing care to soldiers primarily in the state of Virginia according to the goals of the Sanitary Commission. She was assisted by Dr. Elizabeth Blackwell, who had worked with Florence Nightingale in England and was the first female to graduate from a medical school in the United States of America.

Louis Pasteur is considered as one of the ‘greatest benefactors to humanity of all time’. He discovered in 1862, that disease was caused by microorganisms or
The discovery of microbes, which later became known as germ theory. This evidence led to the wide-scale adoption of antiseptic practices by physicians and hospitals throughout Europe and the U.S. The process of sterilization plays the most vital role in hospital infection control and the earliest prototype of the modern-day autoclave was invented in 1879 by Dr. Charles Chamberland, a French physician and biologist.

Surgeon General, Dr. Rupert Blue, in US, was given the responsibility of providing leadership in America during the worst outbreak of disease in U.S. history- The Influenza Pandemic of 1918. It killed fifty million people or 1/5th of the world’s population, representing more people than the total deaths during World War I. Dr. Blue’s quality tools were quarantine, mandatory medical exams for all immigrants entering the country, communication in the form of weekly newsletters that contained information about the latest outbreaks. Dr. Blue’s innovations included eradicating rats that were responsible for an outbreak of bubonic plague, and mosquito control during the opening of the Panama Canal.

Surgeon Ernest Codman was one of the earliest advocates of healthcare quality who pioneered the creation of ‘Hospital Standards’ and implemented strategies to assess healthcare outcomes (Youssra et al, 2012). Codman devised a system that tracked each patient of the hospital to determine effectiveness of their treatment. Influenced by the work of Dr. Codman, the American College of Surgeons (ACS) was founded, and in 1918, the ACS developed the Minimum Standard for Hospitals, which was of only one page. ACS began performing on-site inspections of hospitals to determine if they were up to the mark.

The Joint Commission on Accreditation of Hospitals (JCAH) was established in 1951 as an independent and non-profit organization that provided voluntary accreditation to hospitals that met minimum quality standards. JCAH was established by the combined efforts of the American College of Physicians, the American College of Surgeons, the American Hospital Association,
the American Medical Association, and the Canadian Medical Association. In 1952, the ACS officially transferred its Hospital Standardization Program to JCAH. JCAH started to charge a fee for its quality surveys. However up till now the standards of health care quality were based on structure (e.g., licensing, staffing levels, accreditation). In 1966, Avedis Donabedian published his seminal work ‘Evaluating the Quality of Medical Care’, where he demonstrated a new perspective on analyzing healthcare quality that was based on structure, process, and outcome.

In the United States, the National Academy of Sciences formed the Institute of Medicine (IOM) in 1970. This was a non-profit and independent scientific advisory body, working with an objective to improve healthcare on a national scale. The Accreditation Association for Ambulatory Health Care (AAAHC) was established in 1970, to improve healthcare quality for patients served by ambulatory health care organizations. The Agency for Healthcare Research and Quality (AHRQ) was created in 1989 with an objective to improve quality, safety, efficiency, and effectiveness of health care through research. In 1990, the National Committee for Quality Assurance (NCQA) was established as an independent, not for profit organization that was dedicated to improving health care quality through accreditation and performance measurement. In 1991, Dr. Don Berwick founded a non-profit Institute for Healthcare Improvement (IHI) that focused on quality, on a national and international level. The ‘National Patient Safety Foundation’ was established in 1996 which directed the focus onto the patient as a consumer. In 1998, the ‘Quality Inter-agency Coordination Task Force (QuIC)’ was formed by presidential order to increase coordination of federal agencies that work toward improving quality healthcare. The IOM published ‘To Err is Human’ in 1999, revealing for the first time high medical error mortality rates and the QuIC published a report that recorded the regulatory and legislative initiatives that sought to improve issues surrounding medical error. In 1999, the ‘National Quality
Forum’ was founded which was a private, non-profit organization that aimed to standardize health care delivery and measurement of quality. The impact of safety concerns discussed in ‘To Err is Human’ was so great that the United States enacted the ‘Patient Safety and Quality Improvement Act’ in 2005.

2.8.2 Quality Improvement methods applicable to hospitals

2.8.2.1 WHO guidelines

WHO has published a guide ‘Quality of Care: A process for making strategic choices in health systems’, for decision-makers and managers at national level, with a systematic process which will allow them to design and implement effective interventions, to promote quality in health systems. It is conceived as a capacity-building tool for people who have a strategic responsibility for quality. It is important for the decision makers and hospital administrators, to recognize the differences in roles and responsibilities, of the providers and the consumers while it is equally important to recognize the connections between them. Health-service providers are bound to operate within an appropriate policy environment for quality, and with a proper understanding of the needs and expectations of the beneficiaries, in order to deliver the best results. Communities and patients in particular need to influence both the quality policy and the way in which healthcare services are provided to them, if they are to improve their own health outcomes. These critical relationships are illustrated:

![Critical relationships between policy makers, providers and consumers.](image)

Figure 2.1 Critical relationships between policy makers, providers and consumers.
In the 3rd Chapter of the publication of WHO- ‘Quality of Care; A process for making strategic choices in health systems’, a process for building a strategy for quality is discussed, and deals with choosing interventions. It states that in reality, any process of policy-making at national level has to be determined locally and has to take full account of local circumstances and preferences. The suggested process is cyclical and is presented here:

![Cyclical Processes of Interventions for Quality Improvement](image)

Figure 2.2 Cyclical Processes of Interventions for Quality Improvement

It contains seven activities (‘elements’) within the three categories of analysis, strategy, and implementation. As a cyclical process this resembles the ‘PDSA Cycle’. The major implication of this approach is that strategies for quality improvement are not ‘fixed’ but dynamic. The entry point for decision-makers into this part of the process could be at any of the three elements.

1. **Element 1. Stakeholder involvement**- The first step in the decision-making process is to decide who are the key stakeholders and how they will be involved. Key stakeholders can include political and community leaders, service users like patients and their advocates, health-care delivery organizations, regulatory bodies, and representative bodies or unions for healthcare workers.
2. **Element 2. Situational analysis** - This is a mapping process which allows a clear baseline to be fixed before any new interventions are considered or existing ones are adapted. The situational analysis needs to account for the connections between health and the other sectors, matters which will impact on the performance of the healthcare system, the present policies in health and across sectors, current healthcare goals and the priorities, present performance of the health system and existing quality interventions.

3. **Element 3. Confirmation of health goals** - The health goals are normally decided through the political process, and may be wide-ranging. They might fall within the following broad categories:
   i. **Reducing mortality**: this means aiming to increase life expectancy for the population as a whole or for groups within the population.
   ii. **Reducing morbidity**: this implies aiming to reduce the incidence of a particular disease such as malaria or diabetes, within the population.
   iii. **Reducing health inequalities**: this involves processes aiming to narrow the gap in life expectancy and health status between different social groups within the population.
   iv. **Improving outcomes for a particular disease**: like improving survival rates for patients suffering from cancer or AIDS.
   v. **Making health care safer**: by reducing the incidence and impact of hospital acquired infections.

4. **Element 4. Development of quality goals** - depends on agreed health goals, and relates to the different dimensions of quality. These goals will attempt to answer the questions- What are the deficiencies in effectiveness, efficiency, accessibility, acceptability, equity and safety?

5. **Element 5. Choosing interventions for quality** - For quality interventions in healthcare there are six domains:
   i. **Leadership**: Strong and consistent leadership support is essential, otherwise quality initiatives fail to realize their desired outcomes. Wherever
there are weaknesses in leadership in the health system, there will be need for strategic interventions to build commitment and leadership capacity, and to strengthen accountability.

ii. **Information:** Information systems for quality improvement are needed consistently across the whole system, to enable comparisons in outcomes and progress between parts of the system. The systems should be transparent, so that all the stakeholders have access to the same information. The information systems which support quality improvement are complex and resource-intensive. Commitments are needed from leaders to ensure that a proper level of investment in information systems is continuously done.

iii. **Patient and population engagement:** This domain is essential for quality improvement, because individuals and communities play so many different roles within health systems. Directly or indirectly, they will be financing healthcare, they will be working in partnership with health workers to manage their own care, or they will sometimes be the final deciders of what is acceptable and what is not across all the dimensions of quality.

iv. **Regulation and standards:** Assessments and accreditation at different levels can be provided as appropriate measures to the resources available in the region. The challenge for policy-makers is to find the right balance between internal and external drivers for improvement, and incorporate that balance in their strategy for quality.

v. **Organizational capacity:** At the apex level, there should be the capacity to lead the development of policy, to drive implementation, and to keep performance under review. There should be ability to develop systems to support quality improvement such as audit and peer-review; there should be capacity to develop workforce and train them with the skills needed to deliver quality; have the ability to build an organizational culture which
values quality; and their ability to use rewards and incentives to promote that culture.

vi. **Models of care:** A new model of care may need to be established to integrate the contributions of primary, specialized, and social care organizations. The development of any new model of care will involve high levels of stakeholder involvement, including the patients and communities, an appraisal of evidence, the refinement of protocols and guidelines, and a method to redesign the delivery of care. The challenge for policy-makers is to decide when this approach is needed, and for which patient groups. Another important decision in this part of the cycle is agreement about the plan for implementation of the agreed interventions.

6. **Element 6. Implementation process.** The strategy that will be designed will have identified a framework for implementation and have covered key issues such as leadership, accountability, timescales and milestones, and monitoring of progress. The success of the interventions will now depend on maintaining a clear focus on implementation, sustaining interest and commitment, and developing the capacity to make tactical decisions, and to modify activities in response to feedback obtained.

7. **Element 7. Monitoring progress.** The final element is to maintain a focus on the delivery of the improved outcomes and benefits being sought. A sincere focus is important because if results are not within the range of those that were expected, it will be important to make early decisions about how the strategy and its selected interventions might be modified to achieve better results.

The most important role of this continuing process of monitoring will be in completing the cycle of Analysis, Strategy and Implementation and taking feedback to modify and repeat the cycle.
2.8.2.2 Lean Management in Healthcare

A research team headed by James Womack, Ph.D., at the Massachusetts Institute of Technology, International Motor Vehicle Program coined the term “Lean” to describe Toyota's business processes during the late 1980s. The core idea of ‘Lean’ is to maximize value for customers while using fewer resources and minimizing waste. The model of lean management is by asking the work team to think, to experiment, and to learn from the data and improve the work process. It is a management system that observes, encourages, challenges, learns, gathers the facts, encourages experimentation, and spreads best practices; therefore they practice what they preach to others. This model was quickly copied by Honda and other Japanese companies and has now become the standard of world class manufacturing. Lean is a moving target because, at its heart, lean is a process of learning and improvement. Simply put, lean means ‘using less to do more’.

Lean thinking is not commonly or typically associated with health care, where waste of money, time, supplies and good will, is a not a frequent problem, yet the principles of lean management can, in fact, work in health care in much the same way to benefit this sector, the way they do in other industries. All organizations are composed of a series of processes, or sets of actions intended to create value for those who use or depend on them. The same applies to health care organizations where the customers are the patients. The basic idea of lean management involves determining the value of any given process by distinguishing the steps that add value from non-value-adding steps, and thus eliminating the waste (or muda in Japanese language) so that ultimately every step adds value to the process. When applied and practiced rigorously and throughout an organization, lean principles can have a dramatic affect on productivity, cost, and quality.

To the benefit of the organization’s staff, lean management also reduces workload, so it enables staff to produce the highest quality output with the least amount of
work possible. A lean health care organization can quickly realize improved levels of job satisfaction from their staff, who are no longer putting in additional hours at the end of the day, to do work caused by inefficient processes.

2.8.2.2.1 ‘Lean Thinking Fundamentals’ are:

i. **Specify value** – from the viewpoint of the end consumer who may be the customer or the patient.

ii. **Identify the value stream** – for all value-added steps, stages and processes across departmental boundaries (called as the value stream). Proceed to eliminate steps that do not create value.

iii. **Make value flow continuously** – this can be done by eliminating all causes of delay, such as batches and quality problems.

iv. **Let customers pull value** – avoid pushing any work onto the next process, stage or department and let the work and supplies be pulled by the consumer or patient as needed.

v. **Pursue perfection** – through continuous process improvement achieving perfection should be the goal.

2.8.2.2.2 Eight Wastes of Lean- ‘Muda’

‘Muda’ is a Japanese word meaning ‘futility; uselessness; wastefulness’. In any business, the greatest enemy of profitability is waste - typically of time or money. Taichi Ohno, who is known as the father of ‘Toyota Production System’ defined the 8 wastes of Lean manufacturing and confirmed that they have a universal application. The acronym for the eight wastes is DOWNTIME. Downtime stands for: **Defects, Overproduction, Waiting, Not utilizing talent, Transportation, Inventory excess, Motion waste and Excess processing.** A brief description of these ‘Mudas’ in the context of healthcare industry is as follows:
i. **Defects:** These are ‘Mistakes’ that consume additional time, resources, and money to fix. In a manufacturing process, a defect might involve a defective part that has to be remade. In healthcare service it may be a wrong procedure, administration of a wrong medication or acts of commission that was not supposed to be done. Some causes of this *muda* are Poor quality controls, Poor documentation process, Absence of defined standards, Weak or missing processes, Misunderstanding the patient’s needs. Completely eradicating any form of waste is next to impossible, but defects can certainly be minimized by the application of standardized work plans, stringent quality control at all levels, a full understanding by all employees of work requirements and patient needs, and simple, but very effective job aids such as checklists.

ii. **Overproduction:** In some organizations, workers may blindly keep producing, even when those who receive their output either aren't ready for it or don't need it. This may happen in a Hospital drug store, Central Sterile Supply Departments and Kitchen areas of the hospital. This is a big waste as it can tie up significant working capital. Overproduction may occur due to: Unclear customer or patient needs, poor communication, poorly applied automation and inefficient supervision. The solution to overproduction is to establish standard operating procedures or protocols, by which reasonable work flow is achieved for the benefit of the customer. If necessary, implement new processes to keep work from backing up behind particular bottlenecks in the organization.

iii. **Waiting:** This occurs whenever work has to stop for some reason: because the next person in line is overwhelmed, because something broke down, or there is waiting for approval or raw materials or because something or person is not available. This is a very common scenario in hospitals in Out Patient Department consultations, elective surgeries in operation theatre complexes and queues in pharmacy stores or registration counters. Major causes are: Unbalanced workloads, unplanned downtime, slow work process, confusions
regarding protocols, insufficient staffing, unexpected work absences and Poor communication.

iv. **Not-Utilizing Talent:** This waste is being increasingly seen within organizations today. Under-utilizing employees’ talents, skills and knowledge can have a detrimental effect on an organization. Companies can experience great benefits if they are able to recognize the value of skills and improvement ideas from all levels of the business. The absence of this skill leads to Assigning staff to wrong tasks, Wasteful administrative tasks, Poor communication, Lack of teamwork and insufficient training. Key solutions include empowering the employees, stop micromanaging and increase training. Doctors, Nurses and Technicians are highly skilled and expensive human resource and not utilizing their services optimally certainly is a major waste for any hospital.

v. **Transportation:** This is the waste caused by moving things or people around. Too much transportation tends to increase costs, wastes time, increases the likelihood of product damage and deterioration, and can result in poor communication. In general, transportation waste can be caused by: poor hospital design layout, unnecessary or excessive steps in the process, misaligned process flow and poorly-designed systems. In patient cantered hospitals, the medical staff and biomedical equipment are made to move towards the patient as per requirements and this increases patient safety and satisfaction, but results in wasteful time consumption for the doctors and nurses and also breakdown chances for equipments. Therefore a differential mechanism based on the criticality of the illness, ambulation capacity of patient and feasibility of transporting equipments should be undertaken and the Standard Operating Procedures drafted and enforced accordingly. Other steps include repairing physical layouts and making distances between steps as short as possible.
vi. **Inventory Excess**: This waste occurs when there is supply in excess of real customer demand, which masks the real production. This commonly occurs in Pharmacy stores, Hospital stores, CSSD, Kitchen areas and the causes include: poor monitoring systems, unreliable suppliers, communication errors and misunderstood customer needs.

vii. **Motion Waste**: Any excess movement, whether by employees or machines, that doesn’t add value to the product, service or process, is called as motion waste. Typical causes include poor nursing workstation design, unplanned hospital layout, shared facilities and machines, counter congestions and lack of standards. The solution here is to re-arrange layouts to decrease the distance between stations, and make it easier to reach things that are often used.

viii. **Excess Processing**: Occurs due to the creation of multiple versions or duplication of the same task, processing more than is required, or time consuming poorly designed processes. Examples in a healthcare set up may include: Excessive investigational reports, Multiple signatures in administration, Re-entering data and duplicated data in the hospital information system, Absence of SOP or standards, Poor communication, Misunderstanding of the customer’s needs and Human error.

The Virginia Mason Medical Center in Seattle, Washington, has been using lean management principles successfully since 2002.

**2.8.2.3 Total Quality Management in Healthcare**

Traditional way of doing the business does not always help to achieve excellence. An enhancement in the techniques and systems becomes necessary to meet the global competition. A continuous improvement can lead to the changing of the culture of the organisation, which in turn can lead to the Total Quality Management (TQM). TQM is a holistic approach with a perspective on Total, Quality and Management. The word *Total*, signifies taking input from every department and
individual; the word Quality, explains that TQM helps attain best standards on customer service and end-user satisfaction; and Management word is included because TQM encourages innovative new forms and practices of Management. TQM can be viewed as an organisation-wide philosophy requiring all employees at every level of an organisation to focus his/her efforts to help improve each business activity of the organization (Mehra et al, 2001).

Everyone is responsible for improving and ensuring quality, and is required to make quality a culture in his/her daily life. TQM is a long-term perpetual improvement process requiring significant resources, both financial and human. It is, therefore, imperative that the concept of TQM comes from the top management. It is a dynamic process that requires continuous efforts and no deadlines or target dates. Hence, TQM has to become a way of life for everyone in the organisation. Past practices focused on quality control, while TQM is looked on as a process-oriented philosophy of enhancing customer satisfaction through the production of higher quality goods and services. TQM is based on three principles: (i) Continuous Quality Improvement (CQI), (ii) Customer Focus, and (iii) Teamwork.

The Joint Commission on Accreditation of Health Care Organization, USA has adopted TQM as an important standard in its review of health care institutions and has proposed total organizational commitment to continuously improve the quality of patient care.

The 12 key concepts of TQM published in ‘Hospital Management International Year book’ by Sahney et al in 1992 are:

1. **Top management leadership**: Top management commitment and leadership will have to be visibly demonstrated, drafting a comprehensive framework of mission statement, values and quality policy and facilitating the employees to see the strategic direction.
2. **Creating a framework for quality**: Developing and integrating quality improvement plans at all levels and orienting employees to the framework of quality.

3. **Transformation of organizational culture**: Fostering process and customer literacy, statistical and scientific thinking.

4. **Customer focus**: A customer need analysis will have to be carried out, which is formal, systematic explanation and analysis of customer expectations and then designing the service in conformance with the needs of the customers, including the internal customers.

5. **Process focus**: Initiating quality review of various processes and then implementing process improvement through variability reduction, with due attention for incorporating customer preferences.

6. **Collaborative approach to process improvement**: Integration of team working philosophy in day to day activity by forming small groups of employees, called ‘quality circle’ or ‘focus teams’ to identify, analyse and solve quality related problems.

7. **Employee education and training**: Developing an implementation plan to educate all employees about quality improvement concepts and tools and training and retraining them as an investment to avoid employee burnout and a motivating as well as re-energizing tactic.

8. **Quality measurement and statistical analysis at all levels**: Developing and measuring critical strategic indicators that should be tracked against specific targets and generating statistical quality report at all levels.

9. **Bench marking**: Continuous search for understanding and adopting outstanding practices and process from organisations both inside and outside the service.

10. **Employee empowerment**: Sharing with non-managerial employees the power and authority to make and implement decision, accepting the fact that people
nearest to the problem are in the best position to make decision for improvement, if they have ownership of the improvement process.

11. **Recognition and reward:** Developing and implementing comprehensive employee recognition and reward plan.

12. **Management integration:** Integrating quality plan in the organization’s strategic plans and communicating with all levels of the organization about the quality framework, quality plans and quality improvement projects, with developing and integrating employee suggestion systems.

The process of TQM is a long term strategic initiative which requires adequate time for incorporation with the organizational culture. A Plan suggested by Chakravarty et al 2001 for Implementation of TQM in a Hospital environment is:

a) **Designing the quality improvement organizational structure.** The ‘Quality Steering Committee’ will be formed that will be responsible for ensuring top management commitment and laying out policy guidelines for the total quality initiative of the institution. The committee will be responsible for two way communication and overall supervision of the process improvement teams.

b) **Quality Management Awareness and Training** – of each operating group. The training will begin from Quality Steering Committee, initially by an external facilitator who may be an expert in TQM and subsequently by trained internal facilitators.

c) **Quality Management Framework Development** - Developing the mission and vision statement, quality definition and quality guidelines by each operating group, under supervision of the Steering Committee.

d) **Quality Management Practice** - Use of concepts learnt by process improvement teams in focused efforts, to address specific improvement opportunities. To guide the work of these improvement teams, the hospital will have to adopt a quality improvement model to provide a high level road map to the teams.
e) **Customer Awareness Development** – Development of customer awareness initiative by each department for both external and internal customers.

f) **Organizational Quality Awareness Building** – Initiation of organization wise awareness building, integrating those personnel also, who are not directly involved in patient care.

g) **Ongoing training and cross-organizational outcome measure** – evaluate and then continue with the process of continuous quality improvement.

h) **Project dominant focused efforts** – In hospitals, a result-driven approach to focus on carefully targeted areas rather than on the whole organization may be initially adopted to give relatively quick results and satisfy the doubts of various physicians.

There are many success stories of TQM implementation in Hospitals. Latter Day Saints Hospital, Salt Lake City, USA used TQM to reduce the rate of post-operative wound infection from 1.8% to 0.4% (Koska, 1992). The ‘Northern New England Multi hospital Project’ used TQM techniques to reduce mortality among patients undergoing cardio-vascular surgery by 24% in 3 years (O’Connor et al, 1996).

### 2.8.2.4. Six Sigma approach in Health Care.

The origin of Six Sigma can be traced as a quality improvement approach in the 1980s, at the American electronics giant, Motorola (Bengt et al, 2001). The reason for the name was that ‘sigma’ (σ), a Greek symbol, is a statistical measure of dispersion called the standard deviation. ‘Six Sigma’ means the occurrence of defects at a rate less than of 3.4 Defects per Million Opportunities (DPMO). Signs of significant success at Motorola quickly became apparent. Soon other companies became interested in the program and successively more companies were able to demonstrate good results. The main three features of Six Sigma programs are:

(i) It is a top-down approach.
(ii) It is a highly disciplined approach that typically includes the four stages of measure, analyse, improve and control.

(iii) It is a data-oriented approach that makes sound and heavy use of various statistical decision tools.

Six Sigma approach to quality and productivity improvement can be successfully used in health care industry similar to the ways Six Sigma approach is being used successfully in manufacturing industries. Few opportunities in the hospital where the Six Sigma approach can benefit are:-

- Medication administration.
- Site-marking for surgical or other procedures.
- Assignment of patient caregivers.
- Case management.
- Patient falls.
- Patient restraints.
- Emergency department triage.

Six Sigma, alone may not be the sole approach to improve quality of healthcare delivery, but its judicious application along clinical lines, combined with the best treatment, technology and expertise available, will certainly improve care for the patient and diminish uncertainty for caregivers. Bandopadhyay and Coppens (2005) suggest a model of application of Six Sigma in Health Care with steps of:

(i) Developing metrics / indicators of Performance Measure.

(ii) Continuous monitoring.

(iii) Developing performance indicator limits.

(iv) Finding out the root cause of the problems.

(v) Implement the six sigma project solution.

(vi) Evaluate the performance of results.
2.8.3 Quality Accreditation in Health Care Services

Accreditation is usually a voluntary program, sponsored by a non-governmental organization (NGO), in which trained external peer reviewers evaluate a healthcare organization's compliance and compare it with pre-established performance standards (Shaw C.D., 2001). Quality standards for hospitals were first introduced in the United States in the “Minimum Standard for Hospitals” developed by the American College of Surgeons in 1917. Ever since then, many forms of systems have been developed and used worldwide to regulate, improve and market the services of healthcare providers and organizations, this includes Certification and Licensure. Certification involves a formal recognition that there is compliance with a set of standards (e.g., ISO 9000 standards) and it is validated by external evaluation by an authorized auditor. Licensure involves a process by which a governmental authority conducts an inspection, and then grants permission to an individual practitioner or healthcare organization to operate a healthcare set up or practices the occupation or profession. Although the terms accreditation and certification seem similar and are often used interchangeably, accreditation usually applies only to organizations, while certification may apply to individuals, as well as to organizations. The Umbrella International Organization for Quality Accreditation is the ‘The International Society for Quality in Health Care’ (ISQua).

2.8.3.1 ISQua

ISQua is an abbreviation for ‘The International Society for Quality in Health Care’. It is an international organisation which came into existence in 1985. ISQua’s mission is to inspire and drive improvement in the fields of ‘quality and safety’ in healthcare, worldwide through education, knowledge sharing, external evaluation, supporting health systems and connecting people through global networks. ISQua is an International body, with nearly all countries of the world represented on ISQua’s Board. The expertise of ISQua and its network of members is a highly
valued resource by those in the medical and social care community. One of the key partners is the WHO itself, and ISQua assists with technical and policy advice, as well as ISQua is also committed to improving health care worldwide. Ideas and solutions are developed and exchanged through an extensive global network. The co-operation and coordination covers the entire continuum of care, ranging from systems and processes, to quality of patient care and performance. ISQua is also involved in the accreditation of national and regional health care facilities worldwide via its International Accreditation Programme (IAP). ISQua carries out assessment of the standards of the organisations, that set the benchmarks in healthcare safety and quality and it is the only organisation that particularly uses health and social care standards. ISQua is an important resource for policy makers, patient safety agencies, health care workers and other health professionals around the world.

The International Accreditation Programme of ISQua sets up a mechanism for external evaluation of the organisations that make standards, so that such agencies can assure themselves that their standards, their training programmes for the assessors and their own body meet international best practice requirements. This will help them to demonstrate this validation to their clients, funders and other stakeholders. The IAP process utilizes a framework of standards for continuous improvement, based on self-assessment and independent peer review. Each cycle of IAP programme is for 4 years and it ensures continuous assessment.

2.8.3.1.1 ISQua Health and Social Care Standards

Health and Social Care Standards are currently assessed against the 4th edition of the ‘Guidelines and Principles for the Development of Health and Social Care Standards.’ The ISQua Principles are designed to provide guidance regarding the development, measurement, structure and content of standards as follows:
i. **Principle 1**: Standards Development: The Standards are planned, developed and evaluated through a defined and rigorous process.

ii. **Principle 2**: Standards Measurement: Standards are designed in a unique way which allows consistent and transparent rating and measurement of achievement.

iii. **Principle 3**: The Organizational role, Planning and Performance: The standards assess the capacity and efficiency of health care organizations in a very objective way.

iv. **Principle 4**: Safety and Risk: The standards include measures to quantify, detect and manage risk and to protect the safety of patients, healthcare service users, staff and visitors and also the employees or healthcare providers.

v. **Principle 5**: Patient or Service User Focus: The standards are framed to focus on patients or service users and ensure the continuum of care.

vi. **Principle 6**: Quality Performance: The standards require that the service providers regularly monitor, evaluate and improve the quality of services being provided.

Eleven countries viz. Australia, Canada, Egypt, Hong Kong, Ireland, Japan, Jordan, Kyrgyz Republic, South Africa, Taiwan and United Kingdom have their main quality accreditation bodies accredited by ISQua. India becomes the 12th country to join in this group through NABH (National Accreditation Board for Hospitals & Healthcare Providers), which is now an Institutional Member as well as a member of the Accreditation Council of the ISQua.

**2.8.3.1.2 ISQua Standards for Healthcare External Evaluation Organisations**

Currently the 4th edition of ISQua’s External Evaluation Standards, is available from June 2013 for surveys scheduled from July 2014 onwards. In line with ISQuas own principles for developing standards, this 4th edition review process began with a wide engagement of all the stakeholders, including client organisations, surveyors and other ISQua experts. A number of ISQua Experts provided important
information to enrich this process. Further work was carried in reference to ISO standards, especially ISO17021 and ISO9001 and to a lesser extent ISO17011 and ISO31000. Other documents used for reference were ‘2011–2012 Baldrige Criteria for Performance Excellence’. The standards have been grouped into functions that logically reflect the business functions of external evaluation organizations. The functions are: leadership; support services; and service delivery. There are 8 standards, and each has specific criteria with guidance and suggested evidences.

**Standard 1: Governance:** This standard requires that the external evaluation organisation is responsibly governed to meet its defined purposes and objectives.

**Standard 2: Strategic, Operational and Financial Management:** This standard mandates that the external evaluation organisation is effectively managed to meet its strategic operational and financial objectives.

**Standard 3: Risk Management and Performance Improvement:** According to this standard the risks and opportunities to improve are identified and managed to deliver safe quality services.

**Standard 4: Human Resources Management:** This standard governs the human resource planning and management to support the external evaluation organization’s objectives and ensures that the staff is adequately supported to deliver quality services.

**Standard 5: Information Management:** This standard on information management requires that there should be information management plan and is carried out such as to ensure control, availability, accessibility, confidentiality and integrity of information which supports the business objectives.
**Standard 6: Surveyor Management:** The standard defines the process for surveyor planning, selection and management. It ensures the delivery of a high quality survey service to participating organisations.

**Standard 7: Survey and Client Management:** The standard ensures that the external evaluation programme is consistent with the organisational objectives, and it facilitates objective and consistent decision-making to meet the needs of participating organisations and other stakeholders.

**Standard 8: Accreditation or Certification Awards:** The standard spells out the processes for determination; awarding and maintenance of accreditation or certification. It ensures that the processes are objective, consistent and meet the external evaluation organization’s objectives.

### 2.8.3.2 ISO: An overview of ISO and relevance to Quality Healthcare

ISO is not an acronym of ‘International Organization for Standardization’. In fact, "ISO" is a word, derived from the Greek ἴσος, meaning "equal". In 1946, delegates from 25 countries met in London and decided to create a new international organisation to facilitate the international coordination and unification of industrial standards. The new International Organization for Standardization (adopted abbreviation ‘ISO’) began operations on 23rd February 1947. Now, ISO is a worldwide federation of national standards institutes of 147 countries, on the basis of one member per country, with a Central Secretariat in Geneva, Switzerland, that coordinates the system. ISO is a non-governmental organisation. ISO standards are voluntary. As a non-governmental organisation, it has no legal authority to enforce their implementation.

ISO creates documents that provide requirements, specifications, guidelines or characteristics that can be used consistently to ensure that materials, products, processes and services are fit for their purpose. ISO has published
21884 International Standards and has been successful in bringing real and measurable benefits to almost every sector imaginable. Standards underpin the technology that we rely on and ensure the quality that we expect.


### 2.8.3.3 Joint Commission International (JCI) Accreditation

The Joint Commission is an independent, not-for-profit organization that accredits and certifies nearly 21,000 health care organizations and programs in the United States. The Vision Statement of Joint Commission is: ‘All people always experience the safest, highest quality, best-value health care across all settings.’

Founded in 1951, an independent, not-for-profit organization, the ‘Joint Commission’ is USA’s oldest and largest standards-setting and accrediting body in health care. The Joint Commission was formerly the ‘Joint Commission on Accreditation of Healthcare Organizations (JCAHO)’ and previous to that the ‘Joint Commission on Accreditation of Hospitals (JCAH)’. In 2007, the Joint Commission on Accreditation of Healthcare Organizations underwent a major rebranding and simplified its name to ‘The Joint Commission’. The rebranding included the name, logo, and tag line change to "Helping Health Care Organizations Help Patients."

The Joint Commission International Accreditation Standards for Hospitals, 6th Edition, provides the basis for accreditation of hospitals throughout the world, and was commissioned on 1st July 2017. The standards are divided into two main sections: 1) Patient-Centered Care and 2) Health Care Organization Management,
with Intents and Measurable elements. A standard’s intent describes the purpose and rationale and helps explain the full meaning of the standard. The Measurable Elements (MEs) of a standard indicate what is reviewed and assigned a score during the on-site survey process.

The 6th Edition of JCI standards includes ‘Medical Professional Education (MPE) Standards’ which specifically aims for- Integrating education of medical students and trainees into a hospital’s operations needs to be consistent with the hospital’s mission, strategic plans, resource allocation, and quality program. The MPE standards emphasize the safety and quality of care provided to patients cared for by trainees and students as part of the hospital’s services. The hospital’s governing entity and leadership are responsible to ensure that there is appropriate supervision of patient care delivered in all teaching settings. Ensuring a rich and meaningful experience for medical students and trainees requires many factors in addition to the commitment of the governing entity and hospital leadership. It emphasizes that the trainees and students are oriented to the organization and relevant departments; understand and participate in quality improvement activities; and actively engage in the hospital’s culture of safety. It also stresses that the hospital’s governing entity and leadership create processes for the direction and accountability of the hospital teaching program medical staff members and other involved staff. They are knowledgeable about the teaching programs based on timely data driven information and require improvement processes in the teaching programs related to patient care when opportunities for improvement emerge.

Hospitals in India get accreditation from JCI to exponentially boost the Medical Tourism opportunity. Few of the top hospitals in India which are JCI Accredited currently: Fortis and Apollo Hospital, in Delhi; Medanta and Artemis Hospital in Gurgaon, Apollo Hospital, Columbia Asia Hospital, Fortis Hospital and Narayana Hrudayalaya in Bangalore; Apollo Hospital in Chennai, Asian Heart Institute, Fortis Hospital, Kokilaben Dhirubhai Ambani Hospital and Seven Hills Hospitals
in Mumbai; Apollo Hospital and Care Institute of Medical Sciences (CIMS) Hospital, in Ahmedabad.

2.8.3.4 NABH Accreditation

2.8.3.4.1 An Overview of NABH

National Accreditation Board for Hospitals & Healthcare Providers (NABH) is a constituent board of Quality Council of India, set up to establish and operate accreditation programme for healthcare organizations. The board is structured to cater to much desired needs of the consumers and to set benchmarks for progress of health industry. The board while being supported by all stakeholders including industry, consumers, government, has fully functional autonomy in its operation. NABH has international linkages as it is an ‘Institutional Member’ as well as a ‘Board member’ of ISQua, member of the Accreditation Council of ISQua, and it is also on the board of Asian Society for Quality in Healthcare (ASQua).

2.8.3.4.2 The Vision and Mission of NABH

‘To be apex national healthcare accreditation and quality improvement body, functioning at par with global benchmarks. To operate accreditation and allied programs in collaboration with stakeholders focusing on patient safety and quality of healthcare based upon national/international standards, through process of self and external evaluation.’

International Society for Quality in Healthcare (ISQua) has accredited “Standards for Hospitals” developed by National Accreditation Board for Hospitals & Healthcare Providers (NABH, India). The approval of ISQua authenticates that NABH standards are in consonance with the global benchmarks set by ISQua. The hospitals accredited by NABH will have international recognition. This will provide boost to medical tourism.
2.8.3.4.3 NABH Standards for Hospitals

The latest edition of NABH Standards for hospitals is the 4th Edition that was released in December 2015. The standards provide framework for quality assurance and quality improvement for hospitals. The standards help to build a quality culture at all level and across all the function of hospital. The standards focus on patient safety and quality of care. The standards call for continuous monitoring of sentinel events and comprehensive corrective action plan leading to building of quality culture at all levels and across all the functions. NABH Standards for hospitals are prepared by a technical committee. The 10 chapters in the standards reflect two major aspects of healthcare delivery i.e. patient centered functions (chapter 1-5) and healthcare organization centered functions (chapter 6-10). NABH Standards has ten chapters incorporating 102 standards and 636 objective elements. The standards are annexed for reference. As on date there are 481 Hospitals in India that are NABH Accredited.

2.9 Scenario of Medical College Hospitals in India and Gujarat.

According to the World Directory of Medical Schools, in 2017, India, with 391 medical colleges, had the largest number of operational allopathic medical schools in the world. Brazil was a distant second, with 242 medical colleges, the United States of America had 184, United Kingdom had 37 and China, with a population comparable to India’s, had less than half the number at 158. It is imperative that India ensures that all these medical colleges meet a basic minimum quality standard. The Medical Council of India was established for this purpose in 1934 through the MCI Act, and empowered with the work of establishing uniform standards of higher qualifications in medicine and recognition of medical qualifications in India and abroad. In 1956, the old Act was repealed and a new one was enacted. This was further modified in 1964, 1993 and 2001. The objectives of the Medical Council of India are to (i) Maintain uniform standards of medical
education, both undergraduate and postgraduate, (ii) Recommendation for recognition/de-recognition of medical qualifications of medical institutions of India or foreign countries, (iii) Permanent registration/provisional registration of doctors with recognized medical qualifications and (iv) Reciprocity with foreign countries in the matter of mutual recognition of medical qualifications.

Experts at NITI Aayog (National Institution for Transforming India, which is a Government of India policy think-tank, established by the NDA government to replace the Planning Commission) have proposed replacing the MCI with a new National Medical Commission (NMC), outlined in a draft Bill known as the National Medical Commission Bill of 2016. The cabinet has already approved the bill and once cleared by Parliament, the proposed NMC Bill, 2017 will replace the existing Indian Medical Council (IMC) Act, 1956 which governs doctors through the Medical Council of India. The first line of the proposed ‘National Medical Commission Bill, 2016’ states that it is a bill to ‘Create a world-class medical education system that ensures adequate supply of high quality medical professionals at both undergraduate and post-graduate levels.’ The stress on the word ‘high quality’ is deliberate. There are 477 Medical College Hospitals as per Medical Council of India data base, producing 60845 MBBS doctors per year, there are 14379 Government Hospitals, having 634879 beds. In the rural areas we have 11054 Hospitals with 209010 beds and 3325 hospitals in urban areas with 425869 beds. While 70% of population in India lives in the rural areas and for their healthcare, government has 25354 Primary Health Centers, and 5510 Community Health Centers as per data from National Health Profile 2017 of Central Bureau of Health Intelligence (CBHI) report. There are agencies that set benchmarks and provide accreditation to hospitals and health care organizations like the NABH and ISO. They have formulated their ‘Standards’ keeping in mind the Corporate Hospitals and Non-Teaching Hospitals. There is a significant difference in the method of providing health care services in a Teaching Hospital
like any one of the 477 Medical College Hospitals in India when compared to a Corporate Hospitals or Non-Teaching Hospitals. Patient treatment is happening alongside clinical teaching activity. Whereas the NABH and ISO are justified in making the Quality Standards to ensure best quality in Corporate Hospitals and Non-Teaching Hospitals, because they are the hospitals that attract Medical Tourists and literate, affording, insured, urban patients who choose the hospital services based on the quality accreditation status, or the health insurance companies empanel such hospitals. The standards of the Medical College Hospital are based on the ‘Minimum Standards’ of Medical Council of India and the word ‘minimum’ itself indicates that the quality benchmarks may be far above these minimum norms. The Medical College Hospitals are not keen to voluntarily apply for NABH Accreditation because the teaching requirements of MCI itself are a herculean goal. This is why only approx. 5-7 % of the NABH Accredited Hospitals in India today are Medical College Hospitals. The more important reason for medical college hospitals to not seek accreditation is the general patients they are serving who are predominantly rural, non-affording, not insured and less informed regarding the quality aspects of healthcare service, therefore there is no demand from the consumer.

A study was published by Das and Mohpal in 2016, which was done to assess socioeconomic differences in access to high-quality health care services. It was found that people in the average village could access healthcare providers, of whom 71 percent were in the private sector and 49 percent had no formal medical training. The private sector accounted for 89 percent of the primary care with 77 percent of the providers having no formal training. In the world’s oldest democracy India, if the rural poor are yet not having access to proper quality of healthcare, even after 70 years of Independence, there is something that needs to be urgently done.
As the geographical distribution of the Medical College Hospitals in India is already nearly uniform, not confined to Urban areas only, and the governments are realizing the need to open more medical colleges in rural areas, and the Central government and state governments already providing incentives and reduced norms for promoters to establish medical college hospitals in Rural areas, it is expected that the vast majority of the poor patients will be availing the facilities at nearest medical college hospitals.

The Medical Council of India has special relaxed norms for medical colleges in hilly areas, notified tribal areas, North Eastern States and Union Territories of Andaman and Nicobar Islands, Daman and Diu, Dadra and Nagar Haveli and Lakshadweep. Gujarat government attempts to expand healthcare services to remote rural areas and announced various subsidies under its Health Policy 2016; the government plans to set up few Greenfield medical colleges and to set up five colleges attached to the civil hospitals in remote districts.

Five of the six existing public hospitals at Tapi, Banaskantha, Amreli, Bharuch, Dahod and Panchmahal districts will be expanded into medical colleges. The state government will give a 50% subsidy to these organizations for land to set up the colleges. The state government will also give Rs 7.50 lakh per student as financial aid, every year for five years. Organizations coming forward to set up the three new medical colleges will be given a 50% discount on market prices to buy land. The government will also provide Rs 15 lakh per student per year for five years to set up the new medical colleges in remote areas. The government will also reimburse the electricity bills of these new colleges for the first five years. The new health policy, however, has a condition that 75% of seats will be filled by the state government at these new colleges. It is the government at center and state that can foresee the future so well. There is therefore a great need of the present times to improve the quality of healthcare services being provided at the Medical College Hospitals in India.
Though there are a lot of studies on the patients about satisfaction level of patients, very few studies have realized the importance of satisfaction of the health care providers, and their perception regarding the quality of health care they are providing. The providers may be the direct healthcare provider- like Doctors and Nurses or the indirect providers like managers and administrators. The providers individually, like nurses may have a very limited role in the overall quality, and the doctors being team-leaders may play a larger role in the overall quality of healthcare, while the hospital administrators may have the most important roles of implementing or strategizing policies for quality health care. Having knowledge about their perception of quality in the same hospital is of vital importance in strategizing quality improvement interventions.

In Medical College Hospitals, the providers are also medical teachers, and along with patient treatment they are constantly ensuring the learning process on the patients for the medical or nursing students. The studies in medical colleges on quality of healthcare may be very different from that of the corporate or multi-specialty hospitals.

With this background we realize the significant importance and extent of the healthcare services being provided by the Medical College Hospitals in India and Gujarat. We also note that there is an existing Research gap, where the Quality of Health care services in the Medical College Hospitals of Gujarat has not yet been studied and this present study is aiming to reduce this gap in knowledge.

2.10 Literature Review of Related Studies.

This segment of the thesis analyzes past studies regarding healthcare service quality in hospitals. Few related studies that have been undertaken in the past are reviewed as follows:
2.10.1 SERVQUAL

SERVQUAL is a multi-dimensional research instrument, which is designed to capture consumer expectations and perceptions of a service with respect to five dimensions that are assumed to represent service quality. SERVQUAL is based on the expectancy-disconfirmation paradigm, which means that service quality can be represented as the extent to which consumers' pre-consumption expectations of quality are confirmed or disconfirmed by their actual perceptions of the service experience. A team of academic researchers, A. Parasuraman, Valarie Zeithaml and Leonard L. Berry first published in 1988 the SERVQUAL questionnaire which was supposed to measure quality in the service sector, it was a milestone achievement for the measurement methods used for service quality research. The SERVQUAL instrument has been widely applied in a variety of contexts, sectors, countries and cultural settings and found to be adequately robust. It has become the established and accepted measurement scale for service quality. Of course there are criticisms that have been very well documented.

The researchers began developing this model since 1983 and after continuous refinements, finally published their result of the SERVQUAL instrument in 1988. Parasuraman, Zeithaml and Berry began with an exhaustive search to identify items that were believed to have an impact on perceived service quality. This initial search identified some 100 items which were used in the first rounds of consumer testing. The data reduction technique of Factor Analysis was done to reduce the 100 items to 10 items. The initial ten dimensions that were believed to effect service quality were: Competence, Courtesy, Credibility, Security, Access, Communication, Knowing the customer, Tangibles, and Responsiveness.

The researchers found on further testing that some of the ten preliminary dimensions of service quality were closely related or auto-correlated. So the authors again modified their instrument accordingly and by the early 1990s, the authors had refined the model to five factors which in testing, appear to be relatively stable and
robust. These were: Reliability, Assurance, Tangibles, Empathy and Responsiveness (acronym used is RATER).

SERVQUAL is designed to measure service quality by capturing consumers’ expectations and perceptions with respect to five dimensions of service quality. The questionnaire that was developed consisted of matched pairs of items; 22 expectation items and 22 perceptions items, categorized and put into five dimensions which are assumed to align with the consumer’s mental map of service quality dimensions. The 22 questions comprised 4 items to capture the dimension of tangibles, 5 items to capture dimension of reliability, 4 items for responsiveness, 4 items for assurance and 5 items to capture dimension of empathy (Parasuraman et al 1988). The questionnaire was designed to be administered in an interview and required a moderate to large size sample for statistical reliability. The researchers using SERVQUAL often added additional items such as the demographics, prior experience with the brand or category and behavioral intentions of the consumers. Thus, the final questionnaire in some studies was consisting of more than 60 items and would take an hour also to administer. The SERVQUAL questionnaire was described as ‘the most popular standardized questionnaire to measure service quality’ (Caruanaa et al, 2000). It was widely used in service sector. When customer expectations are greater than their perceptions of received delivery of service, service quality is deemed low. When perceptions exceed expectations then service quality is high. This conceptualization is known as the ‘Model of Service Quality’ or more popularly as the ‘Gaps Model’. The model of service quality identifies five gaps that may cause customers to experience poor service quality. In SERVQUAL model, proposed by Parasuraman et al (1988) Gap 5 is the ‘service quality gap’ and is the only gap that can be directly measured. In other words, SERVQUAL instrument was specifically designed to capture Gap 5.

A simplified model of service quality as proposed by Parasuraman et al (1988) is illustrated in Fig 2.3.
Thus, the service quality can be conceptualized as a simple equation:

$$SQ = P - E$$

Where

SQ is service quality;

P is the individual's perceptions of given service delivery.

E is the individual's expectations of a given service delivery.

The SERVQUAL instrument was developed over a five year period and was tested, pre-tested and refined before appearing in its final form which became a highly reliable and valid instrument (Zeithaml et al, 1990). Mahapatra et al in (2006) used a modified form of SERVQUAL in the education sector and innovatively named it as EDUQUAL. Lee (2016) has called his modified version used in the hospital.
sector as HEALTHQUAL. Higgs et al (2005) applied the model in art museums and named it ARTSQUAL. Zeithaml et al (1988) modified the SERVQUAL to include 5 Gaps, as illustrated in Figure 2.4 and the diagnostic Indications are tabulated in Table 2.2. However, it was the GAP 5 only that could be directly measured.

Fig 2.4 The Modified SERVQUAL model to include 5 Gaps
Table: 2.2 Summary of Gaps with Diagnostic Indications

<table>
<thead>
<tr>
<th>Gap</th>
<th>Brief Description</th>
<th>Probable Causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gap 1 The Knowledge</td>
<td>Difference between the Target Market’s expected service and the Management’s perception of the Target markets expected Service</td>
<td>Insufficient Market Research Inadequate upward Communications Too many layers of Management</td>
</tr>
<tr>
<td>Gap 2 The Standards</td>
<td>Difference between management’s perceptions of Customer expectations and the Translation to service Procedures and Specifications</td>
<td>Lack of Management commitment to service quality Employee perceptions of infeasibility Inadequate goal setting Inadequate task standardization</td>
</tr>
<tr>
<td>Gap 3 The Delivery</td>
<td>Difference between service quality specifications and the service quality actually delivered</td>
<td>Technical breakdown or Malfunctions Role Conflict/Ambiguity Lack of Perceived control Poor Employee Job Fit Poor Technology Fit Poor Supervision or Training</td>
</tr>
<tr>
<td>Gap 4 The Communication</td>
<td>Difference Between Service Delivery, intensions and what is conveyed to the customer</td>
<td>Lack of horizontal communications Poor communication with advertising agency Inadequate communication with sales and operations Differences in policies and procedures across branches Propensity to overpromise</td>
</tr>
</tbody>
</table>

2.10.1.1 Criticism of SERVQUAL

A researcher, Francis Buttle has published the most comprehensive criticisms of the model of service quality and the associated SERVQUAL instrument in 1996 in which both operational and theoretical concerns were identified (Buttle, 1996). Other researchers also have opined their concerns on the effectiveness of SERVQUAL. Some of the important criticisms include:

1. The model of service quality has its basis in the expectancy-disconfirmation paradigm that represents the customer satisfaction. Researchers like Souca (2011),
have argued that the research instrument actually captures ‘satisfaction’ rather than ‘service quality’.

2. Another group of researchers (van Dyke et al, 1997) have questioned the validity of conceptualising service quality as a ‘gap’. They state in their published work that SERVQUAL has conceptual and empirical difficulties, and suggest that some alternative should be utilized.

3. Another researcher Smith (1996), seriously questioned if the SERVQUAL should be considered redundant.

4. Another important criticism often done is that SERVQUAL is designed to be administered after respondents have experienced a service. They are therefore asked to recall their pre-experience expectations. However, recall is not always accurate, especially of patients in the health sector, raising concerns about whether the research design accurately records the true pre-consumption expectations. In addition, studies show that expectations actually change over time. Consumers are continually modifying their expectations as they gain experience with a product category or brand.

5. The original authors themselves have modified this tool several times based on their feedback of criticisms like of Johnson and Mathews (1997) and reassessed themselves. One such criticism was mentioned by the researchers Parasuraman et al in 1994, themselves. There is an argument that only forecast expectations are true expectations yet, the SERVQUAL instrument appears to elicit ideal expectations. The wording in the original questionnaire makes the respondents in their expectations think of what excellent companies will do.

6. Many researchers have pointed out the problem of respondent fatigue. The SERVQUAL model of Parasuraman et al has matched pairs design of the questionnaire (total of 22 expectation items plus 22 perception items= 44 total items) which makes it a very long questionnaire. On addition of demographic and other behavioural items such as prior experience and the standard battery of demographics including: age, gender, occupation, educational attainment etc. then
the average questionnaire exceeds 60 items. This could take an hour to administer and record. This induces respondent fatigue which may have potential implications for data reliability.

7. A group of researchers Cronin et al (1994) reduced the number of questions to half and found that their results correlate well with SERVQUAL, with no reduction in diagnostic power, improved data accuracy through reductions in respondent boredom and fatigue and savings in the form of reduced administration costs.

8. Carman (1990) and Lam et al (1997), opine that the five dimensions of service quality are not consistent when the research is repeated in different countries, sectors, industries, market segments or even at different time periods. Niedricha et al in (2005) and Miller et al (2011) stated that across a wide range of empirical studies, the factors implicit in the SERVQUAL instrument have been shown to be unstable. In statistical terms, the robustness of the factor loadings is known as a model's dimensional stability.

9. Ladhari Riadh (2009), who is a Faculty of Business Administration, Laval University, Québec, Canada, has reviewed 20 years of SERVQUAL research, identifies and summarizes numerous theoretical and empirical criticisms of the SERVQUAL scale. Despite these criticisms, his study concludes that SERVQUAL remains a useful instrument for service-quality research.

2.10.2 Recent Studies on Quality of Healthcare in Hospitals

There have been almost no studies done for measuring Quality of Healthcare using SERVQUAL method exclusively in Medical College Hospitals in India. Few studies where satisfaction levels of patients were measured by SERVQUAL or other tools in hospitals are discussed in brief.

Gangani Parul Sachin (2016) did a study in the form of a thesis on the service quality management and customer satisfaction in corporate hospitals of Saurashtra (Gujarat) using the SERVQUAL model with 22 statements in two sets. She found
that patients had high expectations in each and every criterion of SERVQUAL statements but perceptions of tangibles are almost same as expectations. She concludes that the brand name of the corporate hospital is not affecting perceptions of patients, but geographical location of hospitals makes difference in expectations of patients while perceptions of patients is not affected by place of hospitals. Service quality expectations and perceptions are not affected by duration of stay at hospital, or by different age groups, or gender.

Aiswarya S (2015) did a PhD thesis on the impact of service quality on customer satisfaction in the health care sector, with reference to hospitals in Bangalore. She compared the dimensions of Reliability, Assurance, Tangibility, Empathy, Responsiveness, Accessibility and Pricing between corporate hospitals and medical college hospitals and found that there was significant difference between all of them. In Medical College Hospital she found both expectations and Perceptions to be high for all 7 dimensions, while in corporate hospitals the empathy dimension was only one where both the expectations and perceptions were high. The expectations for dimensions like reliability, assurance, responsiveness and pricing were low and perception was high.

Varsha Choudhary (2016) has done a comparative study of selected government and private sector hospitals in Jaipur, on impact of service quality on customer satisfaction. She concluded that Patients of government hospitals are more satisfied than the private sector hospitals as far as service quality is concerned. Study shows that the expectations of patients were higher in private sector but perception is low where as the expectation is lower in government hospitals where as perception is higher.

Singh et al (2013) studied the patient satisfaction level in a Tertiary Care Medical College Hospital in Punjab. They used a pre-designed pre-tested ‘Indoor Patient Feedback Form’ which was filled up by indoor patients and was recording the perception of the patients on alternative responses in the form of yes / no or satisfactory / unsatisfactory. This study shows assessing satisfaction of patients is
simple and cost effective way for evaluation of hospital services and has helped finding that patients were more satisfied with behaviour of doctors and dissatisfaction was found to be more regarding cleanliness in the toilets and the wards.

2.10.3 The New Concept of Quality Consciousness

Mahatma Gandhi has said- “Your beliefs become your thoughts, your thoughts become your words, your words become your actions, your actions become your habits.” If quality is a habit then the thought of quality in the mind of the provider is the initiator of quality actions. Locke in 17th century defined consciousness as "the perception of what passes in a man's own mind" (Locke, 2010). So the best term to sum up the trait of a good quality health service provider, using an ‘Individual Centric’ approach would be his ‘Quality Consciousness.’ The term ‘Quality Consciousness’ is not often mentioned in scientific literature but is a new innovative concept that is rarely discussed on blogs and some websites of quality (Nicole 2011, Soule & Ralph 1961, Usmani 2012).

Consciousness is the state of being aware of and responsive to one's surroundings. Consciousness is also defined in the 1753 volume of Diderot and d'Alembert's Encyclopedia, as ‘the opinion or internal feeling that we ourselves have from what we do’ (Jaucourt et al, 2014). Quality consciousness is a novel concept. The term was first used, in a 1947 keynote address by C.R. Sheaffer to the first convention of the American Society for Quality Control (ASQC), when he stressed on the importance of change in quality consciousness (Borawski, 2006). Quality consciousness can be summed up by the “3 A’s” – Awareness, Alignment, and Attention. It implies awareness of yourself and the environment around you; it also suggests that you must achieve alignment of your consciousness with the consciousness of the organization, which will aid in full activity and engagement of the senses (Nicole, 2011). Retaining or improving an organization’s competitive position depends on the degree of success of the employee quality consciousness
program (Soule & Ralph 1961). Quality consciousness has been studied in the field of education (Usmani 2012). This concept however was first applied to healthcare by Gupta and Jani (2017) where they try to study the level of quality consciousness of individual doctors and found that it is directly proportional to the quality level of health care service provided in the hospital. They opine that, to improve the quality of health care service, an effective intervention could be by increasing the quality consciousness of the providers.