TECHNOLOGY MANAGEMENT IN HOSPITALS

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ABSTRACT

Advances in technology assumes a significant part in medical care, and their compelling administration is critical to the acknowledgment of quality medical care provided. Medical services changes decisively due to innovative technological developments, from sedatives and anti-toxins to attractive reverberation imaging scanners and radiotherapy. Health technologies are utilized to cure disorders ranging from the most basic to the most advanced. It creates and maintains essential operational frameworks for health services and technology that are both safe and dependable. To reduce asset downtime and streamline maintenance workflows, most hospital healthcare technology management (HTM) departments now employ a Healthcare Computerized Maintenance Management System (CMMS). The goal of HTM is to make sure that the right technologies are used to solve healthcare problems with acceptable, cost-effective, safe, and functioning equipment that poses the least amount of danger to users, patients, and the environment. This paper illustrates the importance of Technology Management in Hospitals.

Keywords: Healthcare Technology Management (HTM), CMMS, Project Management, Asset Management, Training and education.

1. INTRODUCTION

Healthcare technology management (HTM) is **the systematic process of planning for and managing healthcare technology assets to enable the highest quality of care at the best cost**. These errands are multidisciplinary in nature and are done by qualified medical services experts, normally clinical architects in association with others. Health technologies are used to cure disorders ranging from the most basic to the most advanced. They are the foundation of medicine's services in the prevention, diagnosis, and treatment of illness and disease. The general objective of HTM is to guarantee that the proper innovations are conveyed to take care of medical service issues by utilizing appropriate, financially savvy, protected and functional equipment at minimal risk to patients, healthcare professionals and the environment [1]

Objectives:

The key objectives for Healthcare Technology Management (HTM) are the following:

- Financing and managing equipment replacement
- Current and Future Cost Management
  - Reducing overall costs
  - Reliable Equipment Replacement Forecast
  - Optimization of cash flow
- Improve the Patient Care Experience
  - Increase Patient safety through standardization
  - Reduce unnecessary hospitalization through home warding (Telehealth) [3]

Healthcare Technology Management Functions

The HTM role includes finding ways to produce, procure and implement technology that is not only cost-effective but also complies with manufacturing, government, health standards and safety requirements. For healthcare facilities, this implies ensuring that the most cost-effective technology that makes the best use of the available resources is acquired (Bronzino, 1992) and managed for optimal performance to provide the health services mandated. The procurement and replacement of healthcare technologies require technology assessment for the identification of suitable equipment. Infrastructure and equipment installation projects require effective project management. Proper management of assets is required to achieve optimal utilization of equipment. Appropriate and effective use of healthcare technologies can only be achieved if technical and medical personnel receive adequate training in operating and maintaining equipment [1]. The following functions are:

a. Project management

To achieve desired objectives, project management is the administration of temporary activities within certain time, cost, quality, and risk limits. Infrastructure and technology-related initiatives are of interest to HTM. Design and building of healthcare facilities, as well as the installation of equipment, are examples of the project management.

b. Asset Management

Healthcare technology assets represent significant capital expenditure. Healthcare technologies are important and integral components of the healthcare service delivery system, so managing these valuable resources to ensure that they are selected appropriately, used correctly and to maximum capacity, and last as long as possible is a financial imperative [1]. Quality medical care administrations can be given when these advances are in great working condition to give a completely useful and functional environment as well as appropriate preparation being given to medical services experts to work upon the machines.

Thus, the effective management of healthcare technology contributes to increased health sector efficiency, and ultimately to improved health outcomes and to a sustainable health service.

Asset management also includes the responsibility of deciding how best to maintain a healthcare facility's equipment. This can be in the form of in-house maintenance, utilization of vendor or manufacturer services on a contractual or an as-needed basis, and/or through maintenance insurance (Bronzino, 1992). It is assumed that responsible personnel are equipped with the relevant management skills and technical expertise that allow them to determine the optimal lifespan of health technologies and manage the replacement and upgrading of equipment. One of the essential instruments used in the management of healthcare technology is an asset register, which provides up-to-date records on the physical location of the device, the actual state of the device, i.e., whether it is functional or not, and the availability of spare parts [1].

c. Technical education and training

Effective HTM requires that users of medical equipment are adequately trained in, and informed about potential risks associated with, the use of healthcare technology; thus users should receive periodic operator training in addition to their initial training on newly acquired or unfamiliar equipment; this may be from in-house departments or outsourced service providers (Bronzino, 1992) [1].

Challenges faced by the Hospitals

- Identified challenges such as insufficient staff to manage equipment and monitor supplier prices, unavailability of spare parts, lack of maintenance budgets, and unequal distribution of equipment across health care facilities [1].
- Healthcare systems are struggling to keep pace with the digital transformation taking place, and HTM departments risk being outsourced if they do not find ways to automate and connect their systems [2].
- Many are legacy CMMS solutions that only provide work order management and do not integrate with other systems throughout the organization or provide the technological innovation needed to keep up with the advances in healthcare asset management [2].

Survey for impact of Technology in Healthcare System:

An in-depth survey was conducted in Dehradun as part of the project to find the impact of HealthCare Technology System among common people. The participants of the survey were relatives, neighbors, friends, peers and random persons who were willing to be part of this survey.

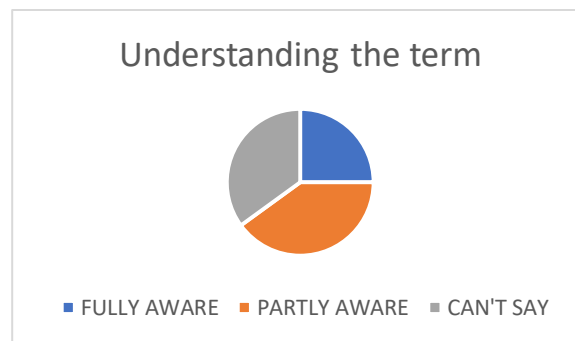The questions posed to them were:-

1) What do they understand with the term Healthcare Technology Management?
2) What is the need of technology in healthcare delivery system?
3) What have been the most significant developments in their family that have aided hospital technology?
4) Is healthcare technology beneficial or not?
5) Is this healthcare technological advancement cost-effective?
6) Do we need to develop technology advancement in government hospitals?

7) Use of healthcare technology in hospitals is time-consuming?
8) Does technology bridge the gap between the rich and the poor?
9) Will technological advancements make it easier for those living in rural locations to access health care?
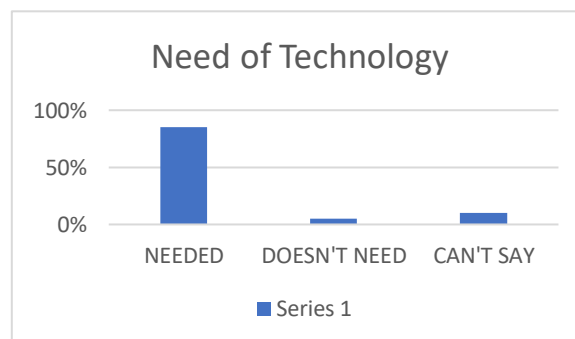10) Will technology help illiterates gain access to healthcare services?

The target group was a wide cross section of society and comprised of responding able age group from 12 years to 80 years male and female both.
The reply to the questionnaire has been summarised as under:-

1. What do they understand with the term Healthcare Technology Management?
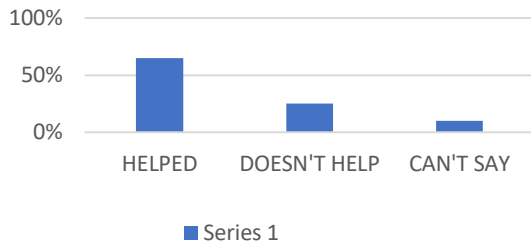

Understanding the term

FULLY AWARE ■ PARTLY AWARE ■ CAN'T SAY

2. What is the need of technology in healthcare delivery system?

Need of Technology

NEEDED   DOESN'T NEED   CAN'T SAY
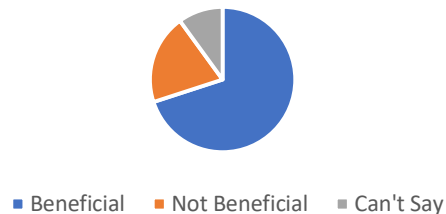■ Series 1

3. What have been the most significant developments in their family that have aided hospital technology?
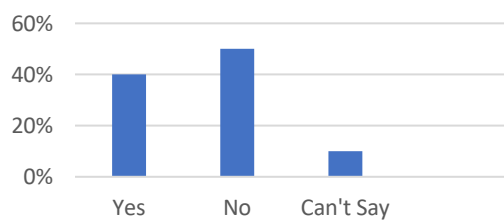
Technological Development

4. Is this healthcare technological advancement cost-effective?
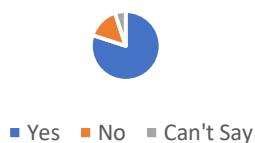
Health Technology Benefits

5. Do we need to develop technology advancement in government hospitals?

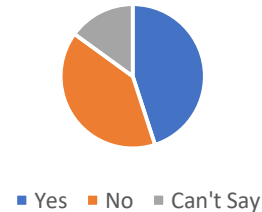**Technological Advancement Cost - effective**
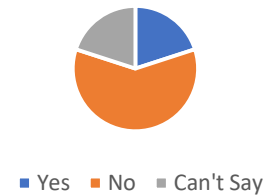

Need of Technological Advancement

6. Use of healthcare technology in hospitals is time-consuming?
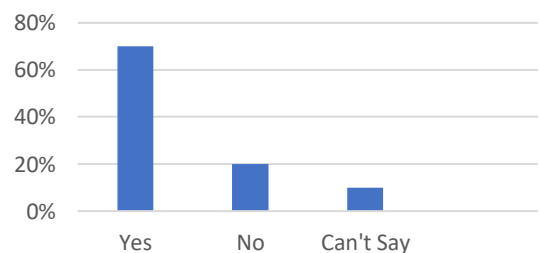
Time-Consuming

7. Does technology bridge the gap between the rich and the poor?
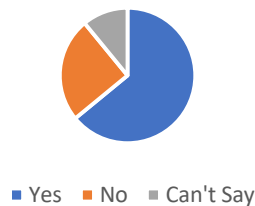
Bridge the Gap

8. Will technological advancements make it easier for those living in rural locations to access health care?

Beneficial In Remote Areas

9. Will technology help illiterates gain access to healthcare services?

Beneficial for Illiterate

■ Yes ■ No ■ Can't Say

Conclusion

Healthcare processes and management today significantly rely on IT systems that enable real-time access to data and utilities. Without these applications, healthcare will be constrained, compromised, and vulnerable. Many of the medical gadgets that are utilised in treatments rely on technology. A truly modern healthcare technology management CMMS software solution can transform HTM department, enhance the patient experience, mitigate costly cybersecurity risks, reduce operating costs, enhance operational efficiency within the institution, and provide ongoing compliance with policies, laws and regulations [2.3].

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