

# Impact of Video Assisted Teaching Regarding Knowledge, Attitude and practice of Breast Self-Examination among adolescent girls and Women in Chittoor, Andhra Pradesh, South India

<sup>1</sup>Prof. Edna Sweenie J, Deputy Director & Professor, Department of Child Health Nursing, Sri Venkateswara College of Nursing, Chittoor – 517127, AP, Email: [ednasweenie16@gmail.com](mailto:ednasweenie16@gmail.com)

<sup>2</sup>Prof. V. Sujatha, Dean, & Professor, Department of OBG Nursing, Sri Venkateswara College of Nursing, Chittoor – 517127, AP, Email: [Vallerusujatha@gmail.com](mailto:Vallerusujatha@gmail.com)

<sup>3</sup>Prof.K. Prasanna, Professor, Department of Child Health Nursing, Sri Venkateswara College of Nursing, Chittoor – 517127, AP, Email: [Prasannak@gmail.com](mailto:Prasannak@gmail.com)

<sup>4</sup>Lakshmi Devi, Nursing Tutor Department of Medical Surgical Nursing Sri Venkateswara College of Nursing, Chittoor – 517127, AP, [lakshmibhagvanreddy@gmail.com](mailto:lakshmibhagvanreddy@gmail.com)

<sup>5</sup>T. Gayathri, Professor Department of Medical Surgical Nursing, Sri Venkateswara College of Nursing, Chittoor – 517127, AP, Email: [Gayathrit@gmail.com](mailto:Gayathrit@gmail.com)

*Abstract – The XYZ ISLAMIC HOSPITAL in Pekanbaru, in particular, looks on the quality of its health services as a key metric in the market. There is a pressing need for inpatient health care to be improved by means of performance enhancements. In this scenario, the Knowledge Management System (KMS) may be a solution to help assist the knowledge management process by serving as a standard for evaluating the performance and quality of services provided by physicians and nurses. However, knowledge management innovation is also required in practise. XYZ ISLAMIC HOSPITAL's physicians and nurses may benefit from Big Data's many forms of data and massive data processing technologies as a whole, which will help them learn and improve their skills more quickly. A KMS that makes use of Big data as a facilitator in the creation of knowledge for physicians and nurses, and then stores and shares that information, is therefore required. Each issue area is prioritised in the Knowledge Management System Agile Implementation Methodology (KMSAIM) to ensure that each component has the proper and relevant answers. Results of the KMS design include site-based apps with file sharing tools, discussion forums for exchanging medical experiences, and search functions required by physicians and nurses for inpatient services at XYZ ISLAMIC HOSPITAL.*

*Keywords – Inpatient Medical Service, Knowledge Management, Knowledge Management System, Big Data.*

## I. INTRODUCTION

The vision and purpose of an organisation must act as guides in identifying and achieving organization's goals if it is to be effective [1].

Organizational performance should not be overlooked while discussing an organization's success. The standard of medical care provided by the XYZ Islamic Hospital in Pekanbaru, Indonesia, is a good example of how an organization's success may be measured. Knowledge Management (KM) at the XYZ ISLAMIC HOSPITAL plays a critical role in enhancing health care quality because of this organisational performance or quality of health services. Of course, physicians and nurses are the primary players in the health care industry.. Every doctor and nurse at XYZ ISLAMIC HOSPITAL has a role to play as a knowledge consumer or a knowledge developer in implementing KM. Medical staff at XYZ ISLAMIC HOSPITAL use a variety of tools to aid in the creation of knowledge, including patient health data and information and Standard Operation Procedures (SOPs) information. When it comes to the KM Lifecycle, each Knowledge has a growth and decline stage. Every piece of information is useful for a limited amount of time. For example, a daily examination of a patient's medical condition while they are in the hospital. The traditional method of collecting patient vital data is to go to the patient and retrieve the data directly, but this procedure is time consuming for inpatient installation cases with a limited number of patients and nurses, so in the current time Internet devices (IoT) such as heart rate sensors, blood pressure sensors, temperature sensors, respiratory sensors, etc. can be utilised. the use of IoT will render a current SOP obsolete, such as the SOP of the patient's daily evaluation by hand, thus innovation and knowledge modification will be required in the context of the case. This case illustrates the significance of innovation in the field of knowledge management. In other words, information may be kept explicitly in practise, but it requires work to speed up the process of invention and development of new kinds of knowledge from pre-existing ones. This is why XYZ ISLAMIC HOSPITAL's physicians and nurses require a Knowledge Management System (KMS) to help them better manage their knowledge.

Using KMS, healthcare providers will have access to a wealth of hitherto untapped resources, including the expertise of current physicians and nurses. In addition, KMS is a useful tool for integrating and systematising the administration of knowledge management. A totally effective and efficient innovation process to increase service quality is not guaranteed by KMS implementation. This necessitates the need for an extra effort to expedite knowledge enablers. As a technology that can analyse vast volumes of data from a variety of sources, Big Data is expected to encourage the development of new types of knowledge innovations, particularly among medical professionals and nurses who are engaged in the production and expansion of knowledge. In this approach, physicians and nurses' expertise will be more relevant and inventive to the demands and development of current technology in the XYZ ISLAMIC HOSPITAL and the patient's condition directly. When it comes to producing and growing new information, the XYZ ISLAMIC HOSPITAL requires a KMS that uses Big Data as a supporter in order to help the hospital's knowledge management process. Additionally, the XYZ ISLAMIC HOSPITAL expects that this will hasten the process of enhancing service quality in order to reach its goals and fulfil its purpose.

## **II. LITERATURE REVIEW**

The company's knowledge base is a valuable resource that must be properly handled. When done correctly, Information Management (KM) is a systematic approach to acquiring, organising, storing, and disseminating knowledge inside a company in order to boost

productivity and reduce waste [2]. Two forms of human knowledge exist: tacit (tacit) and explicit (explicit) knowledge. Tacit knowledge, on the other hand, is difficult to assess, communicate, and codify since it consists of a slew of distinct parts that represent the company's strategic assets.

Creativity must be taken into account when it comes to knowledge management. Socialization, according to Nonaka and Takeuchi [4], is the first step in the process of forming new tacit knowledge via ordinary social interactions. As a result, the process of creating new knowledge must be taken into account while creating a hospital-based knowledge management system.

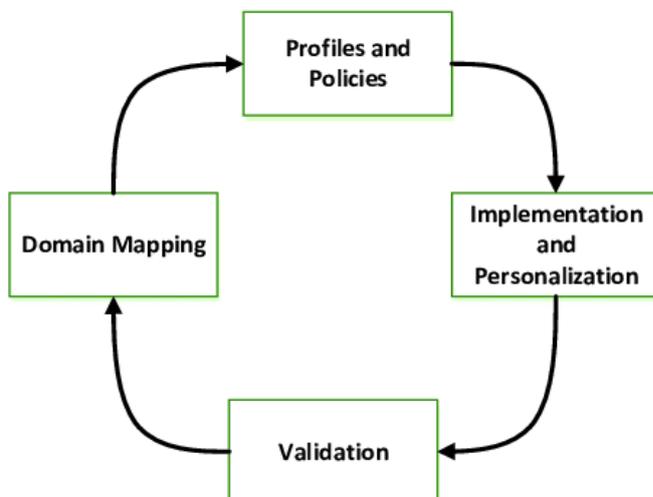
Knowledge management systems (KMS) may be used to improve patient care in the hospital. The hospital will have a system in place to keep track of the many illnesses that patients have while they are there, so that the information may be utilised together.

The usage of big data [6] is one method of managing patient knowledge using KMS [6]. Predictive analytics are made possible by a wide variety of data sources [7]. For hospitals, Big Data may be a valuable source of information that can be turned into new knowledge from a variety of organised and unstructured data. Another emerging trend is the use of large amounts of data, particularly in the areas of prediction and decision-making, to uncover previously untapped sources of knowledge.

Competitive advantage may be developed by the use of big data created by the organization's business operations, operational activity and innovation-related activities, including knowledge-related activities, as well as personnel skill development [8]. Using the idea of knowledge production, massive data may be turned into meaningful knowledge via the application of knowledge management [9].

### III. DESIGN METHOD

The Knowledge Management System Agile Implementation Methodology (KMSAIM) is used in this design [10]. The KMSAIM design technique was chosen because it brings Agile to the design process, resulting in a design that is built on components or is functional in nature. KMSAIM's phase diagram is seen in Fig. 1.



**Figure 1.** Diagram of KMSAIM Phase

Initialization, problem domain mapping, profile settings and access permissions, implementation and validation will all be based on this KMSAIM.

#### IV. DESIGN KMS KMS at XYZ

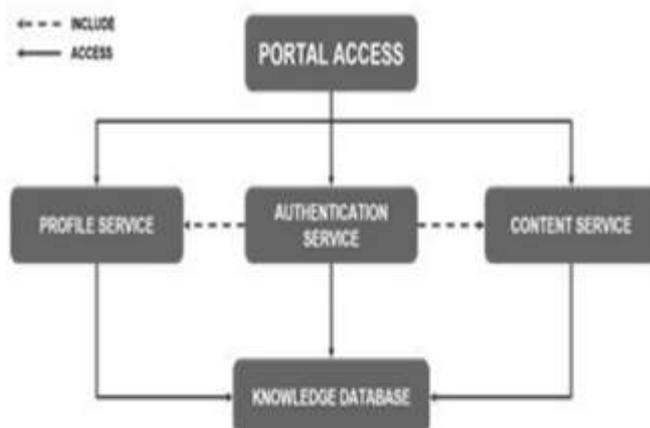
Inpatient unit nurse units at XYZ ISLAMIC HOSPITAL use ISLAMIC HOSPITAL as a website-based Knowledge Management tool that is enabled by Big Data technology in its knowledge generation process. In order to improve the efficiency of health care operations and the level of knowledge held by each doctor and nurse at XYZ ISLAMIC HOSPITAL, we developed this application to make the Knowledge Sharing process simpler and more visible.

##### a. Initialization

With Big Data, we use the KMSAIM technique to build the KMS. KMS project execution relies heavily on Big Data technology, and this early phase is all about acquiring knowledge about how to utilise it effectively. Our first step in constructing KMS at the XYZ ISLAMIC HOSPITAL is to choose the technologies we'll utilise.

In addition, the standard operating procedures (SOPs) in hospitals are the driving force behind the development of KMS. It is essential for inpatient business activities to have a standard operating procedure (SOP). Additionally, each inpatient nursing activity needs specialised care knowledge. The inpatient care business process at XYZ ISLAMIC HOSPITAL is shown in the following simulation diagram:

In accordance with the preceding flowchart of a business process. The following topics will be presented in the KMS implementation:



**Figure 2.** Diagram of KMS

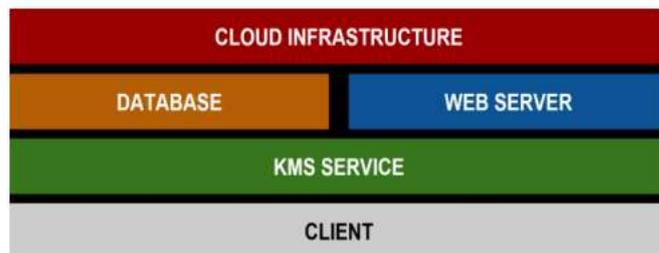
##### b. Domain Mapping

A classification of the function module may be made based on the KMS architectural diagram above and a description of its business processes:

**Table 1.** Modules Function

Services	Features	Technologies	Descriptions
Portal Access	Knowledge Access & Distribution	JSX (ES6 + HTML + CSS) ReactJS, Elastic Search	KMS Portal / Dashboard
Authentication Service	Security Service for Knowledge Access	ES6 ExpressJS with Nodejs	Access protection, define access & action role level
Profile Service	Knowledge Access & Distribution About User Data	JSX (ES6 + HTML + CSS) ReactJS	Controlling user profile (from the knowledge element of user profile)
Content Service	Collaboration Access for Knowledge content	ES6 ExpressJS with Nodejs	Knowledge Creation & Process Service
Knowledge Database	Content Repository & Knowledge Distribution	MongoDB (NoSql) with JSON Schema	All of knowledge assets & resources

The following is an idea for resolving the aforementioned issue of inter-unit communication and cooperation in data management:



**Figure 3.** KMS Architecture

The KMS architecture's Mapping Matrix functions and components must be implemented in accordance with the figure above.

*c. Profiles & Policies*

In addition to these functionalities, the KMS Service architecture is web-based and will include:

- Module for Authentication and Profiling Doctors and nurses' access privileges are controlled by this feature.
- Visualization of Data and Information (D&I) An analysis of medical records from hospital patients is used to provide the data for this feature.
- Forum & Discussions Section In addition to providing a forum module for the sharing of information between physicians and nurses, this feature includes forum classification, threads, and content labels to make it easier for users to search.
- The File Sharing Module File attachments may be placed together in a single post and searched for by file name as part of the forum's knowledge content.

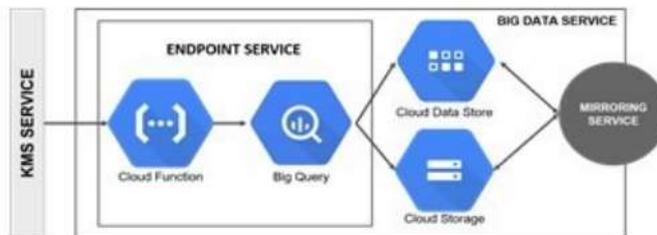
The four web-based KMS primary services indicated previously are ideal for one cycle of inpatient treatment.

*d. Implementatioin & Personalization*

Having designed the KMS idea, the KMS service architecture is a detail of the KMS service architecture that utilises Big Data services and integrates with current systems.

Health data and previously organised records of inpatient treatment are used to populate the General Hospital Database. Unstructured data, such as patient files in different types and formats are stored in File Storage. Data from the Vital Sign database is organised into a cohesive understanding of the patient's current state.

The Big Data Capture Engine will gather many data sources and combine them into a single structured meta data set, which can then be queried by the KMS dashboard to meet its specific requirements. The Google Cloud Platform for Big Data is being used here for Big Data-based data management, which makes use of Big Data services from microservice service providers. The graphic below depicts the process:



**Figure 4.** Big Data Service & Endpoint Service Architecture

After Google Big Query does a query, all previously documented information will be delivered by Big Data tools utilising the API from the Google Cloud Function service. By receiving all important data and knowledge, users will be able to make informed decisions about health care services and new knowledge activities. As you can see, this is the application's design:

*e. Validation*

A User Acceptance Test (UAT) verifies, using big data, if the KMS design findings are acceptable for the hospital's demands. UAT yielded the data shown in the table below:

**Table 2.** Modules Function

NO	FEATURE	STATUS
1	User determination	OK
2	Business Flow Diagram	OK
3	Mapping Business Requirement & Feature Modules / Functions	OK
4	Basic architecture diagram	OK
5	Advance KMS Architecture Diagram	OK
6	Detail Big Data Architecture Diagram	OK
7	View Designs	OK

Validating that the KMS design meets the business requirements is the primary goal of this step. We learned that the KMS design we presented for XYZ ISLAMIC HOSPITAL met their requirements throughout this validation phase.

## V. CONCLUSION

If implemented, the design provided in the above explanation may be used to enhance the quality of inpatient medical services at XYZ ISLAMIC HOSPITAL. Based on study into the observations of the KMS demands at the XYZ ISLAMIC HOSPITAL, it can be determined that the dissemination of knowledge can be handled appropriately, kept and even reused if required with the presence of a KMS system. From a medical standpoint, nurses who are responsible for administering care to inpatients would benefit immensely from having access to well-managed information. Because everything is recorded in a single system, this system will close the knowledge gap on standard operating procedures (SOPs) for inpatient services and the medical activities required during hospitalisation. Nursing care will be more efficient and accurate thanks to KMS, which is a nurse-collaboration media. Big Data services will make it easier for KMS to provide relevant data that meets the demands of inpatient nursing units in the process of developing, sharing, and preserving knowledge. Outpatient, emergency and medical support services at XYZ ISLAMIC HOSPITAL may benefit from the KMS idea.

### Acknowledgment

**Conflicts of Interest:** The authors declare no conflict of interest.

**Funding:** The authors receive no funding for this work

**Ethical approval:** This paper has not submitted to anywhere and published anywhere. It does not contain any studies with human participants or animals performed by any one of the authors

## References

- [1] Fu, L., Zhang, W., & Li, L. (2022). Big Data Analytics for Healthcare Information System: Field Study in an US Hospital. In *Frontiers of Data and Knowledge Management for Convergence of ICT, Healthcare, and Telecommunication Services* (pp. 25-44). Springer, Cham.
- [2] Mohanty, S., Jagadeesh, M., & Srivatsa, H. (2013). *Big data imperatives: Enterprise 'Big Data'warehouse, 'BI' implementations and analytics*. Apress.
- [3] Xia, X. (2021, April). Exploration of Internet Hospital Information System Based on Information Integration Platform. In *Journal of Physics: Conference Series* (Vol. 1856, No. 1, p. 012045). IOP Publishing.
- [4] Esmailzadeh, P., Mirzaei, T., & Dharanikota, S. (2020). The impact of data entry structures on perceptions of individuals with chronic mental disorders and physical diseases towards health information sharing. *International Journal of Medical Informatics*, 141, 104157.
- [5] McKenzie, K. E. (2020). *Toward a Convergence Research Framework for Hospital Interface Design: Integrating User Needs, Big Data, and Specialized Knowledge into Complex Decisions*. North Carolina State University.
- [6] Kalid, N., Zaidan, A. A., Zaidan, B. B., Salman, O. H., Hashim, M., & Muzammil, H. J. J. O. M. S. (2018). Based real time remote health monitoring systems: A review on patients prioritization and related "big data" using body sensors information and communication technology. *Journal of medical systems*, 42(2), 1-30.
- [7] Krumholz, H. M. (2014). Big data and new knowledge in medicine: the thinking, training, and tools needed for a learning health system. *Health Affairs*, 33(7), 1163-1170.
- [8] Nkanata, M. G., Makori, E. O., & Irura, G. (2018). Comparative analysis of hospital information management systems among healthcare workers in two selected hospitals in Kenya. *Library Philosophy and Practice*, 0\_1.
- [9] Tailor, K. (2015). *The patient revolution: How Big Data and analytics are transforming the health care experience*. John Wiley & Sons.
- [10] Kuziemsky, C. E., Monkman, H., Petersen, C., Weber, J., Borycki, E. M., Adams, S., & Collins, S. (2014). Big Data in Healthcare—Defining the Digital Persona through User Contexts from the Micro to the Macro. *Yearbook of medical informatics*, 23(01), 82-89.
- [11] Bates, D. W., Saria, S., Ohno-Machado, L., Shah, A., & Escobar, G. (2014). Big data in health care: using analytics to identify and manage high-risk and high-cost patients. *Health affairs*, 33(7), 1123-1131.
- [12] Abdelhak, M., Grostick, S., & Hanken, M. A. (2014). *Health information-e-book: Management of a strategic resource*. Elsevier Health Sciences.
- [13] Yan, A., Zou, Y., & Mirchandani, D. A. (2020). How hospitals in mainland China responded to the outbreak of COVID-19 using information technology-enabled services: An analysis of hospital news webpages. *Journal of the American Medical Informatics Association*, 27(7), 991-999.