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A Comparative Study of Knowledge Management Practices in Government Hospitals in North India

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Abstract—*The ever growing impact of the new technologies and innovations in Internet and telecommunications, are being felt in all business sectors as well as government sectors. Healthcare is one such area which is not only the largest but also one of the most progressive service sectors in recent times. The health care consumers these days are more aware, empowered and seeking better and improved services and performance.[23] India as a growing economy, is also facing the same challenges of knowledge being produced at an exponential rate and being consumed by a wide range of multidisciplinary healthcare stakeholders such as physicians, nurses, administrators, patients, policy makers in governments etc. And therefore many experts have called for the need to have more robust and efficient healthcare management thereby sparking a rigorous interest in using Knowledge management concepts and theories in this domain. [10][14]*

This paper attempts to study and compare the various knowledge management practices, if any followed at GMC Jammu, AIIMS, New Delhi and PGIMR, Chandigarh. Around 100 doctors from each hospital were administered a five point likert scale questionnaire which contains questions on knowledge sharing practices, culture, technology, leadership and process. The doctors were randomly chosen and 284 responses were received. The responses were statistically analyzed using SPSS software. The results showed that significant variation exists in the practices followed by the doctors in the hospitals under study, It was also seen that though Knowledge Management is not officially implemented in any of the three hospitals under study, there are many practices which can be qualified as KM practices that are being followed by the medical professionals in all the three hospitals.

The overall mean for Knowledge sharing practices was highest for AIIMS – 3.75, while PGI followed closely with a mean of 3.54. And the last one was GMC Jammu with a mean of 2.78. Among the highest means were for the KM Process, Culture, Sharing and Technology. This is quite expected since AIIMS is one of the finest institutions in our country. Thus other hospitals across the country can help learn from AIIMS and try to improve knowledge by following same practices at their end.

1. INTRODUCTION

Healthcare sector growth trend in India

As per Ibef report (2014), The Indian healthcare industry size is expected to touch US$ 160 billion by 2017 and by 2020 , it will rise up to US$ 280 billion.[9] The Government of India has done its part with increase in the plan allocation for health by 20% to US$ 5.8 billion in Union Budget of 2011-12. In 2014, the government plans to set up 10 more AIIMS-like institutes in addition to the US$ 1.23 billion for six upcoming AIIMS-like institutes set up in 2010. In fact, Indian government is the highest spender (that is 5.25% of the GDP) on healthcare amongst the developing countries. Despite this, the public sector is contributing only around 15-20 per cent of the required investment in the healthcare sector. Unfortunately, India's healthcare infrastructure has not kept pace with the economy's growth.

In recent times, healthcare industry has become one of India's largest sectors - both in terms of revenue and employment. The industry not only consists of nursing homes, hospitals, medical devices and equipments , but also clinical trials, telemedicine, and medical tourism. The Indian healthcare delivery system has two major components - public and private. The Government sector or the public healthcare system is focused on giving basic healthcare facilities and includes dispensaries, government hospitals and primary healthcare centers in rural areas. The private medical health care players are concentrated in and around major towns and cities. In this study, we have considered only the state run hospitals. In a country like India, even today more than half the population still depends on government run health care centers not only because of their reach but also as they are relatively cheaper. Obviously the state run health services are more geographically widespread and thus bring a different type of requirements within a single problem context. The state run hospitals are large-scale and include many allied regional divisions and organisations and hence lead to different and sometimes contradictory interests of the various parties involved. Therefore it is a real challenge to create a system which not only provides comprehensive coverage to people but also manage to align the goals and perceptions of parties into one common agenda.

According to experts, [23], constant changes such as increasing costs, more focus on accountability and

transparency, improved methods of treatments, better medical equipments show that healthcare delivery is changing rapidly and this change has forced emphasis on collection, collaboration and sharing of information and knowledge. This has resulted in use of Knowledge Management (KM) in order to create and sustain optimal healthcare outcomes by healthcare organizations. And this is not only a requirement but a necessity as far as government hospitals in this country are concerned.

Knowledge Management in Healthcare

As per experts, Knowledge Management deals with the identification, collection and conversion of knowledge available within each individual in an organization into a more useable format for all people in the organization.[12] The focus of knowledge management is how to share knowledge to create value-added benefits to the organization. And not only sharing, but also to develop an ability to capitalise on their intellectual assets through proper dissemination. Thus Knowledge management is all about getting the right knowledge, in the right place, at the right time. [21] The new approaches to healthcare delivery focus on treating patients with an emphasis on prevention and maintenance of good health of patients. But these require sharing of knowledge and information by all levels of health care delivery system. Researchers suggest that this can be best managed by a robust knowledge management system since insulating a hospital's intellectual knowledge from degeneration is one of the key objectives of Knowledge Management system. [6]

2. REVIEW OF LITERATURE

The difference between Information and Knowledge is important to consider when discussing any knowledge management systems. Information is the specific data that helps in decision making while knowledge is more valuable as it develops over time and is able to assimilate different information and build a pattern amongst them. [5] Knowledge helps us to handle different situations, to anticipate implications, assess consequences and refine our responses to the circumstances. [22] Information can become knowledge only if the context in which it exists is understood. [2] And this is a key challenge for any institution. All the more in state run institutions where there are too many stakeholders each with their own interests and goals.

Not only are there conflicts over financial interest but also over accountability, information flow and the way and extent of healthcare delivery being provided. It is but natural that all these collaborate to provide good healthcare delivery to the patients and for this to happen they need to be on the same platform and have access to updated knowledge. The use of Knowledge Management techniques in order to register and communicate and augment knowledge in health care sector thus assumes tremendous importance. Since government run institutions have more social agenda rather than profitability, sometimes the accountability and performance aspect are rather ignored. This creates a large but inefficient system which the very people for whom it was created also shun because of lack of accountability. In general, most hospitals are unaware of their acquired knowledge base. Moreover, the knowledge assets are usually lost due to higher rate of employee attrition, cost saving measures and improper documentation [3]. It has also been noticed that although, healthcare is a knowledge intensive area, the healthcare knowledge is largely underutilized and this is mainly due to lack of availability of specific knowledge, especially at the point of care. [20]

Therefore, a healthcare institution needs a specific Knowledge Management system that can help to focus on acquisition, retrieval and storage of knowledge assets that are both tangible and tacit in nature.[17] A good KM system will take care of its intellectual capital as a managed asset. And it is well known that improved patient care is directly proportional to a hospital's intellectual assets. [4] An important part of our knowledge is personal, that is, it cannot be accessed by others. [18] Since, tacit knowledge is difficult to identify, articulate, or share and store, one of the major challenges in Knowledge Management is to gather and make this knowledge available across the whole organization.

In healthcare institutions, Knowledge Management optimally utilizes these intangible assets to improve healthcare. Obviously, knowledge assets are the most important assets for any hospital as they represent the knowledge that a medical and paramedical person has with respect to patient and his needs, the treatment plans, the care required, operations and technologies that can be utilized for medical and healthcare management. A good KM system identifies and maps intellectual assets within the hospital, thereby generating precious knowledge capital. It also creates a knowledge-sharing environment and culture which are important for the successful implementation of the system. [1] [13]

3. RESEARCH OBJECTIVE

The main objective is to study the various practices followed by medical professionals for the improvement and sharing of their knowledge at three Government hospitals in North India. It was decided to compare the different practices being followed in these hospitals. The idea was to see the differences in knowledge sharing practices in the hospitals under study.

4. HYPOTHESIS

H1: Significant variation exists in the knowledge sharing practices of select medical homes under study.

5. RESEARCH METHODOLOGY

The study has been carried out at Government Medical College, Jammu, PGIMER Chandigarh and AIIMS, New Delhi.

5.1 GMC Jammu

The Government Medical College, Jammu, is a premier institute of J&K and was started in the year, 1973 in a temporary building with the object to provide quality education and deliver the health care service to the people of this region. This institution was started with the aim to train fifty medical students for MBBS course per year and to serve as referral hospital for Jammu Province. But now the seating capacity has been increased up to 120 students per year. This college is now credited to be the amongst a few top institutions in the Northern India. The institution started with a total of nine hundred beds and with the inauguration of Medical College Hospital building in the year of 1993, it has now increased to 1700 beds including associated hospitals including Col. R.N.Chopra Nursing Home.

5.2 PGIMER Chandigarh

PGIMER, Chandigarh was conceived in 1960 as a center of excellence which would endeavor to develop patterns of teaching in postgraduate medical education in as many branches as possible and attempt to produce specialists in several disciplines of medicine. It was also envisaged that these specialists would spread out in the country in various medical colleges and medical institutions and impart medical education of highest standard to the students and set up nucleus of excellence in their own institutions. It was also given the responsibility to broaden the horizons of medical knowledge by intensive research in the field of health.

5.3 AIIMS, Delhi

AIIMS was created in 1956 as an Act of Parliament to serve as a nucleus for nurturing excellence in all aspects of health care. The Institute has comprehensive facilities for teaching, research and patient-care. As provided in the Act, AIIMS conducts teaching programs in medical and para-medical courses both at undergraduate and postgraduate levels and awards its own degrees. Teaching and research are conducted in 42 disciplines. In the field of medical research AIIMS produces more than 600 research publications by its faculty and researchers in a year. Twenty-five clinical departments including four super specialty centres manage practically all types of disease conditions with support from pre- and Para-clinical departments.

5.4 Methodology

A five point Likert scale questionnaire was used and it contains 51 items on knowledge sharing practices. The cronbach alpha value (which is a measure of internal consistency, based on the average inter-item correlation.) was 0.925 signifying a good fit. Around 100 doctors were randomly chosen and administered the questionnaire from each hospital. We received 284 responses – 97 (GMC Jammu), 92 (PGI) and 95(AIIMS). The responses received from the doctors were statistically analyzed using SPSS software for variances using ANOVA.

6. ANALYSIS AND FINDINGS

The initial analysis showed that although Knowledge Management is not officially implemented in any of the three hospitals, there are many practices which can be qualified as KM practices that are being followed by the medical professionals. We studied five varaiables for he Knowledge Management – K sharing, K Culture, Technology, Process and Leadership. The mean for Knowledge sharing practices was highest for AIIMS – 3.75, while PGI followed closely with a mean of 3.59. And the last one was GMC Jammu with a mean of 2.71. See Table 1 below.

Table 1: Means

Hospital		Process	Leadership	Culture	Technology	Ksharing
AIIMS	Mean	3.7858	3.6168	3.8707	3.7547	3.7542
	N	95	95	95	95	95
GMC	Mean	2.7558	2.7608	3.0059	2.8902	2.7115
	N	97	97	97	97	97
PGI	Mean	3.7662	3.4783	3.7904	3.7376	3.5923
	N	92	92	92	92	92
Total	Mean	3.4276	3.2796	3.5493	3.4539	3.3456
	N	284	284	284	284	284

As can be seen from the above table, KM culture received the highest response for all the three hospitals followed closely by Technology and K sharing.

Some of the Knowledge sharing activities followed by doctors in the hospitals are:

"We use Manuals and Best practices regularly", "In our department, lots of Group Discussions take place where we share our ideas and procedures.", "There are Morning or

Evening Meetings in the department where we discuss the important events/happenings/cases quickly".

See Tables 2, 3 and 4 below for the top five items with highest responses for each hospital. For AIIMS, the highest response was for item "KM helps to learn new things." For PGI, the item that received highest mean response was "Managing hospital knowledge is central to hospital strategy." While for GMC, the items " KM helps to reduce mistakes by sharing best practices" and "Managing hospital knowledge is central to hospital strategy", were the highest mean responses.

Table 2 AIIMS

Name of the Hospital	AIIMS Mean
Managing hospital knowledge is central to hospital's strategy.	4.15
The hospital encourages and facilitates knowledge sharing	4.20
We use Manuals and Best practices regularly.	4.11
Internet facilities are available to us for looking up any information	4.13
KM helps to learn new things in my job.	4.25

Table 3 PGI

Name of the Hospital	PGI Mean
Managing hospital knowledge is central to hospital's strategy.	3.96
KM helps to learn new things in my job.	3.81
Knowledge sharing helps me to learn something new everyday	3.80
KM helps to reduce mistakes by sharing best practices and problems	3.86
KM helps to make better and informed decisions.	3.79

Table 4 GMC

Name of the Hospital	GMC Mean
Managing hospital knowledge is central to hospital's strategy.	3.74
Knowledge sharing helps me to learn something new everyday	3.70
KM helps to reduce mistakes by sharing best practices and problems	3.74
KM helps our team to share and discuss ways to prevent and learn from mistakes	3.53
KM helps in making the decision making process simpler	3.57

As can be seen from above data, "Managing hospital knowledge is central to hospital strategy" and "KM helps to learn new things" are common in the top five highest response items in all the three hospitals.

See ANOVA Table in table no. 5, for the variances and the F ratio for the hospitals.

Table 5 ANOVA

			Sum of Squares	df	Mean Square	F	Sig.
Process * Hospital	Between Groups		73.252	2	36.626	108.470	.000
	Within Groups		94.882	281	.338		
	Total		168.134	283			
Leadership * Hospital	Between Groups		48.364	2	24.182	78.980	.000
	Within Groups		86.037	281	.306		
	Total		134.402	283			
Culture * Hospital	Between Groups		50.369	2	25.184	81.883	.000
	Within Groups		86.426	281	.308		
	Total		136.795	283			
Technology * Hospital	Between Groups		54.700	2	27.350	80.132	.000
	Within Groups		95.910	281	.341		
	Total		150.610	283			
Ksharing * Hospital	Between Groups		70.172	2	35.086	121.277	.000
	Within Groups		81.295	281	.289		
	Total		151.467	283			

Let us take a look at our hypothesis
H1: Significant variation exists in the knowledge sharing practices of select medical homes under study.

Using ANOVA, we see that there is a significant variation between knowledge sharing practices in the three hospitals under study. The *F* statistic indicates the strength of the grouping factor. Generally, the larger the ratio of between groups to within groups, the more we are inclined to reject the null hypothesis that the group mean $\mu1 = \mu2 = \mu3$. Thus H1 is verified.

7. CONCLUSION AND SUGGESTIONS

The above findings clearly show that there is a significant variation between knowledge management practices in the three hospitals. This is as expected since we are aware that AIIMS is one of the top institutes in our country. Thus naturally, the responses for KM practices are higher for the hospital than the other two. Although we have not linked performance to the Knowledge management practices in this paper. It has been shown previously by the experts that knowledge management affects performance measures by enhancing learning and decision making. [15-16]. It was observed by experts, that the performance of hospitals is not only based on the discovery of new treatments but on the management of existing knowledge.[19] And hence Laverde

proposed implementation of Knowledge Management processes as a strategic alternative for hospitals to improve efficiency and performance.[11] A similar observation was made by Goncalo, Jacques and Souza , who studied eight hospitals in Rio Grande do Sul involving multi-disciplinary teams organized around cardiology services and established that knowledge management should be used as an alternative for the development of advanced solutions to complex healthcare problems that are of interest to the society.[8]

It is clear that Knowledge management practices are not officially implemented in any of the three hospitals but are still followed in different forms to some extent in PGI and AIIMS. But GMC Jammu has shown poor results as compared to the other two and thus this study throws up a lot of implications for the future approach to improve performance of GMC by following the practices used by the other two institutions.

Moreover, the results also show that there are lot of things such as Technology and Culture which are already in existence in the institutions, but what is needed is a coordinated effort from top to bottom to formalize the processes for better usage. In fact, technology can be used to boost up the system by improving its reach to all corners of the hospital and also include other paramedical staff such as nurses and helpers.

Paula Pinto Ferreira et al. in their study showed that the quality of care is proportional to use of knowledge as a resource and health organizations that share this resource effectively can reduce their costs, generate greater returns on investment, higher satisfaction and encourage continuous learning. [7] Therefore, it is imperative that the government hospitals such as AIIMS and PGI establish good knowledge management systems to improve their performance.

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