

# **Use of ICT by the Post Graduate Students in Government Medical College, Thrissur, Kerala**

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## **ABSTRACT**

*The purpose of this study is to study the use of ICT by the Post Graduate (PG) Medical students of Government Medical College, Thrissur, Kerala. Questionnaire survey was used to collect the information. The results show that mobile phone is used always by lion's share (100%) of Medical students. Around 3/4<sup>th</sup> of the students always use ICT to keep them up to date. The purpose of nearly half of the students (49.41%) is getting career information and followed by educational information (36.47%). Around two third of the students (67.05%) reported that ICT influenced their access to current information. . Around 2/5<sup>th</sup> (42.35%) of them are moderately satisfied with ICT provision. Inadequate access to ICT facilities is the main problem that hinders the use of ICT. The study also provides suggestions to improve the ICT access among Post Graduate Medical students. A good number of students (69.41%) suggested to provide wireless connectivity and for the proper maintenance of ICT equipments.*

**KEYWORDS:** Information and Communication Technology, Information Technology, Government Medical College, Medical Students, Information Behavior, ICT infrastructure.

## **1. INTRODUCTION**

In healthcare delivery system information gathering, processing, communication and management are very essential. It is seen that the investments in information and communication technologies in health sector is far behind (DOC, 1999). Technological investments were made in administrative level rather than on clinical care. Thus the progress in meeting the information needs of patients, providers, hospitals, clinics were very little. Knowledge and acceptance of ICT in health sector is varying remarkably among public and medical professionals. For the development, implementation and further creation of novel health care technologies the wide use of ICT in healthcare is essential. Thus the knowledge and acceptance of ICT in health care by public and medical

professionals need to be strengthened. Acquiring, analyzing and protecting both digital and traditional health information is vital to providing quality patient care which can be provided through a good health information management system.

Post Graduate students in Government Medical Colleges are being educated to become highly competent doctors in future and should have the ability to gather medical information in a broad variety of settings. Information and Communication Technologies are used to improve health system efficiencies and prevent medical errors. Internet connection in hospitals allows the physician to diagnose the disease and treat the patient. ICT facilitated healthcare which is also known as e-health is well recognized for the collaboration and involvement of patients and medical professionals in the prevention and treatment of diseases.

The availability of facilities for primary healthcare, their accessibility, the very high degree of awareness and acceptability among the people has made in Kerala model an almost perfect one. To provide quality services at all health levels Government of Kerala implemented a patient friendly mission called 'AARDRAM'. Mission 'AARDRAM' aims at creating 'people friendly' health delivery system in the state. It envisages transforming all primary health centers into family health centers as first level health delivery point based on the state of the art investigation and intervention protocols. The mission envisages ensuring quality care at primary health centers. All high footfall hospital will be transformed to patient friendly out patient service providers. (AARDRAM, 2017). In these circumstances it is necessary to study the ICT usage of medical professionals and to understand the various dimensions and such a study has not been done so far in this part of the country.

## **2. REVIEW OF LITERATURE**

Asah (2000) investigated the application of ICT in the management of health information by medical professionals in six selected government hospitals in Yaounde, Cameroon. The findings of the study revealed that medical professionals are dissatisfied with the major method of information exchange activities that is face-to-face interaction with colleagues. Study also revealed the non-availability of ICTs and internet resources and lack of basic computer skills, consequently there is low utilization of ICTs by medical professionals and limited information needs are being satisfied. Linda et al. (2002) conducted Fax surveying to determine the internet medical information seeking and online continuity education use patterns by physicians in US. Study found that majority physicians use internet more than five years, and majority of them reported that they are currently using internet for medical information including literature searching, accessing online journals, general searching for medical information, searching for specific patient information. Baker et al. (2003) carried out the study to understand the use of internet and e-mail to obtain health information and to find out the effects of internet on healthcare. Bello et al. (2004) assessed the knowledge and utilization pattern of information technology among health care professionals and medical students in a university teaching hospital in Nigeria. Goldner (2006) examined the impact of internet and email on health status and also investigated whether people are more likely to access the internet or conduct online health searches and exchange emails regarding health issues. Ajuwon (2006), assessed the physician's use of the internet for health information for patient care. Study was conducted at the university college hospital (UCH) Ibdan, Nigeria. Nerida et al. (2009) carried out a study to understand the communication networks in the emergency departments in an Australian metropolitan teaching hospital. Mckintry et al. (2009) conducted a study to understand the patient and healthcare staff perspectives on how telephone consulting differs from face to face consulting in terms of content, quality and safety. Liang and Tsai (2009) investigated medical student's information commitments towards web medical information. Study also investigates whether gender difference affects the information

commitments and the role of medical student's internet experiences in their information commitments. Baikady and Mudhol (2011) assessed the overall web resources used by faculties and MD students, it also examines the influence of factors gender, age, specialties and experience (teaching and learning) that influence the perception of web resources. Butalieta. (2011) carried out a study to understand the use of information and technology amongst dental students, dental nursing students and resident doctors in training at the university of dental surgery, University of Lagos.

### **3. OBJECTIVES OF THE STUDY**

The main objectives of the study are given below:

1. To identify the various types of ICT equipments and their frequency of use by the Post Graduate Medical Students of Government Medical College, Thrissur
2. To find out the reasons for preference of ICT equipments by the Post Graduate Medical Students of Government Medical College, Thrissur
3. To know the purpose of use of ICT equipments by the Post Graduate Medical Students of Government Medical College, Thrissur
4. To find out the nature of information accessed through ICT by the Post Graduate Medical Students of Government Medical College, Thrissur
5. To recognize the influence of ICT on the professional communication of medical students
6. To find out the level of satisfaction in the use of ICT by the Post Graduate Medical Students of Government Medical College, Thrissur
7. To understand the barriers in using ICT by the Post Graduate Medical Students of Government Medical College, Thrissur
8. To elicit suggestions so as to improve the use ICT in the Medical sector.

### **4. METHODOLOGY**

Structured questionnaire was administered to collect the details from the respondents. Totally 100 questionnaires were distributed among the post graduate medical students of Government Medical College, Thrissur, out of which 85 filled questionnaires were received back. For tabulating and analyzing data, percentage method is used, on the basis of formulated objectives, interpretation is made through analysis.

### **5. ANALYSIS OF DATA**

The analysis of the data done is discussed under the following headings:

#### **5.1. TYPE AND FREQUENCY OF USE OF ICT EQUIPMENT**

The use of ICT equipments by the Post Graduate Medical students in Government Medical College is summarized in the Table 1. Mobile phone is the major ICT equipment used (100%) always by medical students. Around 2/5<sup>th</sup> of them are always use computer/laptop. Only a meager percentage (17.64%) is using fixed line telephone always. The rest of the ICT equipments are not always used.

Table 1 Type and Frequency of Use of ICT Equipment

Type of ICT Equipment	Frequency of Using ICT Equipment									
	Always		Often		Some times		Rarely		Never	
	No	%	No	%	No.	%	No.	%	No.	%
Mobile phones	85	100	-	-			-	-	-	-
Computer and Laptop	36	42.35	20	23.52	22	25.88	7	8.23	-	-
Flash Discs	-	-	3	3.52	2	2.35	42	49.41	38	44.70
LCD Projector	-	-	10	11.76	15	17.64	35	44.70	25	29.41
Radio	-	-	6	7.05	10	11.76	22	25.88	47	55.29
CD/DVD	-	-	5	5.88	21	24.70	20	23.52	39	45.88
Video Technology	-	-	8	9.41	14	16.47	18	21.17	45	52.94
Scanners	-	-	15	17.64	20	23.52	18	21.17	32	37.64
Cameras	-	-	3	3.52	8	9.41	10	11.76	64	75.29
Printers	-	-	10	11.76	12	14.11	24	28.23	39	45.88
Fixed line Telephone	15	17.64	20	23.52	22	25.88	20	23.52	8	9.41
Fax	-	-	-	-	-		-		85	100

Among those ICT equipments often used are fixed line telephone (23.52%), computers/laptops (23.52%) etc. Those ICT equipments sometimes used are Scanners (23.52%), CD/DVD (24.70%), Computer/laptop (25.88%) etc. Thus it is seen that lion's share of the Post Graduate Medical Students always use mobile phones in their daily work.

## 5.2 REASONS FOR PREFERRING ICT EQUIPMENTS

Post Graduate Medical students were asked to point out their opinion about the reasons for preferring ICT equipments for their daily activities. The data provided by the PG students are presented graphically in the Fig.1.

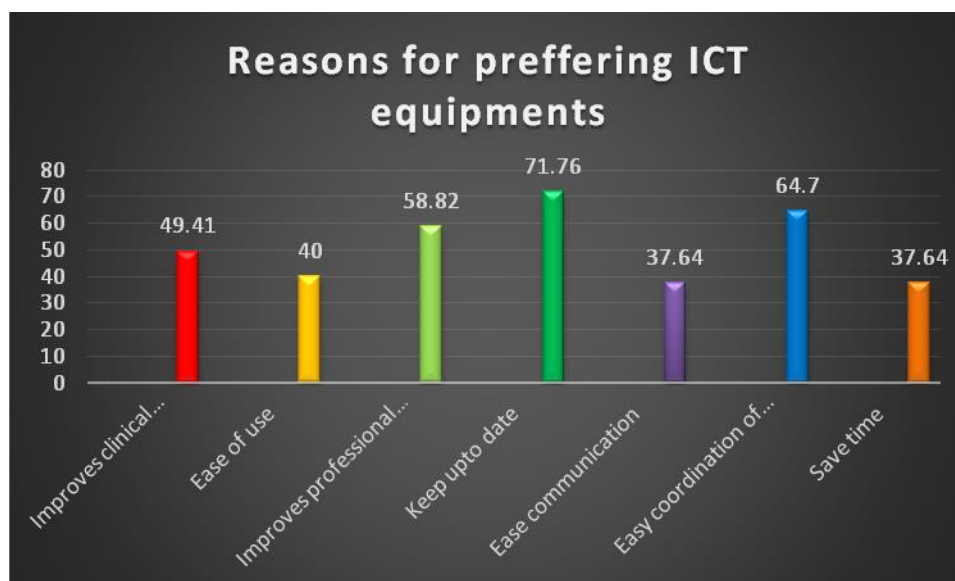


Fig. 1. Reasons for Preferring ICT

The reasons mentioned by the students (fig.1) are that the ICT equipments help them to keep up to date in their activities. More than half (58.82%) always prefer them because they can improve professional knowledge. Nearly

half of them (49.41%) prefer since it improves clinical decision making. Ease of use is the reason by 40 % of them. For 64.70% of the students, ICT makes easy co-ordination of their activities.

### 5.3 NATURE OF INFORMATION SOUGHT THROUGH ICT

It is found that ICT equipments are used to access different types of information by the users studied; the details of these are presented in Table 2. It is seen from the analysis (table 2) that nearly half (49.41%) of students always depend on ICT for getting career information. Educational information is preferred always by 36.47%. More than quarter always use it for clinical type of information. On the other hand students rarely use ICT to access information related to legal issues in medical field (63.52%), administrative information (44.70%).

**Table 2 Nature of Information Accessed through ICT**

Nature of information	Frequency of Use									
	Always		Often		Some times		Rarely		Never	
	No.	%	No.	%	No.	%	No.	%	No.	%
Clinical information	25	29.41	18	21.17	32	37.64	10	11.76	-	-
Educational information	31	36.47	20	23.52	20	23.52	14	16.47	-	-
Career information	42	49.41	20	23.52	15	17.46	8	9.41	-	-
Training opportunities	6	7.05	10	11.76	16	18.82	53	62.35	-	-
Administrative information	12	14.11	11	12.94	24	28.23	38	44.70	-	-
Medico legal information	8	9.41	5	5.88	18	21.17	54	63.52	-	-

### 5.4 INFLUENCE OF ICT ON PROFESSIONAL COMMUNICATION

The influence of ICT on professional communication by the PG Medical students is given in Table 3. It is seen that a good number of the students (67.05%) responded that depending on ICT has influenced their access to current information. More than half reported that (55.29%) ICT influenced in ensuring easy communication. A good number of them (61.17%) reported that ICT influenced collaboration among colleagues. ICT enabled faster access for getting medical information according to 54.11% of them. For 48.23% of them ICT helped in facilitating remote consultation, diagnoses and treatment. ICT has increased job efficiency opined by around one third (35.29%). But according to 32.94% ICT reduced face to face interaction.

**Table 3 Influence of ICT on Professional Communication**

Sl. No.	Influence of ICT on professional communication	Disagree		Neutral		Agree	
		No.	%	No.	%	No.	%
1.	ICT has increased job efficiency	21	24.70	34	40	30	35.29
2.	Enabled faster access to relevant medical information	15	17.64	24	28.23	46	54.11
3.	Facilitated remote consultation, diagnoses and treatment	24	28.23	20	23.52	41	48.23
4.	Quicker medical diagnosis	30	35.29	25	29.41	30	35.29

5.	Ensured easy communication	16	18.82	22	25.88	47	55.29
6.	Access to current information	12	14.11	16	18.82	57	67.05
7.	Increased collaboration among colleagues	14	16.47	19	22.35	52	61.17
8.	Bettered number of publication	28	32.94	30	35.29	47	55.29
9.	Reduced face to face interaction	30	35.29	47	55.29	28	32.94

### 5.5 LEVEL OF SATISFACTION WITH ICT

User's responses to their satisfaction are pursued. The satisfaction level of user community with current ICT provision is shown in the Table. Of the total around 2/5<sup>th</sup> of the respondents (42.35%) are moderately satisfied with the current ICT provision in the Government Medical college (table 4). A quarter of the students (25.88%) are fully satisfied and 31.76 % are not satisfied. Thus need arises for improving the ICT infrastructure in the Medical College.

**Table 4 Satisfaction level with current ICT**

Level of satisfaction	Frequency	
	No.	%
Fully satisfied	22	25.88
Moderately satisfied	36	42.35
Not satisfied	27	31.76

### 5.6 PROBLEMS HINDER THE USE OF ICT EQUIPMENTS

For any service there will be barriers which prevent or obstruct its flow of use. Here also the Post Graduate Medical students opened up the troubles that hinder the use of ICT equipments in their institution. Details of problems that hinder the use of ICT equipments are presented in 5.

**Table 5 Problems Hinder the Use of ICT**

Problems	Medical Students	
	No.	%
Poor ICT infrastructure in the college and hospital	59	69.41
High cost of ICT equipments and services	19	22.35
Poor power supply	15	17.64
Constant break down of equipments	32	37.64
Security/privacy issues	22	25.88
Inadequate access to ICT facilities	68	80
Insufficient knowledge on the use of ICT	10	11.76

The analysis given in table 5 shows that inadequate access to ICT facilities is the major problem (80%). Poor ICT infrastructure in the college and hospital is the problem for 69.41% of the students. Nearly 2/5<sup>th</sup> (37.64%) complained about the constant breakdown of IT equipments. High cost of ICT equipment and services is a problem for 22.35% of them.

## 5.7 SUGGESTIONS TO ENHANCE THE USE OF ICT BY MEDICAL STUDENTS

Respondents were requested to provide few suggestions for the improvement of use of ICTs in their professional communication activities and the details are presented in table 6.

**Table 6 Suggestions to Improve the Use of ICT by Medical Students**

Suggestions	Disagree		Neutral		Agree	
	No.	%	No.	%	No.	%
Provide sufficient power supply	26	30.58	30	35.29	29	34.11
Provision of enough ICT equipments and services	15	17.64	15	17.64	55	64.70
Proper maintenance of ICT equipments	10	11.76	16	18.82	59	69.41
Conducting ICT training programmes	18	21.17	20	23.52	47	55.29
Implementing an effective health information system	19	22.35	32	37.64	34	40
Facilitating easy access to Internet	20	23.52	18	21.17	47	55.29
Provide more computers	25	29.41	18	21.17	42	49.41
Expansion of internet bandwidth	10	11.76	17	20	58	68.23
Employee more IT personnel	24	28.23	22	25.88	39	45.88
Increase budget allocation to ICT	10	11.76	18	21.17	57	67.05
Provide wireless connectivity	14	16.47	12	14.11	59	69.41

The suggestions put forward by the Medical students analyzed (Table 6) shows that a good number of students (69.41%) suggested to provide wireless connectivity and for the proper maintenance of ICT equipments. 68.23% students suggested to expand the bandwidth of internet. Around two third of the (67.05%) suggested to increase budget allocation to ICT. Provision of ICT equipments and services is suggested by around another 2/3<sup>rd</sup> (64.70%) of Medical students. ICT training programmes should be conducted is a suggestion put forward by 55.29% of respondents. Nearly half of the students suggested providing more computers.

## 6. Major Findings

Major findings of the study are:

1. Mobile phone is the major ICT equipment used always by lion's share (100%) of the Medical students. Around 2/5<sup>th</sup> of them are always using computer/lap top.
2. Around 3/4<sup>th</sup> (71.76%) of the students always use ICT because it helps them keep up to date. Nearly 2/3<sup>rd</sup> (64.70%) prefer because it helps in easy coordination of activities.
4. Nearly half (49.41%) of students always depend on ICT for getting career information, followed by educational information by 36.47%.

5. Around two third of the students (67.05%) said that ICT influenced their access to current information.
6. Around 2/5<sup>th</sup> (42.35%) of the Medical students are moderately satisfied with current ICT provision.
7. Inadequate access to ICT facilities is the major problem (80%).
- 8 . A good number of students (69.41%) suggested to provide wireless connectivity and for the proper maintenance of ICT equipments.

## **7. CONCLUSION**

The present study focused on the usage of Information and Communication Technologies by the Post Graduate Medical students in Government Medical College, Thrissur. ICT is inevitable in the current health care system. It should also be incorporated into the curriculum. Most of the students use their mobile phones for getting information which cannot be consider as an efficient way for getting needed information. The results drawn in this paper, with suggestions will be an eye opener to the decision makers and higher authorities of academic institutions particularly in the professional sector. It is expected that this paper will help the administrators of the Medical colleges to understand the need of students in ICT aspect and what improvements should be done.

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