

UTILIZATION OF HEALTH INFORMATION RESOURCES FOR CLINICAL DECISION- MAKING PROCESS AMONG MEDICAL DOCTORS IN OBAFEMI AWOLOWO UNIVERSITY TEACHING HOSPITAL ILE-IFE, NIGERIA

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Abstract:

Purpose: The study examined the utilization of health information resources by medical doctors for clinical decision-making process. Hence, this study evaluated the use of health information resources as predictors for clinical decision making among medical doctors in Obafemi Awolowo University Teaching Hospital Ile-Ife, Nigeria.

Design/Methodology/Approach: The descriptive survey research design was adopted for this study. Random sampling technique was used to select 265 medical doctors from a population of 822. Primary data were obtained on socio-economic characteristics of the respondents, availability, extent of use, frequency of use, and challenges impeding the use of health information resources using a structured questionnaire and focus group discussion (FGD). Data were analyzed using frequency counts, percentages and mean. Results revealed that 59.8% of the respondents were male while 51.1% were female.

Findings: Findings revealed that Computerized Tomography Scan (CT; $\bar{x} = 3.49$), electrocardiography machine (ECG; $\bar{x} = 3.40$), incubator ($\bar{x} = 3.15$) and orthoscopic ($\bar{x} = 3.15$) were the major health information resources available for clinical decision making among the medical doctors. Result further revealed that (CT; $\bar{x} = 3.47$), ECG machine ($\bar{x} = 3.84$), VCD ($\bar{x} = 3.82$), and DVD ($\bar{x} = 3.07$) were highly utilized and on a weekly basis. Frequently utilized health information resources were; CT scan ($\bar{x} = 3.85$), ECG machine ($\bar{x} = 3.73$) and internet ($\bar{x} = 3.62$). The major challenges impeding the use of health information resources among the medical doctors for clinical decision making were; unfavourable/inconsistent government policies ($\bar{x} = 3.15$), socio-economic status of medical doctors ($\bar{x} = 3.14$), inadequate funding ($\bar{x} = 2.98$) and lack of trained personnel in health information service delivery ($\bar{x} = 2.95$).

Implication: The focus group discussion emphasised that the health institution lack adequate funding. The study concluded that medical doctors have adequately utilized health information resources to make clinical decisions in the study area.

Originality/Value: The study, therefore recommended that government should provide more funding for the health institution to enhance result-oriented decision making by the medical doctors.

Keywords: Utilization, Health Information Resources and Medical Doctors.

Paper Type: Empirical.

Introduction

Medical doctors are professionals whose work encompass a range of activities related to the care and treatment of a patient. Clinical decision making is a term frequently used to describe the fundamental role of the medical doctors. It is a process, where data are gathered, interpreted, and evaluated in order to select an evidence-based choice of

action. Decision making can range from fast, intuitive, or heuristic decisions through to well-reasoned, analytical, evidence-based decisions that drive patient and client care. Medical doctors engage in a spectrum of decision making. At one end of the spectrum, they use intuition and experience to make decisions, where there is typically a high volume of simple decisions to be made.

The contributions of clinical informatics to a medical professional include the promotion of knowledge sharing, adequate health monitoring, statistics gathering analysis, and the delivery of effective healthcare services (Olatokun and Adeboyejo, 2009).

Daniel and Oyetunji (2013) identified various purposes in which medical doctors utilise clinical informatics. Examples of such utilisation are the provision of adequate access to professional colleagues through instant transmission/receipt of mail message, electronic file system, and power search utilities to locate information stored in millions of computers around the world and effective communication through the use of internet, and diagnosis of patients. At the other end of the variety, there may be complex decisions to be made, where the level of uncertainty is high and an analytical and evidence-based approach is needed to support the rules-based heuristics or experience we have gained over time in 'similar' situations. An effective practitioner is tasked with making clinical decisions with patients and clients many times during their sheath and care journey. Clinical decision making is a balance of experience, awareness, knowledge and information gathering, using appropriate assessment tools, colleagues and evidence-based practice to guide.

However, medical doctors' use of these resources is still impacted by many limitations, such as usability and relevance to clinical tasks. For example, an information retrieval system's performance is dependent on the ability of a user to convert their information need into a query that can be understood by the retrieval system. Harder (2007) suggested that innovation for doctors is a complex decision process rather than a single decision point.

Natural language query systems are available, but the translation into a structured query is difficult to accomplish with accuracy. Medical doctors' information needs are often unmet and there are multiple reasons preventing the medical doctors from meeting those needs, such as lack of time and skills to complete searches efficiently and lack of integration in the search process into clinician workflow.

McDonald, Waring, Harrison, Walshe and Boaden (2005) concluded that while the creation of a safety culture requires a shared set of beliefs, attitude and norms in relation to what is seen as safe clinical practice, differences of opinion on these issues exists which cannot be easily reconciled since they reflect deeply ingrained beliefs about what constitutes professional conduct.

There are many sources of information available today for the medical doctors to find answers to their patient-related questions which may cause information overload. Bawden (2008) suggested that information overload occurs when information received becomes more of a hindrance rather than a help when the information is potentially useful. Medical doctors have limited time to review and process patient data, which may result in errors during the information retrieval and decision-making processes. Possible effects of information overload are as follows: failing to process some of the inputs, processing information incorrectly, delaying the processing of information, accepting lower-quality information and giving up the search for needed information (Chapman, Berger, Weinstein, Weeks, Goldie and Neumann, 2004).

Good and effective clinical decision making requires a combination of experience and skills. According to Nuq (2012), these skills include pattern recognition which is learning from experience; critical thinking, removing emotion from reasoning, being 'skeptical', with the ability to clarify goals, examine assumptions, be open-minded, recognize personal attitudes and bias, able to evaluate evidence; communication skills, active listening the ability to listen to the patient, what they say - what they don't say, their story, their experiences and their wishes thus enabling a patient-centered approach that embraces self-management; information provision the ability to provide information in a comprehensible way to allow patients/clients, their careers and family to be involved in the decision making process and evidence-based approaches, using available evidence and best practice guidelines as part of the decision making process. Other skills required for

effective clinical decision making as reported by Nuq (2012) are teamwork, using the gathered evidence to enlist help, support and advice from colleagues and the wider multi-disciplinary team.

Statement of the problem

Medical doctors' decision-making is an herculean task that often requires clinical decision makers to weigh serious trade-offs, consider patients' values, and incorporate evidence in the face of uncertainty. Medical decisions are made implicitly by clinicians and other decision-makers on a daily basis. Decisions based largely on personal experience are subject to many biases. Many decisions that the health workers make in the course of their daily practice are part of routine medical care and involve little thought, uncertainty, or risk. Medical doctors are expected to access, appraise, and incorporate research evidence into their professional judgment and clinical decision making. Information resources are used by the medical doctors to complement their knowledge and clinical experience and to keep themselves up to date. The relationship between the use of health information from different sources and the decisions to which such information is applied as well as the relationship that exist between the decisions that medical doctors make and the knowledge that informs them are worth given attention. The resources that medical doctors use in their day-to-day clinical decision-making is an important topic to investigate, hence this study.

Objectives of the study

The followings are the objectives of this study:

1. identify various health information resources accessible for clinical decision making among medical doctors in OAUTH.
2. determine the extent of use of various health information resources for clinical decision making among medical doctors in OAUTH.
3. examine the frequency of use of health information resources for clinical decision making among medical doctors in OAUTH.

4. investigate the challenges impeding medical doctors in the use of health information resources for clinical decision making in OAUTH.

Research questions

This research provided answers to the following questions:

1. What are the health information resources accessible for clinical decision making among medical doctors in Obafemi Awolowo University Teaching Hospital (OAUTH), Ile-Ife, Osun State, Nigeria?
2. What is the extent of the use of various health information resources for clinical decision making among medical doctors in OAUTH?
3. What is the frequency of use of health information resources for clinical decision making among medical doctors in OAUTH?
4. What are the challenges impeding medical doctors in the use of health information resources for clinical decision making in OAUTH?

Health information use for clinical decision making among medical doctors

Information is used when information is processed and applied to a need (Mallinger, Griggs and Shields 2005; Rosenzweig, 2000). It includes physical activities like underlining important text as well as mental acts, such as comparing new information to existing knowledge (Wilson, 2007). Information use takes place when information acquired by a person to satisfy an information need is actually put into use. Information therefore is useful and valuable if after receiving it, it changes things, decision, behaviour, or one's character. The outcome of information use is change in the knowledge such as increase in awareness, knowledge, understanding of situation or a capacity to solve a problem, make a decision, negotiate a position. Karl (2007) conceptualizes information use in terms of the outcomes of information. Two categories of outcomes represent the information use as the active outcomes and its effects or passive outcome, which is the effect of information in the activity.

Information use is a dynamic, interactive social process of incurring that, which may result in construction of meaning or making decision (Choo 2007).

The trend in recent years to conceptualize health information use as a multifaceted change process. It makes the distinction between utilization as doing something with information and making a difference to the thoughts and action of people; and impact, seen as modifications in a program or policy; and utility referring to the relevance of information to an era of policy or program (Ifinedo 2012) sees information use as a process that is preceded by information seeking and that information is useful only if such is deemed valuable and is absorbed, in order to solve a problem or make sense of a situation. Information use is critical to decision-making, especially those decisions that border on well-being. The extent to which the patients are aware of their information needs; the extent to which such information is available to and accessible by them, will determine the usefulness of information as resources which could lead to an increase in the patients' wellbeing. The usefulness of information come in many different forms and is expressed in many different ways. Health Information can take on any value in the context of an individual situation. The very fact that information is characterized as a dynamic force, 'constantly altering and extending a store of knowledge, corresponds with situations in which changes in wellbeing downtime to wellbeing uptime is experienced in which outside information is offered to focus groups to alter their understanding of certain practices, which in turn can help them solve problems. .

In order to make intelligent decisions that can relief patients of their pain, agony and the burden of sickness, the medical doctors need to be aware of their information needs, and such information must be available and easily accessible for its possible usability that can eventually improve the health condition of their patients. However, it is recognized that the phenomenon of information use goes beyond physical use of information. It includes issues of relevance, detail, confidence in source and understandability of users towards information (Monique 2004).

Information is said to be relevant when it helps to solve a problem or contribute to a solution. Relevance in effect is the overriding quality, for that reason information must be relevant to the problem being considered. For instance, too often reports, messages, and tabulations containing irrelevant parts may make understanding more difficult and cause frustration to the user. Besides, for information to be used, it should contain the least amount of detail consistent with effective decision making (Gans, Kralweki, Hammons and Dowd 2005).

Information has to be very detailed to be useful, but the general rule of information is that, as little as possible information consistent with effective use, must always be applied. Confidence is another determinant of information use; it is a state of being certain about information source either it is correct or not correct. According to Kaplan and Kimberley (2009) confidence in an information source makes users to be optimistic and pleased. Furthermore, understandability of information is essential for its use.

Information is data that has been processed to have meaning and understanding to the user. It remains data, if the user does not understand it and until it has meaning, it cannot become information.

Information is data that has been sufficiently refined such that it is immediately useful to the individual receiving it. Information utilisation therefore implies attaining or obtaining a functional use of (Information) data which has been processed to have meaning and understanding. According to Sen, & Taylor, (2007) in their study to determine and analyze the critical success factors in an organisation's survival, information was indicated as a critical factor.

Evidence-based decision making involves combining the knowledge arising from one's clinical expertise, patient preferences, and research evidence within the context of available resources. Evidence-based decision making like all decision making involves choosing from a discrete range of options, which may include doing nothing or a wait and see strategy. All such choices are informed by

an evaluation of available information: the process of using clinical judgment. In making evidence based decisions, research evidence should not be taken at face value and adhered to uncritically but should be given an appropriate weight in a decision depending on its internal and external validity. Integrating research evidence into decision making involves forming a focused clinical question in response to a recognized information need, searching for the most appropriate evidence to meet that need, critically appraising the retrieved evidence, incorporating the evidence into a strategy for action, and evaluating the effects of any decisions and actions taken. These steps are important components of the active process that is evidence-based decision making. Evidence based decision making is a prescriptive approach to making choices, which is based on ideas of how theory can be used to improve real world decision making. However, before we plan a strategy to attain this ideal, it is important to identify our starting point. Surprisingly, little research has been done on this topic, except for studies that use self-report data from health workers as a source of evidence. We reject self-report as the main source of evidence for answering our questions in favor of real time clinical observation and in depth interviews, which we feel better reflect actual types and frequencies of different decisions and observed information use. Health workers often report that their rationale for seeking research evidence is to support their existing practice. The processes of searching for, appraising, and integrating research information with existing knowledge have been labelled information behaviour by some researchers in the field of information science (Case, 2002).

The organisational information processing theory (OIPT)

The Organisational Information Processing Theory (OIPT) was developed by Galbraith (1973). Bergman, Platonov, Dukeov and Luka (2016) later identified three important concepts information processing needs, information processing capability, and the fit between the two to obtain optimal performance. Original theory version describes uncertainty, especially task uncertainty as the determinant of an

organisation's structure. Organisation need quality information to cope with environmental uncertainty and improve their decision making. Typically, organisations have two strategies to cope with uncertainty and increased information needs (1), develop buffers to reduce the effect of uncertainty and (2), implement structural mechanisms and information processing capability to enhance the information flow and thereby reduce uncertainty

Methodology

The study used descriptive research design of correlational type. Descriptive research design is a scientific method which involves observing and describing the behaviour of a subject without moderating it in any way. This method was adopted because it allows the study of a large population in which the perception and feelings of the subjects are easily expressed. The choice of this research design was considered most appropriate for this study because it sought to enhance the understanding of the situation on ground in terms of the influence of the independent on dependent variable studied. The population of the study consisted of the medical doctors from Obafemi Awolowo Teaching Hospital (OAUTH), Ile-Ife, Osun State, Nigeria. The total population was eight hundred and twenty-two (822) medical doctors of various professional status in OAUTH. The categories of medical doctors that were selected for the study were Consultants, Senior Registrars, Registrars, Medical Officers and House Officers. A random sampling technique was used to draw a sample size of 265 using Krejcie and Morgan's (2013) table of sample size under confidence = 95%. Margin of error = 0.05%. Hence, a total number of two hundred and sixty five (265) medical doctors were be used as sample size. Both quantitative and qualitative data were gathered for the study using a set of questionnaire and complemented with a focus group discussion (FGD). Ethical clearance was required in order to gain permission to administer the questionnaire on the medical doctors of the OAUTH. Focus group discussion (FGD) was also held among the two groups of medical doctors with four (4) members in each group totaling eight

participants. The descriptive method of data analysis, including frequency counts, simple percentage, mean and standard deviation.

Out of the 265 sets of questionnaires that were distributed to the respondents in OAUTH, 259 (97.7%) were duly filled and returned. Focus group discussion was done among the doctor

Response Rate

Table 1: The various health information resources accessible for clinical decision making among medical doctors in OAUTH

s/n	Access to health information resources	HA	MA	RA	NA	\bar{X}	S.D
1	CT Scan	144 (55.6)	97 (37.5)	18 (6.9)	-	3.49	0.62
2	ECG machine	133 (51.4)	102 (39.4)	19 (7.3)	5 (1.9)	3.40	0.71
3	Incubator	97 (37.5)	116 (44.8)	31 (12.0)	15 (5.8)	3.15	0.88
4	Orthoscopic	87 (33.6)	131 (50.6)	33 (12.7)	8 (3.1)	3.15	0.75
5	Radiograph	123 (47.5)	71 (27.4)	41 (15.8)	24 (9.3)	3.13	1.00
6	GSM phones, I pad, I pod	110 (42.5)	93 (35.9)	32 (12.4)	24 (9.3)	3.12	0.95
7	Microscope	103 (39.8)	99 (38.2)	33 (12.7)	24 (9.3)	3.08	0.94
8	Computer system	98 (37.8)	103 (39.8)	37 (14.3)	21 (8.1)	3.07	0.92
9	Telemedicine	98 (37.8)	106 (40.9)	22 (8.5)	33 (12.7)	3.04	0.99
10	Electronic BP Gauge	96 (37.1)	104 (40.2)	30 (11.6)	29 (11.2)	3.03	0.97
11	Autoclave	79 (30.5)	116 (44.8)	51 (19.7)	13 (5.0)	3.01	0.84
12	Internet	91 (35.1)	106 (40.9)	32 (12.4)	30 (11.6)	3.00	0.97
13	CD ROM	92 (35.5)	104 (40.2)	35 (13.5)	28 (10.8)	3.00	0.96
14	DVD	89 (34.4)	104 (40.2)	42 (16.2)	24 (9.3)	3.00	0.94
15	Glucometer	86 (33.2)	110 (42.5)	39 (15.1)	24 (9.3)	3.00	0.93
16	Sphygmomanometer	74 (28.6)	125 (48.3)	44 (17.0)	16 (6.2)	2.99	0.84
17	Videoconferencing	86 (33.2)	106 (40.9)	42 (16.2)	25 (9.7)	2.98	0.94
18	Hemoglobin electrophoresis	86 (33.2)	101 (39.0)	48 (18.5)	24 (9.3)	2.96	0.94
19	Video	85 (32.8)	103 (39.8)	45 (17.4)	26 (10.0)	2.95	0.95
20	VCD	81 (31.3)	106 (40.9)	48 (18.5)	24 (9.3)	2.94	0.93
21	Projectors	81 (31.3)	105 (40.5)	44 (17.0)	29 (11.2)	2.92	0.96
22	Teleconferencing	77 (29.7)	109 (42.1)	45 (17.4)	28 (10.8)	2.91	0.95
Weighted mean =						3.05	

KEY: HA=Highly Accessible, MA=Moderately Accessible, RA= Rarely Accessible, NH=Not Accessible

Table 1 showed the various health information resources accessible for clinical decision making

among medical doctors in OAUTH. It shows that CT Scan ($\bar{x} = 3.49$) ranked highest by the mean

score rating and was followed in succession by ECG machine ($\bar{x} = 3.40$), Incubator ($\bar{x} = 3.15$) and Orthoscopic ($\bar{x} = 3.15$). Microscope ($\bar{x} = 2.92$) and Teleconferencing ($\bar{x} = 2.91$) were the least items indicated by the respondents.

This implies that CT Scan, ECG machine, incubator, Orthoscopic, Radiograph, GSM phones, i pad, i pod, microscope and computer system were the major health information resources accessible for clinical decision making

among medical doctors in OAUTH. The reason for this is because these were the items that ranked above the weighted mean of 3.05 set as the benchmark. This study also found out from the FGD that the major basic health information resources that were available in the hospital to help the medical doctors include equipment such as CT scan, ECG machine, Radiograph, Magnetic resonance imaging (MRI) and also Sphygmomanometer.

Table 2: The extent of use of health information resources for clinical decision making among medical doctors in OAUTH

s/n	Health Information resources	HU	MU	U	NU	\bar{x}	S.D
1	CT Scan	146 (56.4)	92 (35.5)	18 (6.9)	3 (1.2)	3.47	0.68
2	ECG machine	79 (30.5)	137 (52.9)	37 (14.3)	6 (2.3)	3.12	0.73
3	VCD	107 (41.3)	91 (35.1)	35 (13.5)	26 (10.0)	3.08	0.97
4	DVD	97 (37.5)	104 (40.2)	37 (14.3)	21 (8.1)	3.07	0.92
5	Autoclave	87 (33.6)	123 (47.5)	29 (11.2)	20 (7.7)	3.07	0.87
6	Glucometer	92 (35.5)	114 (44.0)	32 (12.4)	21 (8.1)	3.07	0.90
7	Incubator	92 (35.5)	113 (43.6)	29 (11.2)	25 (9.7)	3.05	0.92
8	Hemoglobin electrophoresis	88 (34.0)	114 (44.0)	36 (13.9)	21 (8.1)	3.04	0.90
9	Telemedicine	96 (37.1)	96 (37.1)	45 (17.4)	22 (8.5)	3.03	0.94
10	GSM phones, ipad, ipod	96 (37.1)	94 (36.3)	44 (17.0)	25 (9.7)	3.01	0.96
11	Internet	83 (32.0)	117 (45.2)	35 (13.5)	24 (9.3)	3.00	0.91
12	Video	87 (33.6)	109 (42.1)	37 (14.3)	26 (10.0)	2.99	0.94
13	Radiograph	93 (35.9)	92 (35.5)	42 (16.2)	32 (12.4)	2.95	1.01
14	Computer system	86 (33.2)	107 (41.3)	34 (13.1)	32 (12.4)	2.95	0.98
15	CD ROM	83 (32.0)	111 (42.9)	34 (13.1)	31 (12.0)	2.95	0.97
16	Orthoscopic	75 (29.0)	124 (47.9)	33 (12.7)	27 (10.4)	2.95	0.91
17	Sphygmomanometer	73 (28.2)	123 (47.5)	39 (15.1)	24 (9.3)	2.95	0.90
18	Microscope	86 (33.2)	112 (43.2)	44 (17.0)	17 (6.6)	2.95	0.91
19	Projectors	76 (29.3)	115 (44.4)	43 (16.6)	25 (9.7)	2.93	0.92
20	Videoconferencing	80 (30.9)	104 (40.2)	47 (18.1)	28 (10.8)	2.91	0.96
21	Electronic BP Gauge	84 (32.4)	98 (37.8)	43 (16.6)	34 (13.1)	2.90	1.00
22	Teleconferencing	84 (32.4)	92 (35.5)	44 (17.0)	39 (15.1)	2.85	1.04

Weighted mean = 3.01

KEY: HU=Highly Utilised, MU=Moderately Utilised, U= Utilised, NU=NOT Utilised

Table 2 showed the extent of utilisation of health information resources for clinical decision making among medical doctors in OAUTH. It shows that CT Scan ($\bar{x} = 3.47$) ranked highest by the mean score rating and was followed in succession by ECG machine ($\bar{x} = 3.12$), VCD ($\bar{x} = 3.08$) and DVD ($\bar{x} = 3.07$). This implies that from this using the weighted mean of 3.01 is that CT Scan, ECG machine, VCD, DVD,

Autoclave, Glucometer, incubator, Hemoglobin electrophoresis and telemedicine were the most highly utilised health information resources for clinical decision making among medical doctors in OAUTH. The study also found out from the FGD that health information resources that were highly utilised by the medical doctors in their decision making include CT scan, DVD, projectors and telemedicine among others.

Table 3: The frequency of use of health information resources for clinical decision making among medical doctors in OAUTH

s/n	Health resources	Information	Daily	Weekly	Monthly	Occas.	Never	\bar{x}	S.D
1	CT Scan		88 (34.0)	82 (31.7)	63 (24.3)	14 (5.4)	12 (4.6)	3.85	1.09
2	ECG machine		74 (28.6)	105 (40.5)	35 (13.5)	27 (10.4)	18 (6.9)	3.73	1.18
3	Internet		69 (26.6)	87 (33.6)	61 (23.6)	20 (7.7)	22 (8.5)	3.62	1.20
4	GSM phones, I pad, I pod		73 (28.2)	91 (35.1)	37 (14.3)	34 (13.1)	24 (9.3)	3.60	1.28
5	Telemedicine		60 (23.2)	113 (43.6)	35 (13.5)	24 (9.3)	27 (10.4)	3.60	1.23
6	DVD		65 (25.1)	89 (34.4)	56 (21.6)	27 (10.4)	22 (8.5)	3.57	1.21
7	Computer system		67 (25.9)	91 (35.1)	46 (17.8)	31 (12.0)	24 (9.3)	3.56	1.25
8	Electronic BP Gauge		80 (30.9)	80 (30.9)	38 (14.7)	24 (9.3)	37 (14.3)	3.55	1.38
9	Teleconferencing		64 (24.7)	88 (34.0)	52 (20.1)	28 (10.8)	27 (10.4)	3.52	1.26
10	Autoclave		52 (20.1)	96 (37.1)	65 (25.1)	20 (7.7)	26 (10.0)	3.49	1.19
11	Video		57 (22.0)	91 (35.1)	56 (21.6)	30 (11.6)	25 (9.7)	3.48	1.23
12	Incubator		57 (22.0)	83 (32.0)	66 (25.5)	33 (12.7)	20 (7.7)	3.48	1.19
13	Glucometer		52 (20.1)	83 (32.0)	78 (30.1)	29 (11.2)	17 (6.6)	3.48	1.13
14	Hemoglobin electrophoresis		53 (20.5)	88 (34.0)	62 (23.9)	33 (12.7)	23 (8.9)	3.44	1.20
15	CD ROM		59 (22.8)	80 (30.9)	58 (22.4)	36 (13.9)	26 (10.0)	3.42	1.26
16	Radiograph		61 (23.6)	82 (31.7)	46 (17.8)	42 (16.2)	28 (10.8)	3.41	1.30
17	Projectors		50 (19.3)	99 (38.2)	48 (18.5)	30 (11.6)	32 (12.4)	3.41	1.27
18	Videoconferencing		52 (20.1)	90 (34.7)	50 (19.3)	35 (13.5)	32 (12.4)	3.37	1.29
19	VCD		49 (18.9)	82 (31.7)	72 (27.8)	28 (10.8)	28 (10.8)	3.37	1.22
20	Orthoscopic		35 (13.5)	90 (34.7)	88 (34.0)	27 (10.4)	19 (7.3)	3.37	1.08
21	Sphygmomanometer		43 (16.6)	80 (30.9)	74 (28.6)	39 (15.1)	23 (8.9)	3.31	1.18

22	Microscope	30 (11.6)	95 (36.7)	84 (32.4)	20 (7.7)	30 (11.6)	3.29	1.14
Weighted mean = 3.50								

Key: D=Daily, W= Weekly, M=Monthly, O=Occasionally, N=Never

Table 3 showed the frequency of use of health information resources for clinical decision making among medical doctors in OAUTH. It shows that CT Scan ($\bar{x} = 3.85$) ranked highest by the mean score rating and was followed in succession by ECG machine ($\bar{x} = 3.73$), internet ($\bar{x} = 3.62$) and GSM phones, ipad, ipod ($\bar{x} = 3.60$).

This implies that, using the weighted mean of 3.50 was that CT Scan, ECG machine, Internet,

GSM phones, ipad, ipod, Telemedicine, DVD, Computer system, Electronic BP Gauge, Teleconferencing were the most frequently used health information resources for clinical decision making among medical doctors in OAUTH. The study also found out from the FGD that health information resources such as CT scan, ECG machine, telemedicine were frequently used on weekly basis for clinical decision making.

Table 4: The challenges impeding medical doctors in the use of health information resources for clinical decision making in OAUTH

s/ n	Challenges impeding clinical decision making	SA	A	D	SD	\bar{x}	S.D
1	Unfavorable/inconsistent government policies	69 (26.6)	169 (65.3)	12 (4.6)	9 (3.5)	3.15	0.66
2	Socio-economic status of medical doctors	92 (35.5)	123 (47.5)	33 (12.7)	11 (4.2)	3.14	0.80
3	Lack of adequate funding	76 (29.3)	121 (46.7)	4 (17.0)	18 (6.9)	2.98	0.86
4	Lack of trained personnel in health information services delivery	69 (26.6)	128 (49.4)	42 (16.2)	20 (7.7)	2.95	0.86
5	Health information sources are not easily accessible	82 (31.7)	109 (42.1)	38 (14.7)	30 (11.6)	2.94	0.96
6	Poor packaging of health information services	62 (23.9)	132 (51.0)	49 (18.9)	16 (6.2)	2.93	0.82
7	Lack of heath information literacy among the medical doctors	79 (30.5)	110 (42.5)	38 (14.7)	32 (12.4)	2.91	0.97
8	Lack of adequate professional skills	75 (29.0)	111 (42.9)	46 (17.8)	(27 (10.4)	2.90	0.94
9	Health information managers are not accommodating	69 (26.6)	114 (44.0)	46 (17.8)	30 (11.6)	2.86	0.94
10	Religious beliefs	79 (30.5)	87 (33.6)	57 (22.0)	36 (13.9)	2.81	1.02
11	Health information provided are sometimes not current	70 (27.0)	96 (37.1)	64 (24.7)	29 (11.2)	2.80	0.96
12	Health information delivery are not timely	56 (21.6)	119 (45.9)	58 (22.4)	26 (10.0)	2.79	0.90
13	Health information are not readily available	82 (31.7)	109 (42.1)	51 (19.7)	38 (14.7)	2.75	0.98
14	Cultural values and traditions	72 (27.8)	85 (32.8)	61 (23.6)	41 (15.8)	2.73	1.04
15	Level of education/knowledgebase	55 (21.2)	108 (41.7)	65 (25.1)	31 (12.0)	2.72	0.93
Weighted mean = 2.89							

Key: SD = Strongly Disagree, A = Agree D = Disagree, SA = Strongly Disagree

Table 4 showed the challenges impeding

medical doctors in the use of health information resources for clinical decision making in OAUTH.

It shows that Unfavorable/inconsistent government policies ($\bar{x} = 3.15$) ranked highest by the mean score rating and was followed in succession by "Socio-economic status of medical doctors ($\bar{x} = 3.14$), lack of adequate funding ($\bar{x} = 2.98$), lack of trained personnel in health information services delivery ($\bar{x} = 2.95$), health information sources are not easily accessible ($\bar{x} = 2.94$) and poor packaging of health information services ($\bar{x} = 2.93$). This implies that from the above result was that unfavorable/inconsistent government policies, socio-economic status of medical doctors, lack of adequate funding, lack of trained personnel in health information services delivery, health information sources are not easily accessible, poor packaging of health information services, lack of health information literacy among the medical doctors and lack of adequate professional skills were the major challenges impeding medical doctors in the use of health information resources for clinical decision making in the study area.

The study also found out from the FGD that the challenges impeding medical doctors clinical decision making include lack of adequate funding, lack of trained personnel, socio-economic status of medical doctors, religious and cultural beliefs.

Findings

The following are the findings of the study:

The findings revealed that the CT Scan, ECG machine, Incubator, Orthoscopic, Radiograph, GSM phones, ipad, ipod, Microscope and Computer system were the major health information resources accessible for clinical decision making among medical doctors in the study. The findings therefore corroborated with Schiavo's (2007) study where he asserted that health communication is an approach to convey information with the goal of improving health outcomes by encouraging behaviour modification and social change through the continuum of knowledge, beliefs and attitudes, and behaviour.

On the extent of use of health information resources for clinical decision making among the medical doctors in OAUTH was high and the pattern of use was on a weekly basis. The

implication of this is that the extent of use of health information resources for clinical decision making among medical doctors in OAUTH is high and the pattern of use is on a weekly basis. This was in line with the study of Federal Medical Department (2005) which clearly stated that accurate, timely and relevant use of health information resources in the healthcare sector is the fundamental step toward promoting public health and evidence-based medicine

Furthermore, the findings also revealed that the frequency of use of health information resources for clinical decision making among the medical doctors was high and the pattern of use was on a weekly basis. The findings support the study of Schilling (2012) who stated that information use as a process that is preceded by information seeking and that information is useful only if such is deemed valued and is absorbed, in order to solve a problem or make sense of a situation

Finally the study reveals the unfavourable/inconsistent government policies, socio-economic status of medical doctors, no social welfare scheme, lack of adequate funding, lack of trained personnel in health information services delivery, health information sources are not easily accessible, poor packaging of health information services, lack of health information literacy among the medical doctors and lack of adequate professional skills were the major challenges impeding the use of health information resources among medical doctors in OAUTH. This finding was in tandem with Adeyoyin and Oyewusi (2015) finding who also found that socio-economic status of medical doctors in terms of lack of funds militates against their purchasing power and consequently affected their health information resources utilisation.

Conclusion

The CT Scan, ECG machine, incubator, orthoscopic, radiograph, GSM phones, ipad, ipod, microscope and computer system were the major health information resources accessible for clinical decision making among medical doctors in the study. The extent of

use of health information resources for clinical decision making among Medical doctors in OAUTH is high and the pattern of use was on a weekly basis. The frequency of use of health information resources for clinical decision making was high also and the pattern of use was on a weekly basis. The unfavourable/inconsistent government policies, socio-economic status of medical doctors, no social welfare scheme, lack of adequate funding, lack of trained personnel in health information services delivery, health information sources are not easily accessible, poor packaging of health information services, lack of health information literacy among the medical doctors and lack of adequate professional skills were the major challenges impeding the use of health information resources among medical doctors in OAUTH.

Recommendations

Based on the findings of this study, the following

recommendations were made:

- i. Although the level of accessibility of health information resources for clinical decision making among medical doctors was high effort should be intensified to ensure that health information resources are more accessible to medical doctors
- ii. The extent of use of health information resources for clinical decision making among medical doctors was reportedly high but there was still room for improvement among the medical doctors
- iii. Government and its agencies should make funds available for the OAUTH management to enable them to procure modern equipment that will enhance effective and efficient clinical decision making among medical doctors.

References

- Adeyoyin S.O and Oyewusi (2015). Needs and Utilisation of Health Information among Young Adults in Abeokuta, Ogun State. *Library philosophy and practice*, 9(2). Retrieved from <http://digitalcommons.unl.edu/libphilprac> on 3rd March 2019
- Bawden D. (2008). The Worlds of Health Information. *Journal of information science*, 23(2). Retrieved from <https://doi.org/10.1177/1016555150202800106> on 18th March 2019
- Bergman J, Platonov V, Dukeov I & Luukka P. (2016). Information Processing Approach in Organisational Cognitive Structure: Relationship Between Top and Middle Managers Cognitions. *International Journal of Information System and Change*, 7(4). Retrieved from <https://www.researchgate.net/publication/308766088> on 30th February 2019
- Case D. O and Connor L G. (2018). What is the Use? Measuring the Frequency of Study of Information Outcomes. *Journal of the Association for Information Science and technology*, 89(2). Retrieved from <https://www.researchgate.net/publication/40567055> on 28th January 2019.
- Chapman R, Berger M, & Weinstein M, Weeks, Goldie and Newman, C 2004 When does Quality-Adjusting Life-Years matter in Cost-Effectiveness Analysis? *Health Economics*. 1(3). Retrieved from <https://www.researchgate.net/publication/367800978> on 21th March 2019.
- Choo S, (2007). Using Training and Development to Affect Job Satisfaction Within Franchising. *Journal of Small Business and Enterprise Development*, 14 (2). Retrieved from <http://www.doi.org/10.1108/14626000710746745> on 19th March 2019.
- Daniel G and Oyetunji M. (2013). Nursing Informatics a Key to Improving Nursing and Midwifery. *Journal of Nursing Research*, 5(5). Retrieved from <https://www.researchgate.net/publication/367800978> on 21th March 2019.
- Gans D, Kralweki J, Hammons T & Dowd B. (2005). Medical Groups Adoption of Electronic Health Record and Information System. *Journal of Health Affairs*, 25 (5) Retrieved from <https://doi.org/10.1377/hlthaff.2451323> on 23th February 2019.
- Gatero G. (2010). Utilisation of ICT for Accessing Health Information by Medical Professionals in Kenya, *Journal of Health Informatics in Developing Countries*, 5(1) Retrieved from <https://www.jhidc.org/index.php/jhidc/article/view/ss> on 14th March 2019
- Harder J.M. (2007). Doctor's Views of Clinical Practice Guidelines: A Qualitative Exploration Using Innovation Theory. *National Library of Medicine*, 13(4). Retrieved from doi:10.111/j.1365-2753.2007.00856.x on 6th March 2019
- Ifinedo P. (2012). Technology Acceptance by Health Professionals in Canada: an analysis with a modified UTAUT model 45th, *Hawai International Conferences in System Science*, 9(4) Retrieved from <https://pdfs.semanticscholar.org/4227/745bb7742917dc7a83c7Fb286f6137sds.pdf> on 12 March 2019.
- Karl M. 2012 Information Inadequacies: the lack of needed Information in Human, Social and Industrial Affairs, *F I P Advances in Communication and Information Technology*, 38(6). Retrieved from <https://doi.org/10.1007/978-3-642-33332-3-29> on February 17 2019.
- Kaplan B and Kimberly D 2009. Health IT Success and Failure, Recommendation from Literature and AMIA Workshop, *Journal of Medical Information Association* 16(3). Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/pmc27322441> on 22 March 2019
- Mallinge, J. B, Griggs J.J and Shields C. G. 2005 Patient- Centered Care and Breast Cancer Survivors Satisfaction with Information. *Journal of Education and Counseling*, 5(7). Retrieved from <https://doi.org/10.1016/Jpec.2004.09.009> on 15 February, 2019.
- McDonald R, Waring J, Harrison S, Walshe K & Boaden R. (2005). Rules and Guidelines in Clinical Practice: A Qualitative Study in Operating Theatres of Doctors and Nurses Views. *Quality and Safety in Healthcare*, 14(4). Retrieved from 10.1136/qshc.2005.013912 on 14th March 2019
- Monique. V. C 2004. Adolescent Pregnancy, Exclusive a Public Health Issue, *American Journal, Health, Social, Economic and Gender Perspectives*, 12(4). Retrieved from www.un.org.wubbernhoost on 17th January 2019.
- Nuq P 2012. Toward a Better Understanding of the Intention to use Health Service by Medical Professional, the case of Developing Countries

- PhD thesis submitted to the school of management. University of Nestle.
- Oladokun W and Adeboyejo O. Information and Communication Technology use by Reproductive Health Workers in Nigeria. A Interdisciplinary *Journal on Human in ICT Environment*, 5 (2). Retrieved from <https://www.semanticscholar.org> on 28th January 2019.
- Schiavo R. 2007 Health Communication from Theory to Practice. America Psychological Association. *Second Edition* Retrieved from <https://psyc.apa.org> on 14th March 2019
- Schilling K 2012 Health Librarian an Introduction, *Journal of Medical Library Association*, 97 (4) . Retrieved from <https://booksgooglecom.ng> on 17th March 2019.
- Sen B. and Taylor R. 2007 Determining the Information Needs of Small and Medium sized Enterprises, *Information Research*, 12 (4).Retrieved from <http://information.net/ir/12-4/paper329> on 15th March 2019.
- Wilson B. 2007. Nurses Knowledge of Pain, *Journal of Clinical Nursing*, 1(6), Issue Retrieved from <http://doi.org/10.1111/J.1365-2702.2007.01692.X> on 15th Feb 2019.