

Communication mediums used by patients and health professionals during access and provision of healthcare in low resource settings: A cross-sectional study

Mathias Dongyele (✉ matino242410@gmail.com)

University of Science and Technology College of Medicine and Health Sciences <https://orcid.org/0000-0002-7547-7159>

Daniel Ansong

Kwame Nkrumah University of Science and Technology

Francis Osei Adjei

Komfo Anokye Teaching Hospital

Evans Xamuzu

Komfo Anokye Teaching Hospital

Nicholas Karikari Mensah

Komfo Anokye Teaching Hospital

Alfred Kwame Owusu

Komfo Anokye Teaching Hospital

Bright Atta Dankwa

Research and Development unit, KATH

Sam Kofi Newton

Kwame Nkrumah University of science and Technology, School of Public Health

Samuel Frimpong Odoom

Research and Development Unit, KATH

Joseph Bonney

Komfo Anokye Teaching Hospital

Duncan Adjei

Research Development Unit, KATH, Kumasi, Ghana

Anne Amusu

University of Ghana School of Medicine and Dentistry

Emmanuel Kofi Akowuah

Department of Computer Engineering, Kwame Nkrumah University of Science and Technology

Kelvin Lartey

Department of computer Engineering, Kwame Nkrumah University of Science and Technology, kumasi, Ghana

Christopher Seth Yaw Appiah

Ludwig-Maximilians-Universität München

Research article

Keywords: Communication, hospital, patients, healthcare

Posted Date: February 11th, 2020

DOI: <https://doi.org/10.21203/rs.2.14329/v3>

License:   This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Version of Record: A version of this preprint was published at *Advances in Public Health* on May 8th, 2021. See the published version at <https://doi.org/10.1155/2021/7419305>.

Abstract

Background: The issue with communication mediums during service provision and for making enquiries to a hospital on the type of services available, availability of physicians and beds at the receiving hospitals, and a reminder system remains a challenge for patients and providers of the health service in sub-Saharan Africa. This present study sought to review the existing healthcare communication mediums from the perspectives of patients and health professionals at the Komfo Anokye Teaching Hospital, Kumasi Ghana.

Method: A descriptive cross-sectional design was employed with a multilevel sampling method to select a total of 651 participants consisting of 304 patients, 303 health workers and 44 hospital directorate managers for the study. A well-structured survey questionnaire was used to collect data from respondents.

Results: Most hospital staff (66.4%) used a blend of social media and direct means (face-to-face medium) to communicate among themselves whereas 89.8% only communicates with management through meetings sections. Predominantly, 97.4% of the staff communicated by direct means (face-to-face medium) with patients. Almost all management members of the hospital communicated with the general public using letters and official memos.

Conclusions: There is evidence of combination of both traditional mediums (face-to-face) and the technological mediums (social media) for communications by health providers and health consumers. However, there is a dissatisfaction with delayed information flow and poor feedbacks with the use of the traditional mediums. Therefore, a digital mobile application communication system is recommended to offer efficient communication within and outside the Ghanaian health facilities.

Background

Effective healthcare delivery that is patient-provider centered is a major contributor to the achievement of the 'one health for all' concept (1). In this regard, patients and their relatives along with health providers constitute a vital piece of the care group in making informed choices on the available clinical services and means of accomplishing these choices (1). To be informed in making a better choices of the type of healthcare and ensuring a better interpersonal communication is the adoption of the Communication medium theory by both providers and patients for easy understanding and communication. The communication medium theory makes regards to the different channels used to communicate among two parties. Here the features of each media are being taken into consideration and how they differ discretely. By understanding the features of these Medias in hospitals (which can be classified into audio, video, News-letters, face-to-face, social media) will enable providers and patients to examine the efficiency of communication through these mediums and also to compare it while communicating interpersonally.

Many countries across the globe have laid down policies and strategic plans to help transform their health economy into information and knowledge-based economy of which Ghana as a sub-Saharan nation is not an exception (2). Such policies help bring out clearly the need for and how a communication system should be implemented within organizations. For instance, communicating using the mobile phone as a medium for information sharing across the healthcare divide has proven to be very effective (3,4). For health experts, this medium has seen a quick advancement in the development of effective communication systems. This has therefore facilitated better communication and information sharing at the hospital wards (3,4).

Generally, in Ghana, mediums for communicating and information sharing have been known to play a critical role during communication among **professionals and personnel in organizations most especially in health service delivery points(5)**. Due to this positivity, interventions such as m-Health have been tested and proven to be effective in the Ghanaian health system, even though the system is yet to be funded and adopted in its entirety by the nation(5).

Despite the importance and recommendations by major health players like the World Health Organization and the available country policies around the use of these mediums, communication in the Ghanaian healthcare system still remains a public health challenge. The issue of identifying the nearest hospital (6), type of services available, availability of physicians and beds at the referred or receiving hospitals(7), and a reminder system (8) among others remains a daunting challenge for patients and providers accessing facilities like Komfo Anokye Teaching Hospital. The Komfo Anokye Teaching Hospital is one of the major healthcare delivery centres in Ghana. The hospital currently has no functional hospital-patient driven communication medium which allows for effective patients-staff interactions for efficient service delivery (9). Evidence on the communication mediums used by staffs and users of the facility are required for planning and policy making for enhanced efficiency. The main objective of this study was to identify the communication mediums used by patients-staff, staff-staff and staff-management at the Komfo Anokye Teaching Hospital for seeking and providing health services respectively.

Methods

Study design

The study employed a descriptive cross-sectional design with quantitative approach. This design offers the authors the opportunity to take a snapshot of the communication mediums currently in use among patients-staff, staff-staff and management-staff at Komfo Anokye Teaching Hospital (KATH).

Setting

The study was conducted at the Komfo Anokye Teaching Hospital (KATH), Kumasi, Ghana from October to November 2018. The hospital is located in the vibrant and culturally rich city of Kumasi, the regional capital of Ashanti, with a population of about 4.7 million(10). It is the second largest hospital in Ghana, and the only tertiary institution in the Ashanti Region. It serves as a major referral centre in the northern

sector of Ghana. The hospital has a staff population of 3,909 who fall under these categories; Doctors (9.4%), Top Management (0.2%), Nurses and Midwives (42.2%), Certified Registered Anaesthetist (1.3%), Pharmacist and Pharmacy technicians (3.8%), Administration and Finance (6.6%), Clinical support (10.9%) and Allied Health (5.6%)

Participants

Included in the study were health workers such as doctors, nurses, pharmacists, Allied health staff, clinical support staff and directorates managers, who have worked at KATH for at least five years. These categories of staff were included because they had direct communication with the patients during consultation, diagnostics and treatment. Staff who were neither involved in direct provision of health care to clients nor involved in the daily administrative activities at the clinical directorates in relation to patient care were excluded from the study. Another set of participants who were included in the study were patients present at the outpatient department of the hospital. This category of patients were included due to the assumption that they were in a conscious state and they can consent and also be able to give reasonable responses on the communication system at KATH. Patients who did not voluntarily consent to be part of the study were excluded from the study.

Data Sources/ Measurement

Primary data was obtained from participants using a structured survey questionnaire. Information was gathered on the communication mediums available for patients' and health professionals' interactions and possible challenges emanating from these mediums in Komfo Anokye Teaching Hospital (KATH).

Three different questionnaires designed by the study were used. Each was used independently on the three different populations (health workers, patients and directorate managers). The reason was that each category has different ways of interacting within the hospital hence the different measuring tools.

Prior to the data collection, the questionnaire was pre-tested at the Kwame Nkrumah University of Science and Technology (KNUST) hospital located in Kumasi to ensure the validity and reliability of the data to be collected from the study. Responses, opinions, and views generated from the pre-testing exercise were used as a guideline to review and refine the data collection tools used in the study.

Recruitment of subjects

Health professionals were contacted during working hours of the day. The study processes (rationale, risks and benefits) were explained to them. Managers of the hospital who met the inclusion criteria were pre-informed of the study followed by scheduled meetings at their offices. The project processes were explained to them. Those who agreed to participate were recruited. Patients were approached during their out-patients visits. The project processes were explained to them and their consent sort. Those who consented were recruited in the study.

Study Size

Sample sizes were estimated for two different population (health professionals and patients) using different sampling approach. For health professionals and patients, sample sizes were calculated using the formula [See supplementary files] for each. We assumed that a proportion (p) of 50% of patients population and a proportion (p) of 50% of health professionals population respectively knew about the mediums used in the hospital for communication, with a 95% confidence interval ($z = 1.96$ for 95%); and 6% margin of error, a sample size of 264 plus 10% non-response, 26, totaling 290 was calculated for each population (health professionals and patients). For the management members, 44 of them were purposively selected since it was not difficult knowing their exact number.

Statistical methods

Data was collected using Open Data Kit (ODK) and were transferred onto an excel spreadsheet. It was cleaned and imported into STATA V.14.0 application software to describe the counts and corresponding percentages on each research question.

Results

Communication Mediums as Examined by Patients

Table 1 present results of mediums used for communications by patients before coming (External) and during the time when in the hospital (internal).

From the 304 patients who responded on the mediums for internal communications, few of them (2.64%) identified emails as the usual media for communicating with providers and majority (81.8%) said they normally walk to health providers directly (Face-to-face) for all enquiries. About 14.2% preferred communicating through meeting sections with many health professionals around whereas 10.6% usually communicated with professionals through social media (mainly WhatsApp). About 4.3% indicated they normally have a Letter/Note in hand to show to providers from referral facilities and lastly 11.5% of them usually call their provider (Doctor) with mobile phones when in the hospital to announce their presence.

In terms of mediums for external (before hospital visits) communications, few patients (2.6%) chose Emails as the usual means of communicating with providers. About one third (28.1%) preferred having a direct contact with a provider (face-to-face) before the visit date is due. 5.3% normally use social media for discussions and enquiries, and 26.4% indicated that they normally call someone in the hospital or the help desk with their mobile phones before coming to the hospital.

The effectiveness of using such mediums during external communication from respondent's perspective shows that 29.4% view the mediums to be effective (Table 1).

Communication Mediums as Examined by Health Worker

The mediums used for staff-to-management communications, staff-to-staff communications and staffs-to-patient communications were examined and reported in table 2. It also shows a detailed description of rating the performance of the various mediums used for communication.

Among the various mediums, more than half (56.4%) of the staff used memos while 5.9% used emails to interact with management. Almost ninety percent (89.8%) of the staff used face-to-face as a medium to communicate with each other with 97.4% saying they used face-to-face means to communicate with patients (Table 2).

Communication Mediums as Examined by Management

The views of management members on the mediums or channels used for communicating at the hospital was sought and reported in table 3. Half (50%) of the management agreed that the current mediums notify staff of changes in the hospital. On the mediums being used to notify the public and patients on the available services, less than half (47.7 %) of the management were in agreement to that but 38.6% disagreed to it. 45.5% of the management agreed that messages sent through the mediums are relevant while 38.6% disagreed to that. About sixty percent (63.6%) and 47.7 agreed that messages sent through the mediums are consistent and carried credible messages respectively.

Respondents shared their opinions on some feedback mechanisms; feedback through surveys (36.4%), feedback through anonymous response cards (34.1%), feedbacks through direct contact with supervisors (63.6%) feedbacks through suggestion boxes (38.64%). it was further observed that about one third of the management rates the communication medium to be effective in gathering feedbacks.

Respondents shared their views on the effectiveness of the various communication mediums; Emails were identified as effective sometimes (54.5%) followed by face-to-face medium which was noted by 45.5% respondents as being effective all the time. Also, meetings were noted as being effective sometimes by 68.2% management members with 61.4 % endorsing social media as sometimes effective with only 22.7% endorsing newsletters as effective means of communication.

With regards to efficiency of the mediums, 56.8% and 45.5% of the respondents viewed email and face to face respectively as efficient sometimes. Further, meetings and social media were noted by 59.1% and 56.8% respectively as being efficient with 52.3 % citing newsletter as being efficient sometimes. Telephone usage and the use of memos were rated by 65.9% 61.3% respectively as efficient sometimes. Generally, the communication mediums used at the hospital was rated by 38.6% of the management as good (Table 3).

Discussion

The core assumption of any medium theory is that, the media as we consider must not just be a channel where the communication takes place but the diverse set of setting or environment should be conducive to facilitate an effective communication. Because the media may vary the meaning and the sense of the information that is been transferred if not used in the right perspective.(11) For instance, communicating using the mobile phone as a medium for information sharing across the healthcare divide globally has proven to be very effective (3,4) in recent years. However there has being other parts of the world where there has being a complete reliance on face-to-face as a medium of communication in hospitals and this is becoming a global worry in the 21st century. (12).

The high figures reported on face-to-face in this current study in Kumasi, Ghana during patient-staff (81.9%) and staff-staff (89.8) interactions as the most commonly identified medium of communication is a confirmation to this global worry. Not in Ghana alone but it is also evident in other low resources countries as confirmed by, Travers in 2016. (12) Although this medium appears to be the ideal and rational means of communication in Ghana, it does not adequately address the communication problems in the health system (12) especially with patients with speech and hearing impairment (7) (13)

In some developed countries, as stated by Niemi et al. (2016), the situation is not the same. Health workers and patients in those countries makes use of ICT for communications using mediums such as the emails and text messages in their routine work (13). This gives patients such as those with speech and hearing impairment the chances to communicate better during seeking of health care. This observation is rather the opposite in Ghana were this current study was conducted. There was a very low responses in the use of electronic communication medium such as emails during interactions among patients-staff (2.6%), staff-staff (11.6%) and staff-management (5.9%) respectively even though they know the importance.

It was however not investigated into why respondents were reluctant to the use of this modern media but one can assume to the fact that, low level of ICT skills of both the Ghanaian people and some health professionals can be a factors. Nonetheless as stated in other studies, communicating using electronic means such as emails ahead of others gives the ability to revert to pending tasks (13) .Likewise, one can take care of matters by email when it's convenient for you and as a matter of convenience (13)

The real burden of using inefficient medium of communication and its challenges to patients and health professionals was not set a major priority under the scope of this study and should be investigated further. However the revelations from this study reinforce the need to incorporate the electronic system of communication into the current health system in Ghana most especial in the Teaching Hospital..

Conclusion

The mediums patients used for enquiries from the hospital were mainly telephones. Within the hospital, patients' communication was however limited to verbal via face-to-face. Staffs mostly used social media and face-to-face method to interact with their colleague staffs. However, they communicated with

patients by face-to-face only. Management also used memos more often to communicate with staffs and patients than the traditional verbal means via face-to-face.

The current mediums of communication allowed management to notify staffs of relevant administrative changes and other information in the hospital. However, getting feedback through the same mediums seemed poor.

It can be concluded that there are frustrations with the mediums used during internal and external communication. Health workers are dissatisfied with the delay of information flow from management whereas management is also worried about the delay of feedback from staff due to the poor mediums used.

These findings are evident that communication cannot always be effective as long as people insist on using poor mediums for communication in the healthcare sector. Any such attempt of not choosing a reliable medium for communication will inevitably lead to poor communication and default in health service delivery. There was, therefore, a general need for an alternative system such as the digital communication system that will be open for effective and efficient patient-hospital communications.

Declarations

Ethical Approval and Consent to Participate

Written approvals were respectively obtained from the Komfo Anokye Teaching Hospital and the Committee of Human Research, Publications and Ethics (CHRPE) of KNUST with registration number CHRPE/AP/591/18 before the study was conducted.

Participants read, understood and signed a written informed consent to be part of the study. The consent form contained detailed information of the study and participants were given enough time to make an informed decision before enrolling on the study.

Consent for Publication

Participants also consented to the publication of this work when the need arises.

Availability of data and material

The datasets generated during the current study are available from the corresponding author on reasonable request.

Competing interest

The authors declare that they have no competing interests.

Funding

Funding for the study was provided by KNUST Research Fund (KReF).

Authors' contribution

DA, MD, FAO and SN designed the study, The work of Data collection and database construction was distributed equally among JB, EK A, KL, EXA, AA, DA, BAD, AKO and NKM. Provisional drafts of manuscript were written by MD and FAO. All authors read and approved the final manuscript.

Acknowledgement

We would like to thank all the health workers and patients who took out time from their schedule to participate in our study.

Abbreviations

CHRPE	-Committee of Human Research, Publications and Ethics
KReF	-KNUST Research Fund
KNUST	-Kwame Nkrumah University of Science and Technology
KATH	-Komfo Anokye Teaching Hospital
ICT	-Information and Communication Technology
ODK	-Open Data Kit

References

1. WHO, OECD TWB. Delivering quality health services [Internet]. 2018. 100 p. Available from: <http://apps.who.int/bookorders>.
2. Gog. the Ghana Ict for Accelerated Development. Econ Soc. 2003;(June):1–85.
3. Kim MS, Aro MR, Lage KJ, Ingalls KL, Sindhvani V, Markey MK. Exploring the Usability of Mobile Apps Supporting Radiologists' Training in Diagnostic Decision Making. J Am Coll Radiol. 2016;13(3):335–43.
4. Ventola CL. Mobile devices and apps for health care professionals: uses and benefits. P T. 2014;39(5):356–64.
5. Boateng MR. MS. the Role of Information and Communication Technologies in Ghana'S Rural Development. 2012;
6. Hanchate AD, Paasche-Orlow MK, Baker WE, Lin M-Y, Banerjee S, Feldman J. Association of Race/Ethnicity With Emergency Department Destination of Emergency Medical Services Transport. JAMA Netw Open. 2019 Sep 6;2(9):e1910816.

7. Abdur Rahman Alfa Shaban. Lack of beds forces Ghana's main hospital to reject critical referrals | Africanews [Internet]. 2018 [cited 2019 Nov 7]. Available from: <https://www.africanews.com/2018/07/11/lack-of-beds-forces-ghanas-main-hospital-to-reject-critical-referrals/>
8. Raifman JRG, Lanthorn HE, Rokicki S, Fink G. The impact of text message reminders on adherence to antimalarial treatment in northern Ghana: A randomized trial. *PLoS One*. 2014 Oct 28;9(10).
9. Abor PA. Exploring clinical communication in a teaching hospital in Ghana. *Int J Heal Gov*. 2019;24(2):155–68.
10. Population and housing census. Kumasi metropolitan. 2010;92.
11. Medium theory. *Communication theory.org* [Internet]. 2020 [cited 2020 Jan 20]. Available from: <https://www.communicationtheory.org/medium-theory/>
12. Travers C. Does the future have room for face to face communication [Internet]. 2016 [cited 2019 Apr 12]. Available from: <https://www.burleigh-court.co.uk/assets/docs/face-to-face-communication.pdf>
13. Niemi A, Hupli M, Koivunen M. The use of electronic communication for patient - professional interaction – nursing staff 's point of view. *FinJeHeW finish J eHealth eWelfare*. 2016;8(4).

Tables

Table 1(a): Communication Mediums as Examined by Patients

VARIABLE	No (n=303)	Yes (n=303)
Mediums used for communication at the hospital.		
- Email	97.4	2.6
- Face-to-Face	18.1	81.9
- Meetings	85.8	14.2
- Social media	89.4	10.6
- Newsletters/Letters	95.7	4.3)
- Telephone	88.5	11.5

Mediums used to contact the hospital before coming

- Email	97.4	2.6
- Face-to-Face	72.0	28.
- Meetings	95.7	4.3
- Social media	94.7	5.3
- Newsletters/Letters	94.4	5.6
- Telephone	73.6	26.4
- No medium used	56.8	43.2

Source: Field Data, 2018

Table 1 (b): patients views on the Effectiveness of communication medium

VARIABLE	Freq. (n=303)	Percentages
Effectiveness of communication medium used before coming to the hospital	18	5.9
- very effective		
- effective	89	29.4
- a little effective	45	14.9
- not at all effective	20	6.6
- very effective	34	11.2
- not at all effective	31	10.2

Source: Field Data, 2018

Table 2 :Communication Mediums as Examined by Health Workers

VARIABLES	YES	NO
	(%)	(%)
Staff-to-management		
Meetings	64.4	35.6
Memo	56.4	43.6
Letter	51.5	48.5
Face-to-Face	50.2	49.8
Telephone	42.2	57.8
Social-Media	16.2	83.8
Email	5.9	94.1
Staff-to-staff		
Face-to-Face	89.8	10.2
Telephone	66.0	34.0
Meetings	65.0	35.0
Social-Media	54.8	45.2
Memo	38.9	61.1
Newsletter/letter	28.7	71.3
Email	11.5	88.5
Staff-to-patient		
Face-to-Face	97.4	2.6
Telephone	42.6	57.4
Email	2.0	98
Meetings	20.5	79.5
Social-Media	19.8	80.2
Newsletter/letter	14.2	85.8

Source: Field Data (2018)

Table 3 : Rating of Performance of Communication Mediums by Health Workers Rating of Performance of Communication Mediums by Health Workers

Rating of Performance	FREQ (n=303)	PERCENTAGE (%)
Email		
Excellent	12	(3.9)
Very good	23	(7.6)
Average	21	(6.9)
Good	86	(28.4)
Poor	161	(53.1)
Face-to-Face		
Excellent	107	(35.3)
Very good	75	(24.8)
Average	59	(19.5)
Good	107	(35.3)
Poor	3	(0.9)
Meetings		
Excellent	18	(5.9)
Very good	60	(19.8)
Average	89	(29.4)
Good	127	(41.9)
Poor	9	(2.9)
Social-Media		
Excellent	10	(3.3)
Very good	51	(16.8)
Average	71	(23.4)
Good	101	(33.3)
Poor	70	(23.1)
Newsletters/Letters		
Excellent	18	(5.9)
Very good	51	(16.8)
Average	74	(24.4)
Good	110	(36.3)
Poor	50	(16.5)
Telephone		
Excellent	22	(7.3)
Very good	65	(21.5)
Average	86	(28.4)
Good	102	(33.7)
Poor	28	(9.2)
Memos		
Excellent	44	(14.5)
Very good	52	(17.2)
Average	91	(30.0)
Good	90	(29.7)
Poor	26	(8.6)

Source: Field Data 2018

Table 4 (a):Communication Mediums as Examined by Management

Variable	Freq. (n=44)	Percentages
Mediums notify staffs of changes		
- Strongly agree	8	18.2
- Agree	22	50.0
- Disagree	14	31.8
Mediums notify patients/public about available services		
- Strongly agree	3	6.8
- Agree	21	47.7
- Disagree	17	38.6
- Strongly Disagree	3	6.8
Messages sent through the mediums are relevant		
- Strongly agree	5	11.4
- Agree	20	45.5
- Disagree	17	38,6
- Strongly Disagree	2	4.6
Messages sent through the mediums are consistent		
- Strongly agree	3	6.8
- Agree	28	63.6
- Disagree	14	38.8
- Strongly Disagree	1	2.3
Messages sent using the mediums are credible		
- Strongly agree	3	6.8
- Agree	21	47.7
- Disagree	17	38.6
- Strongly Disagree	3	6.8
Feedback gathered through survey		
- Stronglyagree	1	2.3
- Agree	16	36.4
- Disagree	21	47.7
- Strongly Disagree	6	13.6
Feedback gathered through anonymous response cards		
- Strongly agree	2	4.6
- Agree	15	34.1
- Disagree	21	52.3
- Strongly disagree	4	9.1
Feedback gathered through direct contact with supervisors		
- Strongly agree	7	15.9
- Agree	28	63.6
- Disagree	8	18.2
- Strongly disagree	1	2.3

Source: Field Data 2018

Table 4 (b): Communication Mediums as Examined by Management (Continue)

Variable	Freq.	Percentages
Feedback gathered through suggestion box		
- Strongly agree	3	6.8
- Agree	17	38.6
- Disagree	16	40.9
- Strongly disagree	6	13.6
Hospital analyzes all employees feedback		
- Strongly agree	4	9.1
- Agree	20	45.5
- Disagree	3	38.1
- Strongly disagree	3	6.8
Medium is effective for feedback		
- Strongly agree	3	6.8
- Agree	15	34.1
- Disagree	25	56.9
- Strongly disagree	1	2.3
Effectiveness of Email as a channel		
- All the time	6	13.6
- Sometimes	24	54.5
- Not at all	14	31.8
Effectiveness of Face-to-Face as a channel		
- All the time	20	45.4
- Sometimes	19	43.2
- SometimesNot at all	5	11.4
Effectiveness of Meeting as a channel		
All thetime	12	27.3
Sometimes	30	68.2
Not at all	2	4.55
Effectiveness of Social Media as a channel		
All the time	9	20.5
Sometimes	27	61.4
No at all	8	18.2
Effectiveness of Newsletters as a channel		
All the time	10	22.7
Sometimes	18	40.9
Not at all	16	45.4
Effectiveness of telephone as a channel		
All the time	11	25.0
sometimes	27	61.4
Not at all	6	13.6

Table 4 (c) : Management' rating of the various communication mediums in the hospital (continue)

	Freq.	Percentages
Emails are Efficient		
All the time	5	11.4
Sometimes	25	56.8
Not at all	14	31.8

Face to Face is Efficient		
All the time	15	34.1
Sometimes	20	45.4
Not at all	9	20.4
Meetings are Efficient		
All the time	10	22.7
Sometimes	26	59.1
Not at all	8	18.1
Social media is Efficient		
All the time	12	27.3
Sometimes	25	56.8
Not at all	7	15.9
Newsletters are Efficient		
All the time	8	18.2
Sometimes	23	852.3
Not at all	13	4.8
Telephone use is Efficient		
All the time	10	22.7
Sometimes	29	65.9
Not at all	5	11.2
Memo is Efficient		
All the time	14	31.8
Sometimes	327	61.4
Not at all	3	6.8
General performance of mediums		
Excellent	5	11.4
Good	17	38.6
Poor	7	15.9
Very good	11	25.0
Very poor	4	9.1

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [Formula.docx](#)