Research Article

Study on effectiveness of communication amongst members at department of orthopedics surgery unit 3 using smartphone and mobile WhatsApp

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ABSTRACT

Background: The objective of this study was to assess the effectiveness of smartphone and its WhatsApp application as a communication method amongst the members of department of orthopedic surgery unit 3 at SAIMS.
Methods: From January 2013 onwards, the authors used smart phones and its WhatsApp application as a communication method amongst their team for various aspects of patient management and as a tool for academic endorsements.
Results: During the period of this study, there were 95 incidences regarding patient management, which were handled, in a timely fashion by using this application. In addition opinion of residents in the unit was sought regarding the effectiveness of this method of communication. Overall majority of residents were satisfied with this mode of communication.
Conclusion: This new method of communication is an effective method for clinical and academic endorsements. The method is cheap and quick and easy to operate.

Keywords: Smart phone, WhatsApp, Resident, Department

INTRODUCTION

For communication between the members of any division in the surgical field, perhaps the most frequently used method is a verbal report via telephones. Telephone communication can be rapid but not objective and precise. To add more accurate information to the verbal report, clinical photographs taken by digital cameras were transmitted as downloadable files between computers having modem and telephone link as telemedicine has gained popularity in the late 1990's.[1]

With advance in internet access in late 2000s, images were transferred through internet lines by commonly used internet portals accessed by personal computers or by mobile phones. More recently photographs taken by Smartphone were transferred to another smartphone.[2,3]

WhatsApp is an early stage technology startup founded to build a better short message service alternative. It is a proprietary cross platform instant messaging application for smart phones. Santa Clara, California based company WhatsApp Inc. that was founded in 2009 by Brian Acton and Jan Koum[4] developed it.

In this study, we discussed our communication method reflecting the latest mobile environment using a smartphone and WhatsApp. In addition, we analyzed the influence of this method on the time limit of management

of any untoward incident happening in patient management.

METHODS

This study was conducted at department of orthopedic surgery unit 3 at Sri Aurobindo medical college & post graduate institute, Indore, M. P., India. From January 2013, communication system among the residents, assistant professor and associate professor and unit head was totally changed. The author of the study opened a group on WhatsApp and named it unit 3 department of orthopedics group (Figure 1 & 2). All residents and consultants were included in the group. When the posting of resident changed in the unit new residents are included and those are not in the unit their names from the group deleted. While the faculty members including the author remain in the unit. Sometimes new group is created with new residents and unchanged residents and consultants (Figure 3).
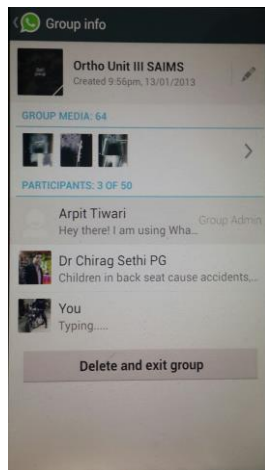
Figure 1: Group on WhatsApp: named as unit 3 dept. of orthopedics group.
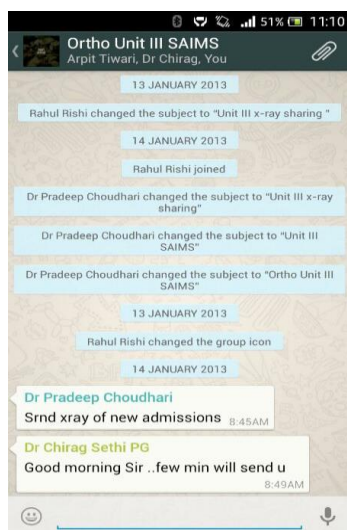

Figure 2: Group on WhatsApp: named as unit 3 dept. of orthopedics group, continue.
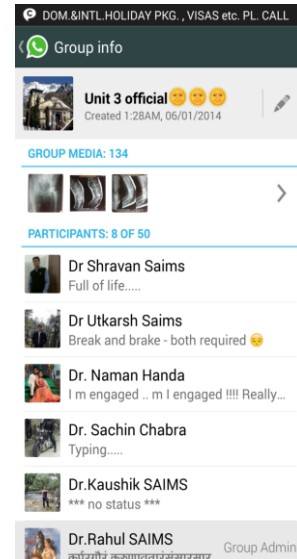
Figure 3: Creation of new group with new residents and unchanged residents and consultants.

On joining the group, they were instructed to endorse all the patients of the unit, new admissions, discharges, OR cases, plans, schedule of academic activities, uploading of pre-operative, intra-operative and post-operative photographs and x rays and MRI and Ct scan or any other relevant Investigation report for documentation and planning.

Any untoward incident of patient and its management was always uploaded. All members of the group were strictly advised that at all stage of information sharing patient identity should remain confidential but information, which was uploaded was sufficient to know exactly about which patient's conversation is going on such as ward number, bed number, procedure done.
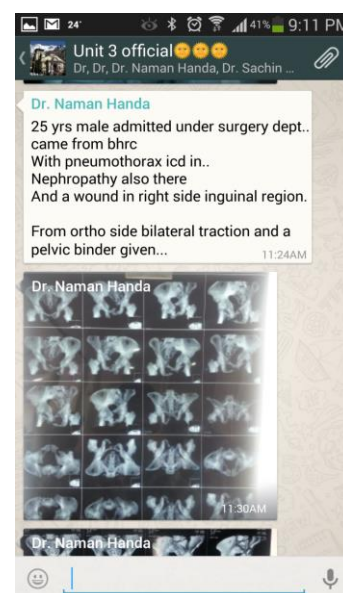
Figure 4: Smart phone: word chat, images and video clip shots phone were attached with the conversation.

Whenever any members of the group went to see any patient, he will share all information with the team members using this application. All members were in the connecting-on state and chatting window was activated immediately whenever someone typed or uploaded information so that near real time communication between members was possible. In addition to word chat, images and video clip shots taken by smart phone were also attached with the conversation (Figure 4).

All members downloaded WhatsApp from play store for android for free and from app store for iOS for 0.99$. The internet facility was coming as 3G packages from mobile network operators on very low additional cost or for free. All members were instructed to keep WhatsApp application on in notification centre with a sound alert and respond to any information in a timely fashion. The information from on call junior residents was responded by on call assistant professor immediately. If senior on call was not responding on WhatsApp for patient's events; he was contacted by on call junior resident on phone immediately. If an opinion from unit head was needed, the assistant professor will be communicating with the unit head on the phone. The chat conversations were photographed as screen shots by the senior author for study purposes and were analyzed on a weekly basis. The on call resident was documenting the events in patient's medical records on spot and any advice from senior on call and any interventions were also recorded. Efficacy of communication and time limit of management of important events was recorded. At the end of posting of residents, they were given a questionnaire about the efficacy of this method of communication (Figure 5).

Figure 5: Questionnaire about the efficacy of method of communication.

They were allowed to give their opinion freely as they were instructed not to write their name on the questioner paper.

RESULTS

A total of 8 unit 3 orthopedic surgery residents at a given time and total 25 residents rotated in our unit during this timeframe. Over this period, there were 95 important incidences got from the chat window concerning patient management, which needed timely intervention. Time limit analysis response from beginning of these episodes to response by second on call is in the time lapse between initial reporting and actual start of management of the problem is seen in. At the completion of the rotation, all the 25 rotating residents were given a preset questionnaire about their opinion regarding use of this application method as a mode of communication.

DISCUSSION

The timing of the presentation of first signs complications is known to dictate the salvage of outcome of any surgical procedure. Our method of communication reduced the time interval between the first recognition of any untoward effect and starting the management. Before we started this method of communication at our division, we were using telephone call system to communicate with each other. This was only verbal communication and one-to-one contact.

The redundant steps of vertical reporting system were eliminated by real time WhatsApp chat. There was input from all residents and Consultants based on high quality information including X-rays, photographs, videos and chats. The verbal presentation of any events had no competitive power in comparison with comprehensive WhatsApp chat system. This method of communication resulted in early detection of problems and starting earliest management. But one thing should be kept in mind that in case of critical issues messages of any type cannot replace a personal conversation.

At our institute informed consent was taken from all patients for taking photographs and sharing of the image with other members of the team. As this method is a closed circuit communication and all patient information was confidential there were no adverse medico legal aspects of this tool. The disadvantage of this tool was that one has to remain logged on to internet round the clock. Another disadvantage of this system is that conversation cannot form the part of medical record, as it cannot be printed directly. Unless each message contains enough identity features of patient being discussed, the chat system may complicate the communication once discussion is going about multiple patients.

We reviewed the literature to find only one paper in Plastic Surgery Journal which used this method.[7] Apart from this no report in any journal where this method has

been used before in any medical field. Innovation similar to this modality discussed in this report have been used earlier in interpreting radiological images in the emergency room, which used images displayed on a picture archiving and communication system monitor captured by a camera and transferred to remote physicians through wireless higher bandwidth network.[5] Hsieh et al.[6] has used teleconsultation in plastic surgery using images from inbuilt camera of cell phones.

In addition, this method has made life of both off-service residents and on duty residents easy.

Majority of them were convinced that the chat system was effective teaching method in the evaluation of patients, quick and complete endorsement of patients and availability of photographs, X rays and videos for presentation. Majority of residents were very enthusiastic and were of the opinion that they will recommend that this method of communication should be used in other units and other departments and in other hospitals.

The limitation of this study is that there was no control sample to compare speed of initiation of patient management in pre-WhatsApp era. If there was one, we could see statistically difference between the two methods.

This method can be used for seeking advice from the consultants living at a distance from the hospital so that they can give their expert opinion without physically being present. In future, this can be used for management of trauma and disaster to start pre-hospital management.

CONCLUSIONS

For quick communication amongst staff members, we used smart phone and WhatsApp chat and multimedia application for patient care and academic endorsement. We found out that it was very effective and satisfying to all staff members. Moreover, any notification of patient's events was quick and start of management was earlier with this method. We recommend that this method should be used in other specialties for both academic and clinical endorsements. However, there is a point of caution that messages of any sort cannot replace a personal conversation in case of critical issues.

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