


Understanding the means of communication between nurses and resident physicians in the modern world: A community-based university hospital survey results

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ABSTRACT

In a hospital setting, nurses and physicians are the two main caregivers for admitted patients. Their communication is an important driver of positive teamwork and ensures proper patient safety and a high level of patient care. In a hospital with a large internal medicine residency program, where the main communication between nurses and residents is by phone calls, the excess number of phone calls received, especially for non-urgent patient-related matters, can be disruptive and cause fatigue and burnout. Alternative means of communication have been reported, namely using the electronic medical records to try and create new means of communication and to decrease the burden of direct communication for non-urgent matters. This manuscript describes the results of a survey administered in an attempt to understand the communication between residents and nurses in the setting of a new communication tool created within the electronic medical records.

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1. Introduction

The communication between nurses and physicians, especially residents, has always been the key element in any part of patients' care [1]. And while we have better understood the value of this communication and the teamwork between nurses and residents, especially to ensure patient safety and a high value of care, newer means of communication have been implemented, typically through the technology available in the medical field, namely the electronic medical records (EMR) [2,3]. Many published data and studies in the literature have explored different means of communication between nurses and resident physicians (RP) [4–7]. While many agreed that there is a large number of calls or pages for non-urgent matters, others suggested using text messages or the EMR to decrease the burden of direct calls through pages and/or phone calls between nurses and residents [4–7]. These suggestions are to decrease that burden of calls and direct communication and improve the workflow while sustaining a high level of patient care and safety. In that regard, at Hurley Medical Center (HMC) a group of internal medicine RP initiated a large survey in an attempt to understand and improve the communication between nurses and RP as part of a quality improvement (QI) project.

2. Methods

2.1. Background

HMC is a community-based university hospital in Flint, Michigan, USA. HMC has 450 beds; with its main patient population being in internal medicine, the hospital is well equipped with multiple level of care units, including general medical floors (GMF), intermediate care units and intensive care units (ICU). HMC has an internal medicine residency with over 40 RP across three years of training, which is by far the largest residency at HMC. While on GMF rotations, RP are assigned into teams and their admitted patients per team could be located at any floor in the hospital. At HMC nurses and residents communicate through phones (Spectra-links) that are assigned to each internal medicine team while either on the GMF, ICU or on-call during the day or night. The amount of phone calls that the residents normally receive while either on a - regular day or on call was considered quite excessive and caused a multitude of problems, mainly burnout, fatigue and interruptions in the RP's day activities and patient care (Table 1). On that note, HMC's EMR team created an e-messaging tool in an attempt to improve the communication between nurses and RP for non-urgent matters. E-messaging is

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Table 1. The impact of the number of phone calls on the resident's daily activities.

The impact of the number of phone calls on the resident's daily activities	Numbers (%)
New patient evaluation	26 (84%)
Urgent clinical matter	24 (77%)
Documentation	21 (68%)
Sign Out	19 (61%)
Sleep and meals	16 (52%)
Procedures	15 (48%)
Education	19 (61%)
Other clinical tasks	11 (35%)

a communication tool where nurses are able to leave a brief non-urgent message on the EMR for a certain order, concern or question, and the message is found right next to the corresponding patient's name on the medical RP's patients list. After the message is posted into the EMR, the RP has 1 to 2 hours to answer the nurse's question and address that message. After almost a year since its inception, the e-messaging tool was quite under-used and the main communication route was still through the phone system. In an attempt to further understand the communication between nurses and RP, a group of RP at HMC attempted a QI project to further implement the e-messaging tool as a communication means and decrease the burden of phone calls. The QI project received IRB exemption given the fact that it does not contain any patients' information and almost all data collected specially from nurses and RP were anonymous and confidential. After a few cycles into the QI study, a survey was created and submitted to all nurses and RP alike to study and analyze the communication at that point in time.

2.2. Survey

Through Google forms a survey was created that included a questionnaire. One survey was then sent to the nurses and another one was sent to the RP. Both surveys were sent via email, and reminders were sent so that a good representative number answered the survey for both parties. The surveys were anonymous and allowed to be taken only once per account. The questionnaire sent to the nurses included epidemiological questions first inquiring about many basic variables, including age, sex, overall years of experience, the years of experience at their current unit at HMC, and type of shift. The questionnaire then continued to ask about the methods of communication (phone calls, E-message, etc.) used between them and the RP, their utility and use across many related variables. (Nurses survey sample)

Another questionnaire was sent to the RP and that as well included epidemiological questions first inquiring about many basic variables, including age, sex, current year of training, and previous years of experience prior to their current residency at HMC.

The questionnaire then continued to ask about the methods of communication (phone calls, E-message, etc.) used between them and nurses, their utility and use across many related variables. (RP survey sample)

After almost 3 weeks since the initial email was sent, a good number of RP and nurses had answered the survey and data was then collected.

2.3. Analysis

After the completion of data collection from Google Docs, the data was transferred into an Excel sheet to complete the analysis and display the numbers and percentages of the answered questions.

3. Results

Seventy-seven nurses (84.2% female; mean age 39.6 years) completed the survey. The nurses who replied to the questionnaire had a mean of 11.3 years of overall nursing experience. Additionally, 48% had at least 5 years of experience at their current nursing unit; 57.3% worked in GMF units, while the rest in critical care units; and 51.3% worked in first shift, while the rest were in second or third shift.

Thirty-one RP with a mean age of 30.4 years, standard deviation of 3.6 years, completed the survey. Of the RP who answered the survey, 41.9% were females, 30.8% had no clinical experience prior to the current residency, and 58.1% were in their first year of residency, while the rest were in their second (22.6%) or third (19.4%) year of training.

Almost all nurses and RP agreed in the survey that phone calls are the primary means of communication, while E-messages are always second. Nurses would communicate a mean of 4.3 times with RP during their work shift.

When questioned about phone calls:

- 58.1% of RP and 67.6% of nurses either agreed or strongly agreed that it is indeed a better communication means for patient safety and workflow.
- 93.5% of nurses preferred phone calls to get answers for their questions instantly, while 87.1% of RP did agree that phone calls help answer questions instantly.
- 57.2% of nurses agreed that they use phone calls to address all matters, while 93.6% of RP either agreed or strongly agreed that they receive more phone calls for non-urgent matters than urgent ones.
- Table 2 displays the non-urgent matters that the residents get called for by the nurses (table 2).
- Table 3 displays the nurses' patient assessment before attempting to contact the RP (table 3).

Table 2. Non-urgent matters that the residents get called for by nurses.

Non-urgent matters that the residents get called for by nurses	Numbers (%)
Pain	26 (84%)
Insomnia	26 (84%)
Medication changes	21 (68%)
Non-urgent changes in patient's vital signs	14 (45%)
Non-urgent update in patient's condition	14 (45%)
Diet	13 (42%)
Patient/Family want to speak with physician	12 (39%)
Discharge	8 (26%)
Non critical lab	8 (26%)
Future orders	9 (29%)
Non urgent evaluation	4 (13%)

Table 3. Nurses' patient assessment before attempting to contact the resident physician.

As a nurse before calling the resident, I review:	Numbers (%)
Recent patient's vitals	73 (95%)
Patient's diagnosis	71 (92%)
Medical Team on file	68 (88%)
Patient's lab results	66 (86%)
Patient's current medication	65 (84%)
Patient's allergies	55 (71%)
Last progress note	47 (61%)
Last nursing note	38 (49%)

Table 4. Various circumstances where nurses had to use the phone to contact the resident physician.

As a nurse I used phone calls for the following situations:	Numbers (%)
Patient deterioration	74 (96%)
Critical labs	73 (95%)
Urgent matter	67 (87%)
New patient complaint	65 (84%)
Patient leave against medical advice	65 (84%)
Pain medication	63 (82%)
Patient/family speak with doctor	48 (62%)
New patient	48 (62%)
Medication changes	44 (57%)
Future orders	39 (51%)
Insomnia	23 (30%)
Non-Urgent matter	19 (25%)

- Table 4 displays the various circumstances where nurses had to use the phone to contact the RP (table 4).
- The RP get a mean of 15.8 calls from nurses on a regular day on a GMF, in addition to a mean of 32.8 and 35.4 calls during their GMF day call and night call respectively. While in ICU, RP receive a mean of 28.2 and 50.4 calls during their regular day and a 24-hour call respectively.
- 80.7% of RP agreed that they feel burnt-out from the number of calls received during any of their shifts.
- Using a scale from 0 to 10, with 0 being the worst and 10 being the best, nurses rated phone calls with a mean of 7.1 compared to a mean of 5.2 by RP.

When questioned about E-message:

- Over 90% of both nurses and RP know what the E-message tool is and how to use it in the EMR.

- A discrepancy was found between the nurses' and the RP's perceptions in regard to E-message communication where 80.7% and 59.4% of RP and nurses respectively agreed that E-messages decrease the number of verbal orders. And while only 40.8% of nurses admitted to using E-messages either always or most of the time, 80.7% of RP admitted to compliance in answering the E-messages submitted by the nurses either always or most of the time. In addition, 83.9% of RP but only 55.9% of nurses either agreed or strongly agreed that E-message is an effective means of communication between RP and nurses. Whereas 87.1% of RP felt that E-messages decrease their workflow interruptions, only 52% of nurses felt that E-messages improve their workflow.
- Using a scale from 0 to 10, with 0 being the worst and 10 being the best, nurses rated E-message with a mean of 5.3 compared to a mean of 7.6 by RP.

4. Discussion

In a community-based university hospital with a large internal medicine residency, this study shows that both nurses and RP agree that phone calls are a much faster and safer means of communication, however, still cause many interruptions in the RP's day activities and patient care (table 1). With the emergence of the EMR and the new communication tools created, like e-messaging for non-urgent matters, it has been exciting to potentially substitute a certain number of phone calls with better and easier means of communication, but unfortunately it created a number of new limitations, including disruption of the nursing workflow and delay in providing answers and orders to nurses. Even though RP do prefer e-messaging versus phone calls, mainly due to decreasing burnout and fatigue in answering nurses' calls whether on a regular working day or on a call day, in a GMF rotation or in an ICU rotation, the e-messaging tool still does not compete with a direct conversation provided by a phone call between both groups, especially considering the significant discrepancy between nurses and RP in assessing the 2 different means of communication.

In a recent survey study that examined the relationship between the extent information and communication technologies (IT) are used and non-IT physician-nurse communication practices, researchers found that greater software adoption was associated with more intense non-IT communication practices, which suggests health IT is not a substitutive physician-nurse communication tool, but a complementary one [3].

In an observational study that mainly showed the realities and challenges of teamwork in American hospitals, based on a comparison with French

hospitals, the use of EMR was supposed to increase cooperation between RP and nurses, however, the observations showed the contrary [8].

As well, all the reported substitutive means of communication that basically relied on alternative means of communication failed to replace the conventional direct communication between RP and nurses and rather supported the fact that its role is complementary rather than substitutive one [4–7].

A few limitations exist in our study; the main one is that it is based on a small-sized community-based hospital with data collected at one point in time, early in the intervention. The study only examined the internal medicine service, which renders other departments in the hospital under-represented. Additionally, the sample of residents and nurses who answered the survey is relatively small.

5. Conclusion

In modern medicine where technology offers new means of communication, the main safe, fast and efficient way of communication between RP and nurses in a hospital setting remains through direct communication, mainly phone calls. Though their role is complementary, further improvement, education and implementation of the newer means of communication is important to study further their potential and contribution to helping patients and caregivers alike.

Disclosure statement

No conflict of interest to declare.

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