

Effective communication of critical radiology results: The implementation of panic alert mechanism

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Abstract

Objectives: To establish an effective channel of timely communication of life-threatening emergencies to primary physicians by radiology team.

Methods: The observational study was conducted at Aga Khan Hospital for Women and Children, Kharadar, Karachi. Data was collected from the log book from July 2012 to June 2013. A multidisciplinary "Panic Alert" protocol was formulated and implemented in the Radiology unit. All radiological examinations were screened as soon as possible and panic alerts [provisional findings] were communicated to their primary care taker/relevant nursing staff, attendants within 30 minutes from the time of completion of examination. Complete log was maintained. Data was analysed on SPSS 13.

Results: A total of 22,474 patients were seen, and 77(0.34%) had panic provisional findings. The mean time for communicating the panic reporting was 19.5±8 minutes. Implementation of the designed protocol, effective communication and proper follow-up resulted in 100% coverage of panic results.

Conclusion: Life-threatening emergencies identified by radiological imaging can be managed effectively if alerts are generated in time.

Keywords: Radiology panic alerts, effective communication. (JPMA 65: 1310; 2015)

Introduction

Effective communication is an important and vital part of patient safety in healthcare. Current research indicates that ineffective communication among healthcare professionals is one of the leading causes of medical errors and patient harm.¹⁻³ A review of reports reveals that communication failures were implicated at the root of over 70 percent of sentinel events.⁴ The current environment in both hospitals and physicians' offices is rife for failure of communication between radiologists and non-radiology physicians, between non-radiology physicians and patients, and between radiologists and patients. Communication problems related to diagnostic testing account for 47% of all errors made by typical primary care physicians in their medical practices.⁵ Eighty-three percent of these physicians report delays in receipt of test results, and only 41% indicated they are satisfied with how test results are managed.⁵ It is therefore required that physicians, either radiology or non-radiology should develop an effective channel of communication among themselves as well as with patients. In 1990, the American College of Radiology (ACR) issued its first Standards focusing on communication of radiologic results:⁶ "All reports in the

high probability category should be communicated to the referring physician or his designated representative by telephone, by certified mail, or communicated in such a manner that receipt of the report is assured and documented."

A study⁷ in 1991 wrote that "radiologists should attempt to establish a standard practice of verbal communication whenever a surgical consultation is recommended," and that a notation of the verbal communication should be included in the written report. Another study^{8,9} stated that direct communication between radiologist and referring physician is "most likely required" whenever there is a suspicious finding. Evidence suggests that there are delays to the management of critical results due to difficulties contacting the provider.¹⁰ Calling the physician / team members or reporting through call centres is the best practice.¹¹

The Massachusetts Coalition for the Prevention of Medical Errors and the Massachusetts Hospital Association developed recommendations for effective communication of critical test results,¹² stressing the need to identify who should receive the results; identify who should receive the results when the ordering provider is not available; define what test results require timely and reliable communication; identify when test results should be actively reported to the ordering provider and establish explicit timeframes for this process; identify how to notify the responsible provider(s)

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including ensuring acknowledgement of the result by the provider who will take action; establish a shared policy for uniform communication of all types of test results (laboratory, cardiology, radiology, and other diagnostic tests) to all recipients, including standardised "read-back" techniques; and design reliability into the system such as specific procedures to address high-risk situations (ex. transitions of care, discharge).

In our hospital setting, a need was felt to take this quality improvement initiative considering the above recommendations, and we devised a protocol of informing panic result to the right person at the right time through timely communication, and decreasing delays so that clinical outcomes can be improved. The current study was planned to assess its impact.

Methodology

The observational study was conducted at Aga Khan Hospital for Women and Children, Kharadar, Karachi, from July 2012 to June 2013.

All patients coming to the Radiology department for ultrasounds examination were included. A multidisciplinary "Panic Alert" protocol was formulated explaining that all radiological examinations will be screened as soon as possible and will ensure that the alerts [Provisional finding] were communicated to their primary care taker/relevant nursing staff/attendants within 30 minutes from the time of completion of examination. Doctors/Units receptionist were responsible to enter the data in Log book, including name of patient and Medical Record (MR) number, name of person informing and person being informed both were logged. Date and time of communication were also recorded. All efforts were made to communicate the panic alerts to the primary team (including trying to call the consultant on his/her mobile phone). In case of no response after telephone call, alerts were communicated to the nursing stations from where it was communicated to the primary team physician (Figure-1).

If life-threatening emergencies were found in outside referral cases, the radiologist communicated the report to patient/attendant, and simultaneously tried to inform patient's physician about provisional findings. Receptionist or senior medical officer of Radiology logged and communicated the panic finding to the referring physician / unit.

During Night, emergency cases were informed to on-call Resident medical officer on floor or ward nursing staff on floor through phones or direct communication at the Radiology room, if patients were accompanied by nursing

staff or doctors. Receipt was accorded the very next day by primary consultant on phone or in person as it is not mandatory to sign or give thumb impression in the log book as per policy. All outside referral patients' Provisional finding were informed to their primary consultant [if cell # available on prescription letterhead], otherwise their first relative was informed. Initial thumb impression were taken on logbook at the time of dissemination of provisional finding to relatives.

However, for all patients coming to Radiology, inaccurate contact information of the patient and/or referring physician would lead to inability to inform panic results.

In healthcare, identification of any life-threatening emergency on diagnostic examination is termed panic finding/ alert.

Alert list implemented was: 1) Ectopic pregnancy. 2) Ovarian / testicular torsion. 3) Significant solid organ laceration. 4) Intra-uterine foetal demise. 5) Intussusception. 6) Deepvenous thrombosis. 7) Abruptio placenta. 8) Grade 4 Intraventricular haemorrhage. 9) Arterial occlusion leading to critical ischaemia. 10) Positive Focused Assessment with Sonography in Trauma (FAST) in cases of acute trauma.

Data was collected from the log book on a prescribed proforma after approval from ethical review committee. The outcome measures were: time taken by radiology team to inform panic alert to primary care team; and percentage of cases where panic alert protocol was followed.

The results were analyze dusing SPSS13.

Results

A total of 22,474 patients were seen and 77(0.34%) had panic findings. Implementation of the designed protocol, effective communication and proper follow-up resulted in 100% coverage of panic results. Overall, 73(95%) panic results were communicated to in-house consultants whereas 4(5%) were outside referrals. Major findings were all noted (Table-1).

Results were verified from the primary consultant within the next 24 hours and 76(99%) cases were correctly diagnosed, while 1(1%) case was lost to follow-up. The mean patient age was 27.6 ± 10 years. Overall, 52 (67.5%) patients were female and 25 (32.5%) were male. Besides, 16 (20.77%) patients were diagnosed in night emergency and weekend, while remaining 61 (79.2%) patients were diagnosed during routine Radiological clinics. The mean time for communicating the panic reporting [Provisional finding] to the concerned physician/nursing staff/relative was 19.5 ± 8 minutes (Figure-2). The mode of communication was direct communication to nursing in-

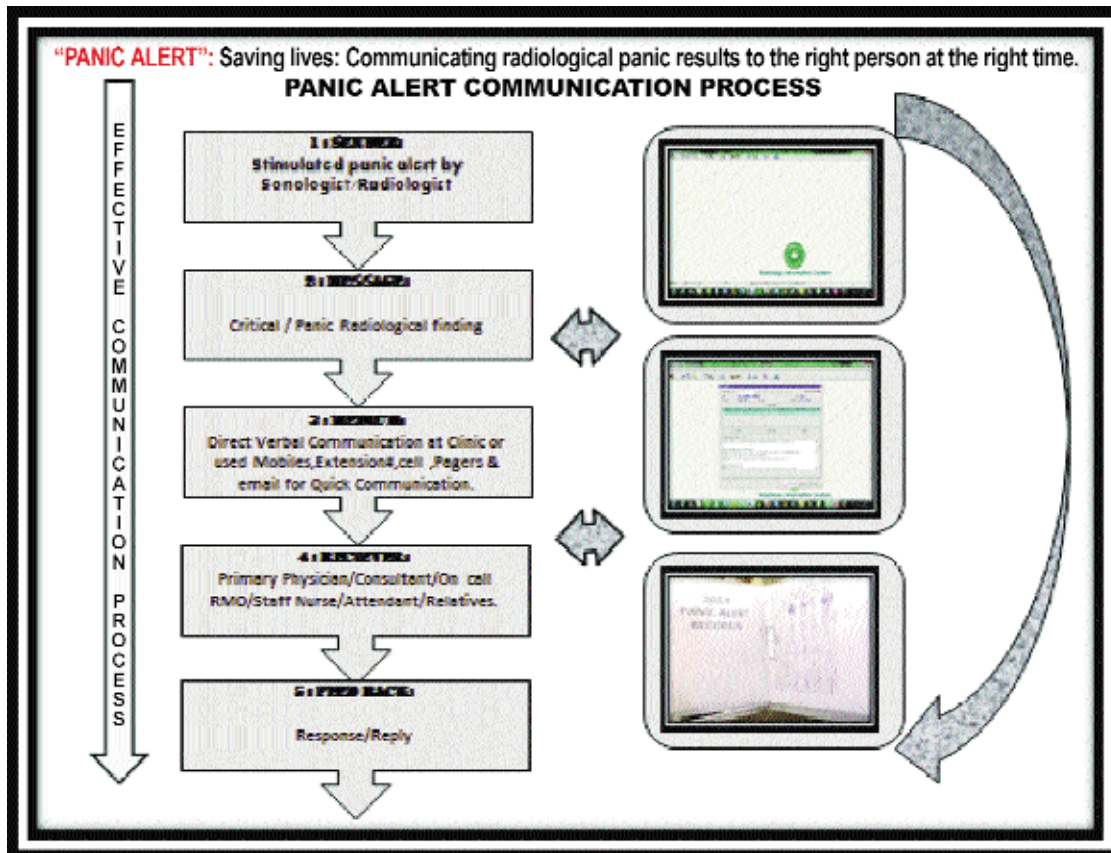


Figure-1: Flow chart of communication process.

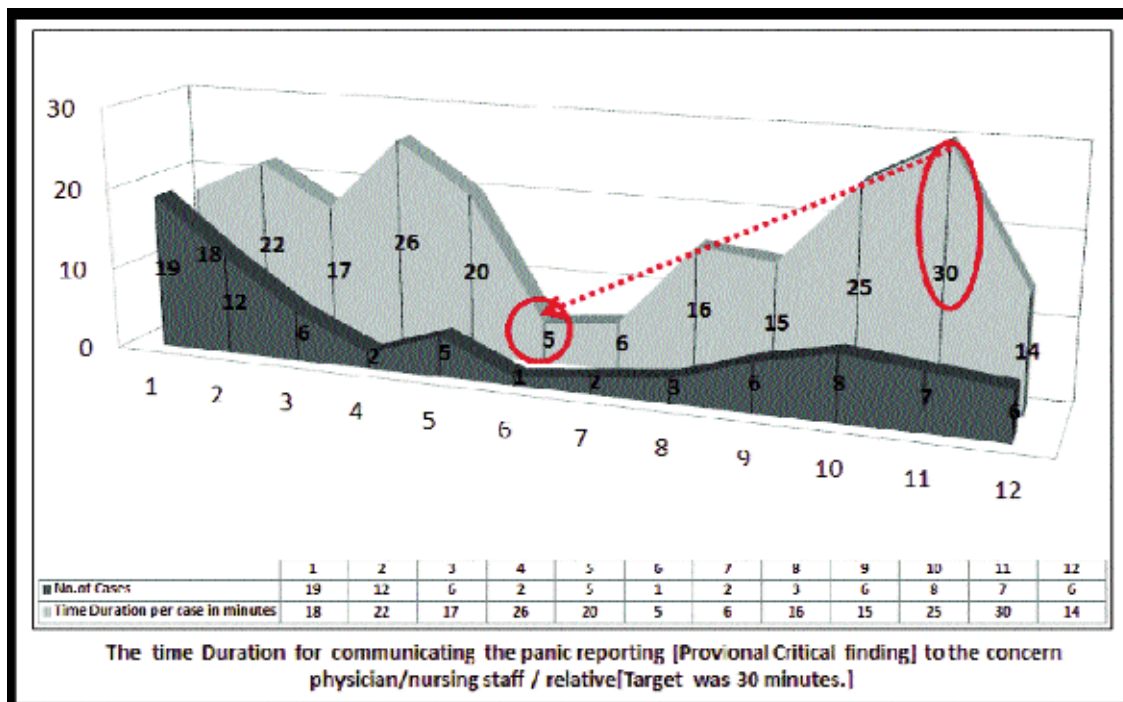


Figure-2: Time taken for communicating Panic report.

Table: List of panic cases.

Panic cases from 1st July, 2012 to 30th June 2013.			
S. No	Cases	No of Cases	Result in %
1	Foetal Demise	25	32.46%
2	Ectopic Pregnancy	17	22.07%
3	Appendicitis/Appendicular Lump	8	10.38%
4	Tubo Ovarian Mass	7	9.09%
5	Ovarian Torsion	3	3.89%
6	Intussusception	3	3.89%
7	Pyloric Stenosis	2	2.59%
8	Major Placenta Previa& Bleeding P/V	2	2.59%
9	Wound Indehescence	2	2.59%
10	Uterine Perforation	2	2.59%
11	Displaced IUCD	1	1.29%
12	Ruptured Uterus	1	1.29%
13	Hydatiform Mole/ Invasive Mole	1	1.29%
14	Bradycardia of Foetal Heart	1	1.29%
15	Abruption With IUCD	1	1.29%
16	Testiclr Torsion/Laceration	1	1.29%
Total :77		77	100.00%

charge.

The alerts were received in 50% of the cases by the primary consultant during working hours, but during off working hours, alerts were communicated to medical officer on duty in 40% of the cases, whereas in 10% cases nursing staff was informed accompanying the patient.

Discussion

This study provides evidence that by implementing standard guidelines/ protocols a quality care and patient safety goals can be achieved. By implementing guidelines for timely reporting of panic results we were able to communicate all results within 30 minutes to the primary care team/ consultant so that timely treatment/surgery was initiated. Cent percent coverage and reporting of panic results improved patient safety and quality of care by avoiding delays. Additional benefits included patient satisfaction, as well as satisfaction of healthcare workers.

The use of ultrasound in emergency in clinical diagnosis has expanded greatly since its original application in emergency medicine decades ago.^{13,14} In 2001, the American College of Emergency Physicians (ACEP) published the Emergency Ultrasound Guidelines, which pertain to the scope of practice and clinical indications for emergency ultrasonography.¹⁵ Focused emergency ultrasound is utilised to diagnose acute life-threatening conditions in which ultrasound has been shown to improve patient care such as ectopic pregnancy, abdominal and thoracic trauma, or abdominal aortic

aneurysm, guide invasive procedures, and treat emergency medical conditions in which ultrasound can significantly decrease the cost or time of patient evaluation and has ultimately improved the care of countless patients worldwide.¹⁶ Similarly, in our study we were able to improve patient care by quick emergency ultrasound diagnosis followed by timely management.

For many emergency and critical conditions, ultrasound as a diagnostic tool is needed on an immediate basis, within minutes of a patient's presentation or deterioration. Examples may include central catheter placement using ultrasound guidance in hypotensive or haemodynamically unstable patients with suspected aortic aneurysm, trauma, or ectopic pregnancy. Examinations such as these are extremely time-sensitive and are difficult to be performed by even the best-staffed radiology departments in a clinically useful timeframe. It is the emergency physician who is the best person to utilise ultrasound for immediate diagnosis and treatment.¹⁵ This is the limitation of our study as we did not have trained physicians and emergency ultrasounds were performed by radiology department, but by improving communication channel we were able to decrease the delays.

An emergency ultrasound examination should be characterised by one or two easily recognisable findings.¹⁵ Carefully designed indications result in simple questions, straight forward examinations, and useful answers. For example, free intraperitoneal fluid, a gestational sac, absence of a heartbeat, and the presence of pericardial fluid are all easily recognisable and have clear and immediate clinical utility. In our study also, we gave focused provisional and immediate reports which could save time and help in making clinical decisions.

Another limitation of our study included patients referred from outside to Radiology department with inaccurate contact information of the patient and/or referring physician which led to inability to inform panic results to their primary physician. However, such cases were then informed to hospital on-call team and were dealt according to their clinical needs.

Throughout the study, a number of "lessons learned" provided insight that could be useful for other organisations considering similar implementation of teamwork and communication strategies. First, it is paramount to secure administrative and clinical support on all management levels, from the executive to the unit level support. It is important for management and leaders to demonstrate that teamwork and communication are valued as important factors contributing to patient safety

and staff satisfaction.

The other challenges included issue of "problematic time" (i.e., the time staff spent attempting, but failing, to communicate with the correct provider or searching for information to determine an appropriate provider or phone number) was an important system-related finding that warrants further investigation. Time was spent "hunting and gathering" for the correct information related to whom to call, how to best contact them, and what to do when the primary person was not available. On average, "problematic time" consisted of 4 to 5 percent of total communication time, indicating a clear need for clarification in communication procedures that are unit-specific and easily implemented.

In order to overcome the challenges faced in informing primary consultant, the way forward is, "E- messages" on mobile phones. It will further improve communication and report will be delivered on mobile phone of the primary consultant directly and the whole channel of communication of informing person to person will be eliminated.

Finally, as with other new practices and skills, an important consideration in the overall implementation plan is keeping the strategies and practices going. In order to keep good practices going on, and holding the gains, we have been maintaining a quality indicators on "panic alerts" for the last one year. Panic Alert Target is 100% and Reporting Time is Quarterly Basis.

**Total No. of reporting and recording of Radiology
panic results in 30 minutes**

X100

**Denominator: Total No. of Panic Cases in
Radiology Department**

We suggest that other institutions should also maintain key performance indicators to maintain their good practices going on, and improve patient safety.

Conclusion

Life-threatening emergencies identified by radiological imaging can be managed effectively if alerts are generated in time. E-messages of panic reports on mobile phones are a better and reliable solution for timely communication. Successful implementation of critical

result reporting requires good knowledge of the clinical context, clear policies, strong engagement of stakeholders, and rational use of new technologies. The institutions/ departments and healthcare givers should keep on trying to implement the good practices in order to improve patient safety.

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