AN AUDIT OF STAT REPORTS OF EMERGENCY AND IPD CASES BY RESIDENTS DURING ON CALL HOURS AND COMMUNICATION OF CRITICAL FINDINGS

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Description

An audit to see whether the stat reports by residents during on call hours are concordant or discordant with the final verified reports by the consultant radiologist and were the critical findings conveyed to primary team on time.

Background

Shifa international hospital is a quaternary care facility with 550 beds providing quality care to local as well as international patients for the last 50 years. Department of Radiology house the latest equipment and technologies under the supervision of an experienced and qualified team consisting of Neuro, Interventional and diagnostic radiologists as well as ultrasound physicians and technical staff. During the official timings from 9 am to 5 pm residents work under direct supervision of respective consultants and report emergency, outpatient department (OPD) and inpatient department (IPD) cases. And after that, during on call hours, after proper training, DOPS(direct observation of procedural skills), stat sessions and approval of privileges from PGMI (post graduate medical Institute), residents are allowed to put stat reports of emergency, IPD and OPD patients with critical findings. An on call consultant radiologist supervises them during these hours.

Our on call team consists of three residents: senior most, junior 1 and junior 2 to put stat reports of MRI, CT and radiographs respectively and convey the critical findings to primary team with documentation on RIS (radiology information system). On the next day their reports are verified by the consultant radiologists. Discrepancies between stat report and final verified report will be highlighted in this audit quantitatively. It will further be assessed that were the critical findings were conveyed to primary team timely as per the set policy of hospital or not.

After receiving a number of reports of patient harm due to failed communication in 2007 the National Patient Safety Agency (NPSA) published safer practice notice 16, “Early identification of failure to act on radiological imaging reports”.[1] The idea behind the audit was from RCR Guidelines on communication of critical, urgent and unexpected significant radiological findings.2-4

The Cycle

The standard:

Any findings from the above given critical list should be reported and informed as soon as possible.

Target:

90% accuracy of stat report.

100% adherence to set policy of department for communication.

Assess local practice

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Radiology Critical Test Results List

Chest	CNS
Flail Chest	Cerebral heamorrhage / hematoma
Pneumothorax	Acute infarct
Aortic dissection	Intracranial infection, meningitis / empyema
Pulmonary embolism	Complex skull fracture
Ruptured aneurysm or impending rupture	Unstable spine fracture
Mediastinal emphysema	Spinal cord compression
Airway foreign body	Brain herniation
Abdomen	Acute Dural sinus thrombosis
Bowel Perforation with free air in abdomen(No recent surgeries)	**Neck**
Ischemic bowel (Pneumatosis)	Airway compromise (e.g. epiglottitis)
Appendicitis	Carotid artery dissection
Gangrenous / Perforated Appendix	Mediastinal emphysema
Portal Venous air	**ULTRASOUND**
Intussusception with obstruction or impending obstruction	Positive FAST scan
Volvulus	Ectopic pregnancy
Traumatic visceral injury	Significant cervical length shortening
Retroperitoneal hemorrhage	Newly occluded arterial bypass graft
Anastomotic leakage / contrast leakage	AAA>5cm with free fluid
Ruptured aneurysm or impending rupture	New aortic and carotid dissection
Solid organ laceration	Extensive deep venous thrombosis
Gall bladder perforation	New mesenteric or transplant organ venous /arterial thrombus
Active GI bleeding	Pesudoaneurysm
Gangrenous cholecystitis	Ovarian or testicular torsion
Emphysematous pyelonephritis	Molar pregnancy
Bowel obstruction (high grade /complete)	New endoleak
UROGENITAL	**MSK**
Ectopic pregnancy	Hardware malfunction, loosening or dislocation
Placental Abruption	Necrotizing fasciitis
Placenta Previa (near term)	Compartment syndrome
Testicular or ovarian torsion/fournier gangrene	**NUCLEAR MEDICINE**
Fetal demise	Active GI Bleed
GENERAL	
Significant line / tube misplacement	

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Protocols for dissemination of critical results:

Category	Time	To be communicated to
IPD Patients	Till 5 pm	a) If consultant not traceable then PG /MO to be communicated. b) Consultant
IPD Patients	After 5 pm	a) Floor PG/MO b) If PG/MO not traceable then consultant to be communicated.
OPD Patients		SIH Patients a) Consultant b) If consultant not traceable then patient to be informed directly.
OSR (outside referrals)		Outside Referrals a) Patient

Indicators:

Percentage ofdiscordant or concordant reports in the form of bar charts and commination to proper team on proper time in the form of pie chart.

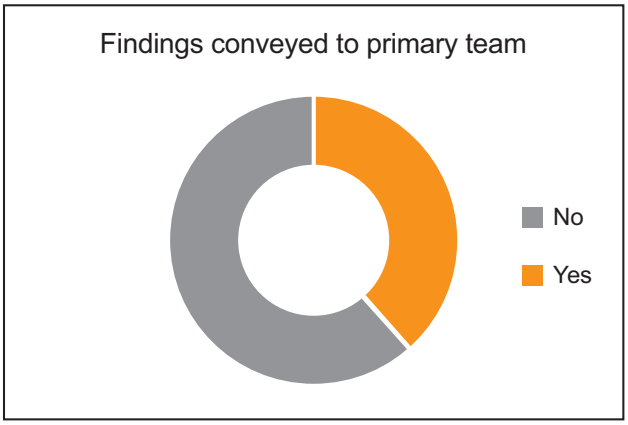
Data collected:

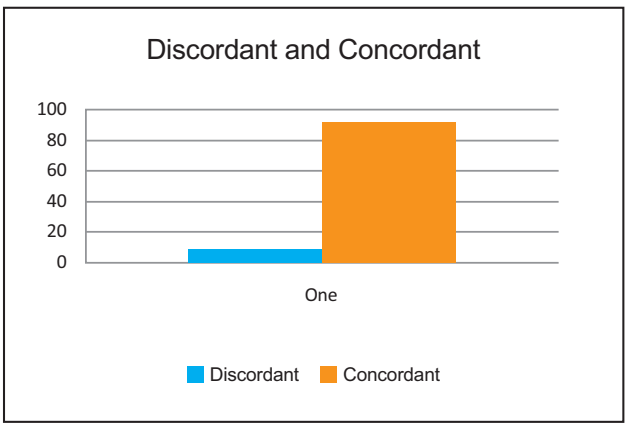
Sample:

A random sample of 100 CT scans (abdomen, chest, brain), 100 MRIs (brain, spine) and 200 radiographs (Chest, MSK, Abdominal) performed in 2022 collected from RIS was analyzed. A number of different days were selected to ensure a range of scans at different times of day, on different days of the week were sampled.

CT:

Among 100 CT scan reports, 91% were concordant and only 9% were discordant. Among critical findings, 38% were conveyed to primary team and 62% were not.

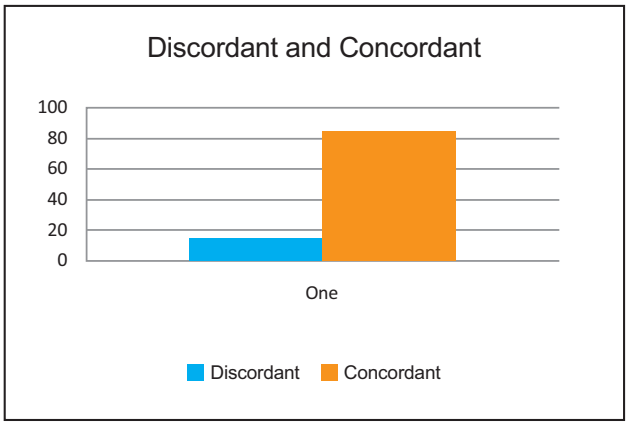


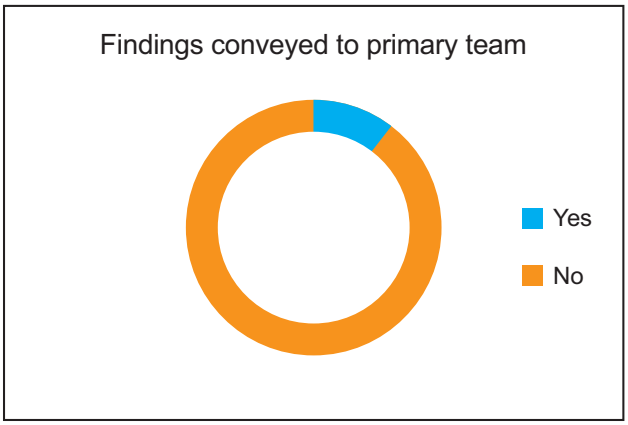


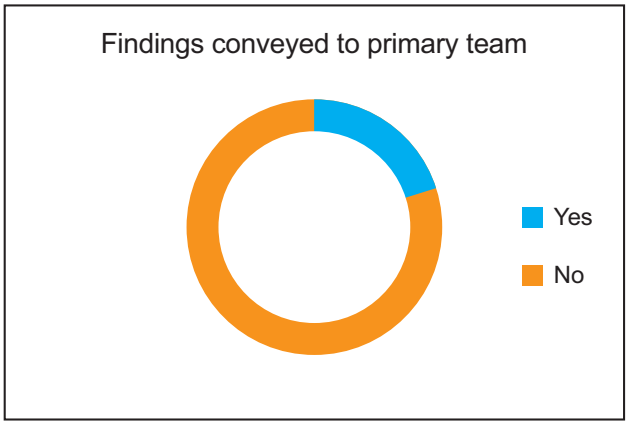
MRI:

Among 100 reports, 85% were concordant and only 15% were discordant.

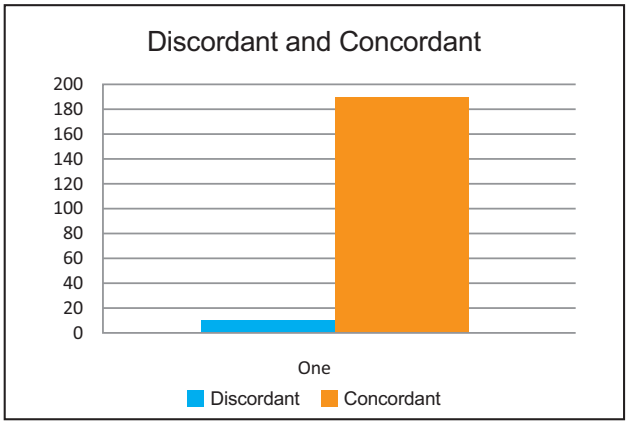
Among critical findings, 20% were conveyed to primary team and 80% were not.







Radiographs:
Among 100 reports, 95% were concordant and only 5% were discordant.
Among critical findings, 10% were conveyed to primary team and 90% were not.



Results

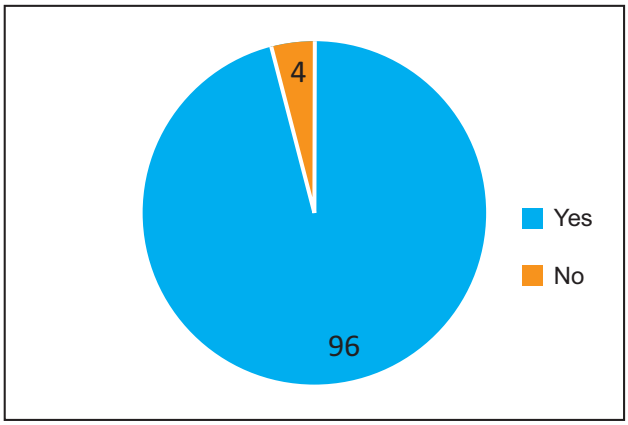
Target for accuracy of the stat reports was almost met for MRI, CT and radiographs. However, target for adherence to the communication policy was not met. Regarding radiographs, mostly fractures were not communicated to the primary team as they were not included in the critical list. Although stat reports are followd by emergency team, but proper documentation of communication on RIS is required which was missing in most of the cases. Many times the reason for non communication is calls being not attended by the concerned departments.

Suggestions for change if target not met:
Presentation of the audit results to the Radiology and emergency departments as well as IPD administrators at their Clinical Governance meetings. The benefits to compliance with this system of work should be highlighted. The most important benefit relates to patient safety, ensuring important findings are identified and acted upon in a timely manner.
Attempts to improve will include education on the importance of documentation and posters within the emergency and IPD department. In cases where calls are not being attended by the concerned tem, IPD administrator should be contacted so that they announce the names of on call team/doctor to contact you back.
Following these interventions above, a re-audit after 3 months was done.

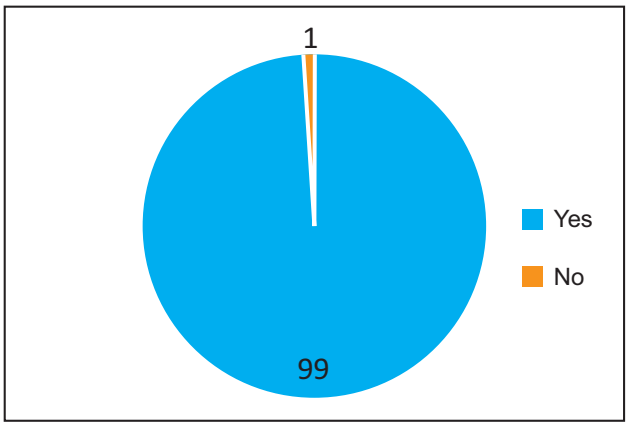
Reaudit:
Results were discussed in the departmental meeting

and a reaudit after 3 months showed that 99 % of the critical values were highlighted for MRI, 96% for CT and 100 for radiographs.

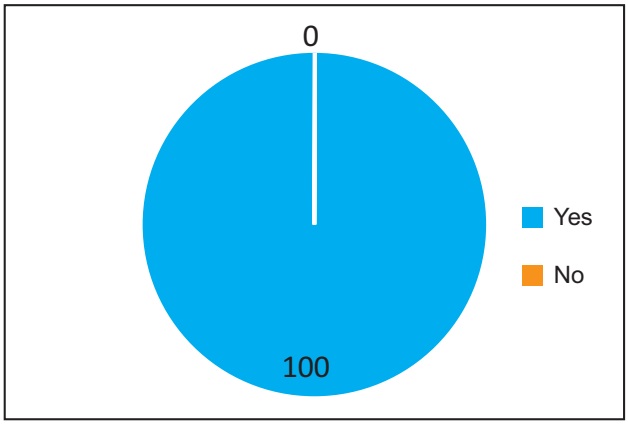
CT



MRI



Radiographs



Resources:
Data collection took approximately 1month. All data was collected into a spreadsheet.

CONFLICT OF INTEREST: Declared none by authors.

References

1. Safer practice notice 16. Early identification of failure to act on radiological imaging reports

2. The Royal College of Radiologists. Audit Live. https://www.rcr.ac.uk/audit/documentation-referrer-opinion-ae-radiographs

3. The Royal College of Radiologists. Standards For The Communication Of Critical, Urgent And Unexpected Significant Radiological Findings. https://www.rcr.ac.uk/sites/default/files/docs/radiology/pdf/BFCR%2812%2911_urgent.

4. The Royal College of Emergency Medicine. Best Practice Guideline: Management of Radiology Results in the Emergency Department. https://www.rcem.ac.uk/docs/College%20Guidelines/5q.%20Management%20of%20Radiology%20Results%20in%20the%20Emergency%20Department%20(February%202016).