To increase percentage of NCCS patients with critical results on radiological studies informed to clinician in less than 60min from 64% to 80% in 9 months

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Introduction

NCCS Division of Oncologic Imaging (DOI) is an outpatient imaging service. Under Dept protocol, all critical results must be notified to the referring clinician in less than 60min. Baseline data showed only about 64% of patients with critical findings detected on scans were informed to the clinicians in less than 60 minutes.

In Sep 2016, a Quality Improvement (QI) Project team was formed to tackle this problem.

List of Adult Radiology Critical Results

Radiologists only need to treat these conditions as 'critical' if:
1. There is a high degree of certainty that the patient has one of these conditions
2. There is a reasonable chance that the ordering provider was not aware of the condition when the test was ordered.

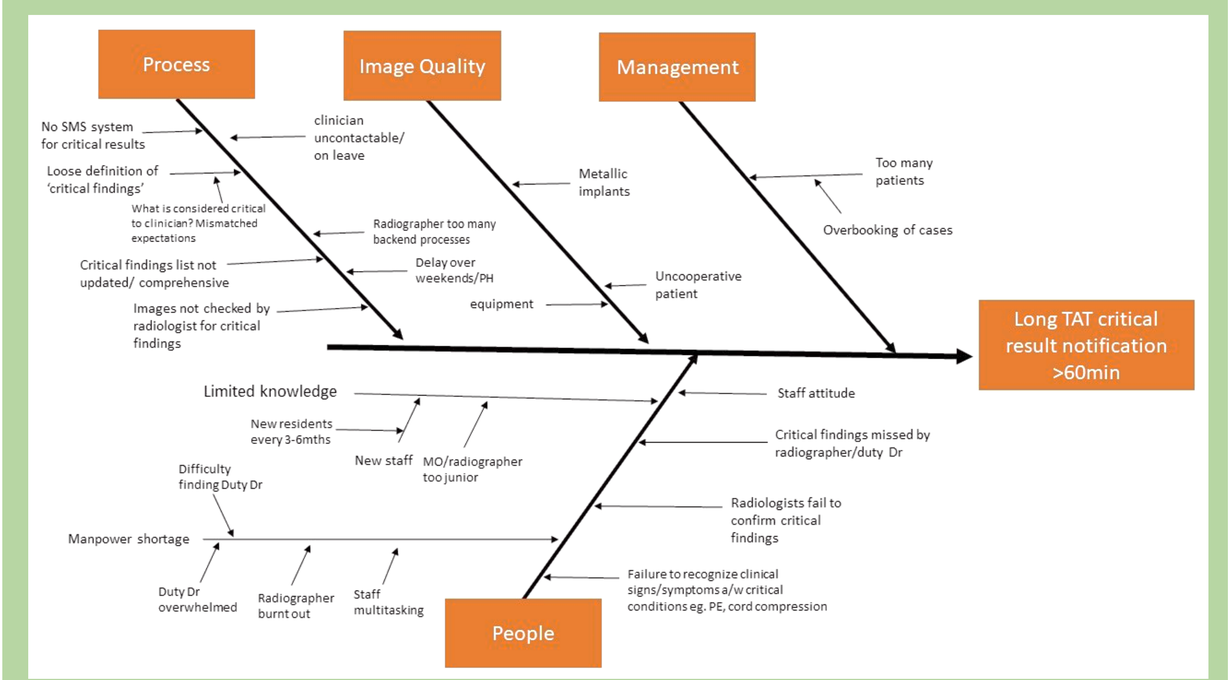
Anatomical Area	Critical Results
CNS	Cerebral Haemorrhage / Haematoma
	Brain Tumour with mass effect
	Acute Stroke with mass effect
	Spinal Cord Compression
Neck	Carotid Artery Dissection
Chest	Tension Pneumothorax
	Aortic Dissection
	Central Pulmonary Embolism
	Ruptured Aneurysm or Impending Rupture
	Mediastinal Emphysema
Abdomen	Free Air in Abdomen (if no recent surgeries)
	Ischaemic Bowel
	Portal Venous Air
	Volvulus
	Traumatic Visceral Injury
	Retroperitoneal Haemorrhage
Uro-genital	Ectopic Pregnancy
	Testicular Torsion
	Ovarian Torsion
Vascular	Acute Vascular Occlusion
Bone	Necrotising Fasciitis
General	Significant Line or Tube Misplacement (e.g. feeding tube in airway)

Mission Statement

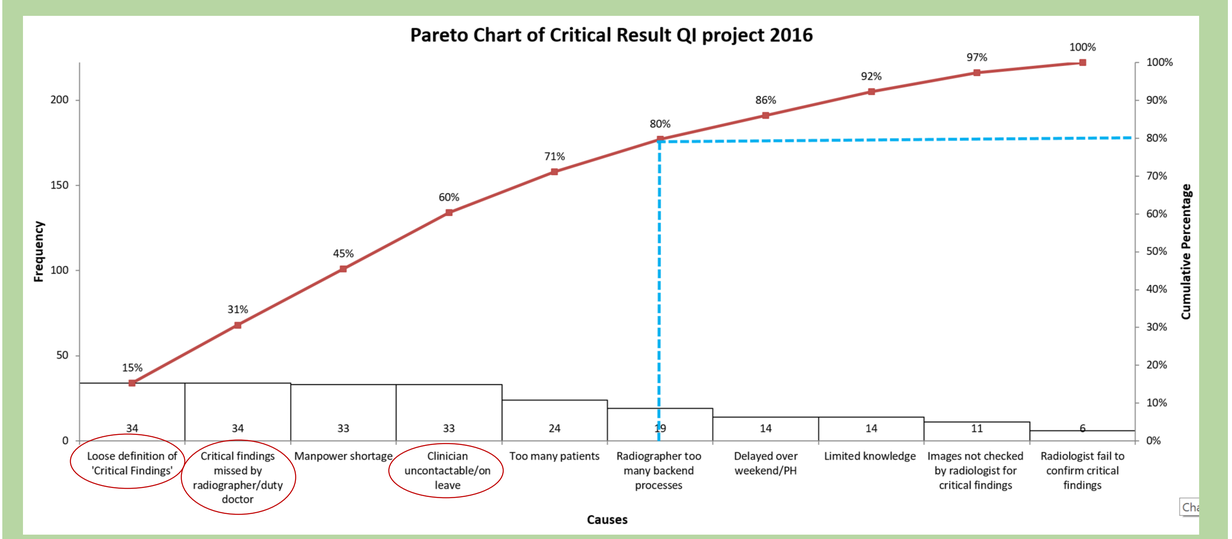
To increase percentage of NCCS patients with critical results on radiological studies informed to clinician in <60min from 64% to 80% in 9 mths.

Methodology

The QI team analysed the problem by using the cause and effect (Fishbone) diagram.



Using the Pareto chart, the QI team prioritised on 3 causes to focus on:
1. Loose definition of Critical findings
2. Critical findings missed by radiographers/duty doctors
3. Clinician uncontactable or on leave



Risk Mitigation Strategies

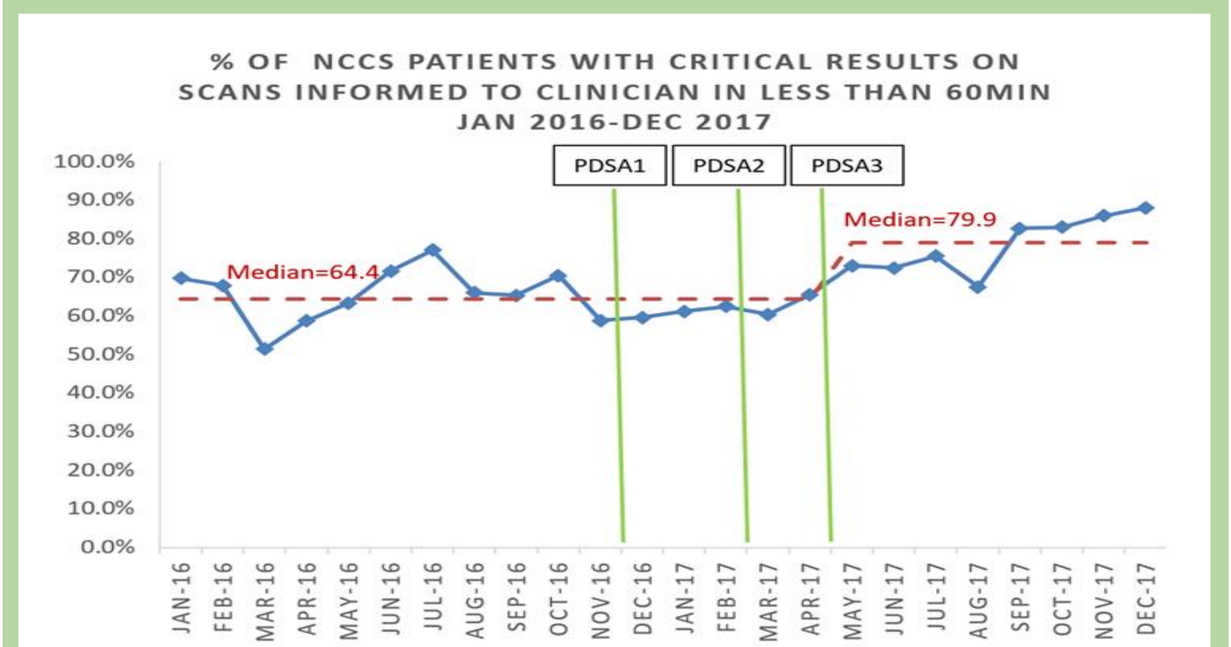
Three PDSA cycles were tested from Dec 2016 to May 2017 as summarized below:

PDSA	Start Date	Problem	Description of Intervention	Actual Steps
1	1 Dec 2016	Clinicians not contactable or on leave	Form an alternative call plan when the primary clinician is on leave/ uncontactable	<u>When uncontactable or busy:</u> - Send TigerText to the clinician to refer to Clin Docs or email - Clinician to close the loop by acknowledging receipt of the message <u>When on leave:</u> - Medical and surgical oncology team lists uploaded onto Infopedia - Duty doctor to call senior resident from the team of primary clinician
2	1 Mar 2017	Critical Findings missed by radiographers	Dedicated radiographer to screen through completed scans with checklist	- Roster 1 dedicated radiographer to screen through all completed CTs and MRIs - checklist with critical conditions for radiographer to screen for - Stick this checklist on the wall of CT and MRI rooms for easy reference
3	1 May 2017	Critical Findings missed by radiographers /duty doctors	Conduct teaching sessions to educate the radiographers and junior doctors about imaging findings of various critical conditions.	- Organize lunchtime lectures once every week for radiographers and junior doctors for 6 weeks - Conducted by junior residents under supervision of a consultant, one region per week – chest, abdomen, neurology, spine etc. - Powerpoint slides are uploaded to Infopedia for easy reference.

Results

After PDSA 1 and PDSA 2 cycles, there was no significant improvement.

Only after PDSA cycle 3, the percentage of critical result notification in <60min improved from a median of 64.4% to 79.9%. The goal set for the QI project was therefore attained and sustained.



Conclusion

Timely detection and notification of critical findings detected on radiological studies is crucial in preventing unnecessary delays in appropriate treatment for the patients. With improvement strategies implemented through 3 PDSA cycles from Dec 2016 to May 2017, the percentage of critical results notified in less than 60min was successfully increased from 64% to 80%.

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