

Reducing unnecessary abdominal X-rays in the acute surgical receiving unit during COVID period.

Ying Ern Elena Ong¹, Zhong Wei Khor¹,

1. Ninewells Hospital, NHS Tayside

INTRODUCTION

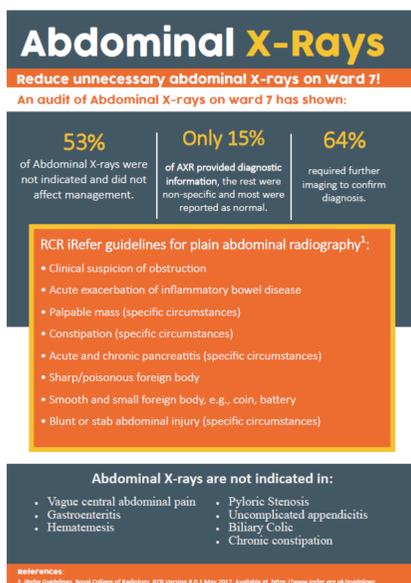
Abdominal X-rays (AXR) have long been over-requested in the acute surgical setting in the absence of clinical indication, as such resulting in avoidable patient journeys to the radiology department causing delays in surgical assessment on the ward, affecting patient safety through unnecessary radiation exposure without measurable diagnostic yield and incurring unnecessary costs to both surgical and radiology department^{1,2,3}. With the COVID pandemic further increasing the burdens and constraints of the radiology department, our Quality Improvement (QI) project aims to reduce the number of unnecessary AXR requested on the acute surgical receiving unit in Ninewells Hospital.

METHOD

This QI project was delivered strategically during the changeover period between foundation program posts which also coincided with the COVID pandemic leading to structural changes in the workplace. Baseline data on number of AXR requested, indication of request and clinical outcome of AXR were collected over 2 weeks before changeover.

RCR iRefer guidelines for plain abdominal radiography⁴:

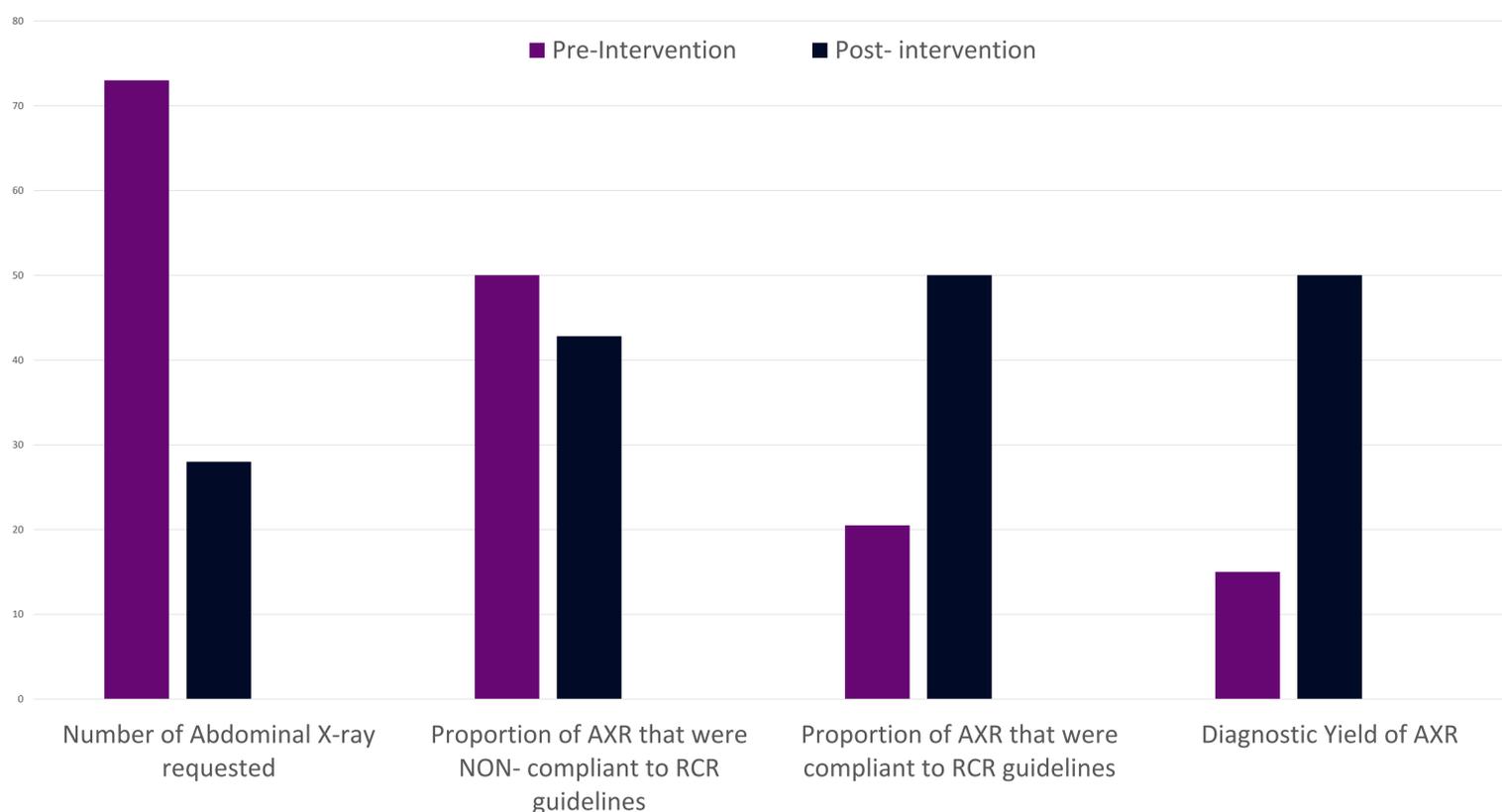
- Clinical suspicion of obstruction
- Acute exacerbation of inflammatory bowel disease
- Palpable mass (specific circumstances)
- Constipation (specific circumstances)
- Acute and chronic pancreatitis (specific circumstances)
- Sharp/poisonous foreign body
- Smooth and small foreign body, e.g., coin, battery
- Blunt or stab abdominal injury (specific circumstances)



The data presented through an induction email, and an educational poster designed detailing RCR guidelines on evidence-based indications for AXR requesting. Data collected and analysed prospectively for 2 weeks following intervention delivery, clinical indication of AXR requests were examined for compliance to RCR guidelines and correlated with formal radiology reports to assess diagnostic yield.

RESULTS

A significant reduction in AXR requests from 73 pre-intervention to 28 post-intervention was seen. Notably, the proportion of AXRs that were non-compliant to RCR guidelines reduced from 50% to 42.8% and clinically indicated AXR requests rose from 20.5% to 50%. Overall diagnostic yield of AXRs rose from 15% to 50% with appropriate requests.



CONCLUSION

Unnecessary patient AXRs can be avoided in the acute surgical setting by promoting compliance to RCR guidelines through interventions described in this QI project.

References:

1. James B, Kelly B. The abdominal radiograph. *Ulster Med J*. 2013;82(3):179-187.
2. Morris-Stiff, G., R. E. Stiff, et al. (2006). "Abdominal radiograph requesting in the setting of acute abdominal pain: temporal trends and appropriateness of requesting." *Ann R Coll Surg Engl* 88(3): 270-4.
3. Feyler, S., V. Williamson, et al. (2002). "Plain abdominal radiographs in acute medical emergencies: an abused investigation?" *Postgrad Med J* 78(916): 94-6.
4. iRefer Guidelines, RCR Version 8.0.1 May 2017. Available at <https://www.irefer.org.uk/guidelines>