



Trinity Health

St. Joseph Mercy Oakland
Diagnostic Radiology

The FIND Program: Improving Follow-up of Incidental Imaging Findings

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Introduction

- The FIND Program is an electronic tracking software that is fed information from radiology reports.
 - Incidental findings are flagged for enrollment in FIND and fed into the tracking software from the impression section of the radiology report.
 - Tools embedded within the voice-recognition dictation software (Powerscribe 360) via the Actionable Findings and Clinical Guidance functions also feed into FIND.
 - NLP software to detect words such as “incidental”, “unexpected”, and “recommend”.
 - Three primary parameters are noted: the incidental finding, the recommended follow-up examination, and the timeframe in which follow-up is recommended to be completed.
- Nurse navigators in the FIND Program remind ordering and/or primary care providers and patients of unresolved incidental findings both electronically and via hard copy at 4 and 8 weeks past the recommended timeframe for follow-up.
 - Patients without a primary care physician are provided with resources to establish care.

Objective

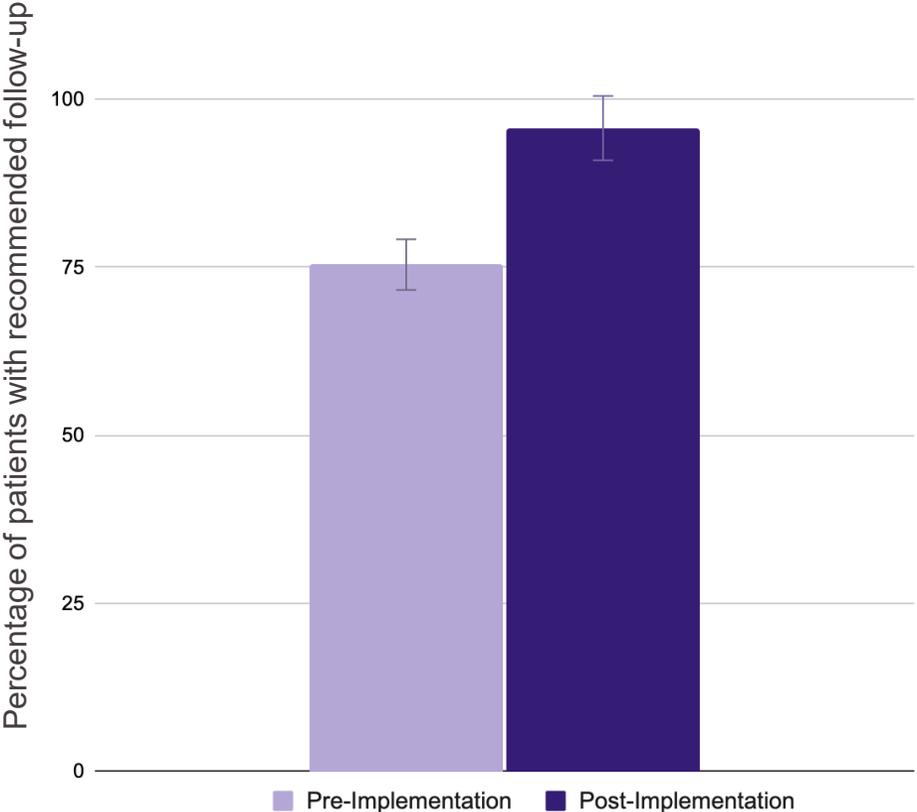
- The purpose of this quality improvement study is to determine the frequency of incidental findings on cross-sectional imaging and the adherence to suggested follow-up prior to and after implementation the FIND program.

Methods

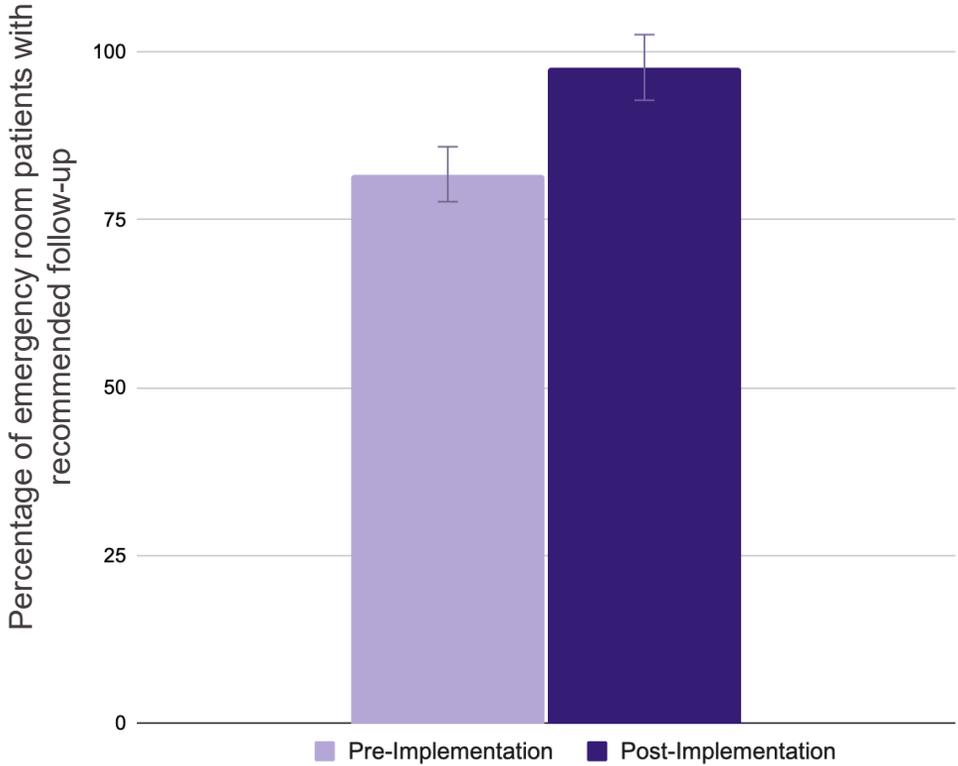
- Following IRB approval, electronic medical records of 2,000 randomly-selected patients with computed tomographic cross-sectional imaging (chest, abdomen, and/or pelvis) were retrospectively analyzed.
 - 1,000 patients with 1,349 studies from January 2019 to January 2020, the year prior to implementation of the FIND program.
 - 1,000 patients with 1,268 studies from September 2020 to September 2021, the year after implementation of the FIND program.
- All reports were approved and signed by board-certified body imaging radiologists. Information was obtained from these final interpretation reports and not via review of the actual images.
- Patients from the emergency department, inpatient, and outpatient settings were included.
- Patient demographics including age and sex were obtained.
- Parameters analyzed included:
 - Frequency of reported incidental imaging findings.
 - Presence of specific follow-up recommendations for incidental findings.
 - Completion of recommended follow-up imaging, and whether completion occurred in the recommended time frame.
- Statistical analysis using the IBM SPSS statistics software version 25.0, with a p-value of < 0.05 for significance.

Results

- Statistically significant higher rate of follow-up study recommendations for incidental findings ($p=0.001$).
 - Post-implementation: 67/70, 95.7%
 - Pre-implementation: 52/69, 75.4%



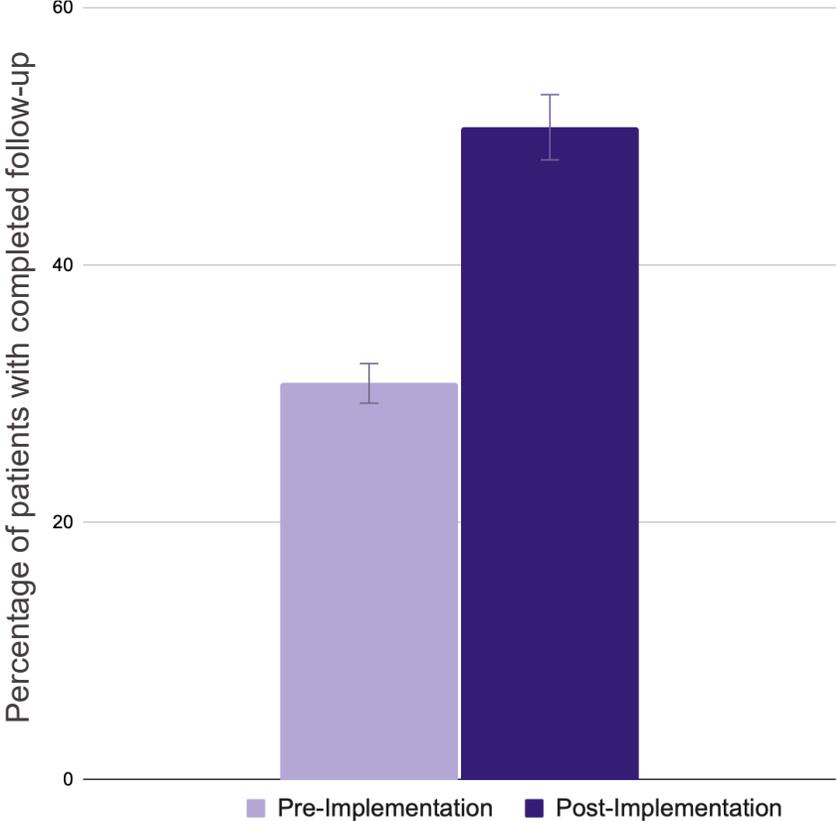
- Incidental findings noted on studies for emergency department patients more frequently recommended follow-up imaging ($p=0.04$).
 - Post-implementation: 42/43, 97.7%
 - Pre-implementation: 27/33, 81.8%



Results

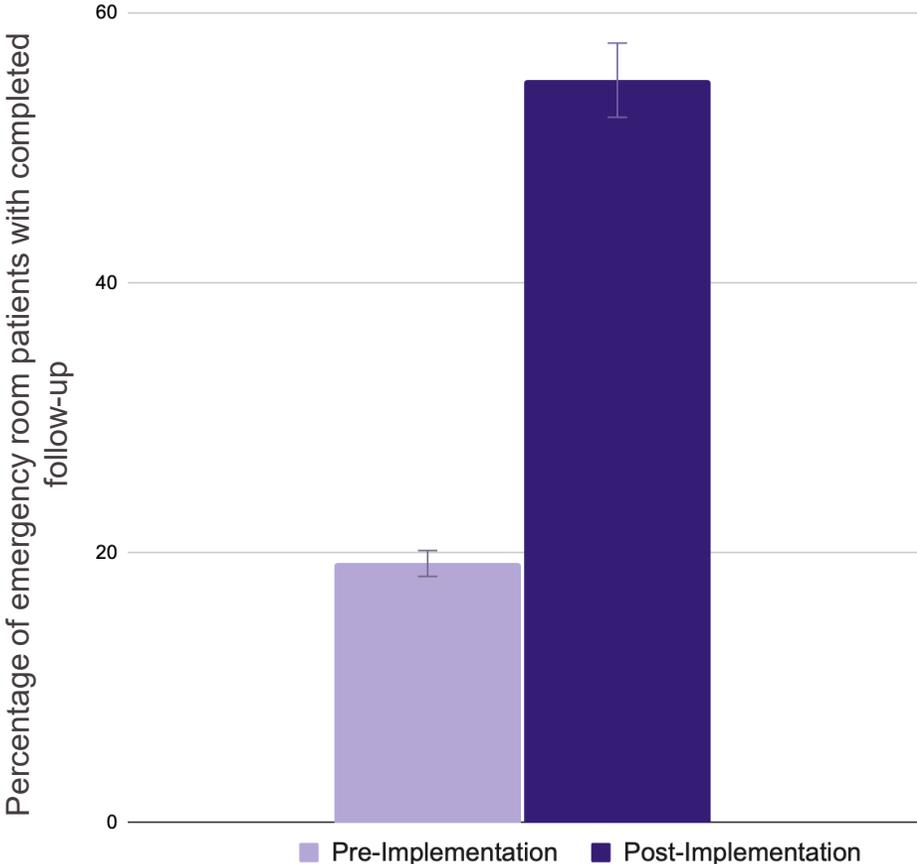
- Statistically significant higher rate of completing recommended follow-up imaging (p=0.03):

- Post-implementation: 34/67, 50.7%
- Pre-implementation: 16/52, 30.8%



- Emergency department patients had a higher rate of adherence to follow-up recommendations (p=0.01).

- Post-implementation group: 22/40, 55.0%
- Pre-implementation group: 5/26, 19.2%



Discussion

- Implementation of a structured tracking program for incidental imaging findings resulted in:
 - Significantly improved rates of follow-up for incidental imaging findings.
 - Adherence to follow-up recommendations in the advised timeframe.
- The success of the FIND Program in ensuring appropriate follow-up of incidental imaging findings was best observed in the emergency room setting.
 - Likely attributed to the potential gap in care between the emergency room physician and a patient's primary care or specialist physician.

Limitations

- Available methods of assessment for completion of follow-up was restricted by the information available in the EMR.
 - Inability to reliably assess if a reason as to why follow-up was not completed was documented.
- Frequency of incidental findings:
 - Only 152 of the 2,000 (7.6%) included patients in both the pre- and post-intervention groups were found to have incidental findings.
 - The reported frequency of incidental findings on CT images in the literature is approximately 31.1% [10], possibly related to the subjectivity of the definition of an incidental finding and threshold for reporting said findings.
 - The threshold for flagging an incidental finding for the FIND Program is determined by its potential clinical significance.
 - Some studies included in the 2010 systematic review by Lumbreras et al. [10] included minor and benign incidental findings in their analysis which would not typically warrant further evaluation, likely accounting for the difference in the frequency of reported incidental findings.
- Our study specifically evaluated incidental findings detected on thoracic, abdominal, and pelvic CT.
 - Neuroimaging, musculoskeletal imaging, and other modalities such as radiography, sonography, nuclear medicine, and magnetic resonance imaging were excluded.
- Our analysis excluded incidental pulmonary nodules given the presence of our LungCare Program, which would have accounted for a total of 267/2,000 (13.4%) incidental findings.

Conclusions

- The FIND Program resulted in improved follow-up for incidental imaging findings within the appropriate time period, including in the emergency room setting, by providing reminders to physicians and patients.
 - Programs such as FIND may have a more profound impact on imaging follow-up in emergency department settings, acting as a bridge between emergency physicians and outpatient primary care and/or specialist physicians in a patient's continuity of care.
- This can lead to earlier detection of disease and should be communicated to the patient clearly and with regard for how this may affect a patient's overall wellbeing.
- Determination of follow-up of incidental findings ultimately depends on the type and location of finding, the evidence-based guidelines regarding follow-up recommendations, and individual patient preferences.

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