MACRO: LATERALITY

Adopting Auto-population of Laterality in Musculoskeletal MRI Reports

Quality Storyboard

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BACKGROUND
LATERALITY AND DIAGNOSTIC RADIOLOGY

- Wrong Site Prevention:
  - Many resources have been employed by procedural specialties to minimize & eliminate wrong site procedures
  - There has been near universal implementation of pre-procedure "time outs" to verify correct site since JCAHO sentinel event policy was adopted
- Diagnostic radiology (image interpretation) has not employed as many resources to prevent misidentification of site
- Prior to our project all laterality references in musculoskeletal (MSK) radiology reports were manually entered by the interpreting radiologist and therefore prone to human error

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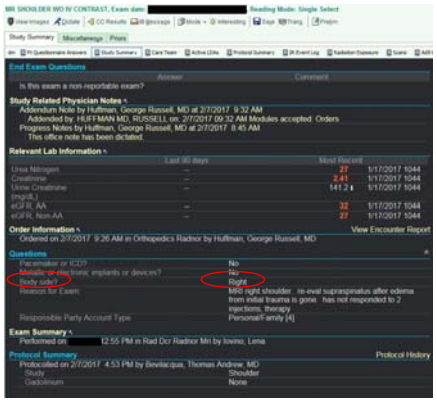
BACKGROUND
MSK SPECIFICS

- In the electronic health record (EHR) at the University of Pennsylvania, ordering providers are unable to order extremity imaging studies without encountering a "forcing function"
  - The "body side question" must be completed for the order to be finalized
- Therefore every extremity imaging study comes with laterality specific metadata



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METHODS

- The widespread use of standardized report templates for MSK magnetic resonance imaging (MRI) reporting in the health system facilitated implementation of any changes made to the "macros"

- By changing the MSK MRI templates to include the laterality data pushed from the EHR by using tools already created for auto-population of different modalities/templates (for example, contrast dose), the laterality from the order was able to be instantaneously auto-populated into reports across the health system thanks to standardized reports

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METHODS

- Using Montage Health systems (Nuance) Quality Control Module the total number of studies across the health system and those "Flagged for Laterality Errors" were queried with 3 different parameters:
  - 1- All radiology reports from an entire calendar year before auto-population of laterality
  - 2- MRI reports read by MSK radiologists from the same calendar year before auto-population of laterality
  - 3- MRI reports from same group of MSK radiologists after auto-population of laterality (4 months of data)

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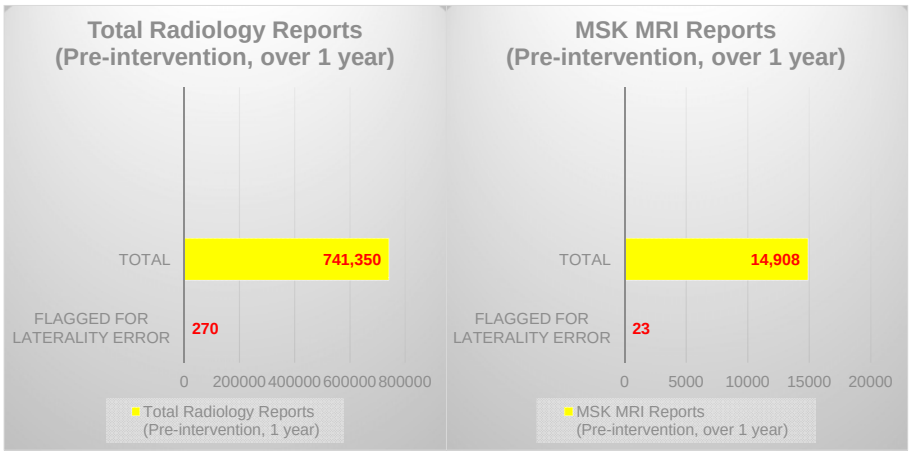
RESULTS



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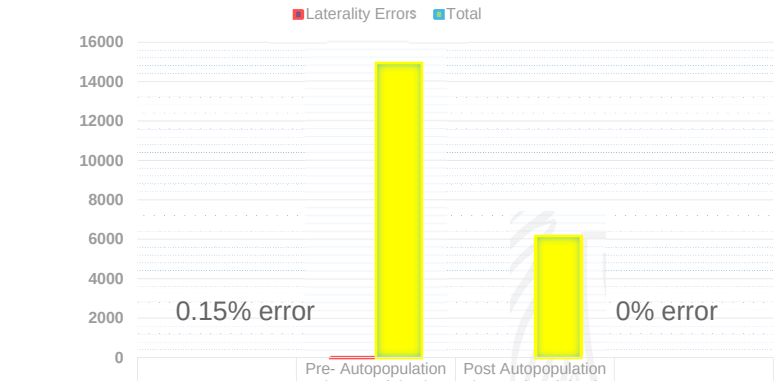
RESULTS



	Pre- Autopopulation (1 year of data)	Post Autopopulation (4 months of data)
Total	14908	6165
Laterality Errors	23	0

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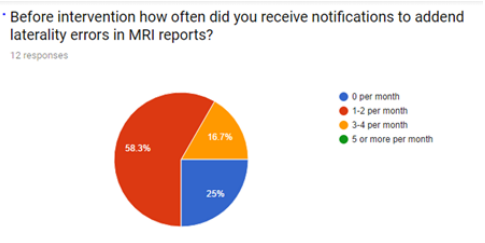
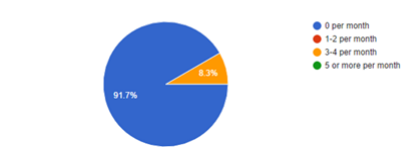
SURVEY RESULTS

- An anonymous survey was distributed to the MSK radiologists (including fellows) within the section to gauge their response to the project





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SURVEY RESULTS

Have you encountered problems with the auto-population software?

- ☐ YES- entered incorrect laterality into the report 0%
- ☐ YES- the laterality section of the report was left blank 8%
- ☒ NO - always works 92%
- ☐ Other...

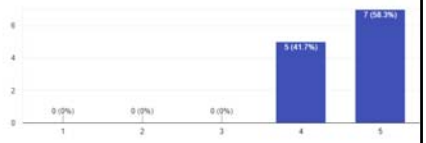
- 75 % of respondents stated there was a net decrease in amount of time spent dictating each study

Do you think this intervention should be extended to additional imaging modalities (CT or plain film)?

12 responses

On a scale of 1 to 5 evaluate effectiveness of this intervention to reduce laterality errors on MRI reports (1- not effective, 5- extremely effective)

12 responses



CONCLUSIONS

- Employing a systematic approach to find a solvable problem and using an informatics toolkit to address the problem can provide meaningful results with simple interventions
- By auto-populating laterality data already associated with an imaging order into pre-existing report templates we were able to reduce the already low number of laterality errors in MSK MRI reports
- By focusing on user satisfaction and ease of use, we were able to get near universal implementation with users stating they spent less time on each report and would like expansion of this system to additional modalities

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