APPLYING LESSONS LEARNED IN IMPLEMENTING AUTOMATED WORKFLOWS IN AN ACADEMIC PEDIATRIC RADIOLOGY DEPARTMENT

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BACKGROUND

- Automating radiology department workflows can provide quality improvement. However, deploying new workflows can also pose risks of harm, in part depending on operationalization. Furthermore, radiologists may not embrace the use of automated workflows.

- A framework for pre-planning workflow changes is proposed, based on lessons learned from deploying automation in our department.

- Specifically, here, post-mortem analysis from an earlier Body Division workflow automation deployment to prevent backlogs of radiographs was applied for a different subsequent operational workflow change to balance wRVU workloads in the Neuroradiology Division.
LOCAL SETTING

• Academic, diagnostic work compartmentalized into Body and Neuroradiology (Neuro) Divisions

Sep 2018 – March 2019
Body Section Pre planning

April-July 2019
Post-mortem of Body Go-live

Dec 2020
Neuro Section Go-live

March 2019
Body section Go-live

April – Nov 2020
Neuro section Pre planning

Jan-April 2021 Post-mortem of Neuro Go-live
PHASES WITH KEY SUCCESS METRICS

• Planning – Establish engaged multidisciplinary team
• Building – Apply lessons learned from initial deployment to subsequent section
• Testing – Create simulation program using real workflow data to analyze potential changes in workflow based on automated algorithm options
• Data Analysis – Run program in background to allow data gathering for analysis prior to go-live
• Full Operationalization – Capitalize on trust created from prior steps to ensure buy-in to culture change
PLANNING: ESTABLISH ENGAGED MULTIDISCIPLINARY TEAM

• Ensure stakeholder input maximized with multiple perspectives, indicated by example (ex) priorities below

- CLINICAL RADIOLOGISTS
  - EX: SOLUTION SHOULD DECREASE “CLICKS & CALLS”

- LOCAL INFORMATION SERVICES SPECIALISTS
  - EX: SOLUTION SHOULD NOT REQUIRE MAJOR INFRASTRUCTURE OVERHAUL

- DEPARTMENTAL LEADS
  - EX: SOLUTION SHOULD TRACK AND REPORT METRICS TO ENSURE RVU WORKLOAD BALANCING EQUITABLE

- VENDOR PRODUCT MANAGEMENT AND SOFTWARE ARCHITECT
  - EX: SOLUTION SHOULD BUILD ON EXISTING PRODUCT LINES
BUILDING
APPLY LESSONS LEARNED FROM INITIAL DEPLOYMENT TO SUBSEQUENT DEPLOYMENT

- Urgent need for improved audit function for troubleshooting
- Vendor added functionality for real-time analytics, which had not been available in the previous software solution go-live
TESTING
CREATE SIMULATION PROGRAM TO PREDICT IMPACT AT OPERATIONALIZATION

• Virtual Distributor simulation was created to analyze historical workflow data and optimize intended changes in workflow based on different automated workflow algorithm options.
DATA ANALYSIS

RUN PROGRAM IN BACKGROUND TO ALLOW DATA GATHERING FOR ANALYSIS PRIOR TO GO-LIVE

- By running the automation program in background, different algorithms could be compared, bugs can be identified and fixed prior to go-live
FULL OPERATIONALIZATION
CAPITALIZE ON TRUST CREATED FROM PRIOR STEPS TO ENSURE BUY-IN TO CULTURE CHANGE

• Prior to go-live date for automated workflow, transparent communication to radiologists regarding the stepwise process used throughout planning and execution phases

• Included schematic illustrations of new workflow, as well as reasoning behind change to RVU workload balancing and projected changes in workloads

• On go-live date, all hands-on-deck to ensure ease of communication and real-time analytics
CONCLUSION

CULTURE CHANGE
Buy-in to shift from radiologist directed to automated workflow ensured through multifaceted approach

MULTIDISCIPLINARY TEAM
Maximizes ability to meet all stakeholder needs

TEST WITH SIMULATION
Enables prediction of operational impact

APPLY LESSONS LEARNED
Allows auditing for real-time troubleshooting

ANALYZE DATA
Boosts confidence in go-live functionality