Decreasing inappropriate MRCP without and with IV contrast exams: Impact of EMR-embedded clinical care pathway.

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Background

- Magnetic resonance cholangiopancreatography (MRCP) exams are commonly performed in the ED and inpatient populations.
- Frequently, noncontrast MRCP protocol is sufficient to answer clinical question (ex: evaluate for choledocholithiasis), but many exams are ordered without and with contrast due to:
  - Insufficient understanding by ordering provider
  - Lack of guidance from radiology at point of order entry
- Results are increased healthcare costs, unnecessary gadolinium administration, and increased MR scan times.

SMART Goal

Decrease utilization of MRCP without and with IV contrast orders in ED and inpatients by 20% within 3 months.

Methods

- Team of Radiology QI specialists, Care Signature Team, and GI physicians established consensus on indications for MRCP and preferred imaging protocols for common clinical indications

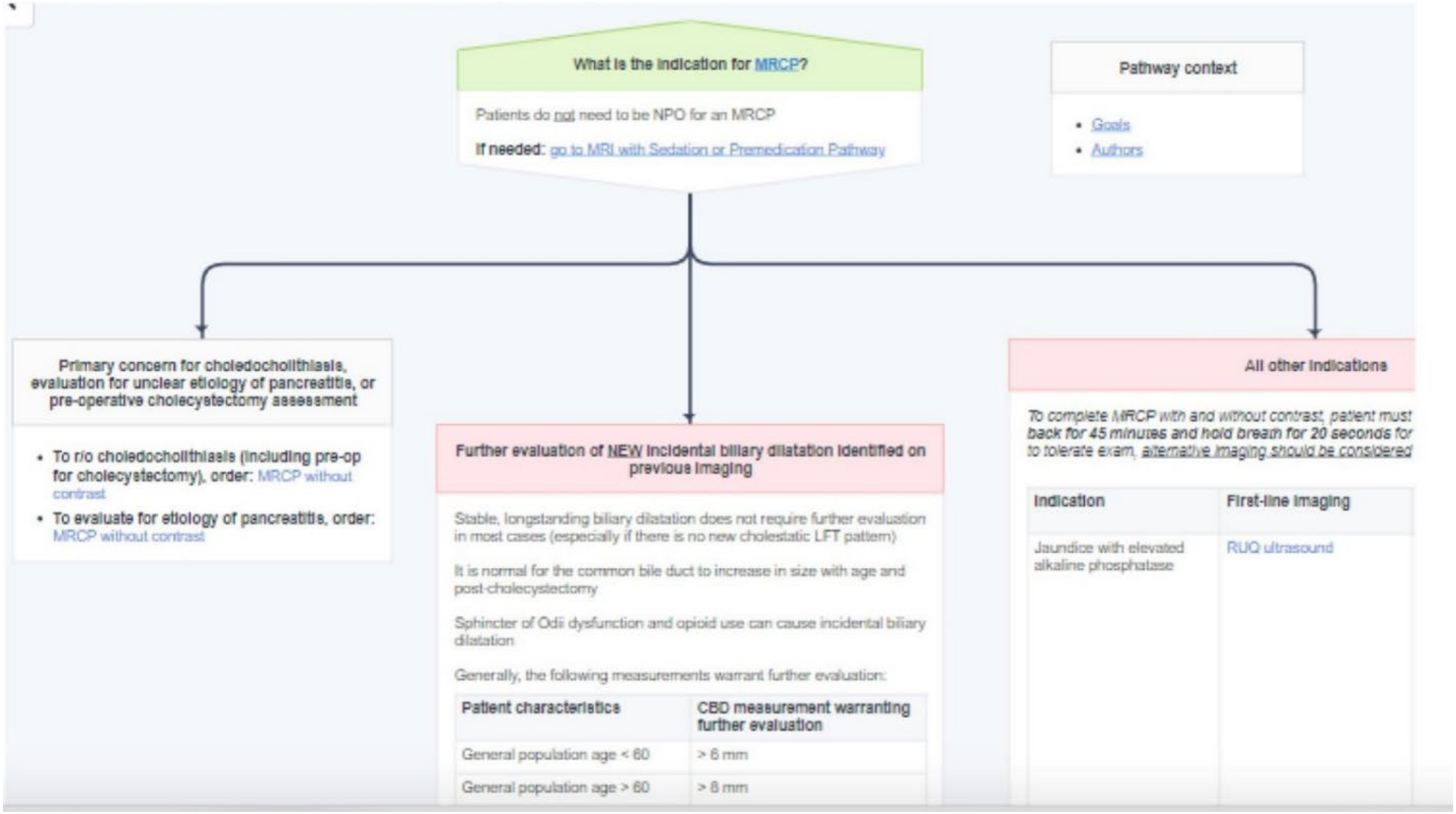
- Created MRCP order panel with care pathway, embedded clinical guidance, links to appropriate orders
  - MRCP orders removed from EMR for ED/inpatients- all providers directed to care pathway

MRCP exams can now ONLY be ordered through the order panel for ED/inpatients

Methods

- Data
  - Tracked # of MRCP exams performed without IV contrast and with IV contrast as well as % of total MRCPs performed with contrast
  - Retrospective chart review: 1 month of data reviewed by abdominal radiology fellows before and after intervention to assess appropriateness of MRCP without and with IV contrast orders based on clinical history/indication/chart review

Screenshot of portion of MRCP care pathway providing ordering guidance to ED and inpatient providers inside the EMR (truncated for space).



Results: 1 month post intervention

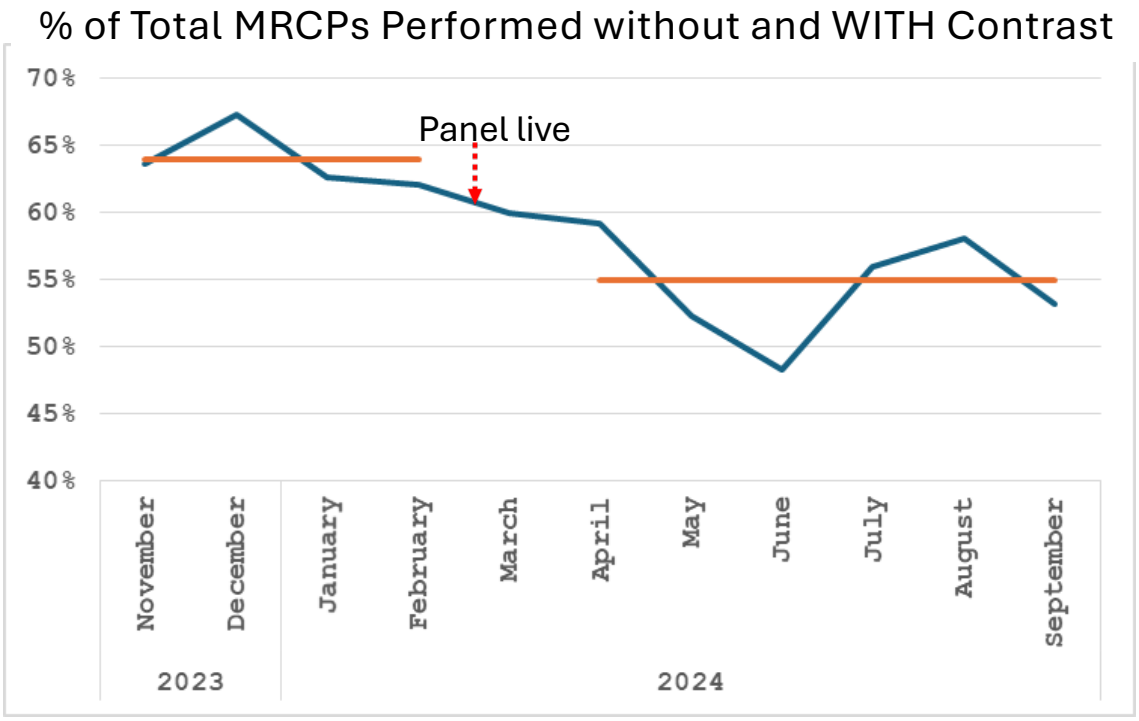
At baseline, 50% of MRCP with contrast were deemed inappropriate based on chart review at tertiary care center.

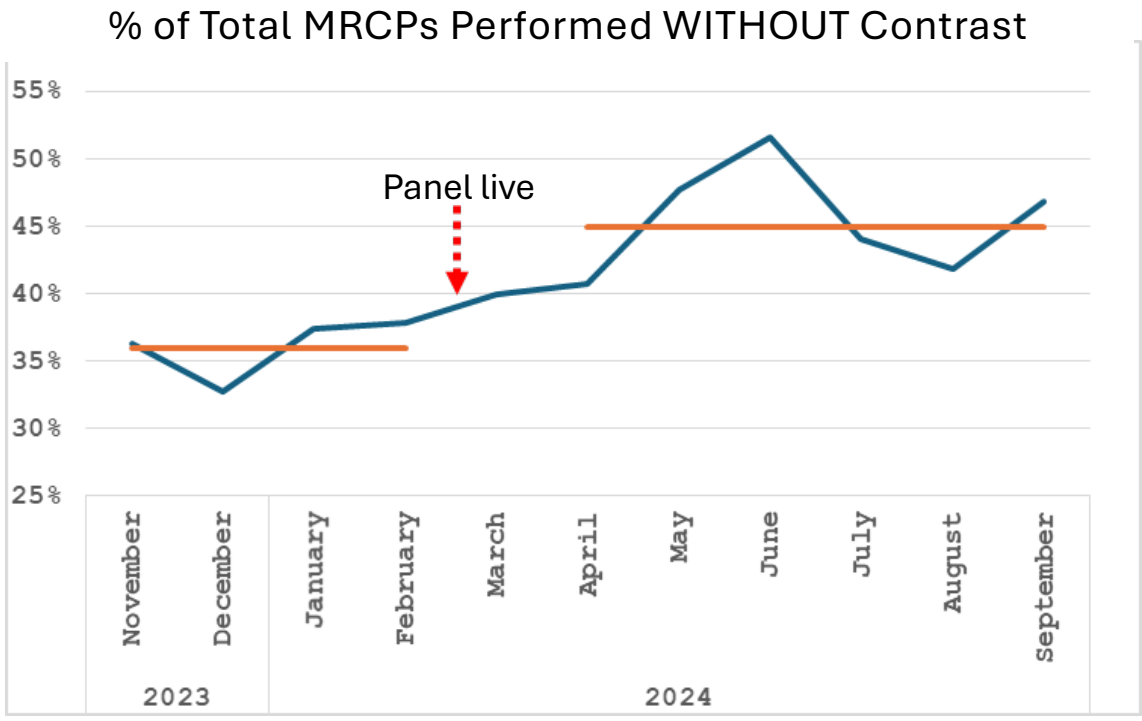
- Improved to 25% after intervention (50% improvement).

Mean MRCP with IV contrast scan time was 10 minutes longer than MRCP without contrast.

% of MRCP exams done without and with contrast

Pre and 7 months post intervention



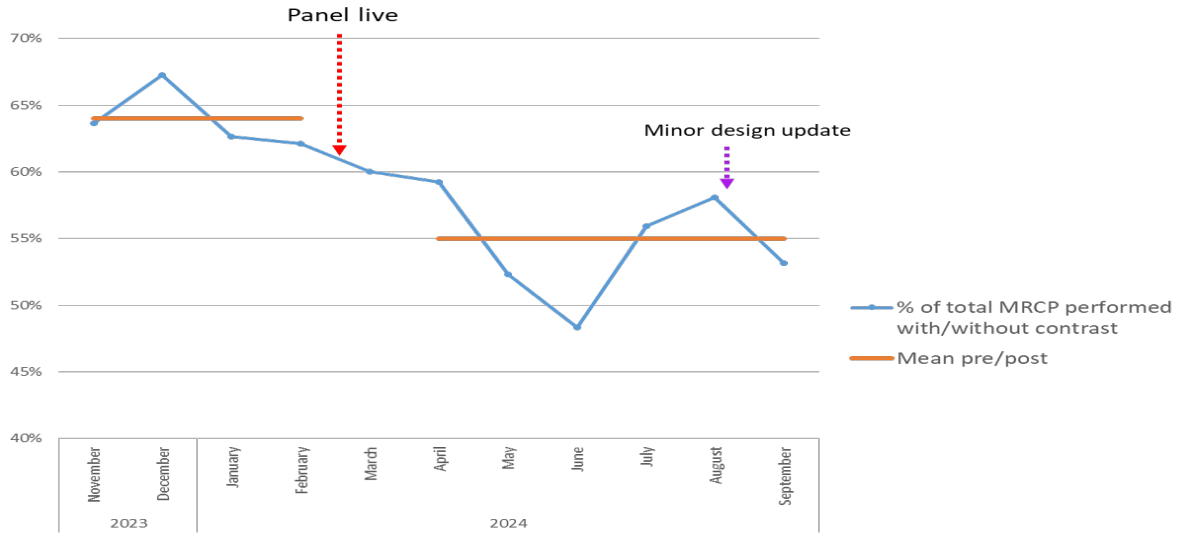


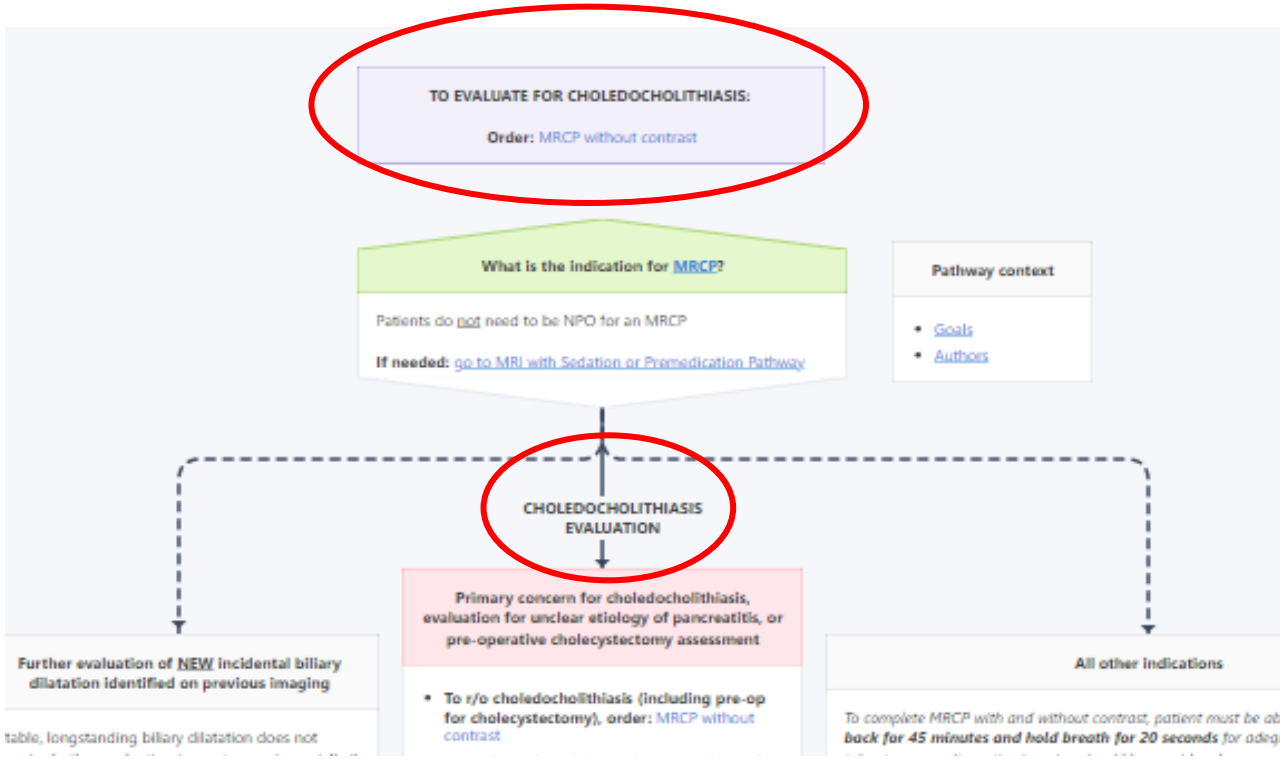
14% relative reduction of mean % MRCP without and with contrast (64% to 55%)

25% relative increase in mean % MRCP without contrast (36% to 45%)

PDSA Cycle #2: Minor Design Change to Pathway

Still seeing some inappropriate MRCP with contrast orders, so pathway redesigned to visually highlight MRCP without contrast for choledocholithiasis evaluation.





Positive results 1 month post redesign- will continue to monitor.

Conclusion

- Creation of order panel and clinical care pathway at point of order entry successfully decreased ordering of contrast-enhanced MRCP exams for ED and inpatients and improved clinical appropriateness of MRCP with contrast orders.
- Correctly "nudging" ordering providers to noncontrast MRCP orders leads to:
  - Reduce healthcare costs and unnecessary gadolinium exposure
  - Improved MR scanner efficiency
- Model can be applied to other imaging exams- opportunities to decrease waste by hard-coding clinical ordering guidance created by multidisciplinary team.