Reducing Anesthesia Consults for Adult Inpatient MRI Exams

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Background

- Use of the Department of Anesthesia to sedate patients in need of an inpatient or ED MRI is associated with increased healthcare costs and delays.

- At our institution, we noted that many anesthesia requests for MRI orders were not needed. For example, claustrophobia may not be relevant when an exam involves positioning of the head outside of the bore.

- Many patients can be scanned using floor prescribed anxiolytics, eliminating need for anesthesia team.

Methods and SMART goal

Team

Subspeciality group of Radiologists, Anesthesiologists, Hospitalists, MRI Technologists

Consensus

Reviewed available guidance for knowledge gaps and opportunities

Create

A care pathway with guidance and appropriate medical escalation was created

Measured

Number of adult inpatient MRI exams with anesthesia before and after pathway go live

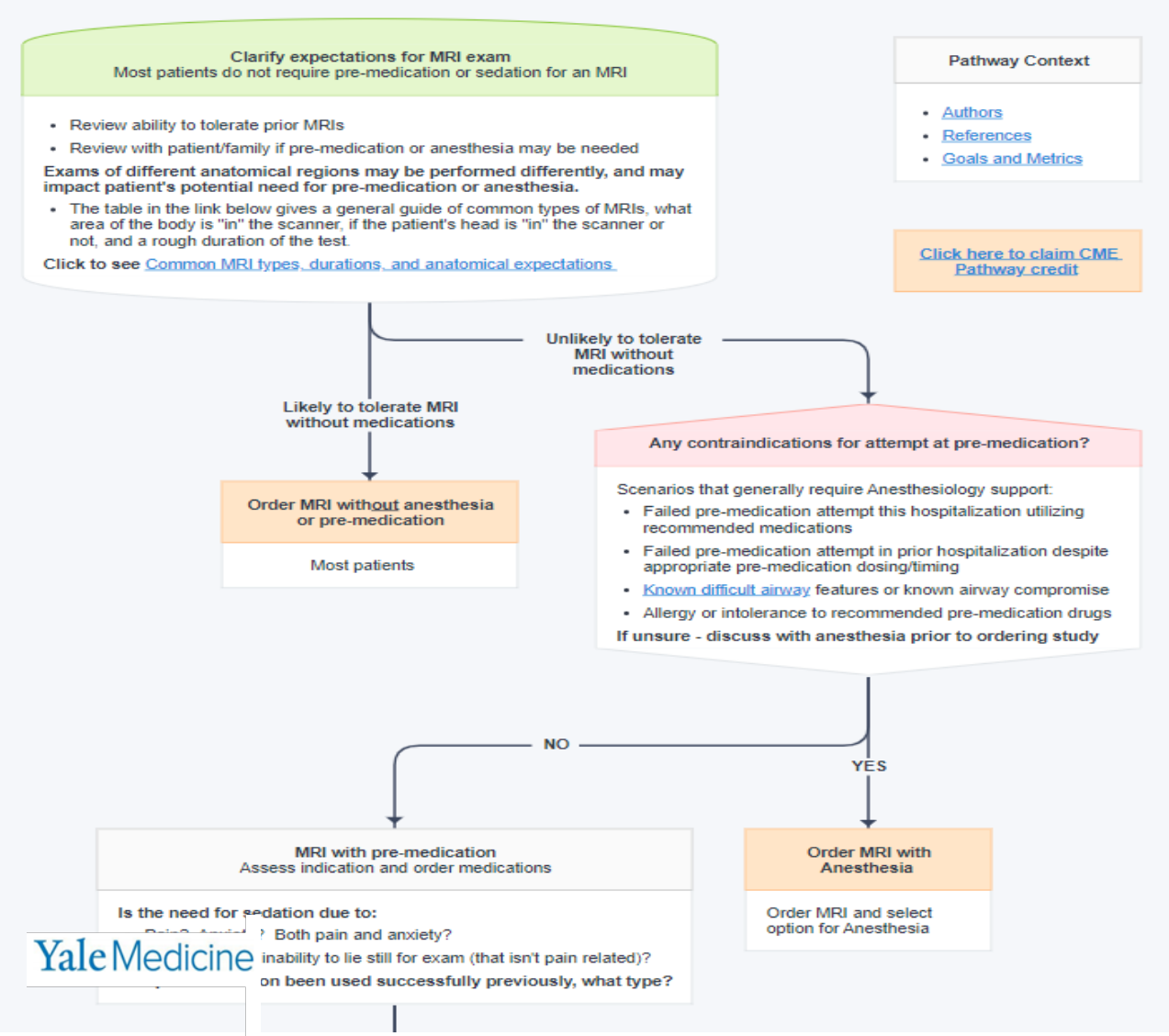
Analyzed

Percentage of change

SMART GOAL

Reduce the number of adult inpatient MRI exams with anesthesia requested by 25%, from baseline mean of 56 orders per month, within 3 months.

MR Anesthesia Sedation Pathway



- A provider is steered to pathway when trying to order MRI with anesthesia
- Top part of pathway gives basic info on who likely needs anesthesia support vs not

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MR Anesthesia Sedation Pathway

Type of MRI	Est. duration of exam	Body part "in" MRI tube	Head in or out of MRI tube
MRI brain w/o	20 min	Head to thigh	Head IN
MRI brain w/ and w/o	40 min	Head to thigh	Head IN
MRI brain w/o + MRA	40 min	Head to thigh	Head IN
MRI brain w/ and w/o + MRA	45 min	Head to thigh	Head IN
MRA brain w/o	5 min	Head to thigh	Head IN
MRI lumbar spine w/o	20 min	Feet to neck	Head OUT
MRI lumbar spine w/ and w/o	40 min	Feet to neck	Head OUT
MRI cervical spine w/o	20 min	Head to thigh	Head IN
MRI cervical spine w/ and w/o	40 min	Head to thigh	Head IN
MRI thoracic spine w/o	30 min	Head to thigh	Head IN
MRI thoracic spine w/ and w/o	40 min	Head to thigh	Head IN
MRI total spine w/o	60 min	Head to thigh	Head IN
MRI total spine w/ and w/o	90 min	Head to thigh	Head IN
MRI pelvis w/ and w/o	40 min	Feet to chest	Head OUT
MRI abdomen w/ and w/o	40 min	Feet to head	Head IN
MRCP only (w/o contrast)	10 min	Feet to head	Head IN
MRI Heart	60 min	Head to thigh	Head IN
MRI lower extremity (foot, ankle, knee, tibia/fibula, femur, hip)	40 min each area	Feet to chest	Head OUT
MRI upper extremity (hand, wrist, elbow, ulna/radius, humerus, shoulder)	40 min each area	Head to thigh	Head IN

- A cheat sheet of common MRI exams was created so ordering team better understood patient position within the MRI bore
- Many patients can tolerate MRI when head is outside of the bore

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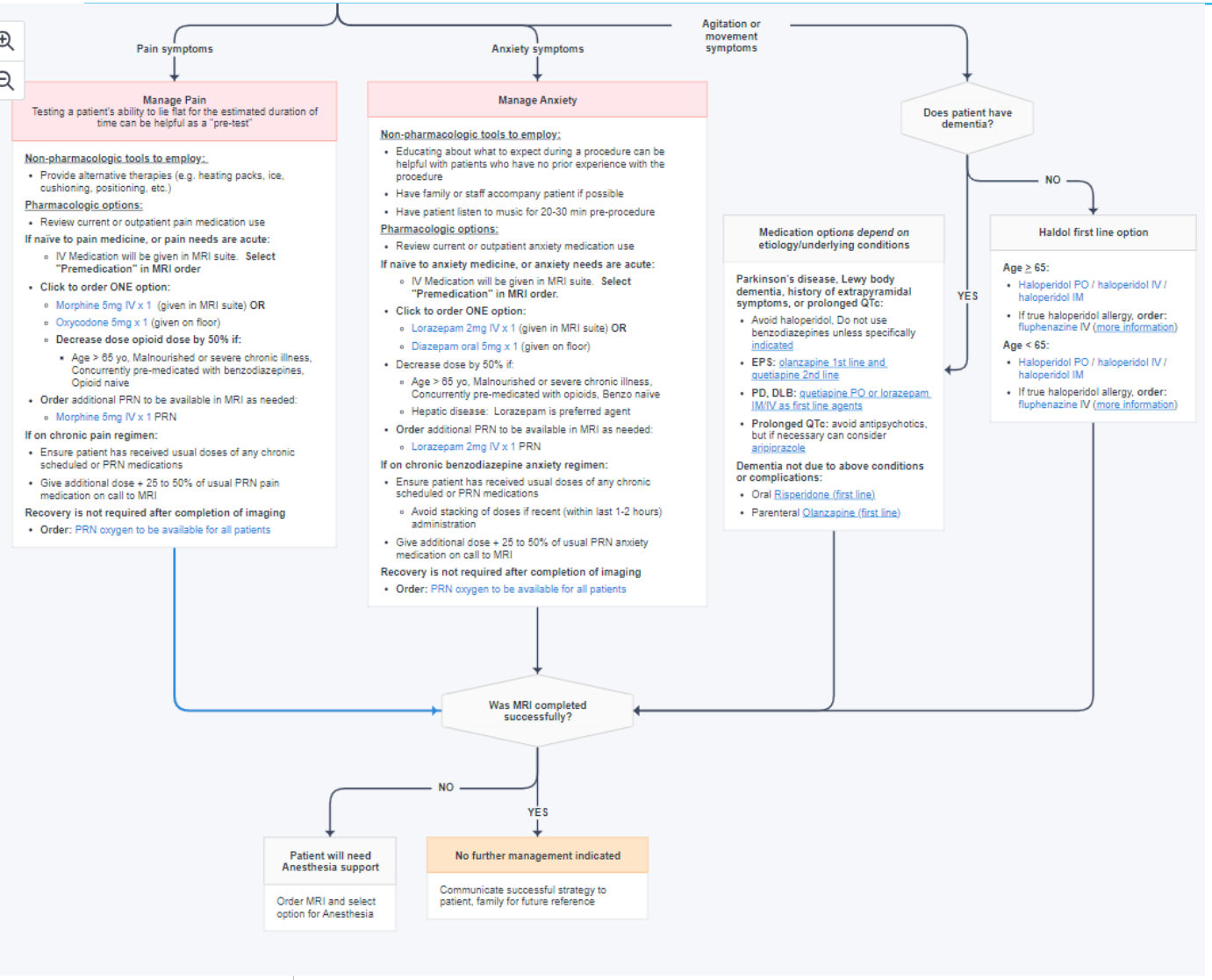
MR Anesthesia Sedation Pathway



- More detailed guidance was created to allow seamless entry of drug orders based on patient need
- Some patients are anxious, some can't lie flat or on their back because of pain, some have movement disorders, etc

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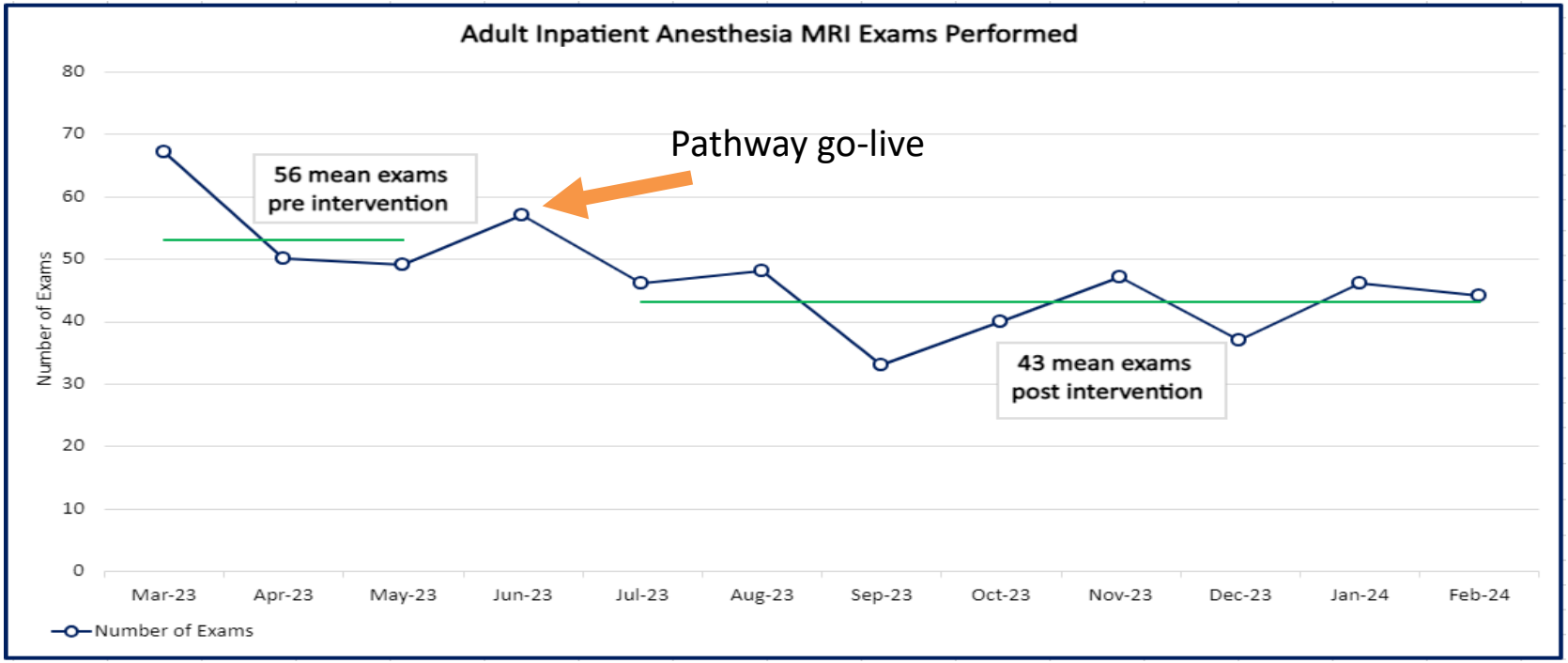
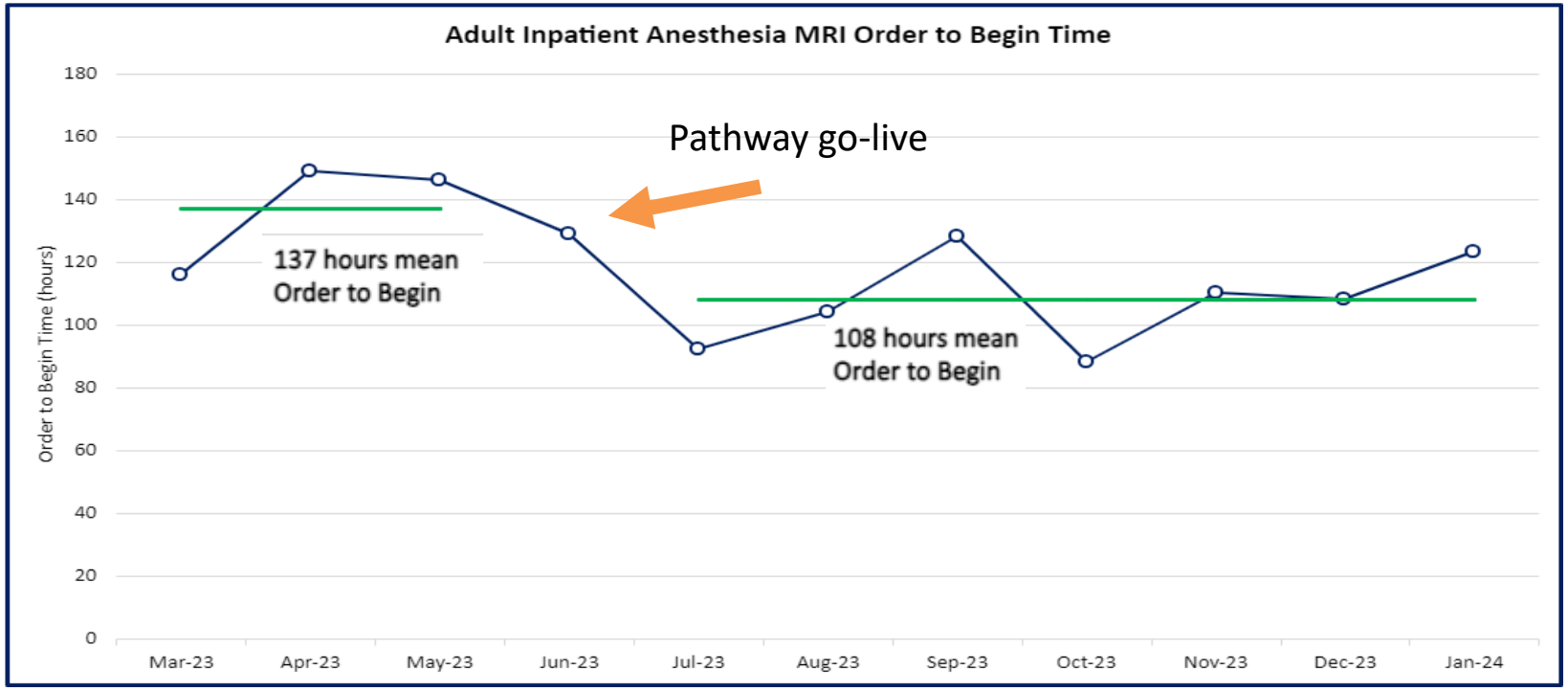
Results



Run chart of MR orders requesting an anesthesia consult before and after pathway go-live.

Results



Run chart of MR orders requesting anesthesia Order to Begin time

Results

- Reduction in anesthesia requests for adult inpatient MRI exams by 23%
- Order to Begin time for anesthesia MRI cases improved by 21%.

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Discussion

- This improvement project utilized knowledge from a multidisciplinary team to create an embedded care pathway inside our medical record that helps ED and inpatient teams make better decisions around use of anesthesia for MRI.

- After pathway launch MRI exams performed with anesthesia services decreased by 23% compared to non-utilization of the pathway.

- The pathway is not mandatory to use. A snapshot of data from January ‘24 showed many orders for MRI with anesthesia are still being placed without consulting the pathway.
  - This suggests there is opportunity to increase pathway utilization and further decrease unnecessary anesthesia utilization.