

Rapid MRI Protocol

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BACKGROUND:

Magnetic resonance imaging (MRI) is the gold standard for the diagnosis of musculoskeletal (MSK) infection, but it traditionally requires contrast and anesthesia for children, delaying management. A rapid MRI protocol involves MRI without anesthesia and with limited non-contrast sequences for fluid detection and diffusion-weighted images to identify abscesses. optimized

SMARTER OBJECTIVE:

The primary goal of this project was to evaluate the current pediatric MRI process and develop an action plan to mitigate potential delays in care. A multidisciplinary team was formed, consisting of the Vice Chair of Clinical Operations, Department of Orthopedics, the ACMIO, the ACQO, managers, key emergency department personnel, the Children's Hospital Performance Excellence team, IT, and the imaging services team.

IMPROVEMENT ACTION PLAN WITH ACTIONS TAKEN

- Awareness was raised regarding the delay in care for the pediatric population due to contrast and anesthesia requirements during the MRI. The team developed a new order set, MRI Rapid Scanning with 3 separate sections:
 - Rapid upper extremity left w/o contrast
 - Rapid upper non-joint left w/o contrast
 - Rapid upper joint left w/o contrast

RESULTS:

- In the first 3 months of the protocol's initiation 3 patients underwent the rapid MRI protocol.
- All had successful studies. This was defined as not requiring a repeat full MRI series.
- All patients avoided sedation for the MRI (They were all under 6 years of age and would have required a sedation for a typical MRI.)
- Each study saved around 20 minutes of scanner time.

SCALE UP PLAN:

Discussion with other orthopaedic surgery divisions regarding this protocol has been conducted. The Spine Division is exploring a similar protocol to reduce MRI scanner time for patients with spine infections.

SUSTAINABILITY PLAN:

To ensure the sustainability of the changes, permanent process improvements have been made, including the introduction of a new order set. These changes will reduce the likelihood of delayed care, and ongoing education will support long-term success.

LESSONS LEARNED:

A multidisciplinary collaboration has proven essential in driving sustainable, permanent process improvements by aligning all team members toward common goals

