Solving the Logistical Issues of Rapid MSK MR Scanning

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Outline

- What is Rapid MSK MRI?
- Adjusting the MRI Schedule
- Results
- Key Points and Summary
Rapid MSK MRI

- Parallel MR sequences with specialized multichannel coils\(^1\)
  - Requires less phase encoding with minimal losses of signal to noise ratio
  - Coils do not accommodate very large patients or patients with significant deformity

- Reduces image scan time from 15-20 minutes to 5-8 minutes
- Still need roughly 10-15 minutes of patient preparation time

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Adjusting the MRI Schedule

- MRI schedule was changed from 45 minute blocks to 30 minute blocks.

<table>
<thead>
<tr>
<th>Number of MR Protocols Adjusted</th>
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<tbody>
<tr>
<td>45 minutes to 30 minutes</td>
<td>51</td>
</tr>
<tr>
<td>90 minutes to 60 minutes</td>
<td>19</td>
</tr>
<tr>
<td>135 minutes to 90 minutes</td>
<td>4</td>
</tr>
<tr>
<td>45 minutes to 60 minutes</td>
<td>30</td>
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Methods / Results

• Volume, lead time, and technologist feedback from July-December 2017 and 2018

• Busiest/most consistent MR scanner
  • Obtain consistency for technologists and scheduling
MR Scan Volume

Mean Monthly MR Scan Volume (Single Scanner)

- July-December 2017: 268 scans
- July-December 2018: 288 scans (p<0.05)
Scheduling Lead Time

Mean Weekly Lead Time

<table>
<thead>
<tr>
<th>Mean Weekly Lead Time (Single Scanner)</th>
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<tbody>
<tr>
<td>July-December 2017</td>
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<tr>
<td>July-December 2018</td>
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Technologist Feedback

• Creates a more ‘CT’ like pace
  • Requires more coordination between the technologist team
• Patients who are very slow (ex. changing clothes) can feel rushed
• Requires more awareness to avoid delays
  • Radiographs needed for potential metal
  • Patients incompatible with Rapid MSK coils
Summary and Key Points

• Rapid MSK imaging techniques allow us to perform MSK MR exams in 30 minutes

• Adjusting the MR schedule from 45 minute blocks to 30 minute blocks increased overall MR scan volume and reduced lead time

• Patients can get their scans more quickly and with more scheduling flexibility