Dedicated Bi-monthly Cardiac Magnetic Resonance Conferences and Hands-on Training
Improve Exam Timeliness

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Disclosure

- I do not have a financial relationship with an organization that may have a direct or indirect interest in the content of this presentation.
Introduction

• Cardiac magnetic resonance (CMR) imaging is in high demand in recent years.
• Exam efficiency is a crucial deliverable for the evaluation of the CMR service as measured by exam timeliness.
Objective

- As part of our Quality Improvement Program, we sought to understand if introduction of an educational program as an intervention could improve CMR exam time.
Materials: Number of CMR Exams Sampled from 2012-2016

- 2012: 180
- 2013: 145
- 2014: 145
- 2015: 130
- 2016: 128
## Methods: Cardiac MR Education 2015 and 2016

<table>
<thead>
<tr>
<th>Intervention</th>
<th>CMR Conferences</th>
<th>Hands on training</th>
<th>Audience</th>
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<tbody>
<tr>
<td><strong>Topics:</strong> Bi-Weekly over nine months for 2 years</td>
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<tr>
<td>1. Physics case-solving problems: Black blood imaging, Cine imaging, Late Gadolinium Enhancement, Phase contrast, New pulse sequences in Cardiac Imaging such as T1/T2/T2* mapping, multi-echo Dixon, wide band for metal reduction artifact, etc.</td>
<td>1. Setting up imaging planes</td>
<td>1. Cardiac Imaging Fellowship-trained Radiologists and Cardiologists</td>
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<td>2. Interesting CMR clinical cases</td>
<td>2. Image quality parameters</td>
<td>2. Cardiac Imaging Fellows and Radiology Residents</td>
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<td>3. Identifying ECG strips,</td>
<td>3. Decrease breath hold time</td>
<td>3. Cardiac Imaging trained technologists</td>
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<td>5. Referring physicians’ perspective</td>
<td>5. Spatial resolution</td>
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Methods: Calculate CMR Exam Time per Fiscal Year

Year | 2012 | 2013 | 2014 | 2015 | 2016
--- | --- | --- | --- | --- | ---
CMR Exam | Calculate CMR exam time | Calculate CMR exam time | Calculate CMR exam time | Calculate CMR exam time | Calculate CMR exam time
Intervention | No Intervention | No Intervention | No Intervention | Cardiac MR Education | Cardiac MR Education
Education | Cardiac MR Education | Cardiac MR Education | Cardiac MR Education | Cardiac MR Education | Cardiac MR Education
Please note downward trend in CMR exam timeliness after introduction of education as an intervention.
Results: Exam Time (minutes) Per Fiscal Year

Please note downward trend in CMR exam timeliness after introduction of education as an intervention.
Discussion

- We showed that educating CMR staff to tailor exams to address clinical questions, understand CMR parameters, and ways to troubleshoot them significantly decreased exam time from 73 minutes in 2012 to 51 minutes in 2016 and from 68 minutes in 2014 to 57 minutes in 2015.

- Education is a team effort and should always include all responsible stakeholders.
Limitation

- Single institution study.
- Potential selection bias because we did not include all CMR exams, however, the exams were randomly selected by the study coordinator.
- We did not include image quality, however our recall rate is minimal.
Conclusion

• Understanding CMR imaging parameters, how to troubleshoot, and importance of using sequences to address clinical question lead to decrease CMR exam time with benefit to patients, caregivers, and healthcare.
Acknowledgements

- CMR staff
- El-Sayed Ibrahim PhD
Thank You!

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