Study & report have been conducted & brought to you courtesy of:

Q3 Report: 3rd Quarter 2018 Outlook July–September
Prepared for: AHRA
Why was MICI created?

The MarkeTech Group and AHRA collaborated on the creation of MICI based on the belief that measuring the confidence of US medical imaging administrators on a regular basis would provide a valuable index for those having an interest in this industry.

The MICI panel consists of a select group of imagePRO™ panel members from around the U.S. representing different hospital sizes and geographic locations to capture a true “industry outlook”: how imaging administrators see the future of medical imaging in regard to revenues, costs, purchasing, and growth.

This exciting initiative captures the “mood” of imaging administrators on a quarterly basis regarding the state of medical imaging in the U.S. It also provides a unique statistical index that is likely to attract a lot of attention from those following this industry.

What is imagePRO™ and why is it important?

imagePRO™ was created by The MarkeTech Group to provide a professional community for imaging administrators to participate in studies aimed at advancing the development of medical imaging technology.

The imagePRO™ panel is a true community of industry professionals and is the leading opt-in panel of this industry. Members are subjected to strict enrollment requirements to represent the voice of their peers and to be part of a group of professionals whose knowledge and input is important.
156 imaging directors/managers of hospitals completed the 3-minute Web survey regarding their perception of medical imaging trends for the third quarter of 2018.

Scores
measure the level of confidence, and range between 0 to 200. The score interpretation follows:
- Below 50 is extremely low confidence
- 50 to 69 is very low confidence
- 70 to 89 is low confidence
- 90 to 110 reflect an ambivalent score (Neutral)
- 111 to 130 is high confidence
- 131 to 150 is very high confidence
- Anything above 150 is extremely high confidence

Hospital bed size:

- 45% Under 100
- 36% 100-299
- 19% 300 or more
Index Methodology

Results
are reflective of national trends because of the manner in which participants were invited to participate.

- Participants were recruited by region and number of beds to reflect known AHA incidence.
- Once the final counts were confirmed there were some statistical adjustment—weighting—to ensure the index reflects the U.S. hospital imaging market. This type of adjustment is common when estimating overall market share, trends, and attitudes.

Recruitment
accounts for about 90% of correct hospitals and regions to reflect the U.S. hospital market.

- While relatively minor in magnitude, the weighting accounts for the final 10% to refine the estimates and ensure they represent the U.S. hospital market.
- This refinement is necessary to create an index that truly represents how radiology departments view the economic outlook for the current quarter and will ensure that subsequent MICI results are valid.
Index Methodology

Regions

- Pacific: 10%
- Mountain: 5%
- West South Central: 13%
- West North Central: 17%
- East North Central: 22%
- South Atlantic: 14%
- Mid-Atlantic: 13%
- East South Central: 6%
Results for Q3 2018
Staff costs to remain constant, growth in volume and profit

<table>
<thead>
<tr>
<th>Topic</th>
<th>Score Mean</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Will grow monthly in diagnostic and interventional radiology</td>
<td>116</td>
<td>High confidence</td>
</tr>
<tr>
<td>Receive adequate reimbursement from Medicare for diagnostic and interventional imaging</td>
<td>79</td>
<td>Low confidence</td>
</tr>
<tr>
<td>Internal operating and staff costs will remain constant</td>
<td>135</td>
<td>Very high confidence</td>
</tr>
<tr>
<td>Will have access to capital for imaging equipment and IT needs</td>
<td>95</td>
<td>Neutral</td>
</tr>
<tr>
<td>Will maintain/grow as a profit center</td>
<td>126</td>
<td>High confidence</td>
</tr>
</tbody>
</table>

Composite score across all areas                                      | 109        | Neutral              |

There is concern about receiving adequate reimbursement from Medicare.
Hospitals with **300 or more beds are more confident** that **growth in diagnostic / interventional radiology** will occur more than hospitals with less than 100 beds.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Under 100 beds</th>
<th>100 to 299 beds</th>
<th>300 or more beds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Will grow monthly in diagnostic and interventional radiology</td>
<td>106</td>
<td><strong>120</strong></td>
<td><strong>132</strong></td>
</tr>
<tr>
<td>Receive adequate reimbursement from Medicare for diagnostic and interventional imaging</td>
<td>76</td>
<td>80</td>
<td>82</td>
</tr>
<tr>
<td>Internal operating and staff costs will remain constant</td>
<td>145</td>
<td>128</td>
<td>123</td>
</tr>
<tr>
<td>Will have access to capital for imaging equipment and IT needs</td>
<td>82</td>
<td>106</td>
<td>109</td>
</tr>
<tr>
<td>Will maintain/grow as a profit center</td>
<td>116</td>
<td>131</td>
<td>138</td>
</tr>
<tr>
<td><strong>Composite score across all areas</strong></td>
<td><strong>103</strong></td>
<td><strong>113</strong></td>
<td><strong>116</strong></td>
</tr>
</tbody>
</table>
Regional differences: although not statistically different, Mountain seems to be different

North and South Central regions have a very high confidence that internal operating and staff costs will remain constant.

Mountain region has very high confidence in growth in diagnostic / interventional radiology.

South Atlantic and East North Central regions have a very high confidence in growing as a profit center.

Pacific region has a very low confidence about receiving adequate reimbursement from Medicare, while the Atlantic, West North Central, South Central, and Mountain regions also have low confidence.

Mid-Atlantic and West Central regions have low confidence in access to capital for equipment.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Score Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mid-Atlantic</td>
</tr>
<tr>
<td>Will grow monthly in diagnostic and interventional radiology</td>
<td>118</td>
</tr>
<tr>
<td>Receive adequate reimbursement from Medicare for diagnostic and interventional imaging</td>
<td>76</td>
</tr>
<tr>
<td>Internal operating and staff costs will remain constant</td>
<td>118</td>
</tr>
<tr>
<td>Will have access to capital for imaging equipment and IT needs</td>
<td>87</td>
</tr>
<tr>
<td>Will maintain/grow as a profit center</td>
<td>118</td>
</tr>
<tr>
<td>Composite score across all areas</td>
<td>102</td>
</tr>
</tbody>
</table>
Summary

1. There is **high confidence** in the growth of diagnostic and interventional radiology, staff costs remaining constant, and facility growing as a profit center.

2. There is **concern** about receiving adequate reimbursement from Medicare.

3. Hospitals with 300 or more beds are **more confident** in growth of diagnostic / interventional radiology than hospitals with less than 100 beds.

4. North and South Central regions have a **very high confidence** that internal operating and staff costs will remain constant. South Atlantic and East North Central regions have a **very high confidence** in growing as a profit center. Mountain region has **very high confidence** in growth in diagnostic / interventional radiology.

5. Pacific region has **very low confidence**; while the Atlantic, West North Central, South Central, and Mountain regions have **low confidence** about receiving adequate reimbursement from Medicare. The Mid-Atlantic and West Central regions have **low confidence** in access to capital for equipment.
Q3-2018 Member comments about the outlook

Study volume increase / planned growth:
- We have had strong volumes this spring and believe the trend will continue over the next quarter.
- We are still growing in volume. Volume has shifted from inpatient to outpatient significantly.
- CT volumes continue to be very strong.
- We are seeing a small shift in healthcare with more capital becoming available since the economy is doing much better. However, our costs continue to rise.

Uncertainty / complaints about healthcare policy and reimbursement:
- Volumes continue to decline. Reimbursement is also declining. Higher deductibles are having an influence in our volumes.
- Staff costs are in wild flux due to vacancies and short term agency staff filling gaps.
- Reimbursement is questionable in many aspects of Healthcare these days.
- Insurance deductions are getting worse quarterly.
- Summer season, and volumes will remain low.
- IR Reimbursement challenges with prior authorization and poor payer mix with Medicare/Medicaid.
- Group discounts are becoming excessively large so up front reimbursement is dropping.
Quarter-to-Quarter analysis

**Results** are now shown for Q4 2016 through Q3 2018.

- Comparisons are presented to show any trending of the data over a one year period.

**Analyses** are based on between group analysis of variance (ANOVA) where participant’s scores are compared over time to determine if changes occur.
### Quarter-to-Quarter analysis
#### Q2-2018 through Q3-2018

<table>
<thead>
<tr>
<th>Topic</th>
<th>Score Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Q2 2018</td>
</tr>
<tr>
<td>Will grow monthly in diagnostic and interventional radiology</td>
<td>120</td>
</tr>
<tr>
<td>Receive adequate reimbursement from Medicare for diagnostic and interventional imaging</td>
<td>81</td>
</tr>
<tr>
<td>Internal operating and staff costs will remain constant</td>
<td>131</td>
</tr>
<tr>
<td><strong>Will have access to capital for imaging equipment and IT needs</strong></td>
<td>102</td>
</tr>
<tr>
<td>Will maintain/grow as a profit center</td>
<td>129</td>
</tr>
<tr>
<td><strong>Composite score across all areas</strong></td>
<td>112</td>
</tr>
</tbody>
</table>

Access to capital higher in Q2 2018 compared to Q3 2018.
Quarter-to-Quarter analysis
Q4-2016 through Q3-2018

TRENDING: Access to capital has higher confidence in Q2 2018 compared to Q3 2018.

- Will grow monthly in diagnostic and interventional radiology
- Receive adequate reimbursement from Medicare for diagnostic and interventional imaging
- Internal operating and staff costs will remain constant
- Will have access to capital for imaging equipment and IT needs
- Will maintain/grow as a profit center
- Composite score across all areas

Margin of error: ±8 percentage points
Quarter-to-Quarter analysis
Q4-2017 through Q3-2018

For details on MICI scores by bed size – please click on underlined links, or go to Appendix B.
Quarter-to-Quarter analysis
Trend Summary

**Overall:**
Lower confidence in *access to capital* in Q3 2018 compared to Q2 2018.

**Under 100 beds:**
Higher confidence in *internal operating cost remain the same*; while lower confidence in *access to capital*.

**100 to 299 beds:**
No changes in MICI between Q3 2018 and Q4 2016.

**300 or more beds:**
No changes in MICI between Q3 2018 and Q4 2016.

In aggregate, **lower confidence** in Q3 2018 compared to Q2 2018.

**Higher confidence** in internal operating cost remaining the same in Q3 2018 compared to Q4 2016.

**Lower confidence** in access to capital for equipment in Q3 2018 compared to Q1-Q2, and Q4 2017, Q1-Q2 2018.
Appendix
**APPENDIX A - Questionnaire**

### Grow monthly in diagnostic and interventional imaging
Over the next three months, I am very optimistic that our department:

**S1Q1.** will grow monthly study volumes in Diagnostic imaging modalities (X-ray, Ultrasound, MRI, CT and NM).

**S1Q2.** will grow monthly study volumes in Interventional imaging modalities (biopsy, angio cath lab, etc.).

### Receive adequate reimbursement from Medicare for diagnostic and interventional imaging
Over the next three months, I am very optimistic that our department:

**S1Q3.** will receive adequate reimbursement from Medicare for Diagnostic imaging studies.

**S1Q4.** will receive adequate reimbursement from Medicare for Interventional imaging procedures.

### Internal operating and staff costs will remain constant
Over the next three months, I am very optimistic that the imaging department:

**S2Q1.** internal operating expenses (not including staff costs) will remain constant.

**S2Q2.** internal staff costs will remain constant.
Appendix: July to September 2018 results

APPENDIX A - Questionnaire

Will have access to capital for imaging equipment and IT needs
Over the next three months, I am very optimistic that our department:

S3Q1. will have access to capital/credit to fund investments in new imaging equipment and the costs associated with Imaging capital projects (e.g. siting & construction costs).

S3Q2. will have access to capital/credit to fund investments in areas outside of imaging equipment, such as PACS, RIS, or other imaging-related IT needs.

S3Q3. will have access to capital/credit to fund investment in imaging facility expansion, if desired.

Will grow as a profit center
Over the next three months, I am very optimistic that our department:

S4Q1. will continue to maintain/grow Diagnostic imaging services as a profit center.

S4Q2. will continue to maintain/grow Interventional imaging services as a profit center.
Appendix:
Q4-2016 through Q3-2018 results

APPENDIX B

Graphs are presented by number of beds to show MICI for all quarters.

Interpretation is by number of beds—any changes across quarters are identified as being significant.

If no changes are identified then differences that might appear are due to random fluctuation in responses over time and should not be considered real.
### Appendix: Under 100 beds

Q4-2016 through Q3-2018 results

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Hospital bed size: Under 100 beds</th>
</tr>
</thead>
<tbody>
<tr>
<td>4th quarter</td>
<td>Will grow monthly in diagnostic and interventional radiology</td>
</tr>
<tr>
<td>1st quarter</td>
<td>Receive adequate reimbursement from Medicare for diagnostic and interventional imaging</td>
</tr>
<tr>
<td>2nd quarter</td>
<td>Internal operating and staff costs will remain constant</td>
</tr>
<tr>
<td>3rd quarter</td>
<td>Will have access to capital for imaging equipment and IT needs</td>
</tr>
<tr>
<td>4th quarter</td>
<td>Will maintain/grow as a profit center</td>
</tr>
<tr>
<td>1st quarter</td>
<td>Composite score across all areas</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Average MICI Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>4th quarter 2016</td>
<td>75</td>
</tr>
<tr>
<td>1st quarter 2017</td>
<td>100</td>
</tr>
<tr>
<td>2nd quarter 2018</td>
<td>125</td>
</tr>
<tr>
<td>3rd quarter 2018</td>
<td>150</td>
</tr>
</tbody>
</table>

Under 100 beds: Higher confidence in internal operating and staff cost remaining constant in Q3 2018 compared to Q4 2016. Higher confidence in access to capital on the first two quarters and Q4 of 2017, Q1-Q2 2018 compared to Q3 2018.
Appendix: 100 to 299 beds
Q4-2016 through Q3-2018 results

100 to 299 beds: No changes in MICI between MICI Q3 2018 and Q4 2016. No changes between Q3 2018 and Q2 2018.
Appendix: 300 or more beds
Q4-2016 through Q3-2018 results

Hospital bed size: 300 or more beds

- Will grow monthly in diagnostic and interventional radiology
- Receive adequate reimbursement from Medicare for diagnostic and interventional imaging
- Internal operating and staff costs will remain constant
- Will have access to capital for imaging equipment and IT needs
- Will maintain/grow as a profit center
- Composite score across all areas

300 or more beds: No changes in MICI between MICI Q3 2018 and Q4 2016. No changes between Q3 2018 and Q2 2018.
Appendix: Growth in diagnostic/interventional cardiology; Q4-2016 through Q3-2018 results

Will grow monthly in diagnostic and interventional radiology: Hospital bed size

- Under 100 beds
- 100 to 299 beds
- 300 or more beds

Back to Hospital bed size summary
Appendix: Receive adequate reimbursement Q4-2016 through Q3-2018 results

Receive adequate reimbursement from Medicare for diagnostic and interventional imaging: Hospital bed size

- Under 100 beds
- 100 to 299 beds
- 300 or more beds

Back to Hospital bed size summary
Appendix: Operating and staff cost Q4-2016 through Q3-2018 results

Internal operating and staff costs will remain constant: Hospital bed size

- Under 100 beds
- 100 to 299 beds
- 300 or more beds

Back to Hospital bed size summary
Appendix: Access to capital
Q4-2016 through Q3-2018 results

Average MICI Scores

Will have access to capital for imaging equipment and IT needs: Hospital bed size

Quarter

<table>
<thead>
<tr>
<th>Under 100 beds</th>
<th>100 to 299 beds</th>
<th>300 or more beds</th>
</tr>
</thead>
<tbody>
<tr>
<td>4th quarter 2016</td>
<td>50</td>
<td>75</td>
</tr>
<tr>
<td>1st quarter 2017</td>
<td>100</td>
<td>125</td>
</tr>
<tr>
<td>2nd quarter 2017</td>
<td>125</td>
<td>150</td>
</tr>
<tr>
<td>3rd quarter 2017</td>
<td>150</td>
<td>175</td>
</tr>
<tr>
<td>4th quarter 2017</td>
<td>175</td>
<td>200</td>
</tr>
<tr>
<td>1st quarter 2018</td>
<td>200</td>
<td>225</td>
</tr>
<tr>
<td>2nd quarter 2018</td>
<td>225</td>
<td>250</td>
</tr>
<tr>
<td>3rd quarter 2018</td>
<td>250</td>
<td>275</td>
</tr>
</tbody>
</table>

Back to Hospital bed size summary
Appendix: Growth as profit center
Q4-2016 through Q3-2018 results

Average MICI Scores

Will maintain/grow as a profit center: Hospital bed size

Quarter

Under 100 beds
100 to 299 beds
300 or more beds

4th quarter 2016
1st quarter 2017
2nd quarter 2017
3rd quarter 2017
4th quarter 2017
1st quarter 2018
2nd quarter 2018
3rd quarter 2018

Back to Hospital bed size summary