Pictures Worth a Thousand Words: Creating a Roadmap to Image-Guided Procedures for Referring Clinicians

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Background on Image-Guided Procedures (IGPs)

IGPs are minimally invasive procedures that use medical imaging for target visualization.

Simple IGPs (ex. abscess drainage) have little inter-case variability and should receive standardized periprocedural management.

Standardization is impeded when non-Radiology clinical teams are unfamiliar with periprocedural guidelines, contributing to frequent interservice questions and care delays.

The problem is magnified when referring clinicians cannot identify the Radiology Division responsible for a specific IGP, resulting in additional misdirected consult requests.
Baseline State Survey of Referring Clinicians

Ordering an IGP is straightforward

I know how to find the correct Radiology Division for an IGP when I am unsure

Cross-Sectional Radiology requires prophylactic anticoagulation to be held prior to drain placement

n = 53
Baseline State Workflow and Failure Pathways

Each failure pathway typically results in communication between referring clinician and Radiology.
Baseline State Consult Data
Summary of Interventional Radiology (IR) consult pager for August 2018

New consults

- Misdirected: 34%
- Appropriate: 66%

n = 337

Inpatient management questions

- Simple: 65%
- Advanced: 35%

n = 398

Example pages:

- “Hope to discuss plan for lumbar puncture in IR. Sorry if I have wrong person.”
- “Patient with abscess. Are you the service that drains it or is it a different one?”
- “Are you the correct fellow to page for chest port removal?”

Simple question: can be answered by reference document

Example pages:

- “Does apixaban need to be held for abscess tube changes?”
- “Nephroureteral stent replacement 2 days ago. What is plan for flushes?”
- “What is the right order for suprapubic catheter placement?”
Step 1: Clinician selects anatomic region/organ system involved in desired IGP

Step 2: Clinician selects from a short submenu of associated IGPs

Step 3: Standardized perioperative guidelines for specific procedure
Current State – Clinical Tool Workflow

Clinical tool accessible by hyperlink on the Michigan Medicine clinical homepage

- Referring clinician
  - Patient needs IGP
  - Periprocedural question

- References online IGP clinical tool
  - Places correct order
  - Simple question answered
  - Makes correct contact

- Case reviewed and scheduled
- Complex question answered

Resolved failure pathways reduce unnecessary communications
Increasing monthly usage by referring clinicians since implementation

On and off hour utilization indicates integration into routine workflows
Current State Consult Data
Summary of Interventional Radiology (IR) consult pager for August 2020

New consults

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<thead>
<tr>
<th>Misdirected</th>
<th>Appropriate</th>
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<tbody>
<tr>
<td>27%</td>
<td>73%</td>
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<tr>
<td>n = 273</td>
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Inpatient management questions

<table>
<thead>
<tr>
<th>Simple</th>
<th>Advanced</th>
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<tbody>
<tr>
<td>15%</td>
<td>85%</td>
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<td>n = 248</td>
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Comparison of outcome measures

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<tr>
<th></th>
<th>8/2018</th>
<th>8/2019</th>
<th>8/2020</th>
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<tr>
<td>Misdirected new</td>
<td>34%</td>
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<td>27%</td>
<td>0.043</td>
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<td>consultations</td>
<td>(n = 337)</td>
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<td>(n = 273)</td>
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<tr>
<td>Simple management</td>
<td>35%</td>
<td></td>
<td>15%</td>
<td>&lt;0.00001</td>
</tr>
<tr>
<td>questions</td>
<td>(n = 398)</td>
<td></td>
<td>(n = 248)</td>
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Significant decrease in misdirected consults and simple management questions
Simple periprocedural management questions and misdirected consult requests regarding image-guided procedures contribute to **unnecessary communications** between clinicians and Radiology.

A **graphic-driven clinical tool** that provides standardized periprocedural guidelines was designed and implemented for non-Radiology clinician reference.

The tool has been used more than 4,800 times over the past year and has resulted in a **statistically significant decrease in unnecessary communications.**