

# 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)

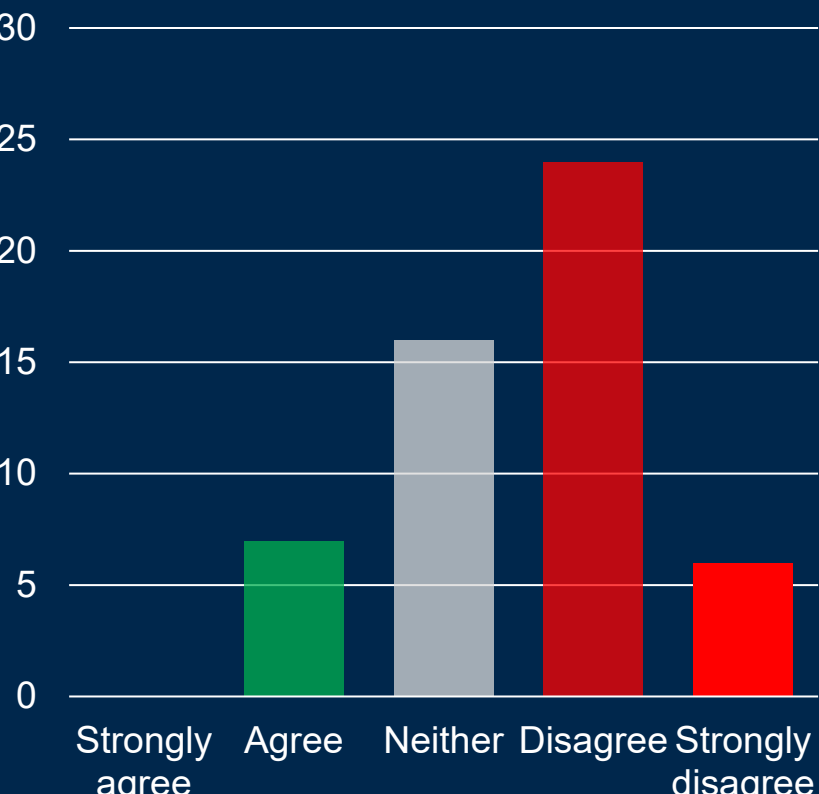
IGPs are minimally invasive procedures that use medical imaging for target visualization.

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

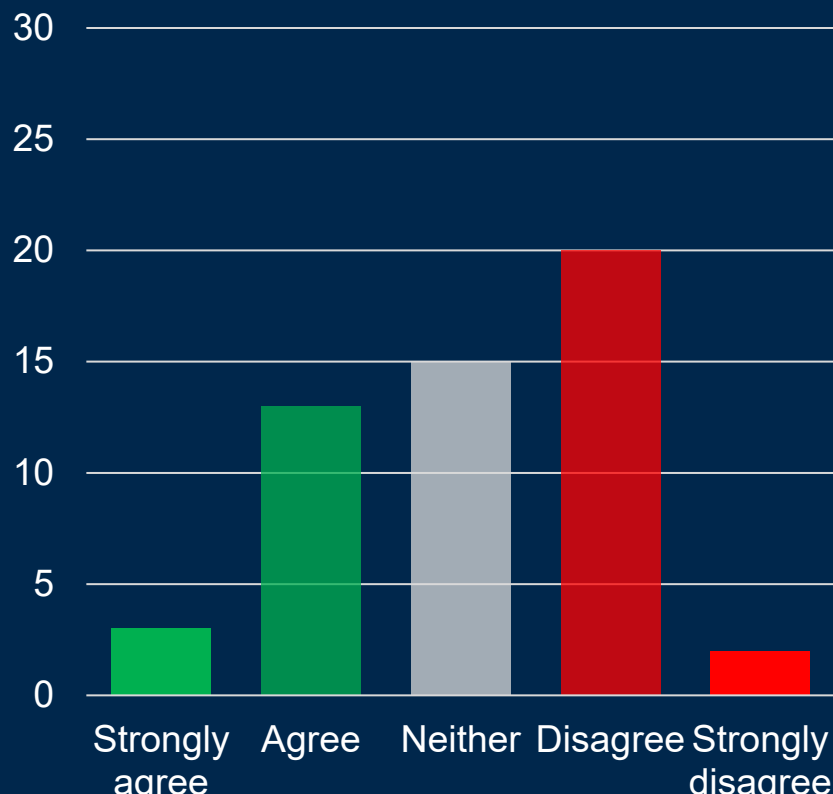
Standardization is impeded when non-Radiology clinical teams are unfamiliar with periprocedural guidelines, contributing **to frequent interservice questions and care delays**.

The problem is magnified when referring clinicians cannot identify the Radiology Division responsible for a specific IGP, resulting in additional **misdirected consult requests**.

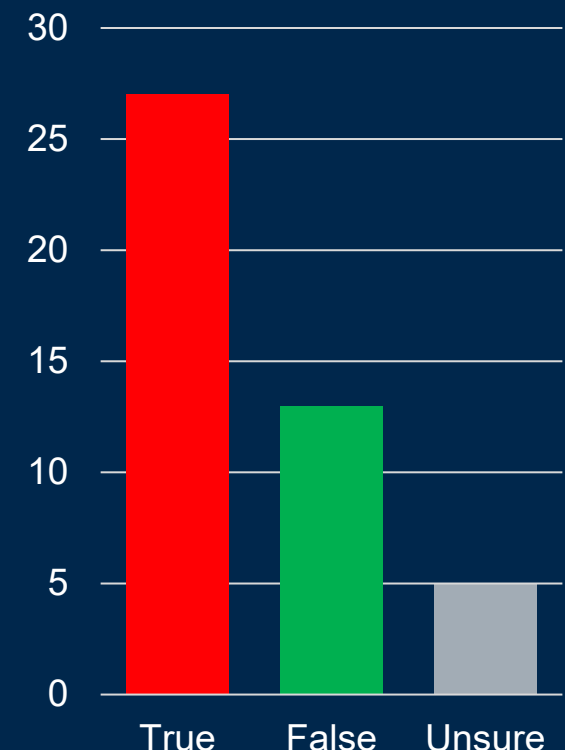
# Baseline State Survey of Referring Clinicians



Ordering an IGP is straightforward



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

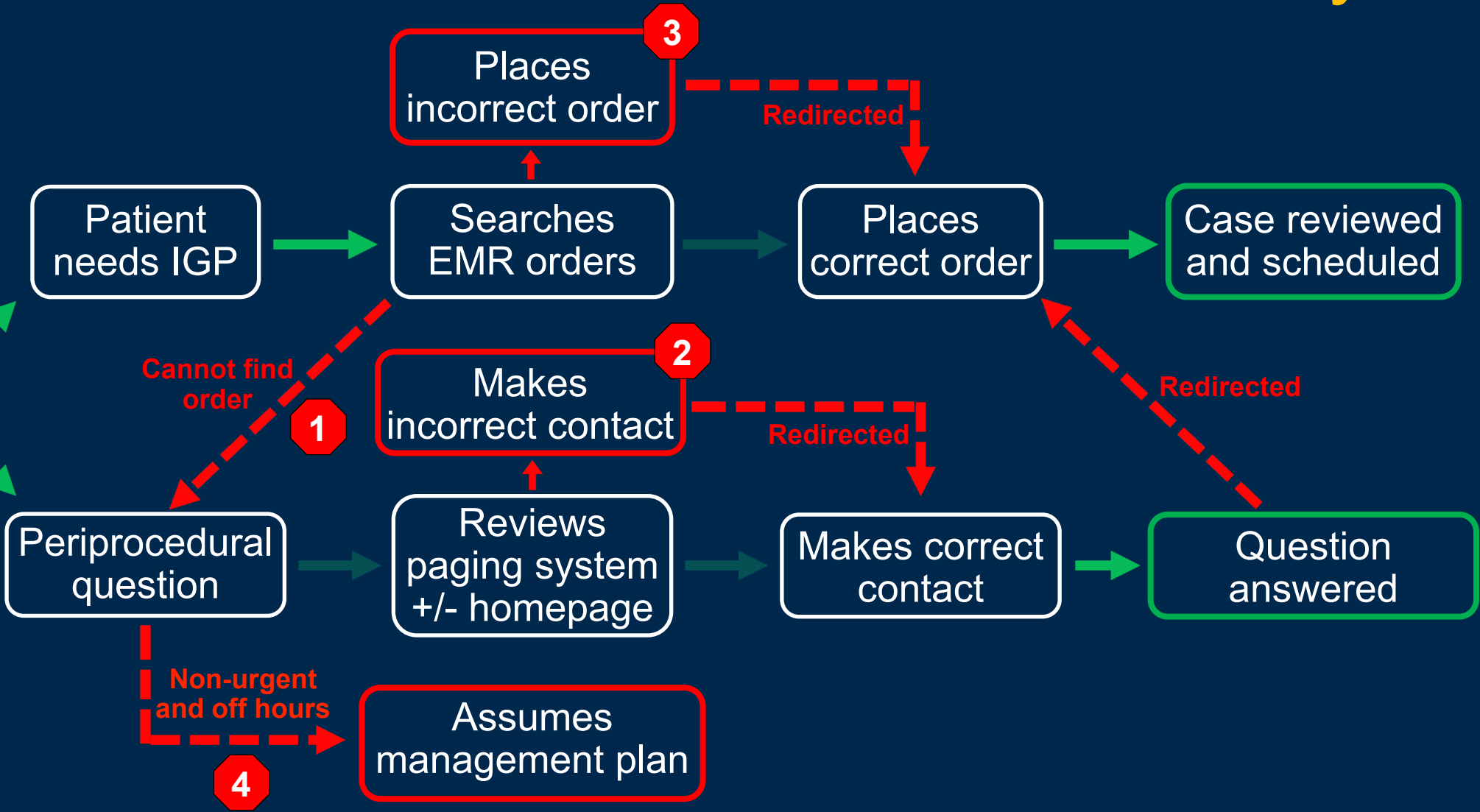


Cross-Sectional Radiology requires prophylactic anticoagulation to be held prior to drain placement

n = 53



# Baseline State Workflow and Failure Pathways

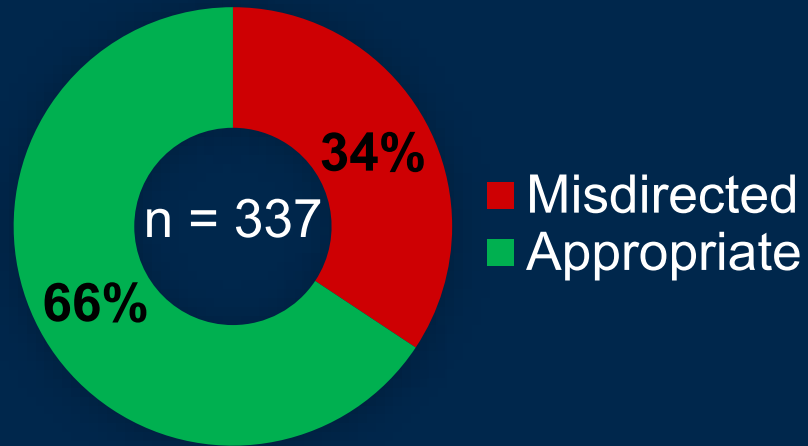


Each failure pathway typically results in communication between referring clinician and Radiology

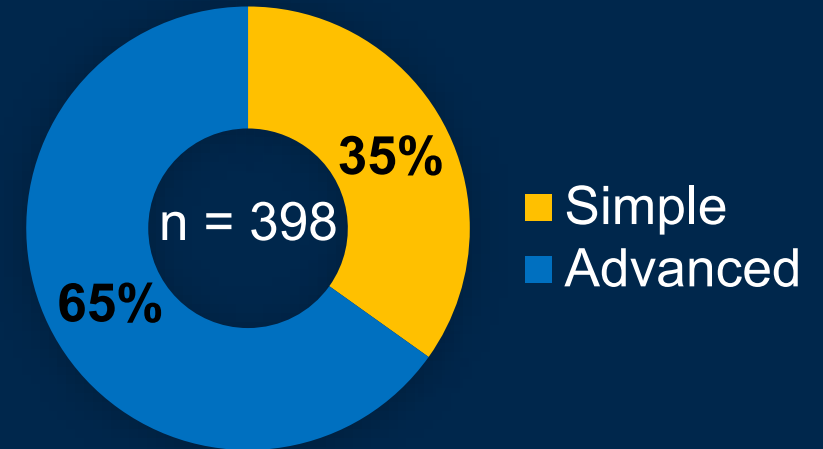
# Baseline State Consult Data

Summary of Interventional Radiology (IR) consult pager for **August 2018**

## New consults



## Inpatient management questions



### Example pages:

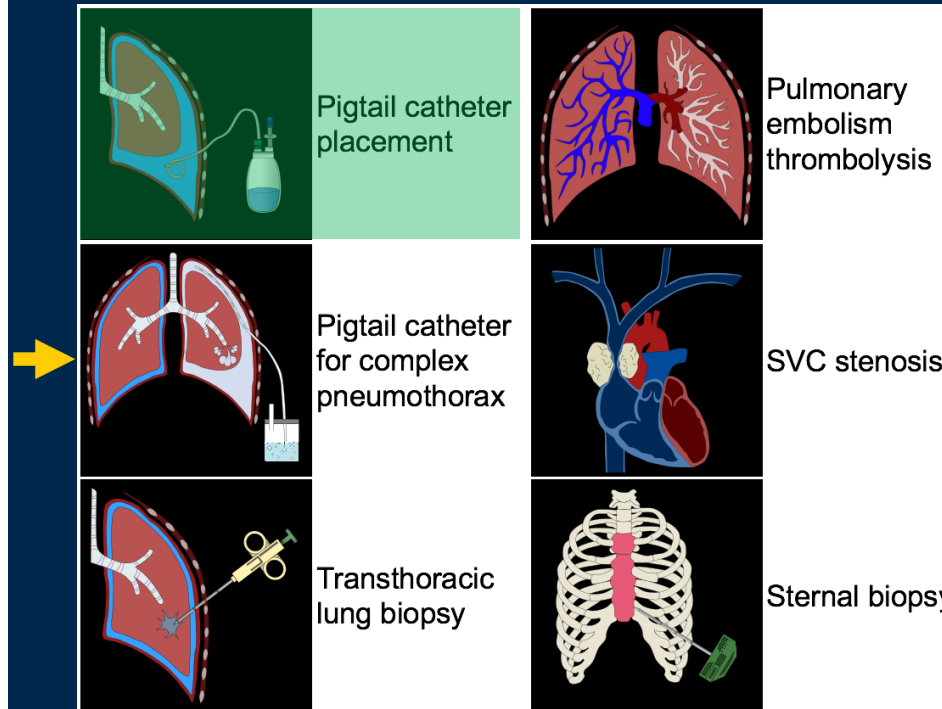
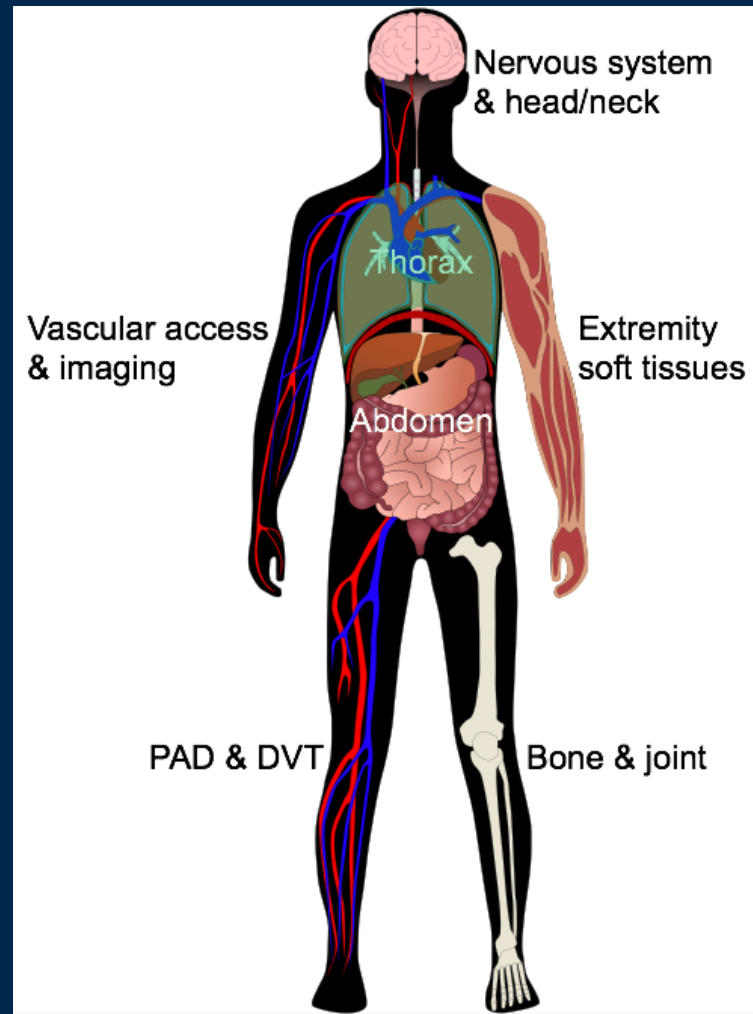
- "Hope to discuss plan for lumbar puncture in IR. Sorry if I have wrong person."
- "Patient with abscess. Are you the service that drains it or is it a different one?"
- "Are you the correct fellow to page for chest port removal?"

**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?"

# Solution - Graphic-Driven Clinical Tool



Step 2: Clinician selects from a **short submenu** of associated IGP

***Pleural pigtail catheter placement***

**Division:** Cross-sectional/abdominal radiology

**Contact:** Mon-Fri 8:00-17:00 – Ellen Higgins (PA). Pg #5451, Ph #734-615-3486 or #734-647-4953

Off-hours – Not performed. Can order ultrasound for safe window marking to guide bedside catheter placement by primary team.

**Order:** 'IG lung fluid drain placed adult' / RAD1570

**Contraindications (relative):** Insufficient drainable fluid (<~200 mL)  
Highly septated or hemorrhagic contents

**Sedation:** Moderate

**Preop requirements:**

- INR < 1.5
- Platelets > 50,000
- NPO for 6 hrs if will receive moderate sedation (recommended)

Anticoagulation

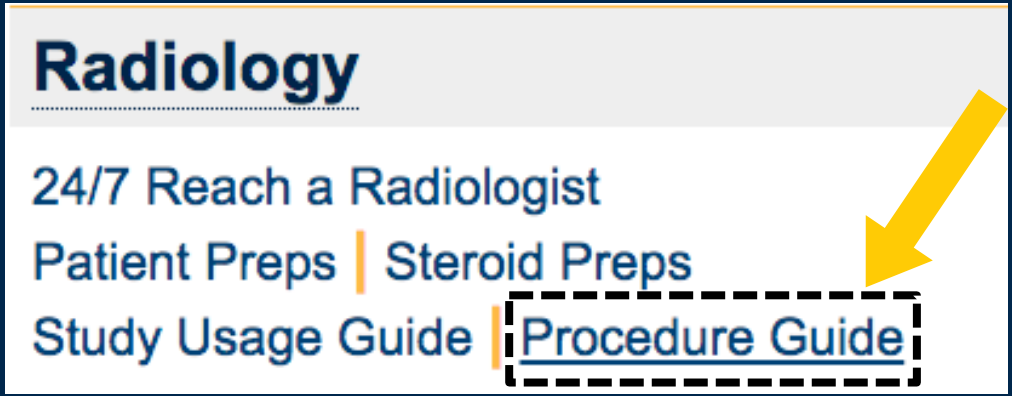
- Heparin – SubQ: Do not hold
- IV: Hold for 3 hrs
- Enoxaparin – Ppx: Do not hold

Step 3: **Standardized perioperative guidelines** for specific procedure

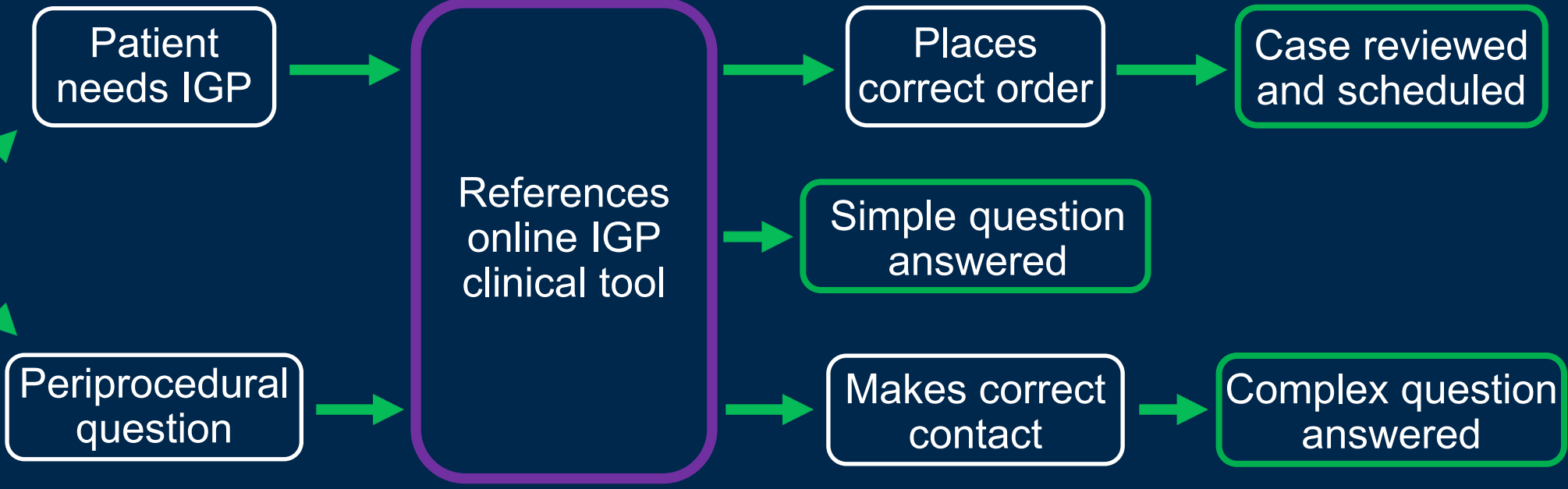
Step 1: Clinician selects **anatomic region/organ system** involved in desired IGP

# Current State – Clinical Tool Workflow

Clinical tool accessible by hyperlink on the Michigan Medicine clinical homepage



Referring clinician



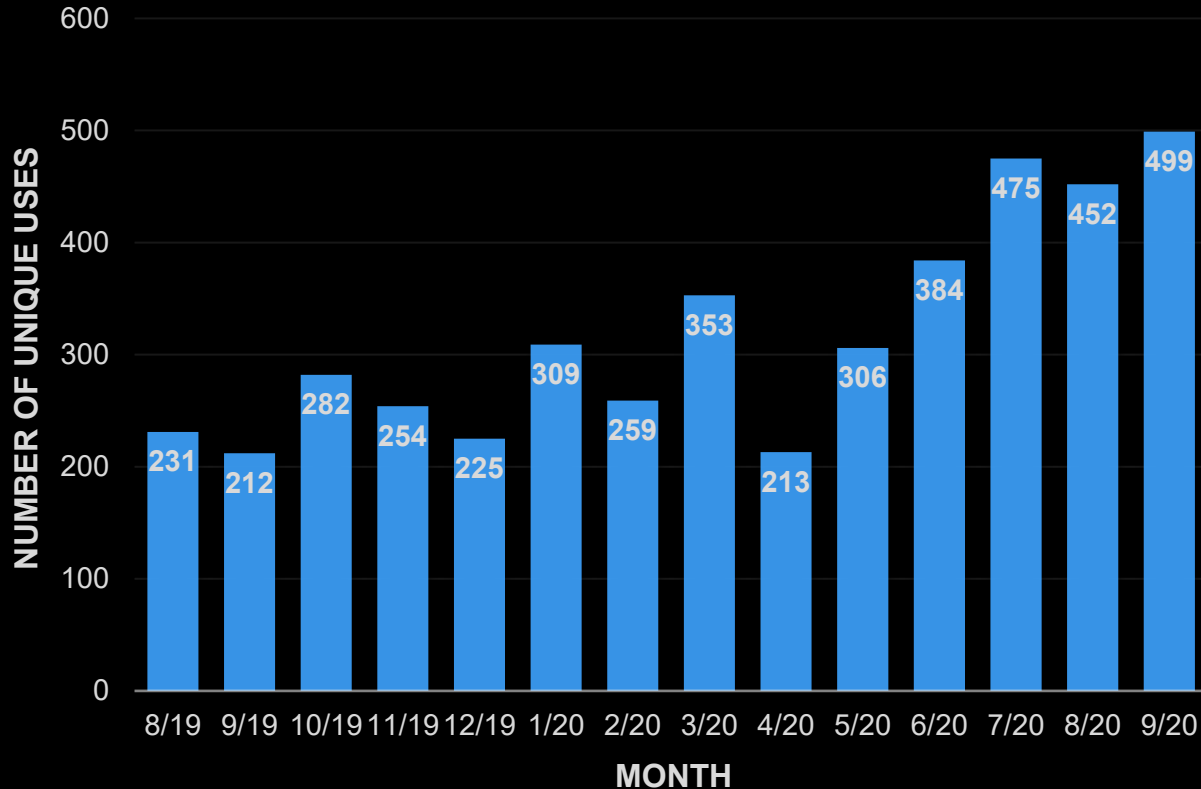
Resolved failure pathways **reduce unnecessary communications**



# Clinical Tool Workflow Adoption

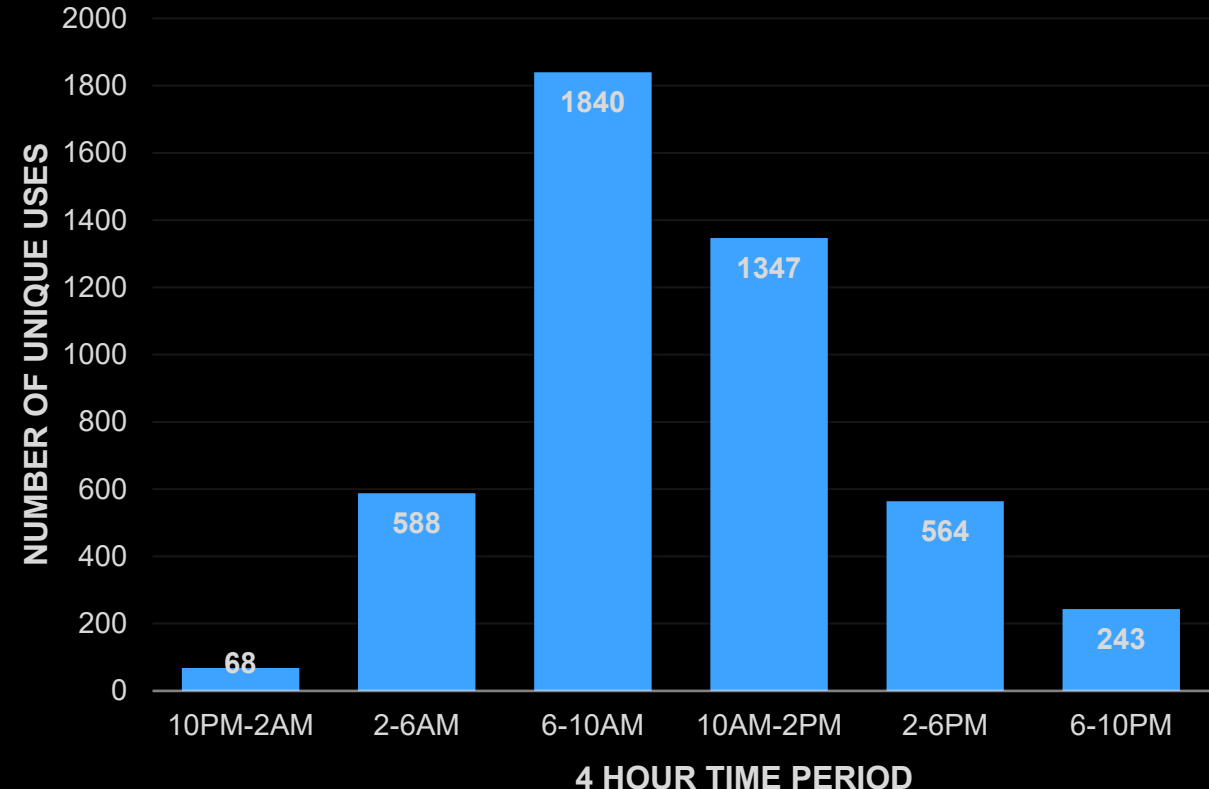
8/2019 - 9/2020

## Usage by month



**Increasing monthly usage** by referring clinicians since implementation

## Usage by time of day



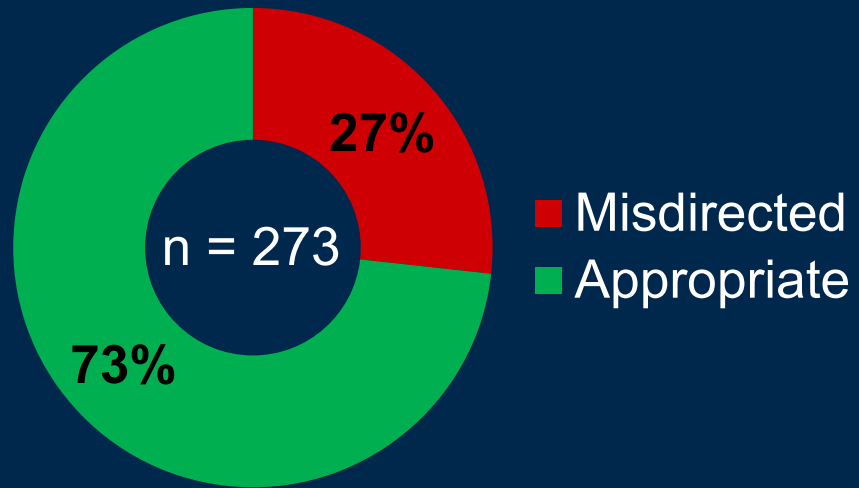
On and off hour utilization indicates **integration into routine workflows**



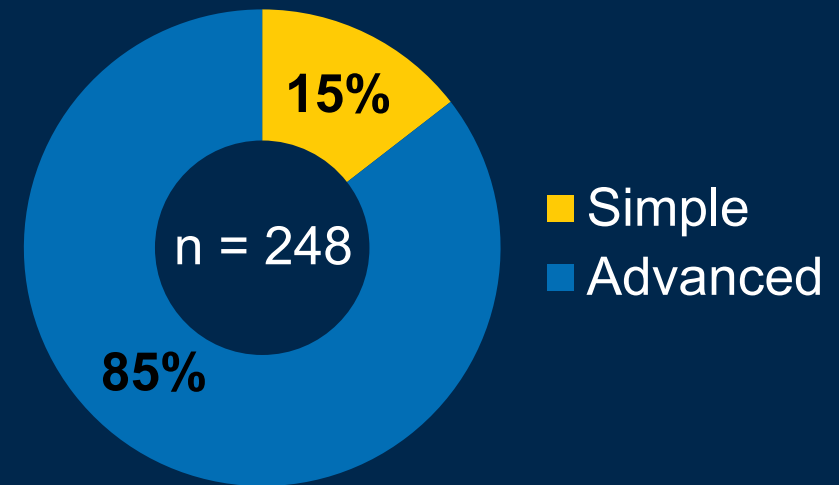
# Current State Consult Data

Summary of Interventional Radiology (IR) consult pager for **August 2020**

**New consults**



**Inpatient management questions**

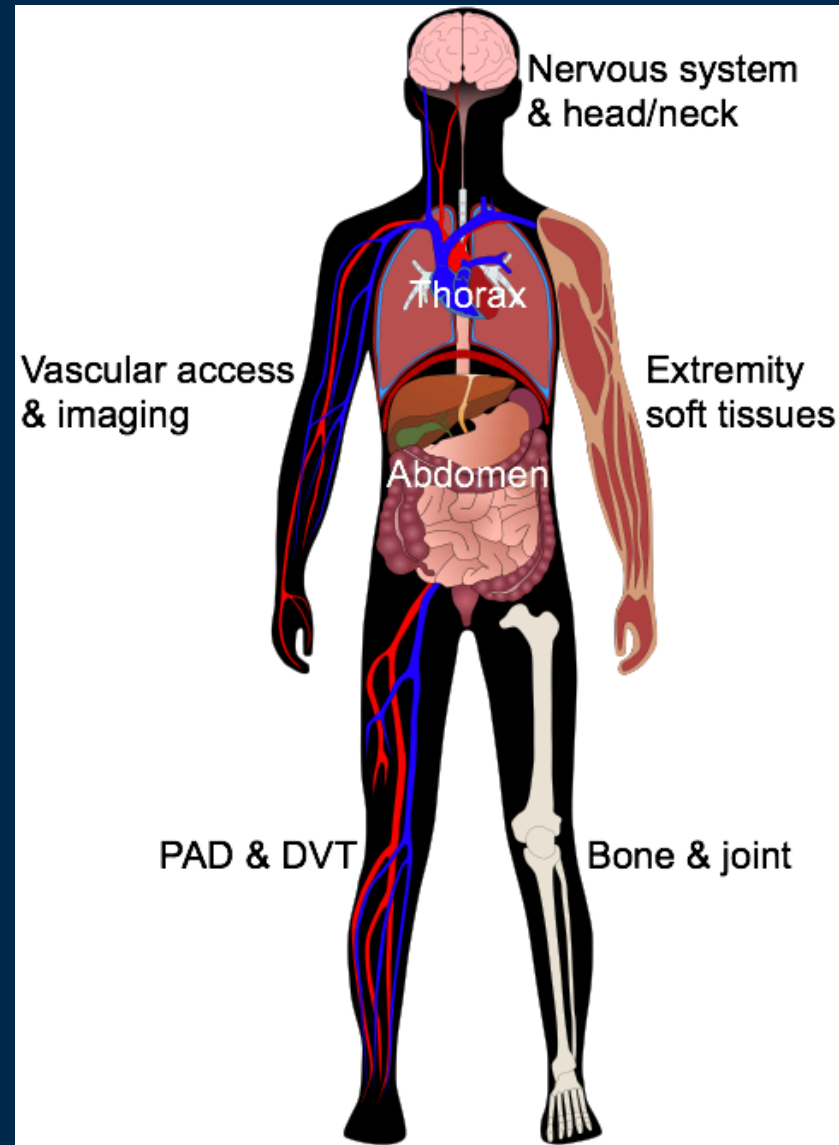


## Comparison of outcome measures

	8/2018	8/2019	8/2020	p
<b>Misdirected new consults</b>	<b>34%</b> (n = 337)	<b>Implementation of clinical tool</b>	<b>27%</b> (n = 273)	<b>0.043</b>
<b>Simple management questions</b>	<b>35%</b> (n = 398)		<b>15%</b> (n = 248)	<b>&lt;0.00001</b>

**Significant decrease in misdirected consults and simple management questions**

# Summary



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**.