Reducing Unnecessary OR calls Related to Specimen Imaging

A collaboration between Breast Imaging and Breast Surgery

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Timely interpretation of OR surgical specimen radiographs aids breast surgical care.

At our busy academic center, we experienced frequent calls from the OR regarding specimen imaging workflows.

This disrupts workflows and delays specimen image interpretation.

We aimed to understand our specimen imaging process to reduce unnecessary phone calls to breast imaging radiologists and technologists.
Target State: SMART Goal

• Reduce the number of unnecessary calls from the OR staff to breast imaging from 35% of cases in December 2022 to 10% by April 2023.
Methods

Collection of data – Breast Imaging

4 categories of “unnecessary: calls

1. Call to reading room instead of dedicated specimen phone
2. Call to radiology/reading room instead of technologist for add on cases
3. Call to radiologist instead of technologist to request technical assistance with sending images to PACS
4. Other

Initial Data Collection:
17 OR specimens ordered in a 5-day period (Dec 2022).

• 35% of OR specimen had unnecessary phone calls (6 calls for 17 orders)
• 83% of calls were workflow related (5 of 6 calls) and 17% were equipment error (1 of 6 calls).

Root Cause analysis – Collaborative with imaging and surgical services
Prior to the day of surgery, an X-ray specimen accession is generated:

- **Wire** localizations, initiated by OR
- **Wireless** localizations, completed at the time of surgical scheduling, by radiology

1. OR staff transfers tissue to specimen imaging equipment
2. Select the correct patient and accession number
3. Obtain specimen x-ray
4. Send images to PACS
5. OR calls dedicated breast imaging specimen line for image interpretation
Root Cause Analysis

**Fishbone Diagram Data**

**Processes**
- Manual entry
- Confusion with accession worklist navigation
- Unable to find correct patient accession – wrong date/location

**Behaviors**
- Redirecting calls without educating individuals
- Lack of continuous IT support for OR staff
- Add-on specimen imaging during surgery resulting in call to technologist

**Environment**
- Network connectivity
- Surgeons operating in various locations across health system

**Materials**
- Two different versions of equipment with differences in workflow
- Unclear instructions per OR staff

**Systems**
- Incomplete OR access to PACS
- OR staff not checking for images in PACS before calling for interpretation
Experiment Plan
Interventions and Key Drivers

**Key Drivers**

- Provide clear instructions – who to call for what and when
- Ensure ease of finding correct accession/avoid manual entry errors
- Network consistency
- Identify differences between two versions of x-ray equipment
- Confirm exams scheduled on the correct day and location

**Interventions/counter measures**

- Update instructions to be clear and concise
- Contact vendor to update equipment
- Ensure consistent network connection to equipment
- - convert to wireless system long term
- Provide training for each unique piece of equipment
- Distribute quick reference cards for each OR unit
- Rad lead tech to share scheduled exams with OR 1 day prior (identify missing patients/accessions)
Project timeline

Data Collection 1
(Pre-intervention Dec 2022)

- Implemented new signage on Equipment
  - Instructions on who to call for what and when
  - Cheat sheets on how to operate the 2 different units
- Lead tech began daily emails with OR specimen list to OR to review for missing patients

Root cause analysis
Key drivers identified with experiment plan

Data Collection 2

- Reinforced equipment mgmt. at OR staff in-service
- Continued daily OR specimen list to OR leads for review of missing patients
- Contacted Vendor and IT regarding equipment upgrade options
- Updated breast surgeon “preference cards”

Begin discussing sustain plan

Data Collection 3
Data

% of OR Specimen Ordered with Unnecessary Phone Calls at Time of Interpretation

Primary Measure
Target

SMART GOAL: 10%

Data Collection Period

Dec 15-Dec 23, 2022
Pre-intervention

March 9-March 15, 2023

March 27-March 31, 2023

0/11 specimens with unnecessary phone calls at final data collection
## Sustain Plan and Conclusions

We used a Lean A3 approach to identify root causes and key drivers in unnecessary OR calls to radiology for breast surgical specimen imaging.

Our interventions significantly reduced calls from 35% to 0% over a three-month period.

### Limitations:
- We did not specifically study turnaround time though it is inferred
- Implementation will vary across breast imaging/surgical departments based on workflow.
- Our data collection periods were short (5 days) with a small sample size.

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<thead>
<tr>
<th>Interventions to sustain</th>
<th>Sustain Method and Frequency</th>
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<tr>
<td>Clear concise instructions from radiology to OR staff</td>
<td><strong>Quarterly</strong> - review of the instructional sheet, PRN updates</td>
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| Promote continued engagement with the correct workflow by OR staff – cheat sheets & in service | **Daily** - cheat sheets should be readily accessible to OR staff  
**Monthly** - OR staff in-services |
| Pursue upgrades to the equipment by vendor | **Semi-annually** - Maintain communication with vendor and hospital IT to update software when available |