Leveraging RFID Localizer to Reduce Delays in Breast Conserving Surgery.

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Introduction

Surgery for non-palpable breast lesions is more commonplace due to advances in imaging and early detection. Wire localization is the most common method of lesion localization prior to surgical excision; however, the requirement for same-day localization has been associated with case delays estimated to cost hospitals $20-$40 per minute.

Objective: To compare case delays in all patients undergoing breast conserving surgery (BCS) with wire localization in 2017 with all patients undergoing BCS with a radiofrequency identification tag system.

Methods

- A retrospective analysis was conducted using the Johns Hopkins perioperative dashboard. Case delay data for all patients undergoing surgical excision with same-day wire localization in 2017 and for 18 patients undergoing surgical excision with the RFID Localizer was assessed.
- Lean systems practices (visualized with spaghetti charts) were used to show patient, radiologist, and radiation tech flow on the day of surgery.

Results

<table>
<thead>
<tr>
<th>Same-Day Wire Localization</th>
<th>RFID Localizer</th>
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<tbody>
<tr>
<td><strong>Patient flow:</strong> Registration desk ➔ Pre-operative holding room ➔ Waiting room ➔ Mammogram room or ultrasound room ➔ Pre-operative holding room ➔ Operating room</td>
<td><strong>Patient flow:</strong> Registration desk ➔ Pre-operative holding room ➔ Operating room</td>
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<tr>
<td><strong>Radiology tech movement:</strong> Multiple visits to 7 locations (Mammogram tech area, Waiting room, Pre Op holding, Nuclear Medicine, Mammogram room, Ultrasound room, and Reading room)</td>
<td><strong>Radiology tech movement:</strong> None</td>
</tr>
<tr>
<td><strong>Total case time:</strong> 180-240 minutes</td>
<td><strong>Total case time:</strong> 25-35 minutes</td>
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- The authors found that utilization of wire localization for the first case of the day resulted in a late start in 91.5% of cases; furthermore, this delay extended to subsequent surgical cases that day about 73% of the time.
- Eleven of 18 RFID cases did not have a delayed case start time.
- In the 7 RFID cases with delays, the average case delay was 3 minutes.

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