Check it Out!

Can a post-procedure checklist improve quality in interventional radiology (IR)?

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Aim
To develop a post-procedure checklist for Interventional Radiology and determine whether it can improve communication and reduce errors.

Context/Problem
The post-procedure checklist project was initiated in response to the discovery of post-procedure errors such as missing samples and concerns regarding the need for improved communication in the division of Interventional Radiology.

Intervention
Given the proven success of checklists in reducing errors in other medical and non-medical venues (1,2), it was determined that the division would develop and test a post-procedure checklist which would draw attention to and require discussion of the most important steps of patient care after a procedure was completed. The checklist would be used collectively by the entire IR team including physicians, nurses, and radiology technologists.

This was a two-phase project.
- Phase I: Development of the post-procedure checklist. Including a literature review, process mapping to identify important points of intervention, and writing of the checklist followed by a short trial with multiple revisions.
- Phase II: Development and implementation of an evaluation tool: Including a literature review, formulation of the evaluation tool (3-5), and testing with a pre- and post-intervention study design.

This poster focuses on the measures and results for Phase II.

Multi-disciplinary Team
Planning Committee: Radiology Chairman, Radiology Quality Director, Interventional Radiology Section Head, Radiology Quality Fellow and MD/MPH Student Intern

Project participants: IR attending physicians (9), IR nurses (11), IR technologists (4), radiology fellows and residents (6)

The Post-Procedure Checklist
Figure 1.

Lessons Learned
- A standardized evaluation tool adapted from a literature review can be effectively modified to assess the value of a checklist.
- Use of the checklist improved patient care by increasing compliance with timely post-procedure communications.
- Checklist compliance rate is affected by how and when it is implemented, for instance:
  - If the checklist is completed during suturing (not after) there are higher compliance rates.
  - Nurses physically handing the checklist to the physicians contributes to higher compliance rates.
- The skills of MD/MPH student interns are invaluable to the healthcare quality improvement process.

Measure Tracked
Frequency of Communication Failures, including the following types:
- Ambiguity
- Critical knowledge gap
- Lack of communication

Rate of compliance with IR division expectations of care, including the following:
- Brief post-procedure note writing in Electronic Health Record (EHR)
- Radiation dose recorded in EHR

Rate of compliance with checklist items
- See Figure 1 - Post-Procedure Checklist

IR Team Checklist User Opinions
- Gathered team opinions on checklist usability and value
- Employed survey using Likert scale

Results
Figure 2. Survey Results: Checklist usability and value

Checklist survey question

<table>
<thead>
<tr>
<th>Mean Likert score, mean ± SD, (IQR)*</th>
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<tbody>
<tr>
<td>The checklist was easy to use</td>
</tr>
<tr>
<td>4.4 ± 0.72 (4-5)</td>
</tr>
<tr>
<td>This checklist has the potential to prevent errors in post-procedure patient care.</td>
</tr>
<tr>
<td>4.4 ± 0.66 (4-5)</td>
</tr>
<tr>
<td>During this procedure, this checklist helped team members identify and resolve problems or ambiguities regarding post-procedure patient care.</td>
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<tr>
<td>3.5 ± 1.2 (2-5)</td>
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<tr>
<td>If use of checklist were optional, I would opt to use it regularly.</td>
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<tr>
<td>6.5 ± 0.90 (3-4)</td>
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<tr>
<td>If I or my family member were going to be a patient in an IR procedure, I would want this checklist to be used.</td>
</tr>
<tr>
<td>4.0 ± 0.98 (3-5)</td>
</tr>
</tbody>
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On average, respondents thought the checklist was easy to use and has the potential to prevent errors.

Figure 3. Changes in compliance score in the post-intervention phase

Figure 4. Association between checklist use and compliance of writing brief post-procedure note within one hour

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