Implementation of Radiology Quality Improvement Methods in Global Health
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Disclosures: Funding from the Pan-American Health Organization
Quality improvement is under-represented in global radiology.

• 2016 survey of 40 countries\textsuperscript{1}:
  • 21 had national quality & safety programs
  • 14 had national dose optimization program
• Radiation safety is a primary goal\textsuperscript{2,3}.
• Few programs exist to teach quality improvement methods\textsuperscript{4,5}.

5. European Society of R, American College of R. European Society of Radiology (ESR) and American College of Radiology (ACR) report of the 2015 global summit on radiological quality and safety. \textit{Insights Imaging} 2016; 7:481-484
Quality improvement is integral to global health.

- Empowers local health providers to invest in change
- Systems approach for lasting change
- Grows leadership
- Low overhead investment
- Accessible global support
- Global health projects often are quality improvement, though may not be framed as such
Objectives

1. Develop a short course in basic quality improvement methods for resource-limited health centers
2. Implement a short term quality improvement project during course
3. Investigate how understandable and valuable the short course and project were to participants
Methods: 2-Day Workshop and Project in *Paramaribo, Suriname*

Participants: 2 radiologists, 1 medical physicist, 12 radiology technologists and staff

**Day 1**

- Radiology QI, QA, QC: Roles and Responsibilities
- QI Principles
- QI Examples: Radiation Protection
- QI Examples: Clinical Partners
- Workshop:
  - Short/long term projects
  - Model for Improvement\(^6\)

**Day 2**

- QI Examples: Communication
- QI Examples: Education
- Workshop:
  - Rapid PDSA cycles
- Longitudinal Monitoring
- Summary
  - Online resources\(^7,8\)

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Workshop: QI on a Shoestring

Model for Improvement
- What are we trying to accomplish?
- How will we know that a change is an improvement?
- What change can we make that will result in improvement?

Answer these questions:
- **What** is the problem?
- **Why** is it a problem?
- **Who** benefits from a solution?
- **Where** can we intervene?
- **How** can we measure?
- **When** can we start?

K.I.S.S.
*Keep It Simple, Stupid*

Design a system that works for the tools you have
Workshop: Identify Short Term Project

**What is the problem?:** Radiation rooms lack signs warning of pregnancy risks

**Where can we intervene?:** Process Map

**How will we measure?:** Signs hanging at locations.
Plan

1. PLAN:
   - Signs in REGISTRATION
     - Sign on XR, FL, CT, Mammo
     - Sign in waiting room
     - Sign on (near) TV
   - 8 EXAM ROOMS
   - 2 REGISTRATION/WAITING ROOM

   WHAT SHOULD SIGN LOOK LIKE?
   - LANGUAGES
     - DUTCH
     - ENGLISH
     - SRINakan

   PLAN:
   - HOW TO MAKE SIGN?
     - PAPER
     - LAMINATE
     - PLASTIC SLEEVE
     - POSTERBOARD

Do: Day 1

IF YOU ARE POSSIBLY PREGNANT

COULD YOU BE PREGNANT?

COULD YOU BE

INFORM US

Do: Day 2

PREGNANT?

INFORM US
**Study:** Signs not hanging

<table>
<thead>
<tr>
<th><strong>Act:</strong></th>
<th>Projects falter for predictable reasons⁹:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Need to make more copies</td>
<td>• Organizational commitment lacking</td>
</tr>
<tr>
<td>• Laminate</td>
<td>• Interventions need refining</td>
</tr>
<tr>
<td>• Secure department head approval</td>
<td>• Implementation needs refining</td>
</tr>
<tr>
<td></td>
<td>• Technical barriers</td>
</tr>
</tbody>
</table>

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Longer Term Projects

- Data management systems and protocols
- Examples:

<table>
<thead>
<tr>
<th>MEASURE</th>
<th>STATUS</th>
<th>TARGET</th>
<th>3MO ROLLING AVERAGE</th>
<th>GRAPH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department - Wide</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical Test Results; Time from Radiologist viewing to notification of findings less than 1 hour</td>
<td>100%</td>
<td>100%</td>
<td>Timely Notification of Critical Results</td>
<td></td>
</tr>
</tbody>
</table>

Graph shows timely notification of critical results with data points for each month from Sep 17 to Aug 18.
Did you understand language in Dr. Kaplan's talks?

Workshop Assessment

What would improve the course?

- Nothing, the info was clear (x2)
- Choose someone responsible for this in Suriname (x2)
- More subjects, longer course
Are you likely to use QI methods in your hospital?

Workshop Assessment

What might prevent you from using QI methods?

- Nothing (x4)
- If the department doesn't want to go along with it (x3)
- Finance of hospitals, hospital policies (x2)
- The limited amount of workers
Lessons for Radiology Quality Improvement in Global Health

• Pre-planning increases yield\textsuperscript{10,11}
  • Needs assessment: staffing, equipment, resources, patient mix
  • Department priorities
• Keep in mind request origination
  • NGO, government, regional/local health center
  • May affect ability to implement
• Needs long-term engagement
  • Mentoring & sponsoring remotely
  • Web based education and support

\textsuperscript{10} Hawkins CM. Assessing local resources and culture before instituting quality improvement projects. J Am Coll Radiol 2014; 11:1121-1125
Thank you for your attention!

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