Problem statement:

- Radiology request forms / referral forms are essential communication tools for Radiological investigations in the diagnostic process, however their importance is underestimated.
- Incomplete radiology request forms are common occurrences, impacting the workflow and efficiency of the radiology departments in the hospitals world over.
- The risks to patient safety and potential for delayed treatment, with time wasted and frustration experienced by the radiology staff makes it a significant problem.
- The “Quality Indicators” in terms of – Report Turn-around Time, Patient and Physician Satisfaction, Recall-retake rates and productivity are directly affected by the inadequacies in the request forms.
The Diagnostic process

Ref: Improving Diagnosis in Healthcare, National Academy of Sciences

Problem Solving Methodology:

WHY?
“Inadequate” forms can lead to:
1. Increased risk of performing the wrong test
2. Using incorrect protocols to perform the test
3. Imaging the “wrong” – patient, side, organ
4. Inaccurate interpretation of the test

WHO?
The “TEAM”:
* Radiologists
* Physician Representative – GP and Specialists
* Radiology Supervisor
* Chief Radiology Technician
* Administrative Assistant
* Nursing Representatives from OPD & IPD
* Quality Department representative

WHAT?
1. Define and study the types of inadequacies we encounter
2. Analyze the effects of the inadequacies
3. Devise methods to reduce the inadequacies

WHEN?
Perform 3 PDSA cycles in this project over a period of 4 months

HOW?

Our AIM:

To reduce the incidence of the “Inadequacies” in the Radiology referral forms filled by the physicians, to 50% of the current occurrences; within 4 months from the start of the project.

We Performed 3 PDSA Cycles during this project – Evaluated 2000 request forms in each cycle.

METRICS EVALUATED AND RESULTS -

1. Incidence of Errors:

<table>
<thead>
<tr>
<th>Incidence of errors</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDSA 1</td>
<td>517</td>
</tr>
<tr>
<td>PDSA 2</td>
<td>434</td>
</tr>
<tr>
<td>PDSA 3</td>
<td>359</td>
</tr>
</tbody>
</table>

2. Type of Error:

<table>
<thead>
<tr>
<th>Type of error</th>
<th>PDSA 1</th>
<th>PDSA 2</th>
<th>PDSA 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRN</td>
<td>45</td>
<td>37</td>
<td>20</td>
</tr>
<tr>
<td>Name/Sex</td>
<td>30</td>
<td>29</td>
<td>16</td>
</tr>
<tr>
<td>Wrong Site/Side</td>
<td>30</td>
<td>28</td>
<td>29</td>
</tr>
<tr>
<td>Incorrect test</td>
<td>32</td>
<td>32</td>
<td>19</td>
</tr>
<tr>
<td>Request</td>
<td>40</td>
<td>30</td>
<td>25</td>
</tr>
<tr>
<td>AbSENT Clinical</td>
<td>67</td>
<td>52</td>
<td>46</td>
</tr>
<tr>
<td>Details</td>
<td>259</td>
<td>220</td>
<td>215</td>
</tr>
<tr>
<td>Absent History</td>
<td>14</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Illegible Writing</td>
<td>417</td>
<td>434</td>
<td>309</td>
</tr>
<tr>
<td>Unauthorized</td>
<td>17</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>
METRICS EVALUATED AND RESULTS -

3. Repeat-Recall Rates:

5. Radiology TAT

<table>
<thead>
<tr>
<th>Radiology Reports TAT</th>
<th>&lt; 24 hrs</th>
<th>24 - 48 hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDSA 1</td>
<td>60%</td>
<td>35%</td>
</tr>
<tr>
<td>PDSA 2</td>
<td>75%</td>
<td>23%</td>
</tr>
<tr>
<td>PDSA 3</td>
<td>80%</td>
<td>19%</td>
</tr>
</tbody>
</table>

4. Radiology Staff Satisfaction:

<table>
<thead>
<tr>
<th>Radiology staff satisfaction</th>
<th>PDSA 1</th>
<th>PDSA 2</th>
<th>PDSA 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>60%</td>
<td>75%</td>
<td>82%</td>
<td></td>
</tr>
</tbody>
</table>

CHALLENGES:

- Acceptance of the “goals” to be achieved by the “TEAM” members and sponsors
- Formulating a mechanism to gather information / data.
- Presenting the data analysis to the stakeholders as an opportunity for improvement rather than a punitive / fault-identifying mechanism.
- Compliance of the Referring physicians.
- Sustaining the implementation of the positive outcomes

Overcoming Challenges:

- Team meetings & brain storming sessions with the team members, staff in Radiology department, out patient clinics and in the hospital departments.
- Focus group meetings with referring physicians.
- Sharing of the information and analysis with the higher management for further policy improvements and enhancements.
SUMMARY OF RESULTS:

Patient Safety:
- Reduced Recall-Retake rates ~ 30 %
- Reduction of unnecessary investigations
- Tailored study - effective timely diagnosis
- Better communication between the referring physician, radiologists and technicians.

Quality Improvements:
- Reduced “Turn around Time” ~ 20%
- Improved productivity ~ 20 %
- Increased Patient satisfaction ~ 30 %
- Increased Physician satisfaction ~30 %.

Outcomes of “Ideal” Diagnostic process:

Continuous improvement is better than delayed perfection
— Mark Twain.