POLICIES & PROCEDURES: WHY BOTHER, AND WHY SHOULD THE PHYSICIST PLAY A KEY ROLE?

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P&Ps – spare me!

Policies and Procedures (including Standard Operating Procedures) are often considered a purely administrative function with little relevance to daily clinical operations.

Such a stance is misguided.
The case for P&Ps

• The data from incident learning has shown that inadequate policies & procedures are a common root cause for errors\(^{(1)}\).

• A thorough review\(^{(2)}\) of national and international guidance documents for safer radiation oncology identified 12 common elements, clear policies & procedures being one.

• Modern radiotherapy is becoming much more complex, with IGRT in nearly all US radiotherapy clinics, VMAT in \(\frac{3}{4}\) of all centers, and SRS in more than half of all centers\(^{(3)}\).

\(^{(1)}\) Clark et al, “Patient safety improvements in radiation therapy through five years of incident learning”, Pract Rad Oncol 2012

\(^{(2)}\) Dunscombe P, “Recommendations for safer radiotherapy: What’s the message?”, Frontiers in Rad Oncol 2012

\(^{(3)}\) IMV Benchmark Report 2019

The case for P&Ps

• In the US, more than 1 million radiotherapy treatment courses are delivered each year, distributed across nearly 2,500 clinics. The majority of those clinics are single-linac or two-linac facilities\(^{(1)}\).

• Unlike in other affluent countries with large regional healthcare facilities, broad community adoption of new radiotherapy methods such as SBRT require translation from well-resourced academic medical centers to small community clinics.

\(^{(1)}\) IMV Benchmark Report 2019
The case for P&Ps

- The RO-ILS database now contains >10,000 incidents, providing invaluable insight into failure modes in the radiation oncology process.

- A recent summary report highlights the complexity of modern RadOnc processes with multiple handoff points, and shows how the lack of clear procedures & documentation has contributed to many reported incidents.

RO-ILS: Inadequate SOPs

- [Pie chart showing contributing factors for treatment planning events]

- [Diagram showing contributing factors for communication subcategories]
TG-100 mapped the IMRT process for one of the authors’ institutions, illustrating the complexity of modern workflows:

Of all postulated failure modes, 75% relate to human processes, not equipment or software – underscoring the importance of clear SOPs:

<table>
<thead>
<tr>
<th>Category</th>
<th>Occasions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human failures</td>
<td>230</td>
</tr>
<tr>
<td>Lack of standardized procedures</td>
<td>99</td>
</tr>
<tr>
<td>Inadequate training</td>
<td>97</td>
</tr>
<tr>
<td>Inadequate communication</td>
<td>67</td>
</tr>
<tr>
<td>Hardware/software failure</td>
<td>58</td>
</tr>
<tr>
<td>Hardware</td>
<td>9</td>
</tr>
<tr>
<td>Software</td>
<td>44</td>
</tr>
<tr>
<td>Hardware or software</td>
<td>5</td>
</tr>
<tr>
<td>Lack of staff</td>
<td>37</td>
</tr>
<tr>
<td>Inadequate design specifications</td>
<td>32</td>
</tr>
<tr>
<td>Inadequate commissioning</td>
<td>18</td>
</tr>
<tr>
<td>Use of defective materials/equipment</td>
<td>12</td>
</tr>
</tbody>
</table>
After 13 years of study, TG-100 recommended a set of “key core components” for quality and safety in any RadOnc program:

Aside from the many QM recommendations produced by the analysis, a number of “key core components” for quality were identified. Their absence in the QM program significantly increases the likelihood that a large fraction of the failure modes identified will actually occur. The key core components that any safe and high quality IMRT program must include are:

- Standardized procedures.
- Adequate training of staff.
- Clear lines of communication among staff.

In addition to these, other components essential for quality treatments include:

- Maintenance of hardware and software resources.
- Adequate staff, physical and computer resources.

The role of P&Ps

- Properly designed and updated Policies & Procedures can address many of the aforementioned priorities.
- To be useful, P&Ps must be relevant, accessible, current, and field tested.
- Medical physicists are uniquely positioned to analyse the clinical process and assist the clinical team with development of effective P&Ps. That’s one of the key messages of TG-100.
Developing P&Ps

- Involve the entire team who will perform the procedure
- Map the process with the team
- Draft the P&P
- Seek input
- Make it accessible
- Dry run
- Educate
- Monitor
- Tweak