

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

Per H. Halvorsen

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Beth Israel Lahey Health 
Lahey Hospital & Medical Center 

P&Ps – spare me!

Beth Israel Lahey Health 
Lahey Hospital & Medical Center

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.



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The case for P&Ps

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Lahey Hospital & Medical Center

- 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

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The case for P&Ps

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- 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.

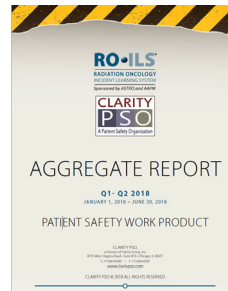
(1) IMV Benchmark Report 2019

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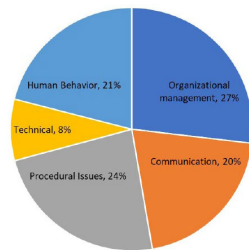
The case for P&Ps

- 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

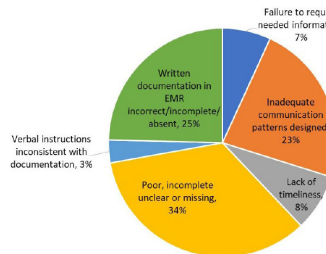
#231. Contributing Factors (Categories) for Treatment Planning Events



#208. Occurred_Workflow = 'Treatment Planning'
Q3 2016* to Q2 2018
Select all that apply
n=413

*RO-ILS Data Elements were updated August 2016

#231. Contributing Factors (Communication Subcategories) for Treatment Planning Events



#208. Occurred_Workflow = 'Treatment Planning'
Q3 2016* to Q2 2018
Select all that apply
n=172

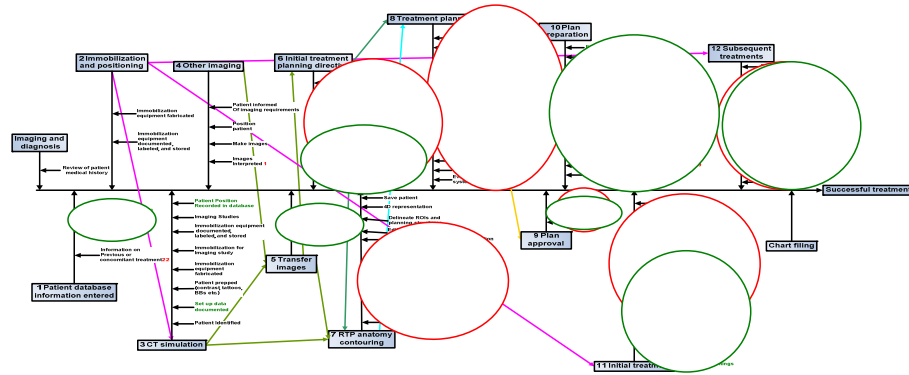
*RO-ILS Data Elements were updated August 2016



TG-100: IMRT process

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Lahey Hospital & Medical Center

- TG-100 mapped the IMRT process for one of the authors' institutions, illustrating the complexity of modern workflows:



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TG-100: IMRT process

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

4240 Huq et al.: TG 100 report

TABLE XI. Most common classifications for the possible causes for the failure shown in the IMRT fault tree analysis in Appendix E (Ref. 141).

Category	Occurrences
Human failures	230
Lack of standardized procedures	99
Inadequate training	97
Inadequate communication	67
Hardware/software failure	58
Hardware	9
Software	44
Hardware or software	5
Lack of staff	37
Inadequate design specifications	32
Inadequate commissioning	18
Use of defective materials/tool/equipment	12

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TG-100: IMRT process

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- 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.

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The role of P&Ps

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Lahey Hospital & Medical Center

- 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.

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Developing P&Ps

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- 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

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