



**RO•ILS™**

RADIATION ONCOLOGY  
INCIDENT LEARNING SYSTEM

*Sponsored by ASTRO and AAPM*



# QUARTERLY REPORT

## PATIENT SAFETY WORK PRODUCT

**Q4 2014**

OCTOBER 1, 2014 – DECEMBER 31, 2014

CLARITY PSO,  
a Division of Clarity Group, Inc.  
8725 West Higgins Road • Suite 810 • Chicago, IL 60631  
T: 773.864.8280 • F: 773.864.8281  
[www.claritypso.com](http://www.claritypso.com)

## AGGREGATE REPORT CARD – Q4 2014

October 1, 2014 – December 31, 2014

Metric	Aggregate Current Quarter	Aggregate Previous Quarter	Provider Historical Quarter Average
<b>Total Number of Events</b>	<b>73</b>	<b>66</b>	<b>73</b>
Patient Incident	32	30	32
Near Miss	24	25	24
Unsafe Conditions	17	11	17
Not patient related	0	0	0
<b>Most Commonly Identified Characterization of Event</b> (Excluding Unanswered/Not Sure)	<b>Omitted Procedure:</b> 15% (11/73)  <b>Unanswered/Not Sure:</b> 68% (50/73)	<b>Omitted Procedure:</b> 21% (14/66)  <b>Unanswered/Not Sure:</b> 55% (36/66)	<b>Omitted Procedure:</b> 18% (13/73)  <b>Unanswered/Not Sure:</b> 59% (43/73)
<b>Most Commonly Identified Workflow Step Where Event Occurred</b>	<b>Pre-Treatment Review and Verification:</b> 18% (13/73)  <b>Unanswered:</b> 45% (33/73)	<b>Treatment Planning:</b> 15% (10/66)  <b>Unanswered:</b> 68% (45/66)	<b>Treatment Planning:</b> 15% (11/73)  <b>Unanswered:</b> 60% (44/73)
<b>Most Commonly Identified Treatment Technique</b>	<b>3D:</b> 22% (16/73)  <b>Unanswered:</b> 49% (36/73)	<b>3D:</b> 21% (14/66)  <b>Unanswered:</b> 26% (17/66)	<b>3D:</b> 29% (21/73)  <b>Unanswered:</b> 36% (26/73)
<b>Top Characterization of Events with Dosimetric Severity That Reached the Patient</b>	<b>Multiple:</b> 13% (4/32) (see graph)	<b>Incorrect Dose:</b> 13% (4/30)	<b>Incorrect Dose:</b> 9% (3/32)
<b>Potential Future Toxicity Within Events That Reached the Patient</b>	<b>None or mild:</b> 47% (15/32)  <b>Unanswered:</b> 50% (16/32)	<b>None or mild:</b> 27% (8/30)  <b>Unanswered:</b> 57% (17/30)	<b>None or mild:</b> 39% (13/32)  <b>Unanswered:</b> 48% (16/32)

---

# ANALYSIS & COMMENTARY

## ANALYSIS OF NEAR MISS/UNSAFE CONDITION EVENTS

There were 42 events (58%) reported as near miss (25) or unsafe condition (17). In reviewing these events, the following patterns emerged:

### *Near miss*

- Incorrect name, plan, prescription, calculations, treatment, labeling; missing information
- Communication (transitions, allergies, consents)

Some of the recovery interventions which intercepted the potential incident included:

- Checks/reviews at all stages (initial through final check)
- Patient vigilance (2 events)
- Time-outs

### *Unsafe condition*

- Documentation issues
- Scheduling issues resulting in delays
- Equipment malfunction/environmental safety issues
- Lack of handoff
- Lack of patient education

**Human behavior involving staff** were reported in 12 incidents and 7 near miss/unsafe condition events and were overall **related to slips or provider judgment/way of thinking issues**.

## ANALYSIS OF RECURRING THEMES AND SUMMARY OF PATIENT INCIDENTS WITH MEDICAL IMPACT

This quarter's patient incidents with medical impact exhibited many of the typical themes that have been identified as recurring throughout radiation oncology.

- **Staff feeling rushed** (*see Case Review 1 in next section*): Patient with history of previous spine treatment required emergency spine treatment. Contributing factors included patient acuity and competing priorities. A slip/lapse extending from this contributed to a treatment field being designed without the patient's previous treatment in mind. The error was caught during the physics check.
- **Incorrect spinal level lesion identified** (*ex: T3 instead of T5*): The physician's plan was to treat a thoracic lesion. The physician ordered treatment to include a level above and below the lesion that he visually saw on CT. The radiologist incorrectly identified the lesion as being on T3. During the block check it was discovered that the treatment fields were centered on T5, thus varying from the original written order of the physician and radiologist. The radiologist was called for confirmation that T5 was indeed the location of the lesion and the region that should be treated was T4-T6. The radiologist confirmed the error in the radiology report and that the treatment fields were indeed centered correctly (on T5). Both the physician and radiologist incorrectly identified/documenting the treatment field as T3 instead of T5. Ultimately, the radiation oncologist is responsible for the final design of treatment field.

---

## ANALYSIS & COMMENTARY | continued

- **Miscommunication:** An order was written to position patient for treatment of left breast and supraclavicular nodes, but clinical notes indicated only the left breast should be treated. A note was made by the dosimetrist to have the left breast and supraclavicular nodes treated with physician approval. Upon chart rounds, it was discovered that the physician corrected the treatment plan to have the left breast treated; however, the patient received two treatments to the supraclavicular nodes that was unintended and led to patient receiving greater than 5-25 percent absolute dose deviation from the total prescription of any structure.
- **Incorrect isocenter:** Patient had two targets with two separate isocenters and was re-simulated and re-planned. Dosimetrist gave moves assuming that the isocenters had not changed from the original plans. Once plans were reviewed, the second isocenter was noted and new moves were provided to the dosimetrist.
- **Calculation error 1:** A backup TBI method was being commissioned and a worksheet had been developed by both the physicist and dosimetrist. A second physicist checked the worksheet. A third physicist then reviewed the worksheet and identified that the MU calculations were being done incorrectly. It was noted that the error was difficult to detect.
- **Calculation error 2:** During an I-125 plaque treatment for ocular melanoma a tilt of the plaque was noted. Per protocol, a calculation was performed to compensate for this tilt by extending the treatment time. However, this calculation was performed incorrectly. The error was caught in review just prior to the appointment to have the I-125 removed. This led to the patient having to keep the implant in for longer than anticipated and inconvenienced the patient due to the fact that he/she had to return a third time for the removal of the I-125.
- **Incorrect treatment area identified:** At the time of consult, the treatment region was incorrectly identified and thus the incorrect skin lesion was treated.

---

# CASE REVIEW

Case reviews offer an opportunity to learn about patient safety through sharing of actual events.

## CASE REVIEW

**Problem:** Members of the health profession are being distracted or interrupted, even when performing critical tasks. Multi-tasking is expected from those being interrupted, and constant distractions and interruptions are generally accepted as the norm in the work environment.

In one of the reported events, a patient came in for emergency spine treatment. The fields were designed by the physician and dosimetrist without reviewing the patient's previous treatment. During the physics review, before treatment, this was noted. A new planning scan was created and the fields were changed by 1.5 cm. Without the review of the prior treatment the high dose regions would have bordered each other with no safety margin and possibly a region of overdose. **The events of the day contributed to the situation. Two emergencies occurred that day; the physician had multiple other clinical activities going on, and the dosimetrist had several cases with deadlines for that day which required his/her time.** The prior treatment prescription was called right rib without mentioning the vertebral bodies which were included in the treatment fields. While the prescription labeling was not incorrect, different labeling may have assisted the dosimetrist in noting something was missing from the earlier plan. Due to the events of the day, the physician forgot about the prior fields (which he had evaluated earlier in the day) by the time the plan was being reviewed.

**Effects of Distractions or Interruptions:** Distractions or interruptions include anything that draws away, disturbs or diverts attention from the current task, forcing attention on a new task at least temporarily. While focusing on a new task, or another task that is time sensitive, individuals feel pressured which can create a stress that can increase the risk of an event in the form of omissions, mental slips, or mistakes.

## SAFE PRACTICE RECOMMENDATIONS

- **Checklists:** As noted within the data, checklists do in fact protect patients from errors. This quarter 34 percent (25/73) of events were submitted as a near miss and those interventions that caught the errors were checklists, time-outs and patient vigilance. A relevant checklist item for this case study might have been a checklist item that queries for evaluation of previous radiation treatment. This might be included on a checklist for the dosimetrist, the physicist or for peer-review chart rounds. It is important to analyze your frontline staff's perceptions regarding the current checklist and time outs implemented within your organization/department. When providers are required to do multiple checklists and time-outs, checklist and time out fatigue may occur creating gaps in which errors can pass through to the patient. It is vital that providers view and value their checklists and time-outs in order to best prevent errors and protect patients. A forthcoming report from AAPM (Medical Physics Practice Guideline #3) provides further background and advice on the development and use of checklists.

---

## CASE REVIEW | continued

- **Identify sources of interruption that are common:** Consider asking dosimetrists and other providers where their main sources of interruption stem from and in combination with data analysis a more focused effort towards alleviation of those dangerous interruptions can be implemented. It may be of value to examine the time of day, staffing, patient load, equipment failure, case turnover times and specific reasons for case delays. Several seemingly miniscule delays add up and may account for staff feeling rushed which also leads to providers not having the time nor the concentration available to follow through with the appropriate checklists and thoroughness prior to each case.
- **No interruptions zones:** Identify high-risk processes with the highest risk for actual/potential harm and/or requires complete attention/concentration. Consider whether or not it would be helpful and reasonable to institute identified process(es) as a no-interruption zone. Since such a designation would mean “no interruption” during this time unless an emergent issue arises, the number of processes for this would need to be limited to those most critical. Below are just two resources from other disciplines on this safety strategy adapted to their needs.
  - **Emergency Physicians Monthly (2014)– The No-Interruption Zone**  
(<http://www.epmonthly.com/features/current-features/the-no-interruption-zone/>)
  - **Critical Care Nurse (2010) - No Interruptions Please**  
(<http://ccn.aacnjournals.org/content/30/3/21.full.pdf+html>)
- **Time management of cases:** Contemplate defining what constitutes an emergency within your department. Also, consider whether a protocol should be instituted for emergencies in which extra staff need to come in to assist with the patient workload or perform an evaluation of case times (on average how long does each type of procedure take, what is the most time efficient manner to schedule the cases, and when are the most complex/emergency cases most likely happen during the day). Is it possible to initiate a process or an alert that allows providers to be aware that certain times of day or in certain circumstances they need to be increasingly alert because there is a high likelihood of errors occurring under these circumstances.
- **Peer review prior to treatment:** Assess whether performing peer review prior to treatment would be of benefit for your department. When is peer review performed within your department? Are cases triaged and those that meet high risk for error criteria then peer reviewed? Under what circumstances is peer review most/least useful from your providers’ perspectives?
- **Site Description:** It is important to understand details of the site being treated. Having more robust descriptions will lead to better analysis of both near misses and real safety events.

---

# ADDITIONAL CONSIDERATIONS

When evaluating events that involve distractions, multi-tasking, and interruptions as contributing factors for errors multiple questions are raised.

- What factors cause providers to feel rushed (the culture, the caseload, necessary resources not readily available, an inappropriate ratio of providers to patient load, etc.)?
- When providers are being pulled in multiple directions at the same time, prioritization is required in order to accomplish the tasks that are most necessary first.
  - Prioritization, awareness, and communication are vital within each case, but is it possible to highlight certain times of day, situations or environments in which elements are lining up creating an unsafe condition and thus at these moments providers must be highly cognizant of the need to be even more vigilant?
- With regard to the case study, multiple emergencies in one day on one shift can lead to an unsafe environment simply due to the fact that providers are being forced to multi-task highly complex situations.
  - Would it be of worth or even possible to design and implement "emergency" algorithms reminding providers of the communication pathways or prioritization processes that need to be taken - a reminder of the minuscule, the easily forgotten, but **absolutely vital** steps that must be taken to protect patients?
  - Should facilities define what their "emergency or disaster" situations are and plan accordingly?
  - Is it possible to evaluate what events and scenarios stress the facility to its limits and then have plans setup to handle those high stress times?
- What type of handoffs are typically performed in radiation oncology?
  - Is there research that backs up how handoffs are done? If there is not already one in place, should there be a standard handoff that assists providers in making sure that all the important details are covered during the transfer of care?
- When it comes to patient education does a gap exist between patients and their providers in regards to education and care; does one assume the other is covering certain aspects of care or knowledge and vice versa leading to important pieces of knowledge falling through the cracks and thus the creation of unsafe conditions?

---



# SUGGESTIONS

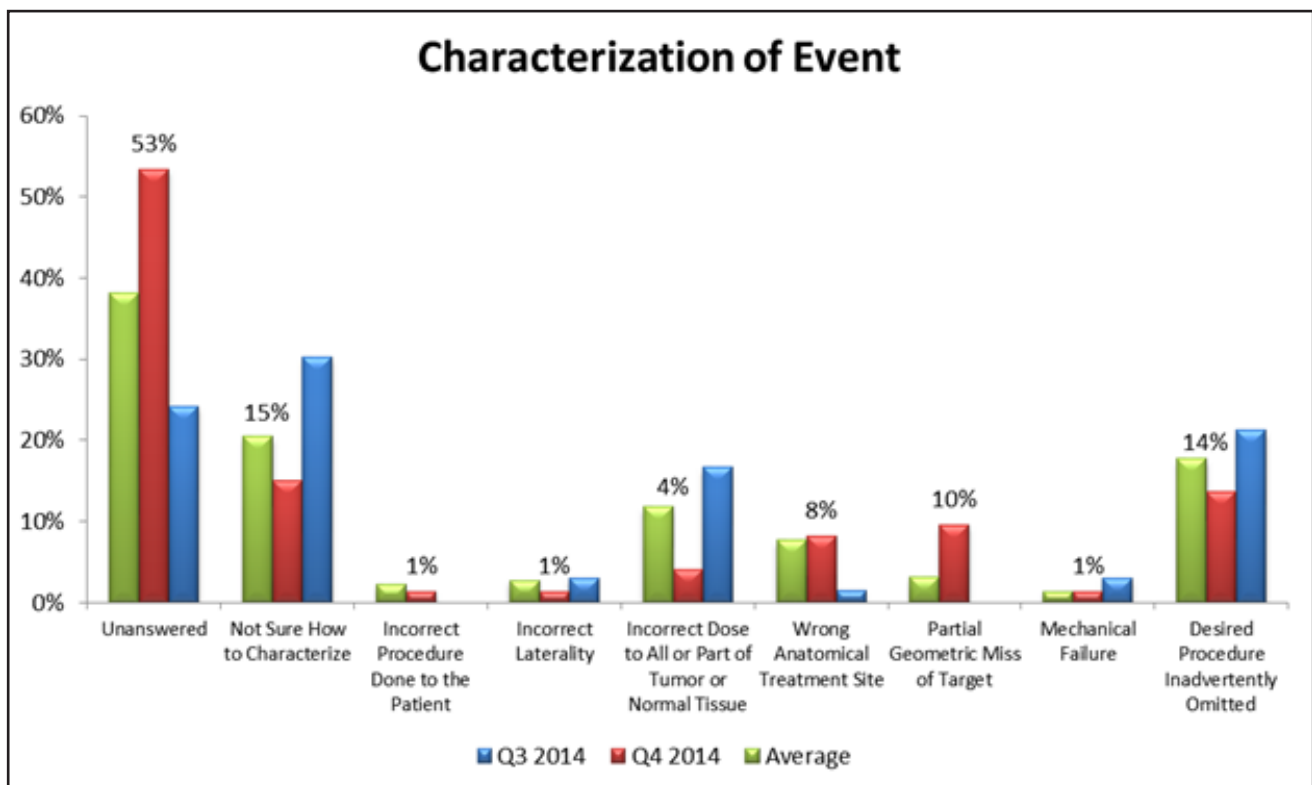
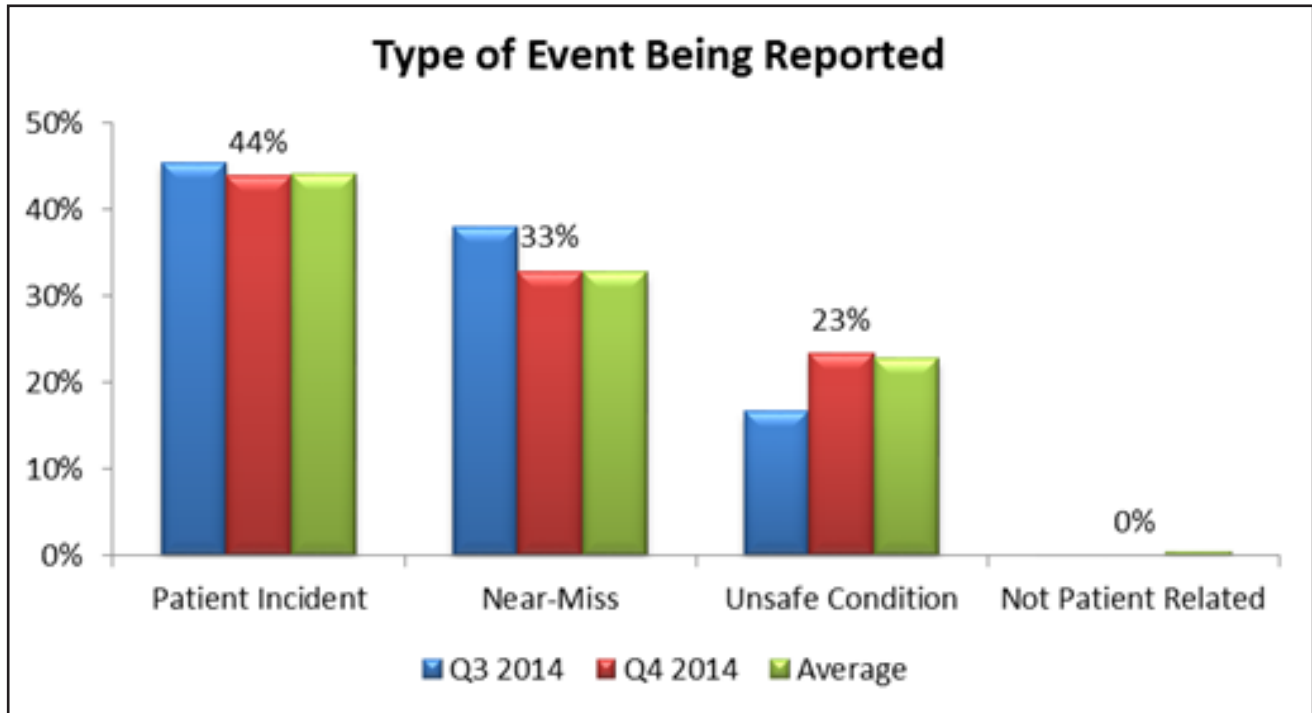
## **SUGGESTIONS FOR IMPROVING THE USE OF THE RO-ILS SYSTEM**

It has been noted that inconsistencies remain in certain aspects of how the RO-ILS system is utilized. More data is needed to enable a thorough and valid analysis of characteristics and trends within this data. One of the cornerstones that allows for deep analysis and subsequently highly valuable information is robust data entry. Therefore, be aware that missing data is the largest shortcoming in the RO-ILS program. We encourage providers to complete as much of the “My Review” section as possible to ultimately yield meaningful data.

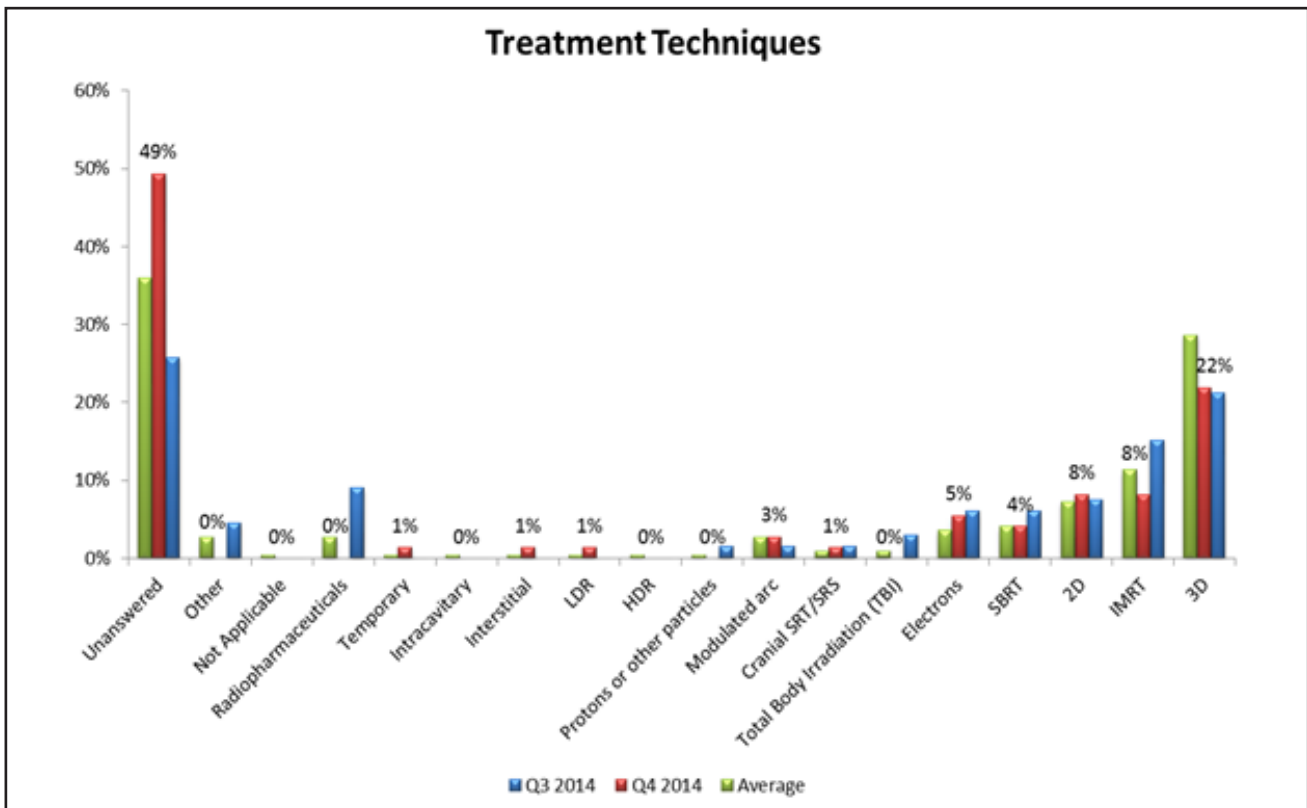
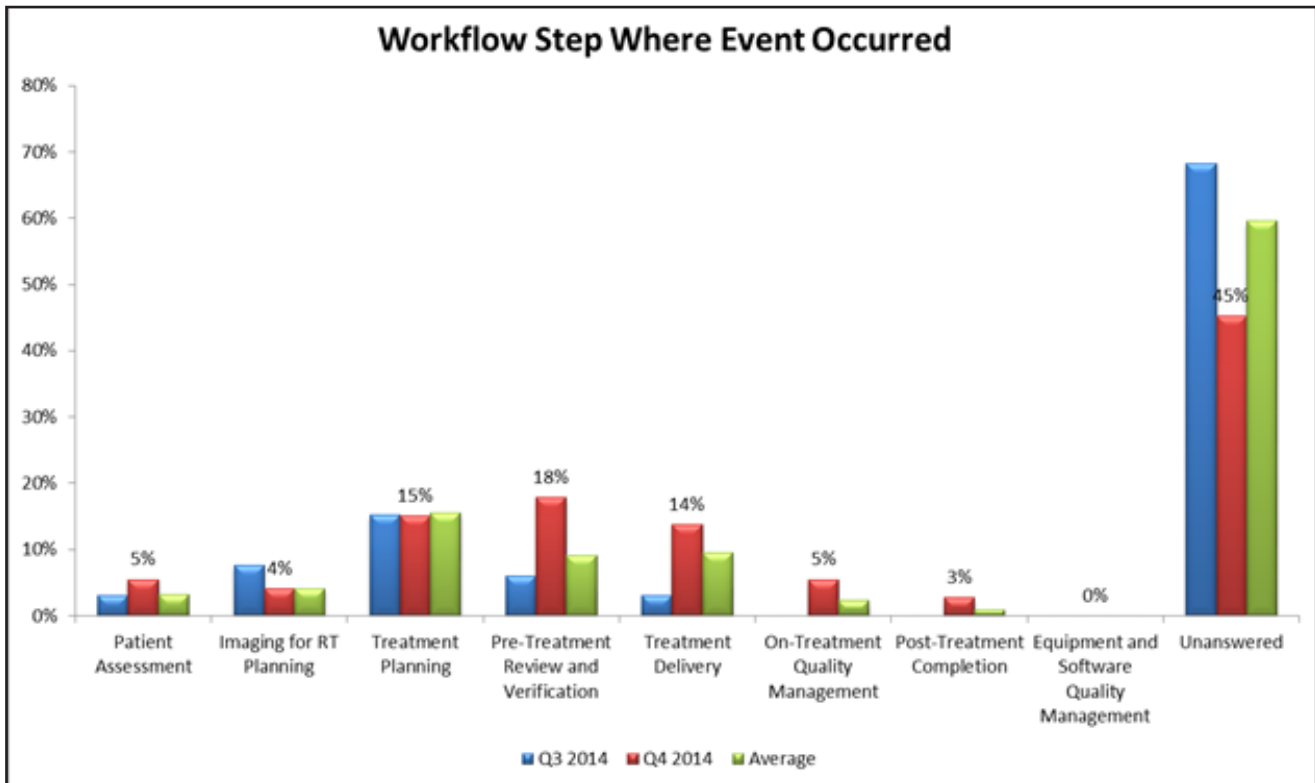


# AGGREGATE ANALYSIS GRAPHS

PERCENTAGES LISTED (RED BAR) REPRESENT THE CURRENT QUARTER'S DATA.



# AGGREGATE ANALYSIS GRAPHS | Continued



# AGGREGATE ANALYSIS GRAPHS | Continued

