



# CRCPD's Committee on Radiation Medical Events

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# Background:

- \* 2010: H-38 committee formed, survey of states found that 23 states had reporting requirements of some kind for machines
- \* 2013 CRCPD began a MOU with AAPM for analyzing event data
- \* 2016- 42 out of 50 states responded
  - \* 22 have some requirement for reporting of Diagnostic Events
  - \* 35 have some requirement for reporting Therapy Events
  - \* Contacts for all states have been posted to the CRCPD website and shared with AAPM and ACR (American College of Radiology)
- \* CRCPD can accept events from any state or local agency with reporting requirements in place

# Why Collect this Information

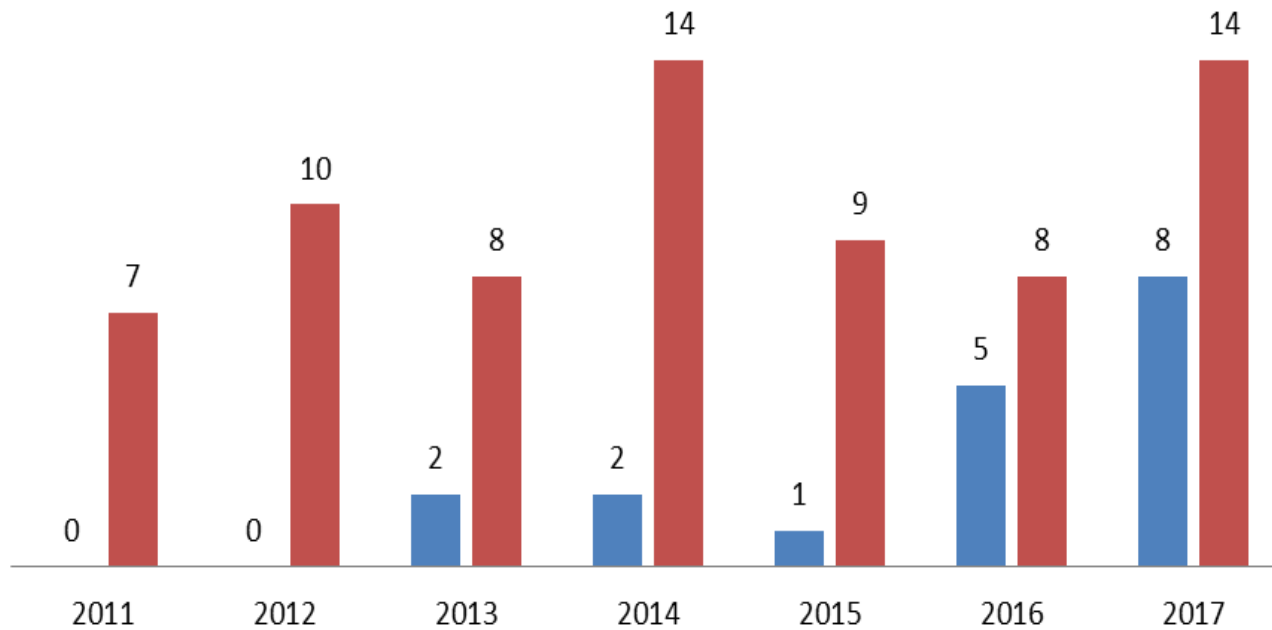
- \* Share lessons learned
- \* Prevent errors
- \* Look for trends
- \* Improve patient care and safety

# How are events reported and analyzed?

- \* Links to reporting forms and instructions are on the CRCPD website-Completed forms are submitted to CRCPD.
- \* States with requirements will report the events to CRCPD (not facilities).
- \* The H38 committee compiles the event data once per year and shares the anonymized data with the AAPM.
- \* AAPM and CRCPD work together to produce an annual report. The summary is presented at the National Conference on Radiation Protection.

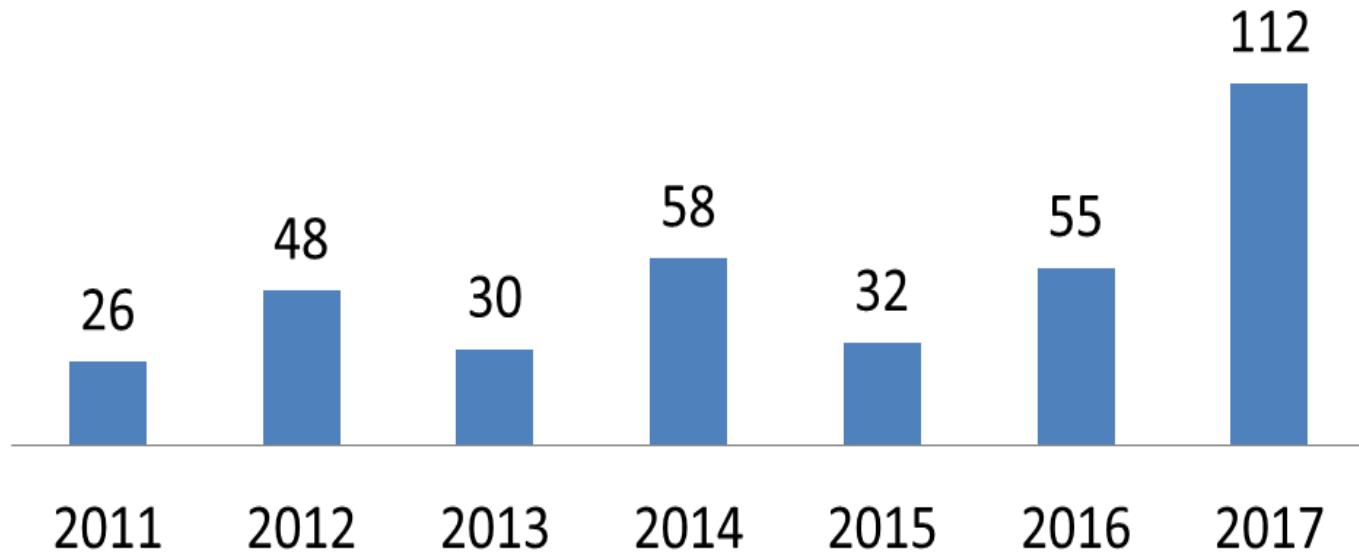
## Number of States Reporting Events to CRCPD

■ Diagnostic ■ Therapy



## Events Reported by Year

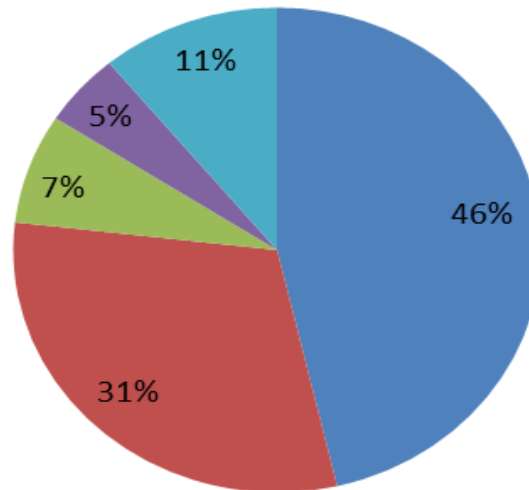
■ Events Reported



# Diagnostic Events

## Types of Diagnostic Events 2011-2017

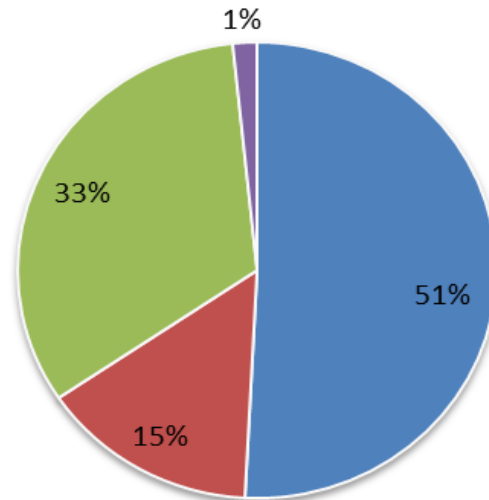
■ Wrong Patient ■ Wrong Site ■ Wrong Exam/Modality ■ Exceeded 200 Gy ■ Other



# Diagnostic Events

## Modality for Diagnostic Events 2011-2017

■ CT ■ Fluoroscopy ■ Radiography ■ Other





# Diagnostic Event Examples

- \* CT Event

- \* Two brothers with similar names and same birthday-wrong child was imaged (3.144 mSv)

- \* The adult guardian with the patient gave permission to the technologist to image the patient. The child was six and had a name very similar to his brother who was the actual patient. Both children had the same birthday. Both children also have brain abnormalities and have been scanned before. The child agreed to both the name and birthday asked to him by the technologist. The technologist did not check for an arm band on the patient which is required by the facility. The technologist received a written reprimand and additional training. The technologist self-reported the error to the supervisor.

# Diagnostic Event Examples

- \* Cone Beam CT Event

- \* Non patients exposed for training purposes

- \* X-ray inspector inquired about training on equipment and was told that the first day of training consisted of imaging employees and employee family members. The second day included those that might need implants. Vendor found it acceptable to image employees and employee family members. They will be cited and will be re-inspected on a more frequent basis.

# Diagnostic Event Examples

- \* Fluoro Event

- \* Dose to the site exceeded 21.11 Gy

- \* Interventional Cardiologist had difficulty placing the stent and patient received 102 minutes of fluoroscopy time resulting in a very high radiation dose. Interventional Cardiologist was informed repeatedly by technologist that the 5 minute timer on the control panel had alarmed, technologist was repeatedly told to reset the timer. There were several impediments to stent placement and after 102 minutes of reported fluoro time and a control panel readout of 21,110 mGy the procedure was abandoned without successful placement of the stent. Corrective action plan is being developed with direction from State Radiation Control Program. Physician will have peer review.

# Diagnostic Event Examples

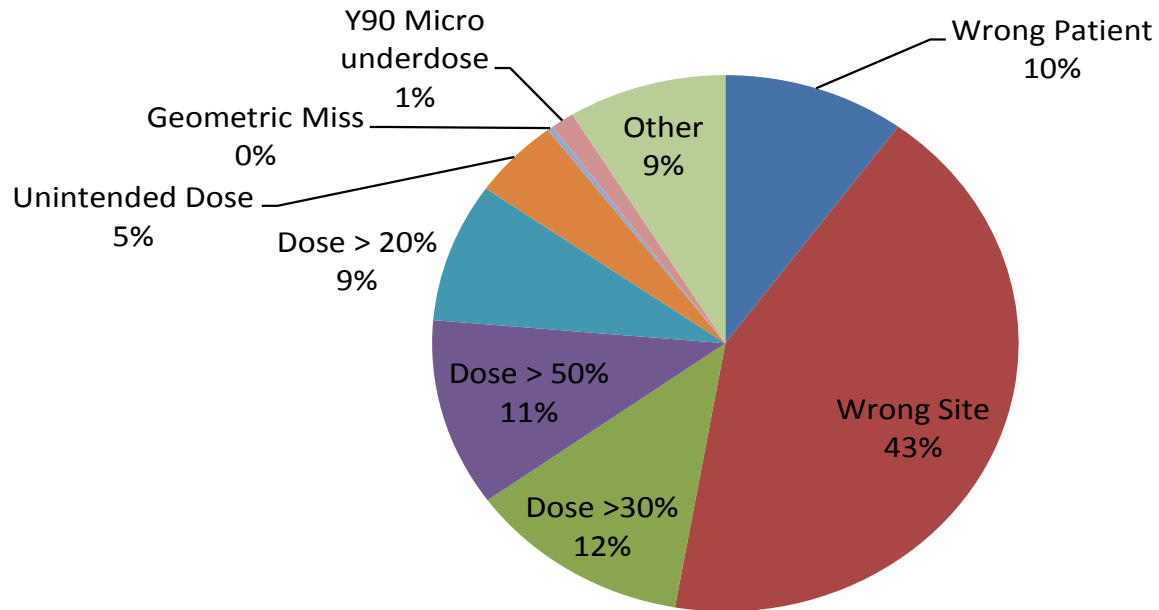
- \* Unusual Event

- \* 5 people imaged after hours in an equipment demonstration

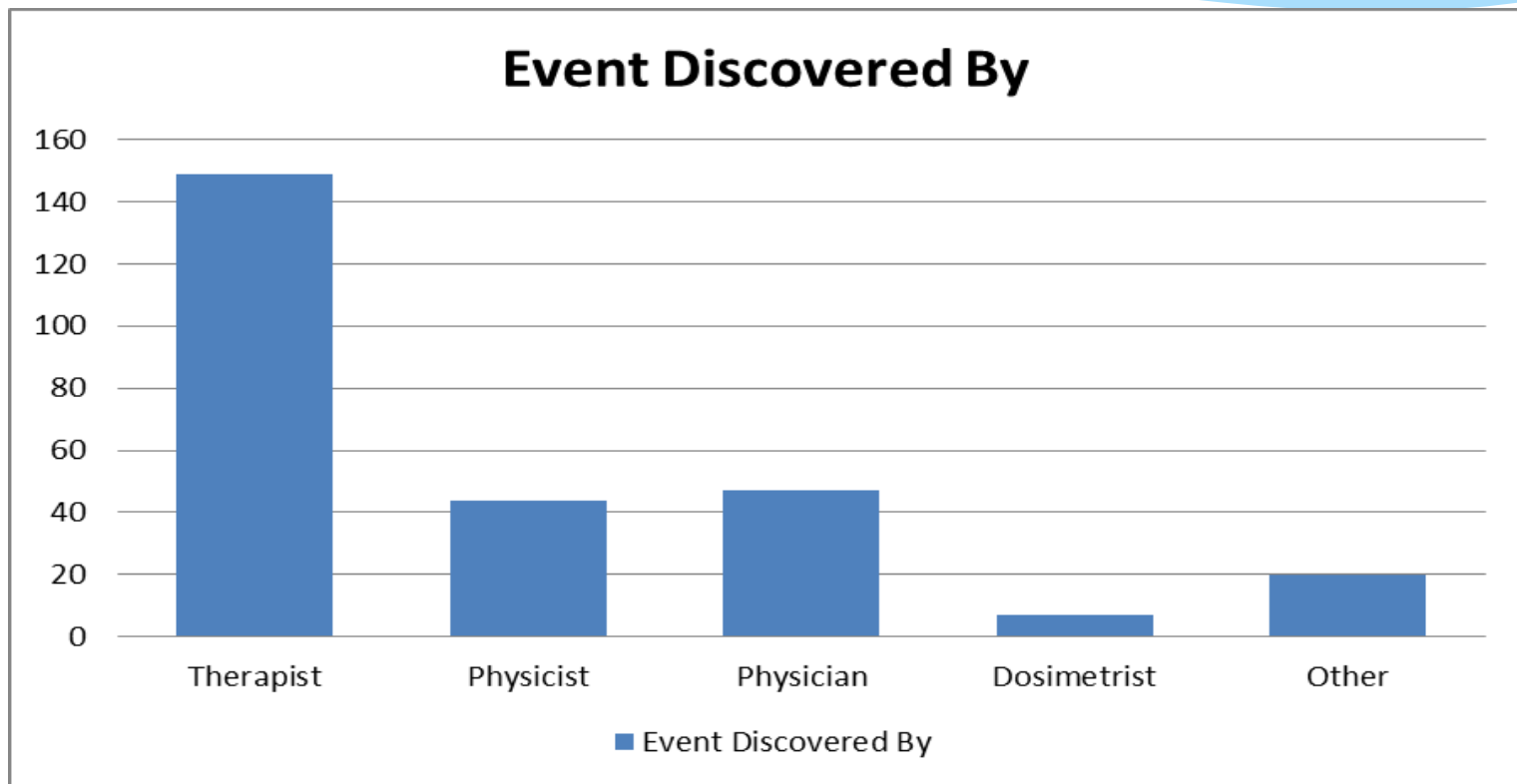
- \* The x-ray technologist was directed to perform the x-rays for demonstration purposes by the Chief of Marketing of the medical imaging company. A total of 27 radiographs were taken as described above. The next morning when the radiologist arrived at work he located the radiographs on his PACS station and questioned the staff where they come from. The radiologist met with the imaging center's managers, x-ray technologist staff, and risk management, and performed re-education on the existing policy that requires a physician order to perform x-ray procedures. They also provided refresher radiation safety education/training. Additionally, the existing policy was updated to provide the imaging department staff with support and direction in maintaining compliance with the policy.

# Therapy Events

## Types of Therapy Events 2011-2017

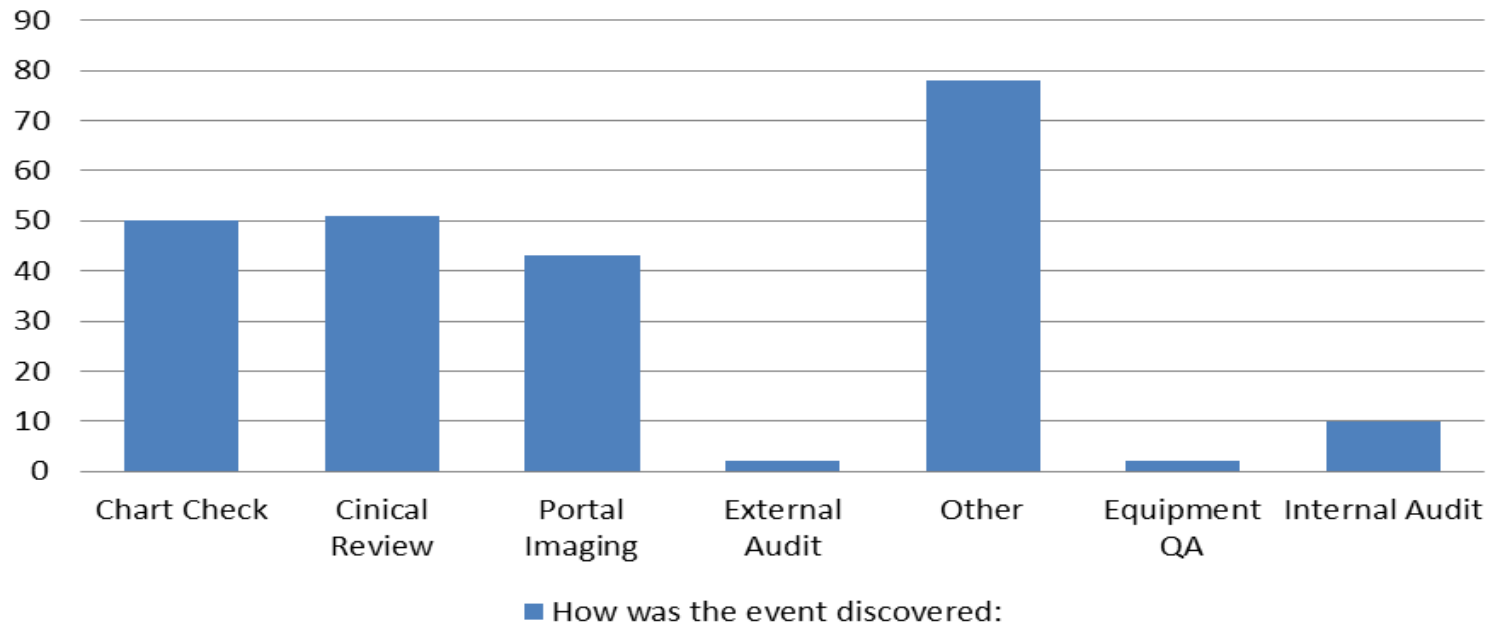


# Therapy Events



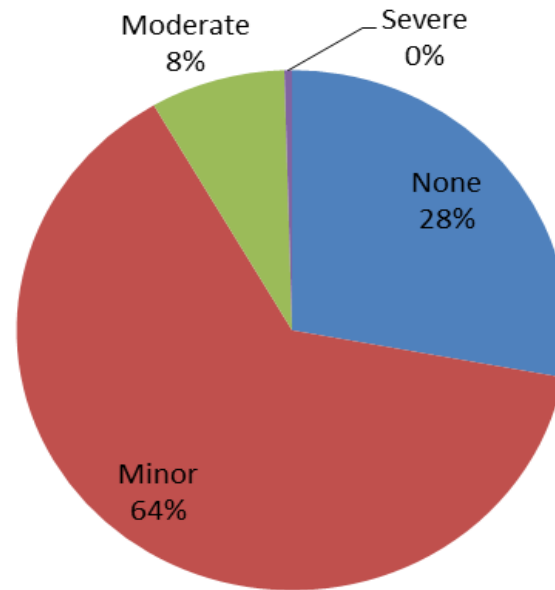
# Therapy Events

**How was the event discovered 2011-2017:**



# Therapy Events

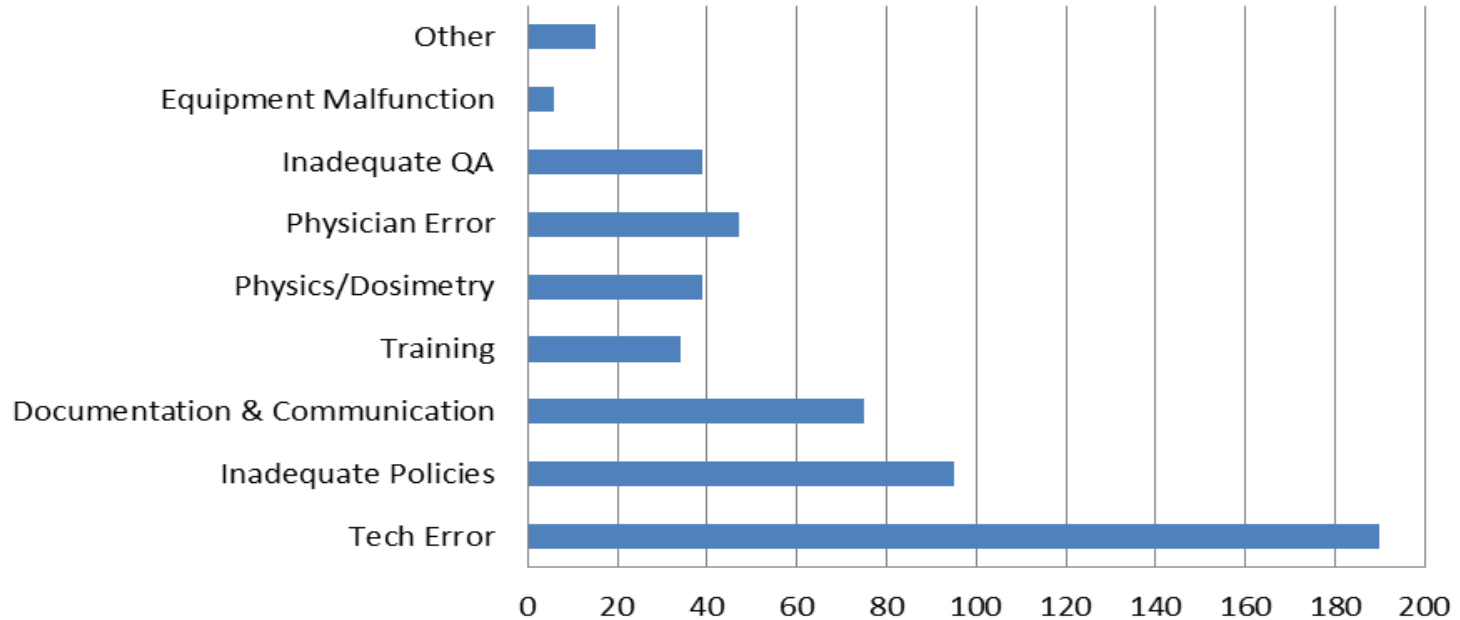
**Severity of Event 2011-2017**





# Therapy Events

## Causes & Contributing Factors 2011-2017



# Therapy Event Examples

- \* Wrong site treated for 3 of 12 fractions due to covering rad onc not noticing
  - \* Physician providing oversight will verify complete accuracy of approved image matching with the planned digitally reconstructed radiograph with respect to the prescribed treatment volumes.
- \* Tech ignored record and verify alarm resulting in an unintended treatment site
  - \* A new setup instruction has been created for upper abdomen, staff has been retrained on leveling and isocenter marks, and port films must be taken any time a record and verify alarm is received. A therapists time out policy between the two treating therapists has been implemented as well.

# Therapy Event Examples

- \* Patient received 2 fractions on the same day due to equipment failure
  - \* Revisions of policy to include: 1) addition of no treatments outside of the "Outside Information System" without consulting physics and the provider. 2) addition of approval needed by physics and provider before acknowledging a system message indicating a potential second treatment of the day. 3) establish a process to involve physics staff in determining the definition and impact of all error codes on the treatment machines and provide an appropriate course of action for each code.
- \* Wrong treatment prescription: 2 Gy for 5 fractions instead of 5 Gy for 2 fractions
  - \* Corrective action has been taken in the form of dosimetry timeouts and physics timeouts along with pretreatment "New Start Chart Review" for each new patient

# Therapy Event Examples

- \* Correct dose for fractions 1-8, doubled dose for 9-14, remaining fractions suspended
  - \* 1. Existing department policy requires an initial physicist check of the treatment plan and electronic chart at the start of treatment. We are revising existing guidelines to include a check that Plan Name, Trial Name and (plan) Revision number are consistent across the relevant pages of the plan document. This check by the dosimetrist and physicist would have caught the error prior to patient treatment.
  - \* 2. Computer treatment plans used for data export to the accelerator control system will be generated from plans already reviewed by a physician. Unused plans created before the physician reviewed plan created will be eliminated.
  - \* 3. Physicians may order diode dose measurements in the radiation field per existing policy when working with unusual blocking patterns ( e.g.half-beam block). this would have caught the error on the first day of incorrect treatment.

# CRCPD Contact Information

- \* [www.crcpd.org](http://www.crcpd.org)
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