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# Status of Medical Events FY 2011

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September 23, 2011

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# Medical Events 2011

- **49 Medical events reported - FY 2010**
- **58 Medical events reported - FY 2011**

| | FY10 | FY11 |
|---|---|---|
| 35.200 | 1 | 3 |
| 35.300 | 4 | 6 |
| 35.400 | 25 | 26 (2?) |
| 35.600 | 12 | 12 |
| 35.1000 | 7 | 11 |

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# Medical Events 2011

## Diagnostic Medical Event

35.200 3

I-123 contaminated with I-131 1

- Oral I-123 capsule given
- Excessive image background observed
- Both I-123 and I-131 peaks seen
- Vial cap contaminated with I-131
- 380 cGy (rad) to thyroid of child

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# Medical Events 2011

## 35.200 (continued)

I-123 intended I-131 given 1

- 5 mCi I-131 given instead of prescribed 5 mCi I-123

In-111 (Octreotide) intended Sr-89 1

- Picked up expired Sr-89 syringe
- 63 cGy (rem) dose to bone marrow

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# Medical Events 2011

## 35.300 Medical events 6

– Phosphorus 32 (2 patients) 1
  - Treating Cystic Craniopharyngioma
  - Notices inflammation surrounding cyst and drainage catheter
  - Expected doses of 30,000 and 20,000 rads received 56,500 and 50,700 rads
  - Drug manufacturer measurement issue

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# Medical Events 2011

## 35.300 (continued)

– Samarium-153 1

- Syringe connected to 3 way stopcock
- Removed syringe at wrong time
- Lost some activity before reconnecting syringe
- Prescribed 25.6 mCi delivered 14.8 mCi

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# Medical Events 2011

35.300 (continued)

– Oral Sodium Iodide I-131 4

- Prescribed 25 mCi assayed 19.9 mCi; physician accepted the higher dosage; written directive was not changed
- Prescribed 20 mCi gave 100 mCi intended for another patient
- Prescribed 150 mCi received 75 mCi – one capsule left in vial
- Prescribed 2 mCi gave 1.58 mCi found on audit

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# Medical Events 2011

**35.400 Medical events** 26 (2?)

- Bilary Duct 1
- Prostate 25
- Prostate undetermined 2

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# 35.400 Medical Events

**Bilary Duct** Ir-192 1

- Intended dose of 20,000cGy (rad) delivered 124 cGy (rad)
- Guide wire moved 5 cm during administration

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# 35.400 Medical Events

**Prostate** (81 Patients) 25

**8 licensees had multiple medical events -**

- Our Lady of Bellefonte Hospital - 35
- Highlands Regional Medical Center – 3
- Western Baptist Hospital - 3
- Saint Nicholas Hospital – 6
- Saint Vincent Hospital - 9
- Saint Mary's Hospital – 2
- Gundersen Lutheran Medical Center - 3
- Saint Elizabeth Hospital - 3

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# 35.400 Medical Events

**Prostate** (continued)

**8 licensees had multiple medical events –**

- Poor records, no written directives, no post-implant CT, no post implant doses recorded
- Not reviewing cases against medical event criteria
- Poor image quality post-operative CT
- Clinical limitations of the techniques working on improving processes
- No reason given

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# 35.400 Medical Events

**Prostate** (Other 17 licensees)

- 8 Suboptimal dose distribution, poor placement, poor/no visualization, incorrect identification of prostate
- 3 Tumor volume increase due to edema
- 2 under dose to the prostate, no definitive reason
- 1 Air kerma - over dose
- 1 Prescribed partial treatment gave full
- 1 Two sets of seed for one patient
- 1 Anatomy issues

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# 35.400 Medical Events

**Prostate** Undetermined

**2 licensees with overdoses (8 patients) –**

- NRC is reviewing

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# Medical Events 2010

**35.600 Medical events** 12

- HDR 10
  - Savi 8 (15 patients) 4
  - Breast Balloon 1
  - Broncial 2
  - Other 3
- Gammaknife 2

# 35.600 Medical Events

**HDR Savi-8** (15 patients) 4

- Did not reset default dwell positions - 5mm steps prescribed gave 2.5 mm (11 patients)
- Did not reset start position default from connector end
- Wrong catheter length – wire marker stopped at maximum curvature not end (2 patients)
- source punched through catheter 500-5,00 cGy (rad) to the skin

# 35.600 Medical Events

**HDR (continued)**

Breast Balloon 1

- Ultrasound was used to image the balloon before one fraction – inoperable CT scanner
- Drainage was observed at the surgical incision
- Balloon discovered to be drained at next visit
- Possibly 680 cGy (rad) double dose

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# 35.600 Medical Events

**HDR Bronchial** 2

- Wrong site – orientation error – 1,500 to 2,000 cGy (rad) to larynx region.

- Wrong site - Dwell positions in treatment plan misrepresented – larynx received 233 cGy (rad) intended 42 cGy (rad)

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# 35.600 Medical Events

**HDR Other** (6 patients) 3

- 60% under dose - physicist did not calculate effect of tube used to deliver
- Wrong transfer tube – length was 12 cm longer that treatment length – skin reddening 270 to 450cGy (rad) (4 patients)
- Wrong transfer tubes on 3 of 4 catheters for 3 fractions - overdose to skin – 59% under dose to treatment site

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# 35.600 Medical Events

## Gammaknife 2

- Computer screen froze due to computer programming problem - patient removed
- Prescribed 1,600 cGy (rad) delivered 85 cGy (rad) – physicist forgot to adjust weight factor

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# Medical Events 2011

**35.1000 Medical events 11**

- TheraSphere Microspheres 8
- SirSphere Microspheres 3

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# 35.1000 Medical Events

## Theraspheres 8

- Shunting to duodenum 9,000 cGy (rad)
- Wrong site – intended right lobe treated left
- Transcription error in order did not compare activity to written directive intended 11,600 cGy (rad) received 25,700cGy (rad)

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# 35.1000 Medical Events

## TheraSpheres (continued)

- Physicist used wrong segment volume – prescribed 7,440 cGy (rad) received 15,940 cGy (rad)
- Plunger accidently rotated – pause resulted in microspheres settling in catheter prescribed 9,400 cGy (rad) received 7,000 cGy (rad)
- Microsphere clump visualized – could not flush prescribed 9,750 cGY (rad) received 3,760 cGy (rad)

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# 35.1000 Medical Events

## TheraSpheres (continued)

- Saline leak in administration line – received 64% of intended dose
- Failure of septum of vial – prescribed 8,000 cGy (rad) received 4,900 cGy (rad)

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# 35.1000 Medical Events

## SirSpheres 3

- Treatment terminated patient pain – 50 % of prescribed dose
- Occlusion of the micro-catheter – sphere concentration too high - prescribed 6,300 cGy (rad) received 1,480 cGy (rad)
- Medical physicist read written directive incorrectly

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# Acronyms

- FY – Fiscal Year
- HDR – High Dose Rate Remote Afterloader
- Sr - Strontium

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# QUESTIONS?