

Radiation Oncology Safety Information System
<http://www.rosis.info>

Feedback letter March 2006
SPOTLIGHT ON IN-VIVO DOSIMETRY

- *This Newsletter* - Spotlight on In-vivo dosimetry.
- *Reminder:* Last places remaining on the **short course - “Working towards safer healthcare delivery: minimising the impact of incidents in radiotherapy”**. To avoid disappointment, and avail of discounted early registration, **book now!** See <http://www.rosis.info> for further details.
- *Reminder:* The new website will be online in the next month!

Dear ROSIS Contact,

The ROSIS group would like to draw your attention to some interesting incident reports in the database. **The theme of this month is in-vivo dosimetry.** Reports are described below, together with some reflections. If you would like to read the full reports or make a comment, click on the links provided.

Best regards from Ola, Mary, Tommy, & Joanne (The ROSIS Group)

Report 1. Incident ID: 385

http://www.clin.radfys.lu.se/queries/q_search_ID.asp?number=385

For simple treatments, the monitor units (mu) in a clinic were calculated by a simple in-house computer programme. In this case, the physicist could not find the program (shortcut to the program removed by someone from the desk top) and did the calculations manually instead. The calculation gave 394 mu instead of the correct number of 453 mu. This was a new type of treatment where the physicist (or the treatment staff) did not have a feeling for what the correct mu would be. The physicist who checked the calculation did not discover the mistake. The in-vivo dosimetry measurement showed -15 % in dose and was repeated with the same result. An investigation discovered the mistake.

This report highlights the **importance of investigating deviations** found by in-vivo dose measurements.

Report 2. Incident ID: 303

http://www.clin.radfys.lu.se/queries/q_search_ID.asp?number=303

At treatment of a posterior field (gantry angle 180 degrees) the distance to the couch was set to 92.5 cm instead of the intended 97.5 cm. When measuring with diodes, the treatment was interrupted when the dose passed the expected value. When investigated, it was discovered that the wrong table height was used. It was difficult to see the distance scale against the black table top.

The centre suggested that a light table top could have prevented this mistake (or any other white surface), and that isocentric set-ups are preferable in this respect. It is noteworthy that the centre had a procedure for early detection (in-vivo dosimetry cut-off value), which **prevented further incorrect exposure.**

Report 3. Incident ID: 722

http://www.clin.radfys.lu.se/queries/q_search_ID.asp?number=722

At the time of simulation, the wrong energy was entered into the Record and Verify system for two fields. This was found when the diode measurement for the first field was too low. The energy was changed for the second field before treatment.

It is difficult to see how this mistake would have been discovered if in-vivo dosimetry had not been used.

Please give **your comments** on these reports [snichuin@tcd.ie]. We will add selected comments to next month's feedback letter.

All these incidents show the importance of using in-vivo dosimetry as another layer of defence, but the value of in-vivo dosimetry can differ depending on how the system is calibrated and the type and magnitude of errors you aim to detect. A good discussion on diodes can be found in AAPM Report 87 (TG62) "Diode in vivo dosimetry for patients receiving external beam radiation therapy"; and in ESTRO Booklet 5 "Practical guidelines for the implementation of in vivo dosimetry with diodes in external radiotherapy with photon beams (entrance dose)" <http://www.estroweb.org/ESTRO/upload/pdfs/booklet5.pdf>

Remember that you can always do searches on the full ROSIS database at <http://www.rosis.info>
Keep the database alive and report your incidents! Reporting is confidential in relation to clinic. If you have forgotten your password, please contact ola@eircom.net

Best regards from the ROSIS group:

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If you have not received this message directly from ROSIS but would like to be added to our mailing list, please contact us at snichuin@tcd.ie .