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DOSIMETRY AUDIT PROGRAM IMPLEMENTATION: CHALLENGES AND POSSIBLE SOLUTIONS IN A DEVELOPING COUNTRY.

Introduction

- Novel techniques arriving at facilities where the last experience has been with a cobalt in many countries around the globe are presenting complications not only for the operator, or the medical physicist in charge but to the regulator authorities too.
- In most of this cases, even with the international recommendations about how to do this step forward, all of this "to do" list are focused mainly in the operations leaving aside an important part for the patient safety: regulation.
- In developing countries is very common to find physicist with no clinical experience on regulation positions, leading audit programs to a barely documentation revision.

- This kind of process could lead to situations where machine performance may be deficient on special techniques cases.
- Could lead too to a machine temporal closure because of paperwork reasons, leaving patients without treatment and the well known side effects.

Sometimes all of this exists, but, they dont have enough personel, they can't go to every facility in their country to audit, or they dont have enough resources to performed another kind of audit.

Don't get me wrong, you HAVE to do paperwork, and save all records, however trust just in paperwork can't give you a complete landscape of the quality of

In most cases, people in charge of this programs have absolutely no experience/knowlegde on the workflow with patients, losing chances to find possible weak points in the procedures, and pay special attention to this.

Normally, physics programs skip the part where they talk about ionization chambers, KERMA, Grey or optimized fluence, and so on. Leaving chances to misunderstand results,reported measurments or take the same QC for a square field and and optimized field.

Proposal

- Is quite tempting to say they all have to have clinical training, and all have to be medical physicists and monetary resources assigned to this office has to be wider.
- But, is not a solution, is rethinking a whole system, and this is not an option.
- You have to take what you have and improve it.
- On each report, all facilities includes their dosimetry report and the maintenance records.
- The audit I'm proposing is based con QC programs used on clinical protocols, using regulation office actual resources.

- Consists on 2 treatment plans, one for conformal technique, and one for IMRT techniques. In addition a TLD dosimeter to verify absolute dose.
- This will be done for each energy you have.
- A generic phantom with radiochromic films will be sent with the geometric parameters for each field. In the case of conformal techniques a 2D shape pattern per field should be sent too.
- In the case of electron fields, a phantom with radiochromic films should be sent as well. In addition a TLD chip should be sent to, to determine absolute dose in water.

- In the case of conformal plans, will be checked size, shape and position of the obtained fluence.
- In the case of modulated plans will be analyzed using gamma index criteria.
- Facility has to send back this irradiated films, TLD and the exported fluence from the TPS on a valid format.