Table III : Uncertainties and dose deviations in IORT

| | | Dose deviation by : | | | | Combined range of probable total dose deviation ($Dev_{total}$) | |
|---|---|---|---|---|---|---|---|
| Possible deviation of intended and applied dose in: | Source of dose deviation | Uncertainty in calibration | Reproducibility | Target coverage (dose inhomogeneity) | Deviating set-up | min | max |
| **IORT with electrons** | | | | | | | |
| | dosimetry | 2.1% | | | | 2,1% | 2,1% |
| | recombination losses | 0.5-3% | | | | 0,5% | 3,0% |
| | output instability<br>stable linacs<br>unstable linacs<br>(included in SDs from in-vivo dosimetry) | | 2%<br>9.9% | | | | |
| | beveled applicators | 2-5% | | | | 2,0% | 5,0% |
| | SDs from in-vivo dosimetry :<br>angle of beam incindence & appl. position<br>(includes output instability)<br>outliers | | | | 2.9% - 9.9%<br>? | 2,9% | 9,9% |
| | dose gradient<br>90%-111%<br>incorrect applicator size | | | -10% - + 11% | -50,0% | -10,0% | 11,0% |
| | total | 2.2-3.7%<br>beveled: 2.9-6.2% | 2-10% | | | 4,1% | 11,7% |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **IORT with kV X-rays** | | | | | | | |
| | dosimetry | 5.35-10.8% | | | | 5,4% | 10,8% |
| | rel. dose distributions | 4.8-8% | | | | 4,8% | 8,0% |
| | output instability | | 0.23-0.49% | | | 0,2% | 0,5% |
| | dose gradient in | | | per cent depth dose at 10/20mm | | | |
| | 10mm target shell (5cm / 3.5cm applicator) | | | 34% (5cm) / 25% (3.5cm) | | -66,0% | -75,0% |
| | 20mm target shell (5cm / 3.5cm applicator) | | | 15% (5cm) / 10% (3.5cm) | | -85,0% | -90,0% |
| | incomplete adherence of tissue to applicator | | | | | | |
| | (4cm applicator) | | | | | | |
| | 1mm air gap | | | -9% | | -9,0% | |
| | 1mm gap filled with liquid | | | -14% | | -14,0% | |
| | 2mm air gap | | | -17% | | | -17,0% |
| | 2 mm gap filled with liquid | | | -26% | | | -26,0% |
| | total with no gap | 7.2% - 13.4% | | | | 7,2% | 13,4% |
| | total with 1mm gap | | | | | 10.5%-15% | |
| | total with 2mm gap | | | | | | 20.1%-28.2% |