

Source specification for brachytherapy:

Reference Air Kerma Rate (ICRU)= Air kerma rate in air to air at a distance of 1m from the source corrected for attenuation & scattering.

Unit= Gy.s⁻¹ at 1m or μGy.h⁻¹ at 1m

Total Reference Air Kerma (ICRU)= sum of the products of the reference air kerma rates and the irradiation time for each source. It is analogous to mg-h

Unit=Gy

KERMA= sum of the initial kinetic energies of all the charged ionizing particles (electrons & positrons) produced by uncharged ionizing particles (photons) per unit mass of tissue.

It includes both the energy liberated as bremsstrahlung (radiative process) and as part of collision processes.

Unit= Gy

Absorbed dose is proportional to the collision component of the KERMA under conditions of electronic equilibrium.

Reporting of an interstitial implant: (ICRU 58)

(1) Volumes=GTV, CTV, PTV, Treated volume, OARs

(2) Description of source= radionuclide used, type of source, length of source, distribution of strength within the source, reference air kerma rate

(3) Description of implant= number of sources, separation of sources, geometric pattern of sources (eg equilateral triangles or squares), crossed ends, type of remote after loading

(4) Time dose fractionation pattern

(5) Total Reference Air Kerma

(6) Description of dose distribution

MTD/MPD/reference dose/prescribed dose, MCD,

Volume of high and low-dose regions

Any overdose regions

Volumes received by tissue volumes (eg 0.1, 0.5, 1, 2, 5cc)

within the PTV and the OARs (optional)

Coverage & conformity parameters (CI, DHI, DNR, CN)

(optional)

Reporting of an intracavitary insertion: (ICRU 38)

(1) Description of technique used (applicator type, source type, loading, orthogonal radiographs)

(2) Total Reference Air Kerma

(3) Description of the reference volume

--dose level if not 60Gy

- dimensions of reference volume (height, weight, thickness)
- (4) Absorbed dose at reference points
 - Bladder reference point,
 - Rectal reference point,
 - Lymphatic trapezoid,
 - Pelvic wall reference point
- (5) Time dose pattern