

Patient Specific Calculation – Thyroid Carcinoma

Patient Name: _____ Admin. Date: _____

Admin. Activity: _____ mCi Thyroid Uptake data: N Y _____ %

You are encouraged to use the following automated patient release calculation form that takes into consideration both the type of care (i.e. Normal, Limited or Extended) and the number of contact hours this patient will require: <http://www.mpcphysics.com/documents/MPCI-131PatientReleaseCalculationsRev4.706-24-09.xls> Print a copy for your records.

Be aware that "Extended Care", a 5% uptake and long contact hours (i.e. 6 hours) will limit the administered dosage to 154.3 mCi and still allow the patient to be released. Otherwise the calculations below must be reformatted with a different occupancy factor or the patient must live alone!

The calculations noted below are derived from the NRC in NUREG-1556, Vol. 9 Rev. 2. They are acceptable but simplistic in their assumptions that may or may not fit your individual patient.

The calculations noted below are based on the following patient specific assumptions with regards to effective half-life, normal level of care and justification of an Occupancy Factor of 0.25. [six(6) hour contact time].

- ASSUMPTIONS:
- Patient can maintain prudent distance from others for at least the first two (2) days.
 - Patient can sleep alone in a room for at least first night.
 - Patient will not travel by mass transit or airplane for first day.
 - Patient will not travel for prolonged car trip for two (2) days.
 - Patient will have sole use of bathroom for two (2) days.
 - Patient will drink plenty of fluids for two (2) days.

- If thyroid uptake is measured, i.e. thyroid uptake = 45% then use 0.45:

$$D(\infty) \text{ mrem} = \{(12.91)(\text{Thyroid Uptake}) + 1.622\}(\text{_____ mCi})$$

$$= \text{_____ mrem}$$

(Annual Limit for Patient Release = 500 mrem)

- If NRC example of 5% (0.05) thyroid uptake is used:

$$D(\infty) \text{ mrem} = (2.282)(\text{_____ mCi}) \quad (\text{Ref. NUREG-1556 Vol.9, Rev. 2, Appendix U})$$

$$= \text{_____ mrem}$$

(Annual Limit for Patient Release = 500 mrem)