

Radiation Protection in Radiotherapy Safety Guide

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Radiotherapy

The branch of clinical medicine which uses ionising radiation ,either alone or in combination with other modalities ,for the treatment of patients with cancer or other diseases. It includes responsibility for the diagnosis, treatment, follow up and supportive care of the patient as an integral of the multidisciplinary management of patients

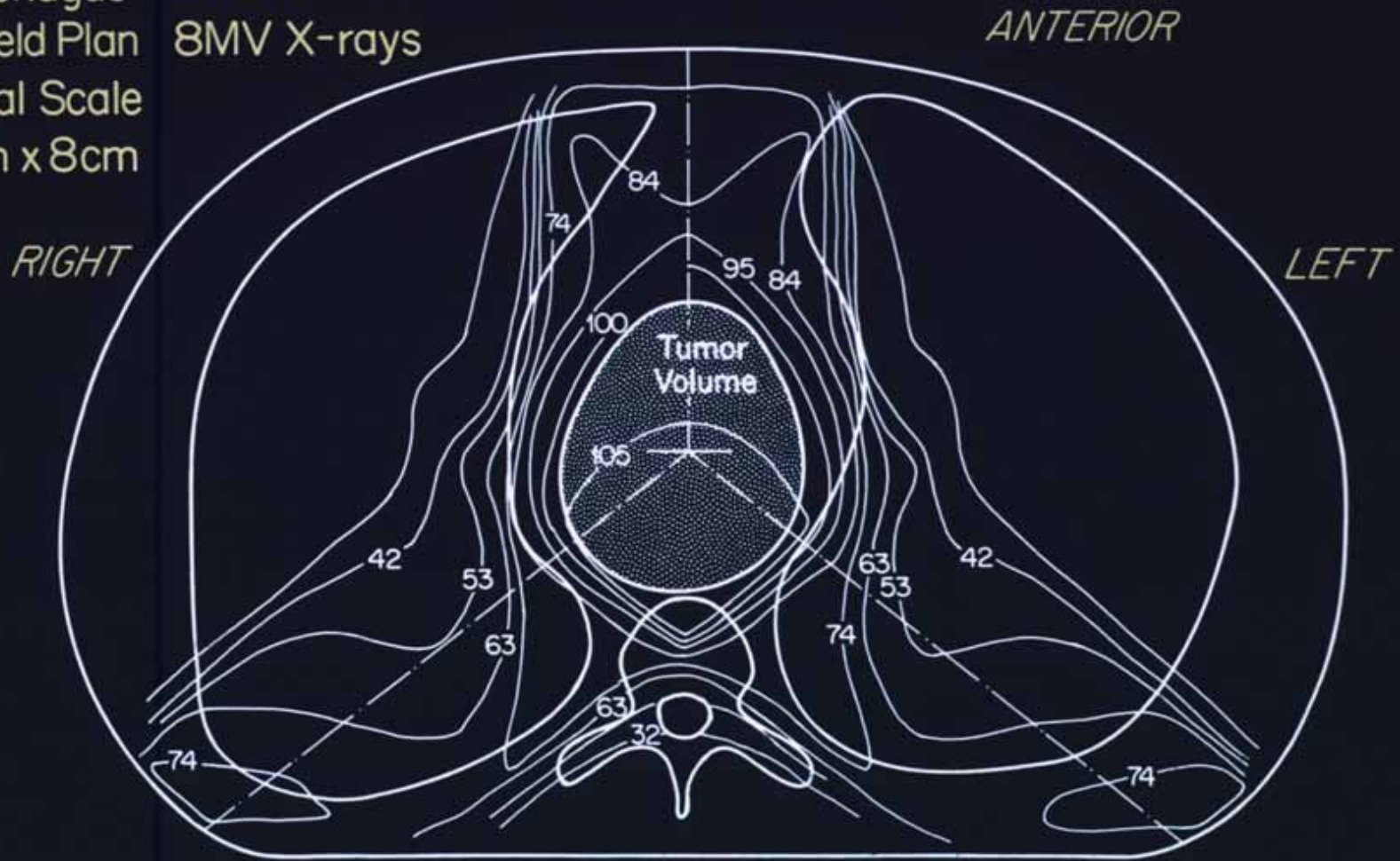
ARPANSA

in regulation of ionising radiation usage is
ONLY
concerned with
RADIATION PROTECTION
aspects of radiotherapy.



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Esophagus
3-Field Plan 8MV X-rays
Equal Scale
8cm x 8cm



Potential for Harm from Therapeutic Radiation Exposure to:

- Those who benefit from the treatment
(the patient)
- Health care staff
- Other staff
- Members of the public





Australian Government

Australian Radiation Protection and Nuclear Safety Agency

SAFETY GUIDE

**Radiation Protection in
Radiotherapy**

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Submissions should be forwarded by **26 October 2007** and addressed to:

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(Electronic submissions are preferred)

All submissions will be held in a register of submissions, and unless marked confidential, may be made public.

Safety Guide

- Practice specific guidance
- Information to assist in achieving levels of protection mandated in the Code
- NOT mandatory
- Highly recommended

Code of Practice

Radiation Protection in the Medical Applications of Ionising Radiation

Radiation Protection Principles

- Justification
- Optimisation
- Dose Limits

Responsibilities

1. Responsible Person
2. Medical Practitioner
3. Operator
(Person administering the radiation)

(Radiation Oncology
Medical Physicist)
(Radiation Safety Officer)

Justification

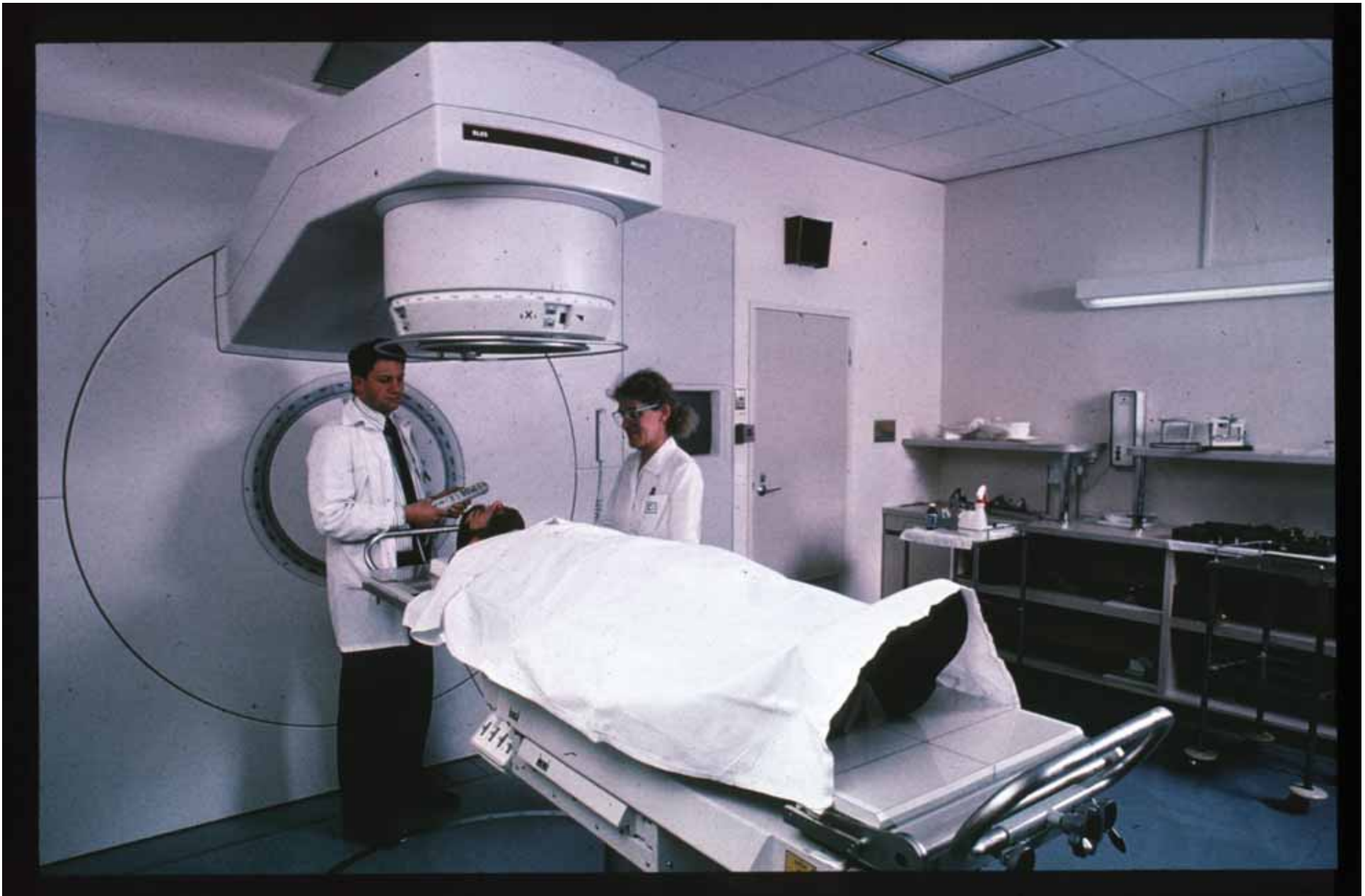
Two Levels:

1. Practice justified in principle
2. Individual case justified

Special Cases:

- Pregnant or potentially pregnant
- Children with cancer





 Peter Mac

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Optimisation of Protection for Medical Exposures

The Code of Practice States

“2.2.2 Equipment and methods must be selected to ensure that radiation administered to a patient for:

(b) therapeutic purposes;

(i) is consistent with the intended radiotherapeutic purpose of the exposure: and

(ii) will achieve the required dose(s) to the target tissue(s) with doses to non-target tissues as low as reasonably practical.”



Optimisation in Radiotherapy

Equals

Attention to detail of all aspects
of treatment planning and
treatment delivery

Optimisation in Protection for Medical Exposures Safety Guide Advice

4. Optimisation of protection for Medical Exposures

5. Quality Assurance

7. Treatment Planning & Delivery

6. Radiation Incidents

Annex D Equipment & Facilities

Annex E Quantification of Error & Monitoring of
Incidents in The Delivery of the Radiation
Treatment Process



Dose Limits

Safety Guide Advice

10. Radiation Monitoring & Radiation Levels

5. Quality Assurance

6. Radiation Incidents

Annex A Radiation Management Plan

Brachytherapy

8. Radiation Protection in the care of a patient with
Brachytherapy Sources in situ

9. Radiation Protection in the event of the Death of a Patient
undergoing Treatment with Brachytherapy Sources in situ.

11. Storage and Transport

Annex B Brachytherapy Procedures

Annex C Brachytherapy Sources

Annex D Equipment & Facilities



Responsibilities



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Responsibilities

The Responsible Person

? Hospital CEO

? Director of Medical Services



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Responsibilities

Medical Practitioner

External Beam Therapy

Radiation Oncologist
Dermatologist (superficial XRT)

Intraoperative photon
or electron radiotherapy

Radiation Oncologist

Sealed Source
Brachytherapy

Radiation Oncologist
Ophthalmologist (eye plaque only)
Dermatologist (superficial XRT)



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Medical Practitioner

Code Specified Responsibilities in Radiotherapy

3.2.6 Provision of Advice to Patients and Carers

Safety Guide Section 8 & 9

3.2.13 Patient with an implanted electronic device

3.2.14 Interstitial or Intraluminal High Dose Rate
Brachytherapy



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Safety Guide Recommends that the Medical Practitioner Present in Person For:

- High Dose Rate Brachytherapy
 - interstitial
 - intraluminal
- Intraoperative radiotherapy
- Manual brachytherapy
(other than non-surgical plaque application)
- Intravascular brachytherapy



Operator (Person Administering Radiation)

Radiation Therapist

Radiation Oncology Medical Physicist



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Radiation Oncology Medical Physicist

- Not Mandatory
- Qualified Expert



Radiation Safety Officer

- Not Mandatory
- Recommended that is a Radiation Oncology Medical Physicist
- Responsible to the Responsible Person



Responsibilities

The Suppliers of Equipment & Sources

The Equipment Servicing Agency



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