

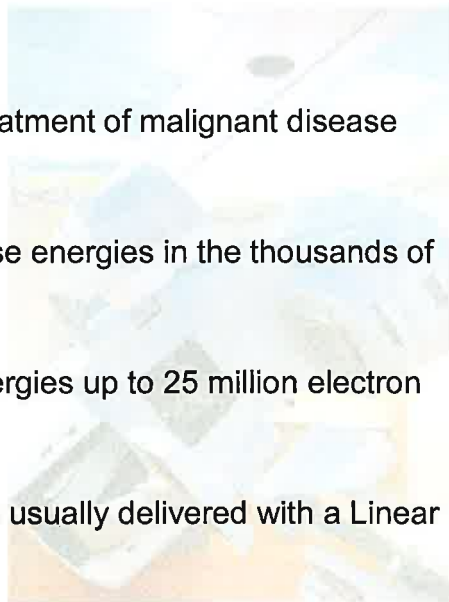
# Introduction to Radiation Therapy

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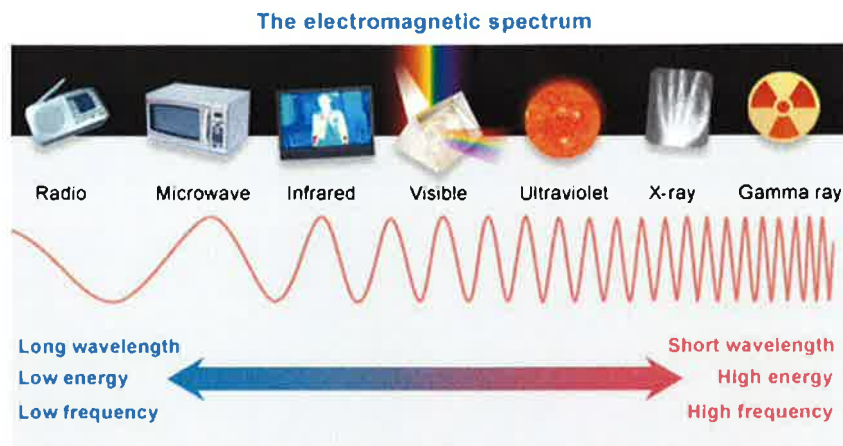
## Radiation Therapy

- Radiation therapy is the treatment of malignant disease with ionising radiation
- Diagnostic imaging units use energies in the thousands of electron volts
- Radiation therapy uses energies up to 25 million electron volts for treatment
- External Beam treatment is usually delivered with a Linear Accelerator or "Linac"



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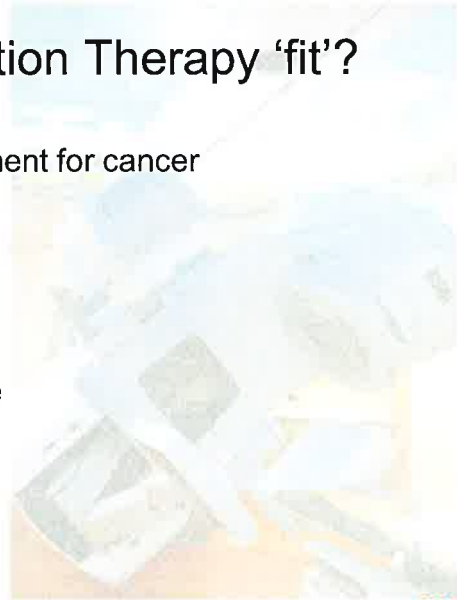
## Types of Radiation



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### ■ Where does Radiation Therapy 'fit'?

- Three major types of treatment for cancer
  - Chemotherapy
  - Radiation Therapy
  - Surgery
- Combination or stand alone
- Concurrent delivery



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- Approx 50% of all patients with cancer will have Radiotherapy

Two types of intent:

- Radical
- Palliative

The intent of a patient's RT treatment is dependent on:

- the nature of their disease
- the extent/site of the disease
- age, medical history/complications

The Radiation Oncologist will write a prescription for RT treatment and will define its intent.

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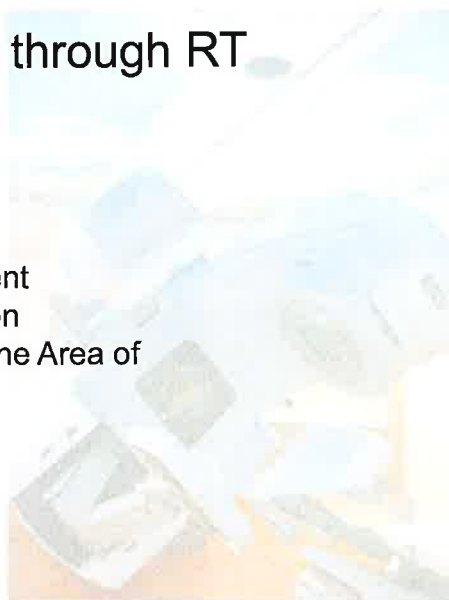
- Radiation Therapy is extremely localised:  
ie. It only effects the area being irradiated
- Side effects will vary from patient to patient
- \* It may be more effective in some patients than others
- The overall aim:  
MAXIMISE DOSE TO THE TUMOUR WHILST  
MINIMISING DOSE TO HEALTHY TISSUE

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## The Journey through RT

Diagnosis:

- RO
- Intent of management
- Planning Prescription
- Planning/ Defining the Area of Treatment
- Treatment Delivery
- Follow-Up



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## Stages for RT

- Prescription
- Mould Room
- CT Scan
- Planning
- Pre Treatment Verification
- Treatment



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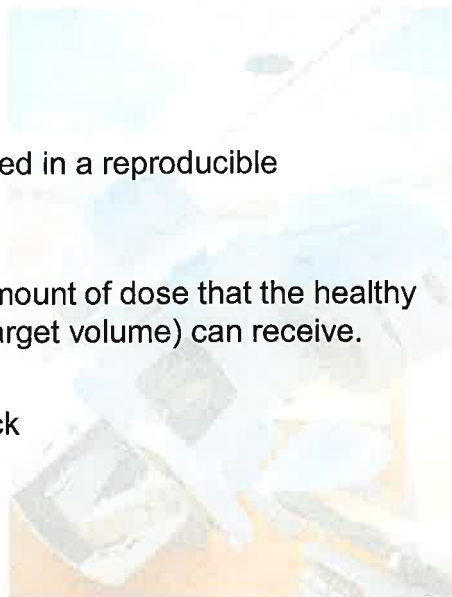
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## Considerations

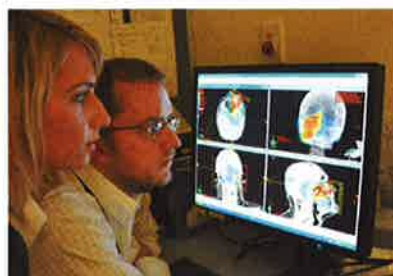
- The patient must be stabilised in a reproducible (... comfortable) position
- Our plan is limited by the amount of dose that the healthy tissue around the cancer (target volume) can receive.
- You can't take radiation back



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## Computer planning

- Single field – Simple, quick and effective treatment
- Multiple fields – Allows sparing of normal tissues & a more conformal, homogenous (even) distribution of dose



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## Considerations

- Each treatment must be exactly the same. The majority of patients require over 35 separate daily treatments.
- Same positioning from CT to treatment of the patient is essential
- This ensures the delivered dose of radiation is given as planned



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## Considerations

- Space (size)
- Environment (feeling)
- Practicality (usability)

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## Questions?



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