

# WHEN DIAGNOSTIC MEETS THERAPEUTIC RADIOGRAPHY

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## My Career 1976-2019

- Trained at Guy's Hospital 1976-8
- Qualified in 1978 almost no imaging
- Relied on surface anatomy to locate area to treat
- Compared to today large margins to ensure we got everything!
- Basic simulator using old diagnostic equipment
- Wet processing



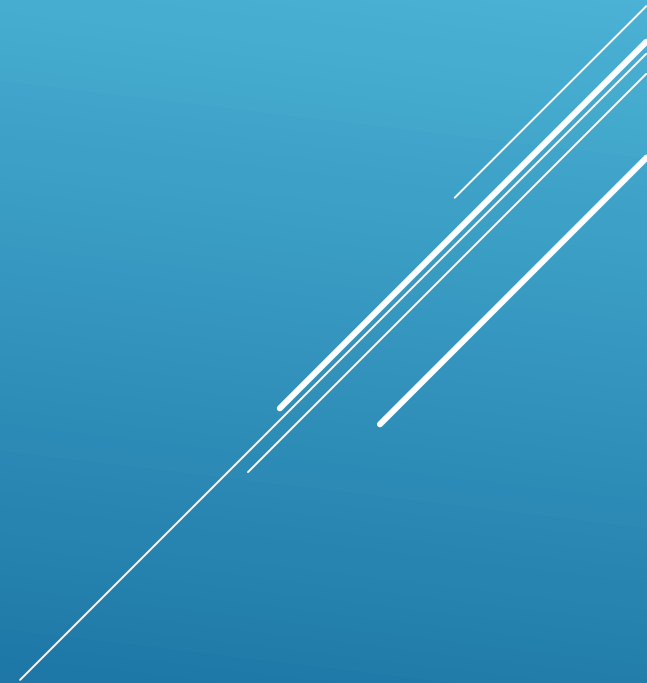
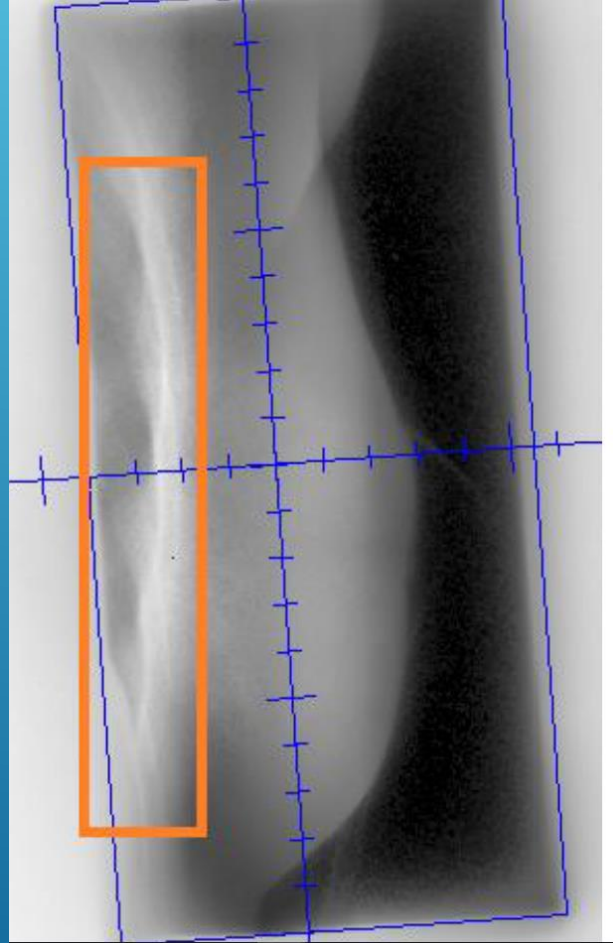
## My Career 1976-2019 continued

- Training with diagnostic 1<sup>st</sup> year common covering anatomy, physics and patient care
  - 2<sup>nd</sup> year went our separate ways
  - Never the twain shall meet
  - Relationships between the 2 groups was poor very much them and us
  - But there was dual qualification
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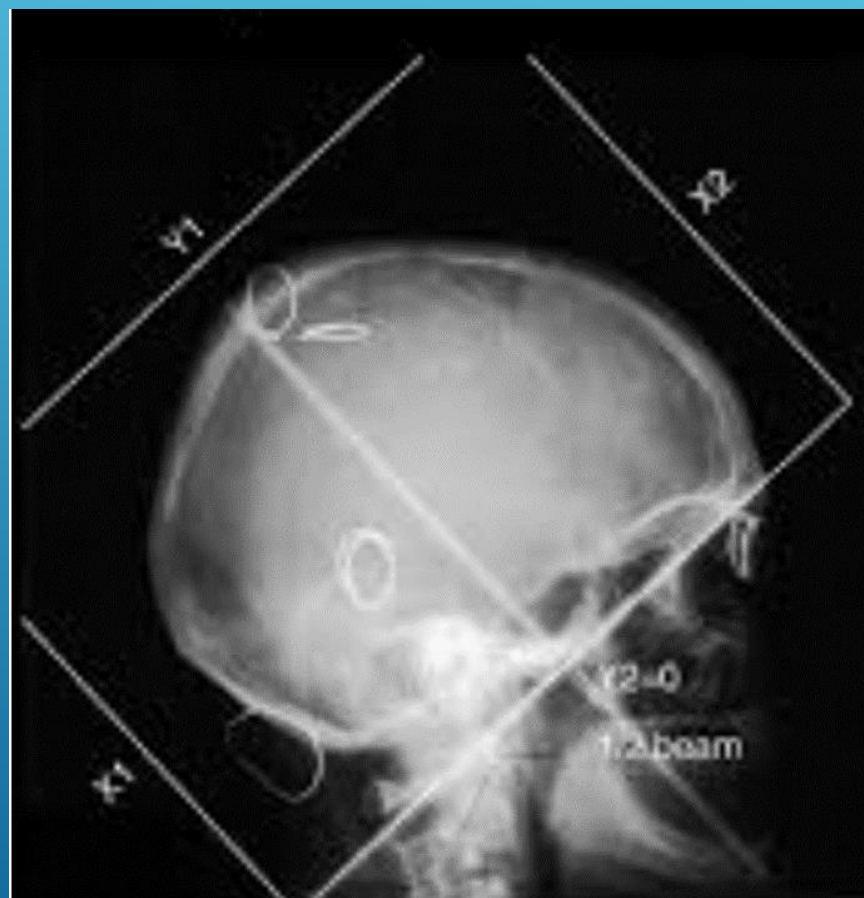
## My Career 1976-2019 continued

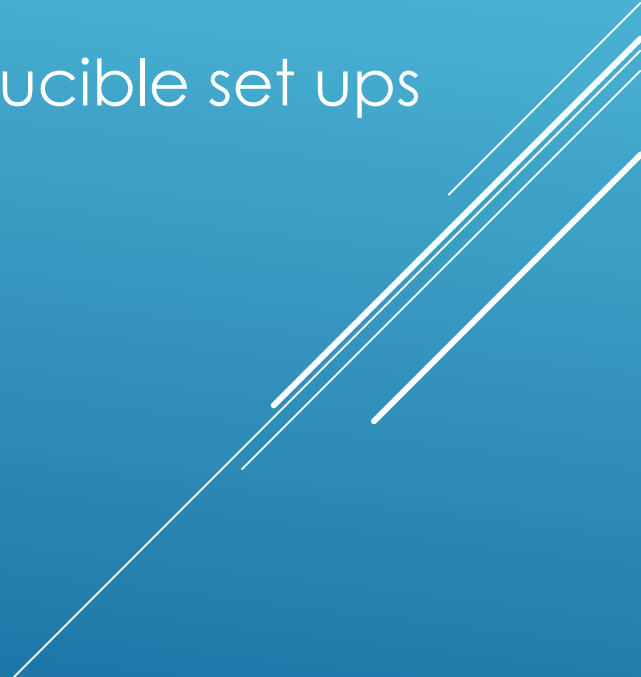
- Returned to practice 1999
- Little had changed!
- Degree entry profession more segregation between diagnostic and therapeutic radiographers
- Simulators in common practice designed for radiotherapy use
- Some departments had own dark room others shared with diagnostic department
- Basic image verification using a cassette and stand
- Able to reproduce treatment set up and verify using I views
  - 2 D imaging only
- Rulers, image magnification factors and pin pricks to check acceptability clinicians signing imaging off
- Start of computer planning
- Introduction of the use of CT in radiotherapy

# Breast I view



# Lateral whole brain I view



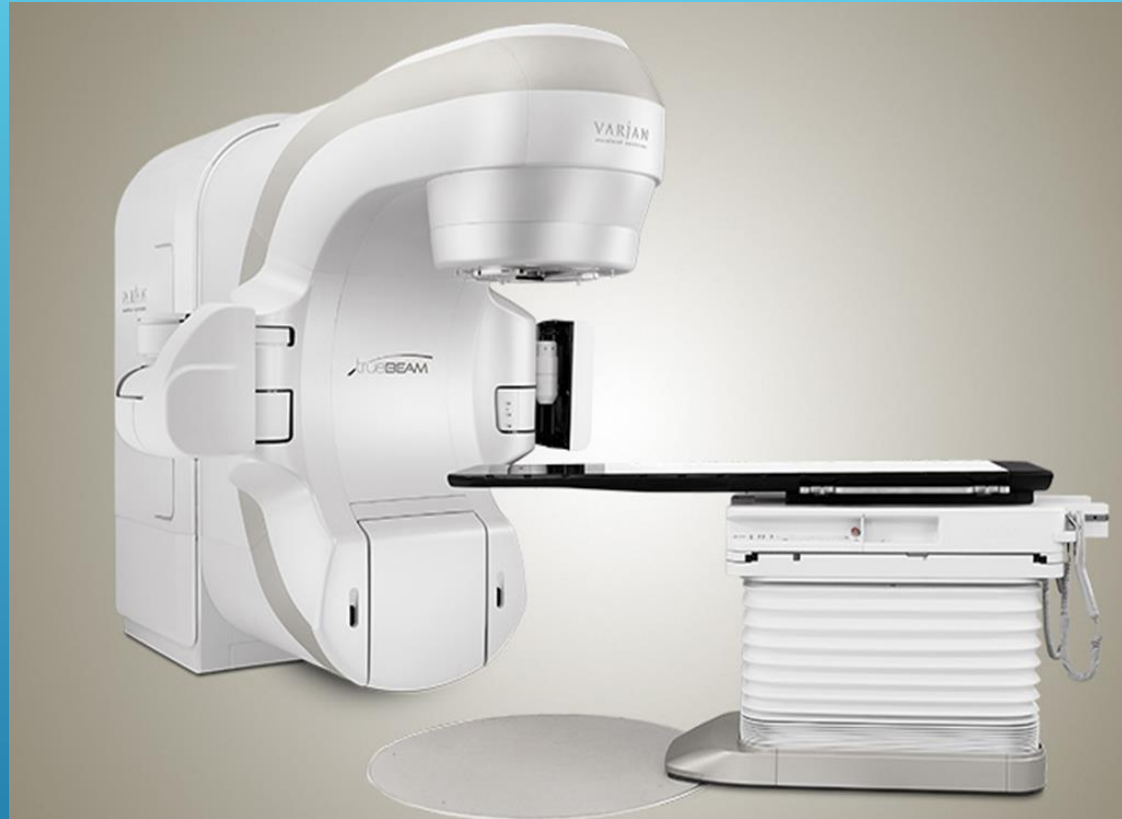
- The big change came early in 2000's
  - New linacs with integral KV imaging CT simulators
  - Employed a diagnostic radiographer to help introduce CT Simulation- start of collaboration with diagnostic radiographers
  - Immobilisation devices to ensure accurate reproducible set ups
  - Radiographers involved in image verification
  - Imaging protocols and training
  - CT planning introduced
- 



TODAY



## Varian True Beam



The TrueBeam® radiotherapy system is an advanced medical linear accelerator—fully-integrated for image-guided radiotherapy and radiosurgery, and designed from the ground up to treat targets with enhanced speed and accuracy.

# Tomotherapy



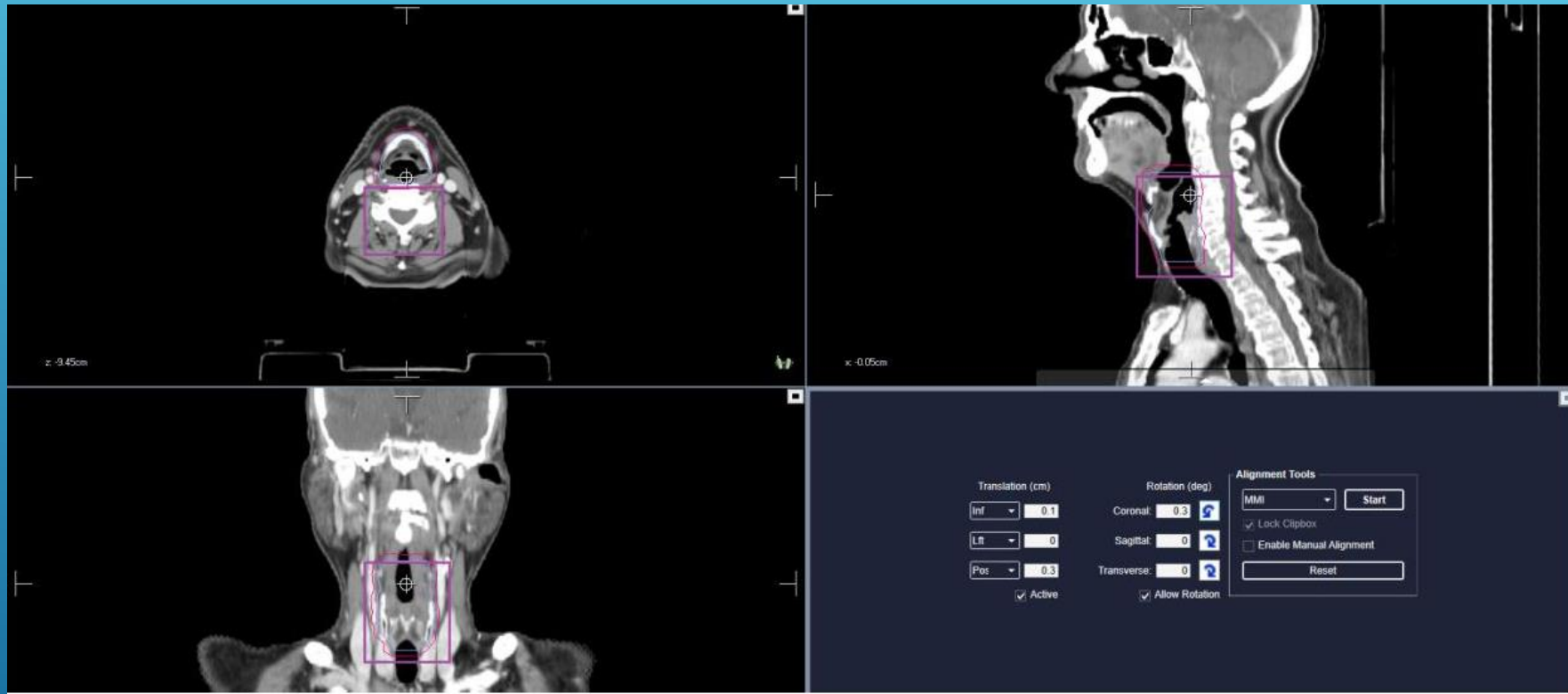
The TomoTherapy® System offers an integrated approach to radiation therapy, combining imaging and treatment delivery to precisely target a wide variety of cancers.

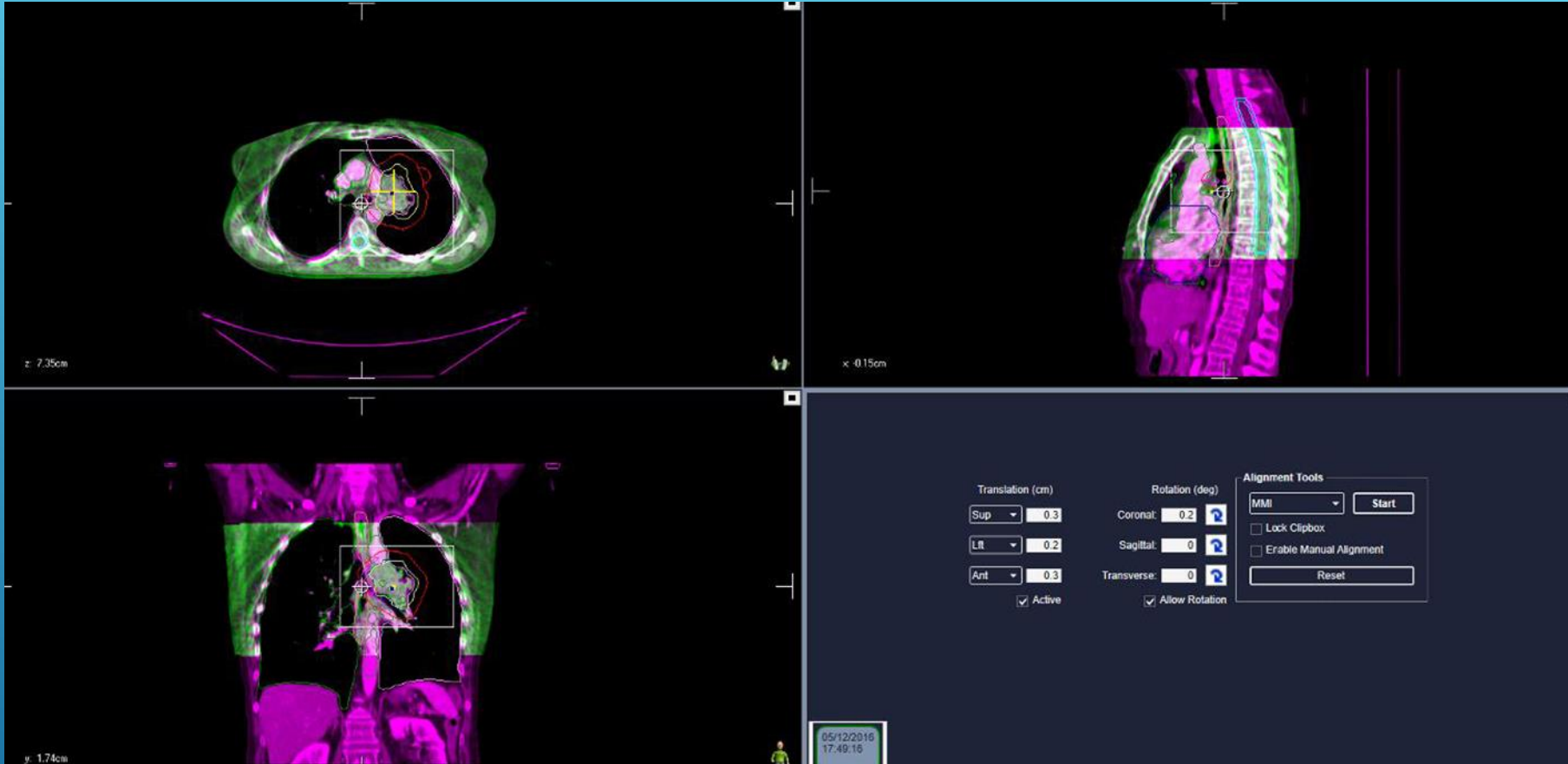
# Radiotherapy CT Scanner



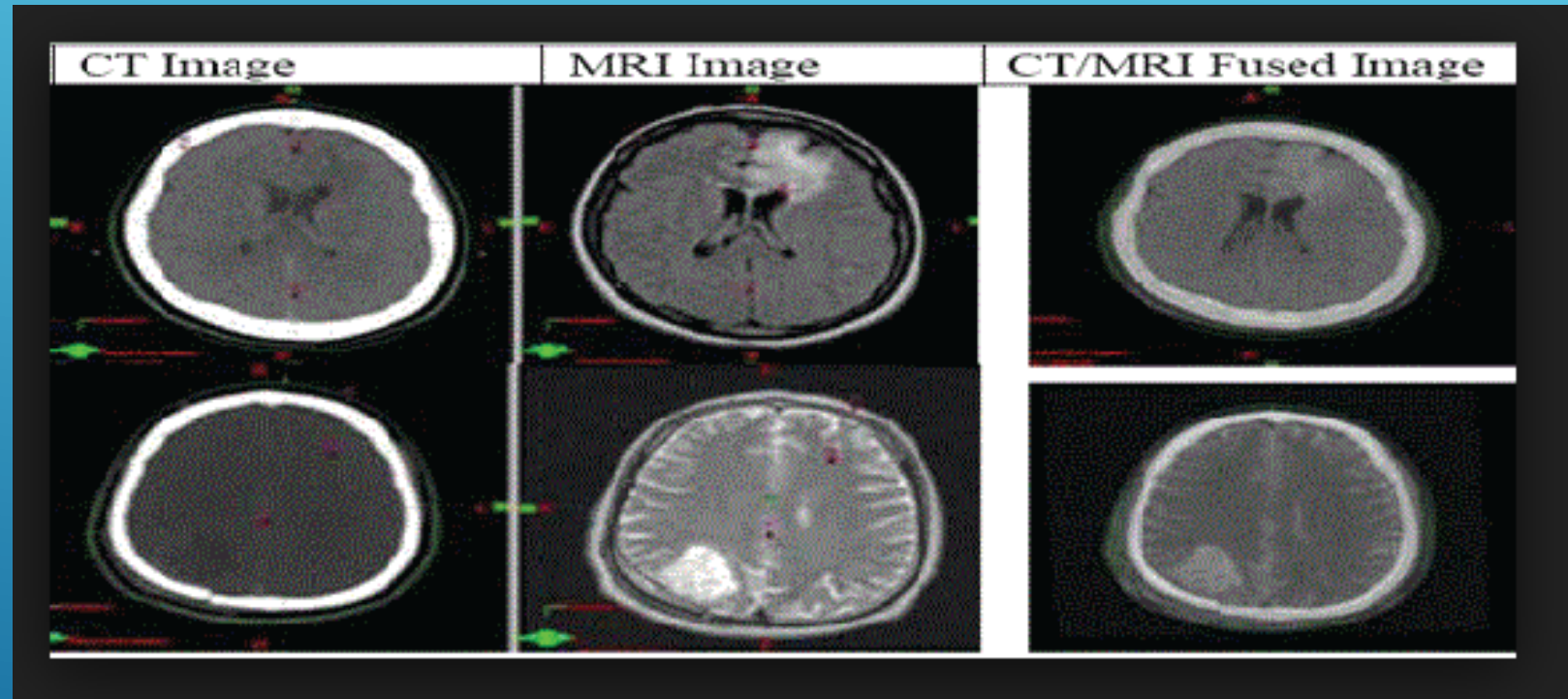
For true precision imaging, you need to see all that your CT can see for every patient in any position. You get a streamlined workflow and sub-millimetric images that are effectively free of motion and metal artefacts

# Cone beam CT imaging





# Radiotherapy planning Image Fusion



# Radiotherapy compatible MRI







## Integrated MR-RT CouchTop

Imaging in the treatment position

**MR-RT CouchTop, 2.5 cm thinner than overlay**  
Improved SNR\*  
Free up in-bore space for patient positioning  
Less mechanical play\*

### Matched to your needs

Complete with indexing, the CouchTop accommodates a variety of MRI-compatible immobilization accessories from main vendors in RT: CIVCO, Orfit and Qfix

### Enjoy easy setup

Single piece, lightweight design for easy setup and switch from diagnostic imaging

\* As compared to Philips solution with overlay

**PHILIPS** Healthcare

## MR Linac




Elekta Unity provides a tailored solution for the new field of magnetic resonance radiation therapy (MR/RT). The combination of technologies enables you to see and track the target, including changes in tumour position, shape and biology, and provides the real-time information you need to respond immediately—all while the patient is on the table.

## **My current role in Stereotactic Radiosurgery SRS Stereotactic Radiotherapy SRT**

Stereotactic radiosurgery (SRS) is a non-surgical radiation therapy used to treat functional abnormalities and small tumours of the brain. It can deliver precisely-targeted radiation in fewer high-dose treatments than traditional therapy, which can help preserve healthy tissue

SRS is delivered in one fraction SRT is several fractions

## My current role in SRS/SRT

- Good relationships with diagnostic colleagues who are respected for the specialist knowledge
  - Liaise with MRI radiographers for reserved appointments
  - Training on PACS to prepare for MDM
  - Basic MRI training
  - MRI anatomy course
  - Team consist of a neuro radiologist who support us with specialist MRI protocols, reporting at short notice ,radiotherapy planning
  - CT and MRI fusion
  - Working in collaboration
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# The Future?

- More collaboration
  - Return of dual qualification
  - Increase in shared lectures and CPD e.g UKIO
  - Part of the MDT and MDM
  - Will no longer hear at the Radiotherapy conference  
“I am a diagnostic radiographer and I am an imposter “
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