

Feedback from a clinical centre – what do centres want from audit ?

Quality assurance in radiotherapy [QART] 1989

- National inter-comparison programme started in 1988
- Standard interdepartmental audit for megavoltage photon 1993
 - increase confidence in the service
 - identify systematic error
 - provide a basis for future improvements

STATUTORY INSTRUMENTS

2000 No. 1059

HEALTH AND SAFETY

The Ionising Radiation (Medical Exposure) Regulations 2000

Clinical Audit

8. The employer's procedures shall include provision for the carrying out of clinical audit as appropriate.

Clinical Governance in the NHS

- Participation in and impact of multidisciplinary clinical audit programmes – including national speciality and sub-speciality audits

National Cancer Peer Review Programme

Manual for Cancer Services:

Radiotherapy Measures

Version 5.0

External Quality Control Programme (EBRT)

11-1E-118t

The NRG should agree the External Quality Control Programme (EQC) programme for the departments in the Radiotherapy Network. The programme should specify:

- Which EQC network or networks it will associate with.
- The frequency with which the departments will take part.

Note:

This measure refers to external dosimetric audits exemplified by the National Physics Laboratory Dosimetric EQC.

Compliance: The programme, naming the EQC networks agreed by the Chair of the NRG.



IAEA

International Atomic Energy Agency

TLD Postal Dose Audit Service Powder TLD – since 1967





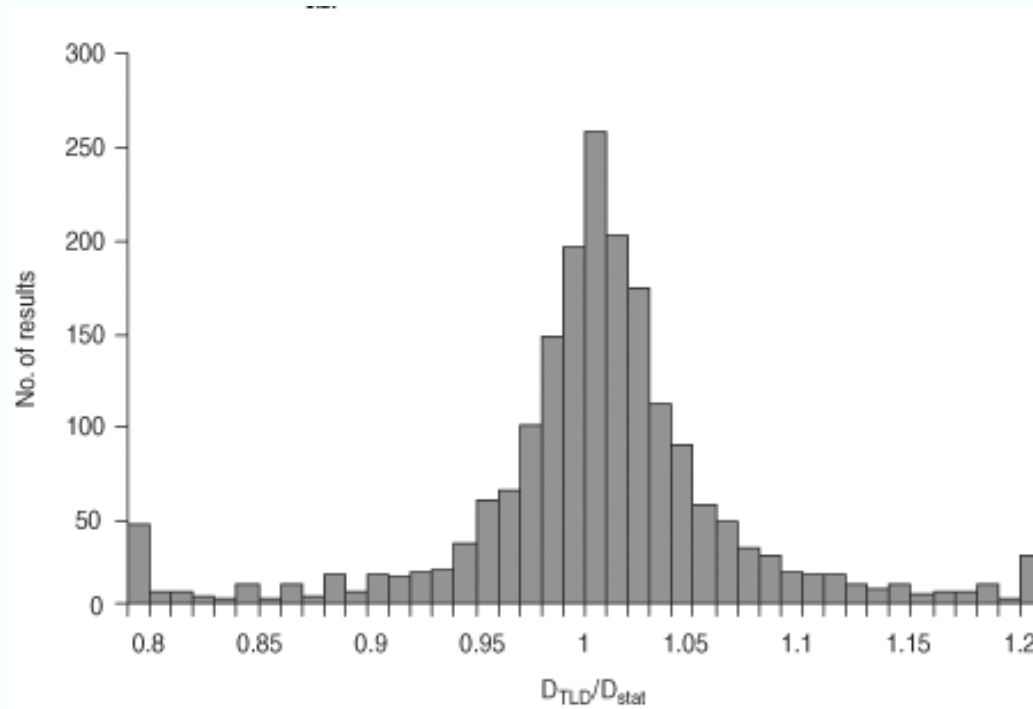
IAEA

International Atomic Energy Agency

Since 1967

40 years of audit

S.D. 0.095, mean 1.011



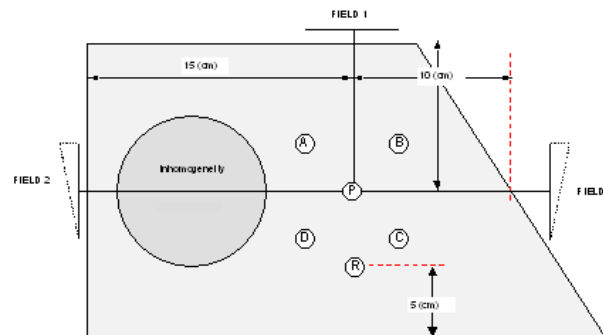
South West Radiotherapy Physics Group MegaVoltage audit protocol

South West Radiotherapy Physics Audit Group

Interdepartmental Audit Dosimetry Inter-comparison: Protocol for Megavoltage Photons

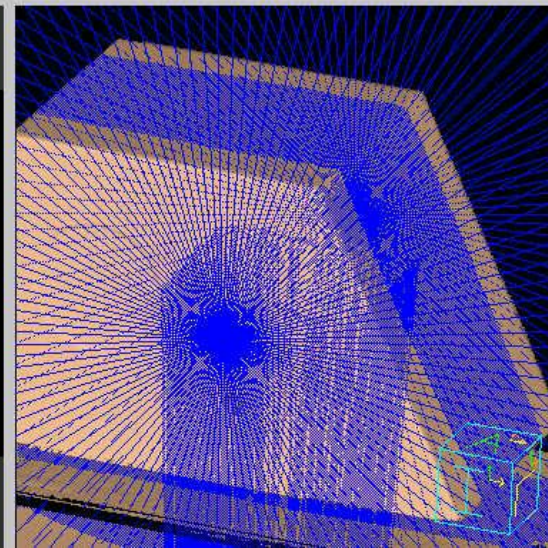
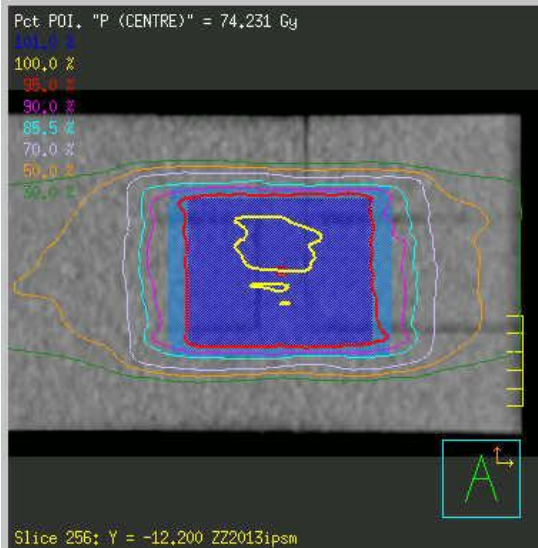
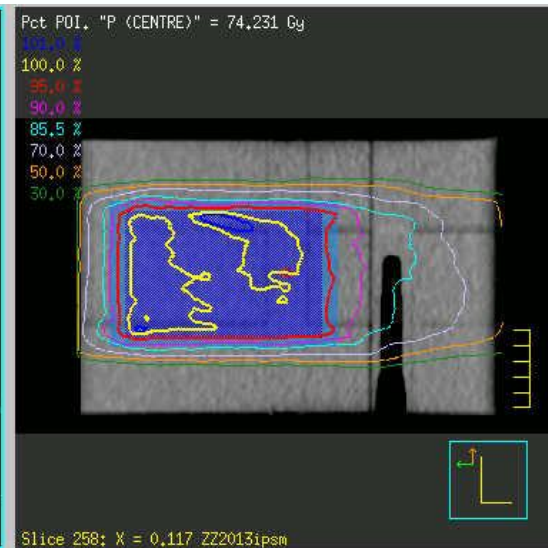
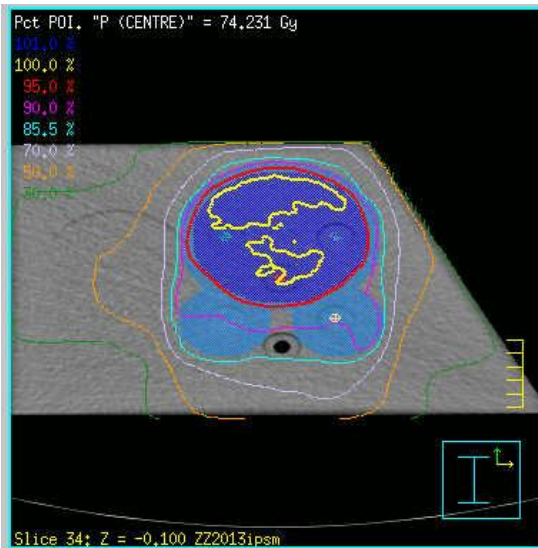
Preparation

1. The solid water phantom provided by the South West Radiotherapy Physics Group shall be used for the beam measurements.
2. The local centre will CT scan the phantom (typically 3mm slices) and outline using local protocols. An isocentric plan is required with 3 fields, wedges as shown; the lung inhomogeneity shall be included. Other plans, fixed SSD and isocentric, may be audited for local purposes as required. The planning target volume (PTV) shall be taken as extending 1cm beyond the off axis points A, B, C & D. Planning and monitor unit calculations shall be made according to usual practice. No additional corrections shall be made.
3. For each plan the aim shall be to treat the PTV to a uniform dose following ICRU guidelines, and to deliver an absorbed dose of 2 Gy to the planning reference point at the central measurement position P.
4. The local centre shall provide calculated doses from each field to the central measurement position P and to the off-axis points A, B, C & D. All calculated doses shall be expressed to a precision of 0.1%.
5. Both the local and visiting physicists shall provide suitable dosimeters, incorporating Farmer type chambers. Both shall perform Strontium-90 check measurements prior to the photon beam



6. The local physicist shall provide a written report of the measurements and calculations. The visiting physicist shall provide a written report of the measurements and calculations.

South West Radiotherapy Physics Group MegaVoltage VMAT audit





ELSEVIER

Contents lists available at ScienceDirect

Radiotherapy and Oncology

journal homepage: www.thegreenjournal.com



IMRT audit

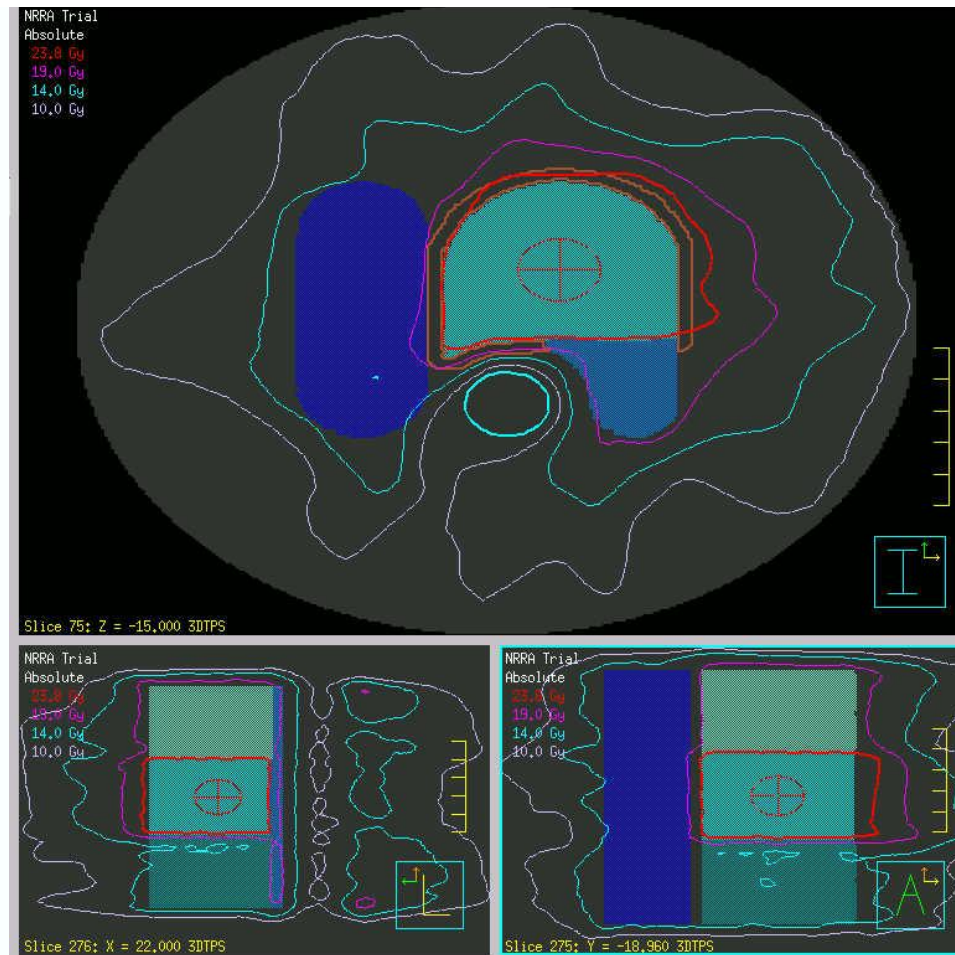
A national dosimetric audit of IMRT ☆

Geoff Budgell^{a,*}, Joe Berresford^a, Michael Trainer^a, Ellie Bradshaw^a, Peter Sharpe^b, Peter Williams^a

^aNorth Western Medical Physics, The Christie NHS Foundation Trust, Manchester, UK; ^bNational Physical Laboratory, Middlesex, UK

- Alanine + Chamber measurement
- Film irradiation – flat phantom; single gantry angle
- 90% of UK centres enrolled
- The audit shows that modelling and delivery of IMRT is accurate, suggesting that the implementation of IMRT has been carried out safely

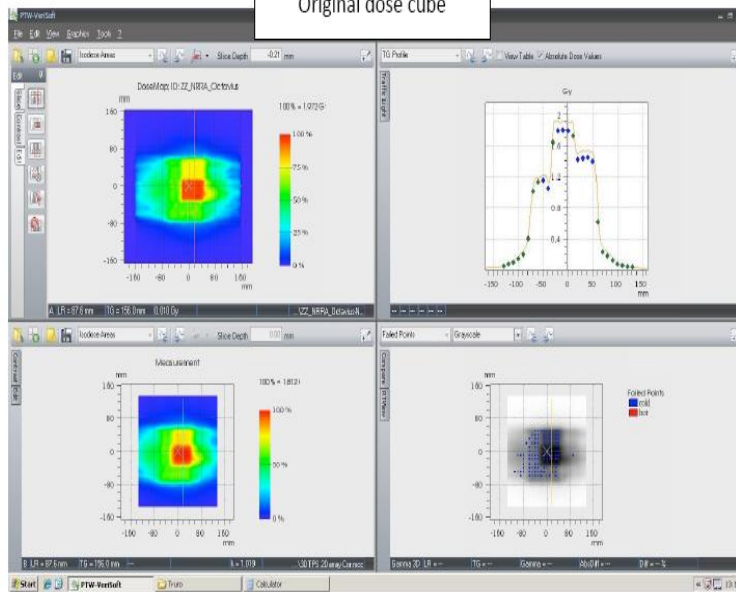
National Rotational Radiotherapy Audit (NRRA)



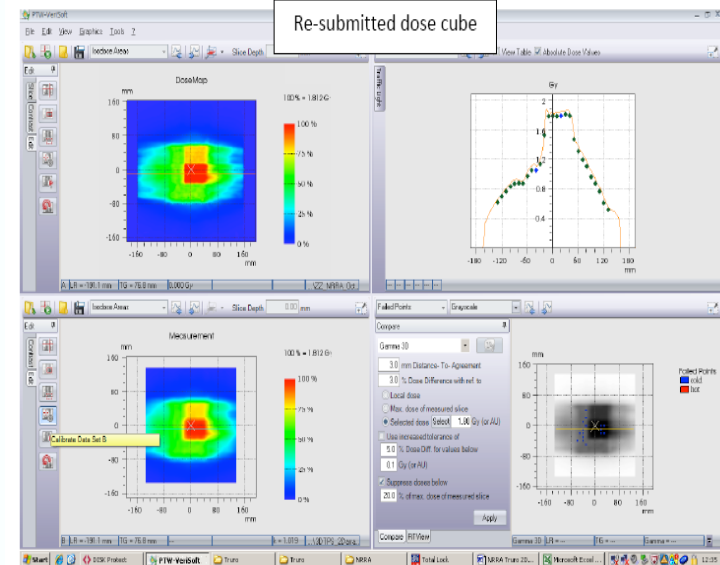
National Rotational Radiotherapy Audit (NRRA)

3DTPS PLAN

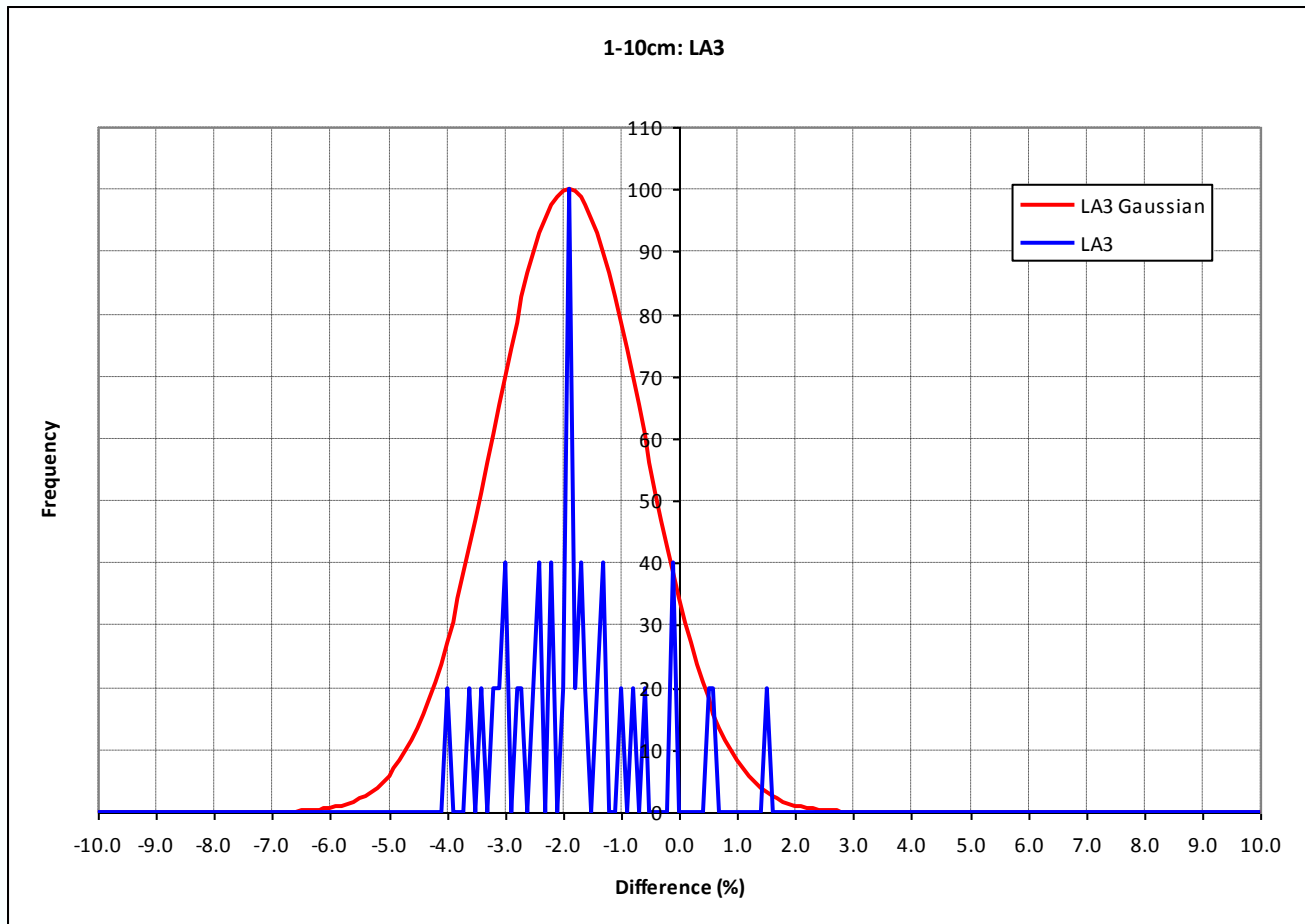
Original dose cube



Re-submitted dose cube



NRRA Audit



What do centres want from audit?

- Appropriate to techniques used
- Testing of complete radiotherapy process
- National data collection & procedures
- Traceable standards
- Meets the requirements of the national cancer peer review programme