ATC Committee
On
Credentialing and QA

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RPC

Accomplishments (task 1)

- Develop “ONE” facility questionnaire
  - Satisfies the data requirements for all QAOs
  - Applicable to all groups
  - Start with the RTOG 0617, QARC and EORTC questionnaires
- Questionnaires have been gathered and are being evaluated as to how to combine them to everyone’s satisfaction

Accomplishments (task 2)

- Generate a report and consensus on IMRT credentialing methodology
  - Address the use of phantoms and benchmarks
  - Meet the needs of all Study Groups
  - Reciprocity amongst the QAOs
  - Start with the RTOG 0617, QARC and EORTC questionnaires
- A draft of the report has been written, edited by Urie and Followill and is being discussed by the committee

Accomplishments (task 3)

- Generate a report and consensus on the need for annual TLD audit
  - Applicable to all groups including non-USA facilities
  - Use existing data and literature to justify need
- Detailed report has been generated and submitted to the credentialing/QA committee for their input

Accomplishments (Task 4)

- List the requirements or recommendations from the various societies' publications as to the need for quality audits.
  - Marcia has reviewed several key documents listed below
    - **AAPM TG45**: "advisable to obtain an independent check on the calibration" (..by using mailed TLD service…)
    - **AAPM TG40**: "Quality Audit should be performed" A mailed TLD service can be used to verify the treatment unit calibration
    - **AAPM TG103**: peer reviewer would verify that TLDs have been performed within the year and that the results acceptable
    - **ACR accreditation**: requires
      - Documentation of compliance with AAPM TG-40, TG-21 or TG-51
      - Documentation of treatment planning system QA program TG- 53
      - Independent Verification of Output of each beam
  - Dave has sent out requests to 4 European physicists and one Aussie as to what is required in their countries for machine QA.

Accomplishments (Task 5)

- Compilation, from RTOG, COG, ACOSOG, SWOG, ECOG and SWOG protocols, of current
  - dose prescriptions,
  - dose uniformity criteria,
  - deviation criteria
- Marcia has generated a report that is currently being reviewed by the committee.

Accomplishments (Task 6)

- Developed questions for EQUAL/ESTRO and subsequently provided answers to the questions.
  - QARC submitted answers
  - RPC submitted answers
  - ITC submitted answers
  - RTOG working on the answers

Task 7

- Organize a teleconference of the CERR users within the ATC
  - Identify how each QAO uses CERR
  - What are the problems?
  - Share processes that could be used by all of the QAOs to increase uniformity
  - Provide feedback to J. Deasy for improvements
- This task has not been accomplished

Other Accomplishments

- Marcia has contacted Akos Gulyban to coordinate our efforts with the EORTC's
- Dave has placed on the RPC website a mechanism to see which non-USA facilities are monitored by the RPC.


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Therapy
Center
An
Advanced
Technology
Clinical Trials QA
and Support Center


QARC
Quality Assurance
Review Center

Thanks


RTOG
RADIATION THERAPY
ONCOLOGY GROUP


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Need for Annual TLD

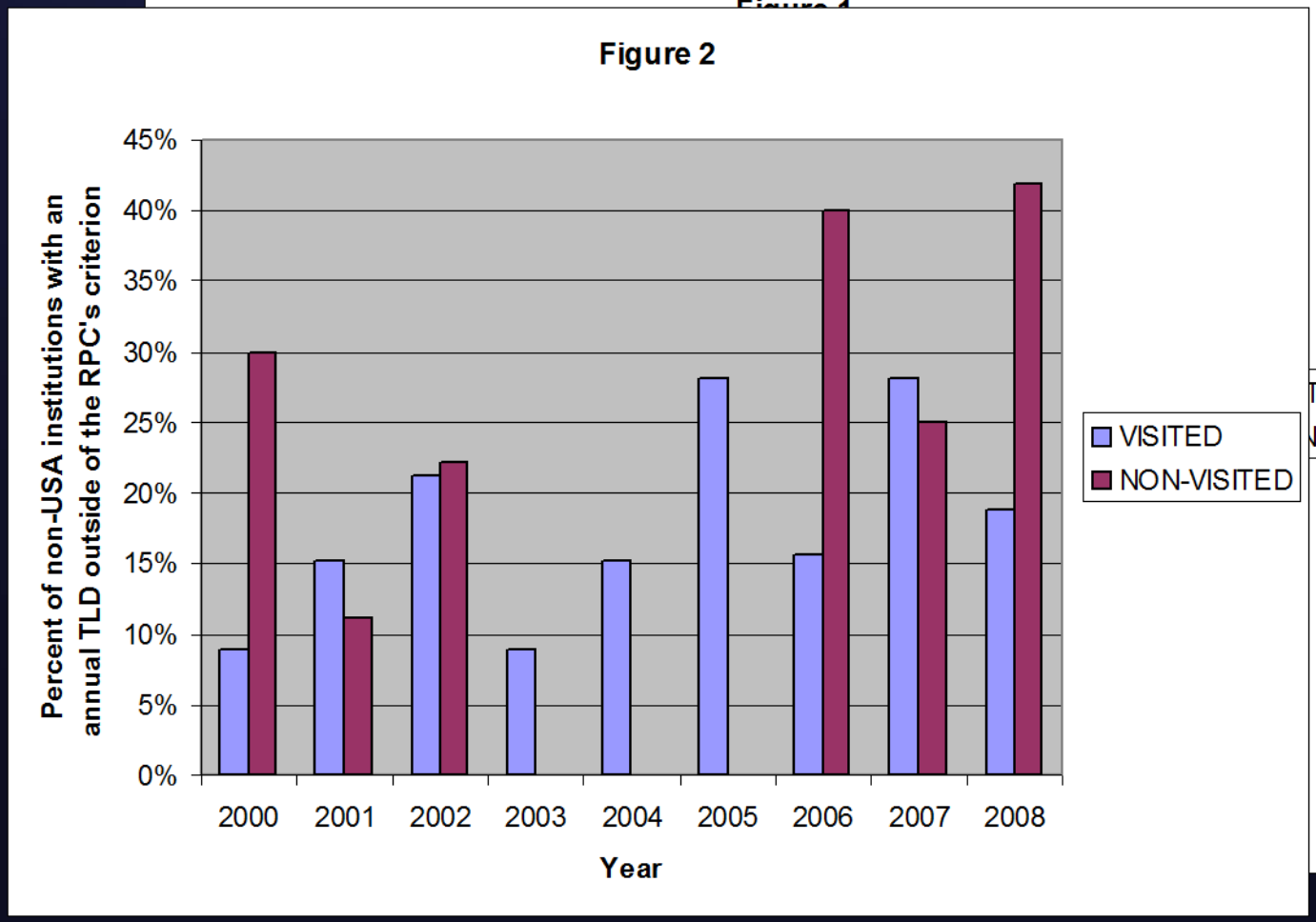
- Validity of Clinical Trials
  - Predominant focus for radiotherapy trials is the reduction of non-evaluable patients
    - Achieved by ensuring accurate dose delivery
      - Imaging
      - Planning
      - Dose delivery
  - Trial result properly reflects the relative efficacy of the treatments being compared without being obscured by errors in treatment delivery

Need for Annual TLD

- Focus of the RPC, QARC and RTOG QA programs are to reduce the variability in the doses delivered by participating institutions and when possible correct errors in dose delivery
- One of the most important factors in dose delivery is the beam calibration
  - Subject to human error
  - Can change with time while other factors don’t
  - New calibration protocols result in errors

Need for Annual TLD

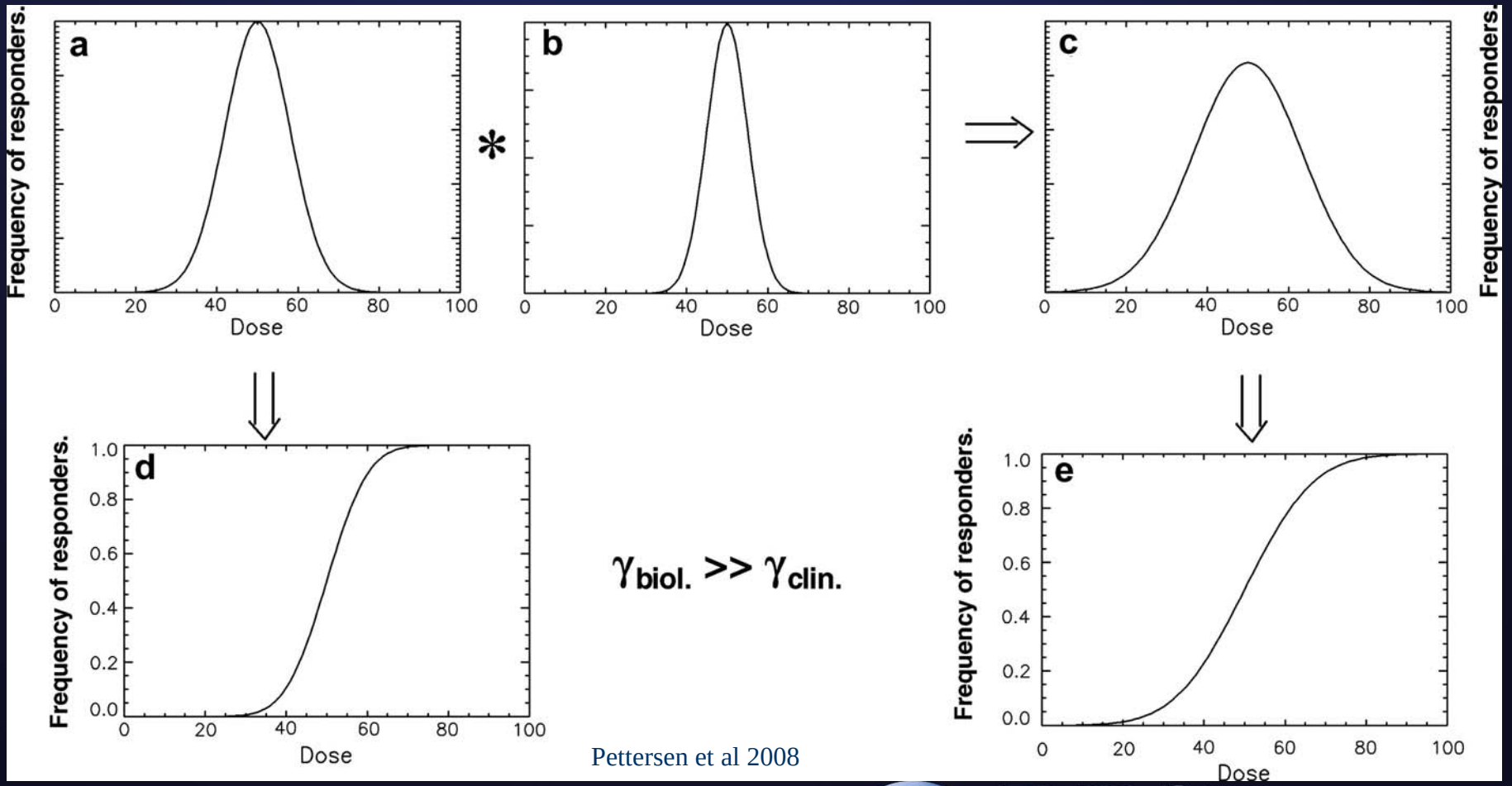
- Are there errors in beam calibration?



Need for Annual TLD

- Reducing the frequency to every 2 years nearly doubles the number of beams with potential errors
  - 33% of the institutions would need follow-up
    - Very few in consecutive years
  - Increases the potential variability in dose delivery
- Annual TLD audit falls in line with accepted standards of practice specified by the AAPM and ACR

Need for Annual TLD



Pettersen et al 2008

Need for Annual TLD

- Reducing the frequency of the TLD increases the uncertainty in the dose delivery
- Trial outcomes should be derived from the highest quality data available before transfer to the community
- If any questions arise as to the trial outcome, QA of the data is normally questioned first and more patients may be required to answer the question
- NSABP B-06 and GOG 85 were reevaluated using the RPC's data eliminating the need to enroll more patients

A wise man once wrote:

> “The validity of a cancer clinical trial is dependent in large part on the quality of the treatments delivered by participating institutions. When a large number of submissions fail to meet the requirements of the protocol, the effectiveness of the trial to successfully evaluate its hypothesis is compromised.”

This was written regarding the low deviation rate for RTOG 95-17

The facts

1. Variation in patient dose delivery reduces the effectiveness of a trial.
2. RPC dosimetry audits (incl. TLD) indicate a substantial number of institutions have potential dosimetry errors.
3. The TLD program is a bargain.
4. Reduction in the frequency of the audits will lead to an increase in the number of undetected dosimetry errors.
5. More patient dose errors will either:
   - blur any differences between trial arms or
   - require more patients such that the trial is not underpowered
6. Trials that fail to answer the question due to inadequate QA are a waste of resources
   - In addition we can't increase required patient numbers to compensate due to existing accrual issues.