

# Advanced Technology Consortium – RTOG Headquarters QA

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**James M. Galvin, DSc**

**Thomas Jefferson University Hospital**

**Jefferson Medical College**

**Philadelphia, PA**

**and**

**The Radiation Therapy Oncology Group**



ATC Evaluation Committee Meeting  
New Orleans, LA  
Jan 2009

# New technological advances in radiation oncology can be overwhelming!

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- ATC is an essential resource for dealing with this issue

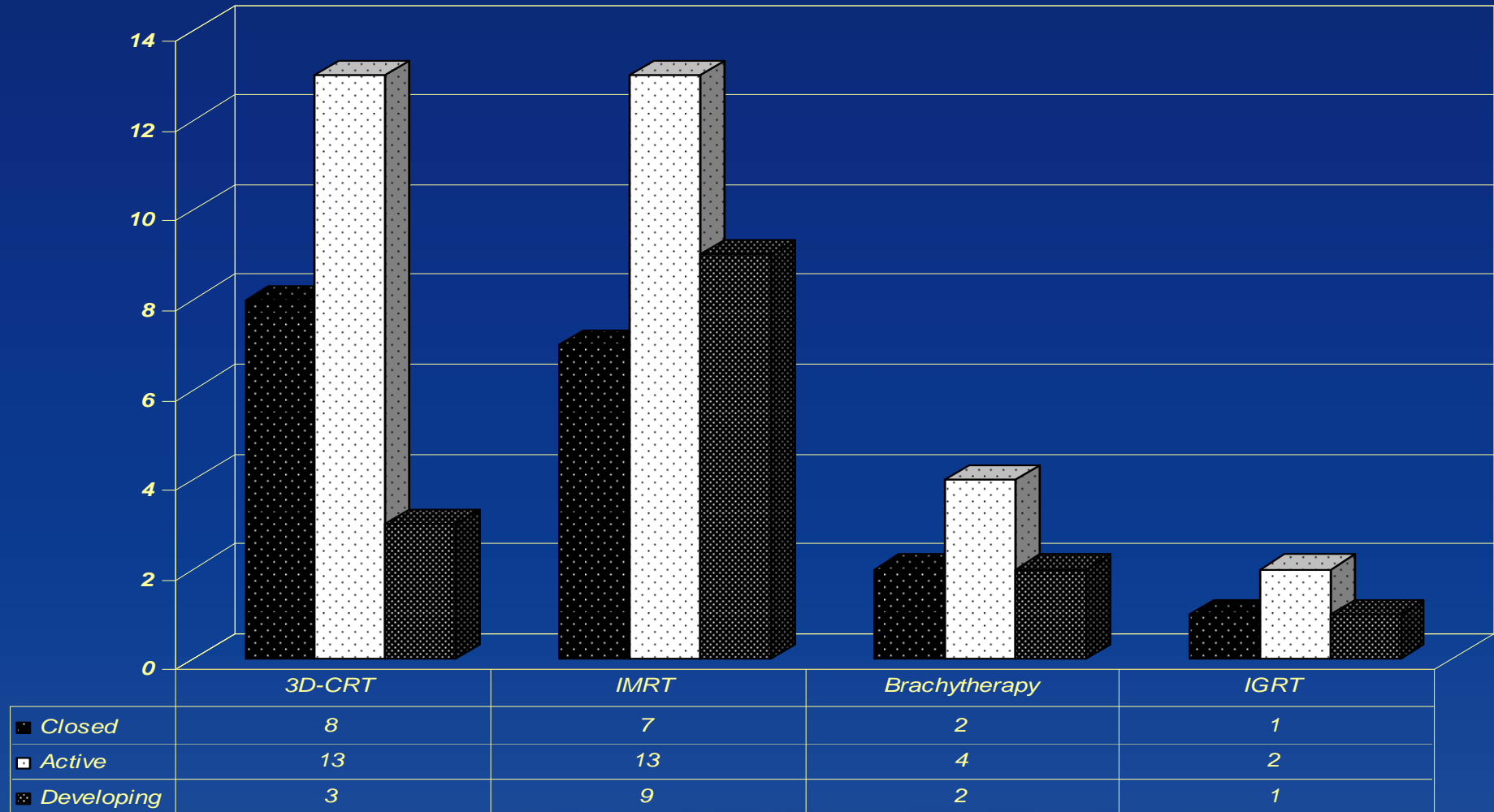
# What are the problems?

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- Guaranteeing the accuracy of innovative dose delivery techniques (CyberKnife, Tomotherapy, protons, IMAT, etc.)
- Unifying dose prescription techniques for protocols using advanced technologies
- Unifying credentialing mechanisms for advanced technology protocols
- Implementing the use of IGRT in cooperative group studies
- Management of image datasets used for planning, patient positioning and follow-up
- Providing efficient and effective case review tools for highly complex dose distributions
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- Credentialing for interstitial and intra-cavitary brachytherapy

# RTOG Headquarters Report

## ALL PROTOCOLS



# Other RTOG IGRT Protocols Under Development

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- Lung SBRT (RTOG 0813) – in development
- Spine (RTOG 0631) – in development
- Head & Neck (RTOG 0811) – in development

# ATC initiatives for solving problems

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- Unified credentialing approach for advanced technologies
- Unified web-based Facility Questionnaire for all studies
- Standard prescription technique for all studies
- Coordination meetings with cooperative groups outside of North America
- Enlisting the help of industry to provide tools for case review
- Develop new analysis tools for both case review and credentialing

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How does a new technology fit into the current structure of guidelines and credentialing processes? The ATC is an important group for making such decisions before different answers are formulated by different QA centers.



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This effort is underway within the ATC and involves all QA centers.

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# What are the specific problems for IGRT?

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- There are many different IGRT systems
- Deformable image registration is now available
- QA techniques are not standardized
- IGRT dose can be significant in some situations
- Some IGRT systems include 6-degree of freedom couches
- Large image datasets must be accommodated
- Institution credentialing is needed

# IGRT in RTOG Protocols

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- Protocol IGRT specifications
  - Description of IGRT implementation
  - Provide information on dose from IGRT
  - Description of IGRT QA procedures
- IGRT questionnaire
- Image Registration Software Tests

# Using Phantom to Check Performance of Robotic Couches



# Using IGRT in RTOG Protocols

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- The RTOG has developed Guidelines for the use of IGRT in their protocols
- The Advanced Technology Consortium (ATC) is working on having a uniform set of guidelines for all cooperative groups using radiation in studies



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# Conclusions

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- The RTOG is struggling with the rapid introduction of new technologies
- The ATC is an essential resource for dealing with this problem