Quality assurance guideline development from the Center for Innovation in Radiation Oncology (NRG CIRO)

Presented by
Ying Xiao, PhD (NRG Physics SubComm Chair) and
Stanley Benedict, PhD (NRG Physics SubComm Co-Chair)

A Multi-Disciplinary Scientific Symposium (Imaging and Therapy Physics): “Medical Physics in Clinical Trials: Design, Quality Assurance, and NIH Programs”
AAPM Annual 64th Meeting, Washington DC, July 12, 2022
Disclosures

- Ying Xiao is the Chair of the NRG Physics Subcommittee
- Stan Benedict is the Co-Chair of the NRG Physics Subcommittee
NRG Oncology – CIRO

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Center for Innovation in Radiation Oncology (CIRO)

Leadership

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NRG Oncology – CIRO

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NRG Oncology established Center for Innovation in Radiation Oncology (CIRO) to achieve the following aims:

1) Promote innovative Radiation Therapy (RT) research within the entire National Clinical Trials Network (NCTN)

   - Accelerate the testing of new radiation oncology innovations in NCTN clinical trials in all groups
   - Facilitate the application of innovations across all appropriate protocols

2) Foster intergroup collaboration and protocol harmonization in terms of inclusion and description of RT techniques and delivery devices

   - Reduce timelines for development of new protocols
   - Improve the clarity of NCTN protocols
OPPORTUNITIES FOR MEDICAL PHYSICISTS TO PARTICIPATE IN CLINICAL TRIALS

- Physicists contribute to new clinical trials through activities of CIRO, NRG Oncology.
- Opportunities to interface with AAPM task groups for new technology implementation guidelines
- Physicists help develop, publish, and expedite medical physics dosimetry protocols and templates for new clinical trials
CIRO Updates

Concepts and Protocols
Disease Site Templates
Special Projects
Special Project Highlights
CIRO Website Updates
Special Projects

NCI/NCTN RPT
- Review (2021)
- Ra-223 & Lu-177 Templates (2021)

GHG
- OAR Definition Standardization (2020)

Proton:
- MC WG (2021)
- SBRT WG (2022)
- Proton protocol template

UHDR (Flash) Assessment

SFRT

CodeX

NCTN Med Phys
# Special Projects

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<th>Conferences</th>
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<td>AAPM: 7/12</td>
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<td>Pulsed dose rate RT for GBM</td>
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<td>Summation dose from external beam and brachytherapy (2021)</td>
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<td>Summation of Dose from prior RT</td>
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| RT/DI Protocol Concept Questionnaire (202201) |

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Contouring Atlases, Templates & Tools

Disclaimer: The contouring atlases, templates, and tools made available on this webpage illustrate the consensus reached among physicians, physicists and other clinical trialists involved in cooperative research groups and disease site committees. The cooperative groups and authors are not responsible for any use of these guidance by third parties.

- **BRAIN TUMOR**
- **GYNECOLOGIC CANCER**
- **BREAST CANCER**
- **LUNG CANCER**
- **GASTROINTESTINAL CANCER**
- **HEAD AND NECK CANCER**
- **GENITOURINARY CANCER**
- **OTHER**
- **RADIOPHARMACEUTICAL THERAPY**
- **CIRO RESOURCES**
NRG Oncology – CIRO

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BRAIN TUMOR

GYNECOLOGIC CANCER

BREAST CANCER

LUNG CANCER

GASTROINTESTINAL CANCER

HEAD AND NECK CANCER

GENITOURINARY CANCER

OTHER

RADIOPHARMACEUTICAL THERAPY

CIRO RESOURCES
NRG Oncology/CIRO - BRAIN TUMOR
https://www.nrgoncology.org/About-Us/Center-for-Innovation-in-Radiation-Oncology

Brain Tumor items behind the login below:
- Guidelines for the Use of Radiomics in NRG Oncology Clinical Trials Involving Brain Tumors
- Hippocampal Sparing Atlas Link
- Glioblastoma Atlas Abstract
- NRG Protocol Radiation Therapy Template Brain Photon and Proton Therapy Template
- NRG Protocol Radiation Therapy Section Template (SRS)
NRG Oncology/CIRO – BREAST CANCER

https://www.nrgoncology.org/About-Us/Center-for-Innovation-in-Radiation-Oncology

Breast Cancer items behind the login below:

- Breast Atlas Link
- NRG Protocol Radiation Therapy Template (Whole Breast Photon Therapy)
- RADCOMP Breast Atlas
NRG Oncology/CIRO – GI CANCER
https://www.nrgoncology.org/About-Us/Center-for-Innovation-in-Radiation-Oncology

Gastrointestinal Cancer items behind the login below:

- Anorectal Atlas Link
- Liver Atlas Link
- Pancreas Atlas Link
- NRG Protocol Radiation Therapy Template (Anal)
- NRG Protocol Radiation Therapy Template (Liver - SBRT)
- NRG Protocol Radiation Therapy Template (Esophageal)
- NRG Protocol Radiation Therapy Template (Lower Gastrointestinal)
- NRG Protocol Radiation Therapy Template (Pancreas)
- GI002 MiM Software Script Template
NRG Oncology/CIRO – GU CANCER

https://www.nrgoncology.org/About-Us/Center-for-Innovation-in-Radiation-Oncology

Genitourinary Cancer items behind the login below:
- NRG Protocol Radiation Therapy Template (Bladder - Photon/Proton)
- Bladder Atlas Link
- Male Pelvic Atlas
- Prostate Pelvic Lymph Nodes Atlas Link
- Prostate Post-Operative Atlases: Positive Apex Margins Atlas Link
- Positive Seminal Vessels Atlas Link
- NRG Protocol Radiation Therapy Template (Prostate - Photon/Proton Conventional, Hypofractionation & SBRT)
- NRG Protocol Radiation Therapy Section Template *(Coming Soon)*
NRG Oncology/CIRO – GYN CANCER
https://www.nrgoncology.org/About-Us/Center-for-Innovation-in-Radiation-Oncology

Gynecologic Cancer items behind the login below:
• Female Pelvis Atlas
• Female RTOG Normal Pelvis
• GYN Cervical Cancer Brachytherapy Atlases for CT and MRI
• GYN Post-Op Endometrial Cervical Atlas
• Vulvar cancer atlas - mim and fullaccess interactive viewer packages with the final consensus contours
• NRG protocol radiation therapy section template (cervix, uterine cervix)
• NRG protocol radiation therapy template (endometrial)
• NRG protocol radiation therapy template (vulva)
• NRG NCTN Dose Summation EBRT and Brachytherapy Resource
NRG Oncology/CIRO – HEAD & NECK

https://www.nrgoncology.org/About-Us/Center-for-Innovation-in-Radiation-Oncology

Head and Neck Cancer items behind the login below:

- Head and Neck Atlas
- NRG Protocol Radiation Therapy Section Template (includes Proton and Photon)
- HN SBRT Protocol Template
- Brachial Plexus Contouring Atlas
NRG Oncology/CIRO – LUNG CANCER
https://www.nrgoncology.org/About-Us/Center-for-Innovation-in-Radiation-Oncology

Lung Cancer items behind the login below:

- Organs at Risk in Thoracic Radiation Therapy
- Atlases for CT Gross Tumor Volume and PET Metabolic Tumor Volume
- NRG Protocol Radiation Therapy Section Template (SBRT)
- Mesothelioma Contouring Atlas
NRG Oncology/CIRO – RADIOPHARMACEUTICAL THERAPY

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Radiopharmaceutical Therapy items behind the login below:
- Radium-223 Dichloride Dosimetry Template
- Lu177 Dosimetry Template (Revised April 2022)
Other items behind the login below:

- NRG Protocol Radiation Therapy Section Template (Spine SBRT) *(Coming Soon)*
- Male RTOG Normal Pelvis
- RTOG Extremity Soft Tissue Sarcoma
- Upper Abdominal Atlas Link
NRG Oncology/CIRO – CIRO RESOURCES
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CIRO Resources behind the login below:

General Resources
- NCTN CIRO Radiotherapy Section Feedback
- Organs at Risk (OAR) Dosimetric Constraints Summary/Spreadsheet (BR/GI/LU)
- Organs at Risk (OAR) Dosimetric Constraints Summary/Spreadsheet (HN/BN)
- Organs at Risk (OAR) Dosimetric Constraints Summary/Spreadsheet (GU/GY/GI)
- NRG Protocol Radiation Therapy Section Template
- Structure Names, Templates, and Definitions (TG 263, Global Harmonization Group OAR Guideline)
- Radiotherapy and Imaging Questionnaire for Concept
- Imaging Guidelines

Software Tools
- Machine Learning Radiotherapy Plan Models (HN001, HN002)
- Eclipse Scripting API Source & App

Meeting Records
- NRG Proton SBRT Workshop (4/11/2022), Recording / Chat Log / Flyer / Slides
Acknowledgements

The NRG Oncology is funded in part by a grant from the NIH grants 2U24CA180803-06(IROC) and 2U10CA180868-06(NRG)
Slide Title

This slide is to be used for meetings or graphics that require a dark background.