



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

Presented by

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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



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NRG Oncology



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

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

Center for Innovation in Radiation Oncology (CIRO)

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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

CIRO

Center for Innovation
in Radiation Oncology

NRG Oncology

NRG
ONCOLOGY™

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

<p>Conferences AAPM: 7/12 ASTRO: CT Sessions</p>	<p>BN Radiomics (2019/11/2020/03) Pulsed dose rate RT for GBM</p>	<p>BR SBRT Definition white paper Electronic brachytherapy</p>	<p>Imaging</p> <ul style="list-style-type: none"> • Radiomics (2019) • Radiomics phantom • Imaging Templates (2022) • QA for deformable registration (2021) • Adaptive RT trial concept • AI/Autosegmentation
<p>HN HN005/006: KBP/AI for QA of contours/plans GY</p>	<p>LU Summation of Dose from prior RT</p>	<p>GU • Image guided dose painting (GU009/10) • LDR OAR consensus</p>	
<p>• Summation dose from external beam and brachytherapy (2021) • Standardize</p>	<p>ART WG Supplemental template (2021)</p>	<p>RT/DI Protocol Concept Questionnaire (2022/01)</p>	

NRG Oncology – CIRO

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

The screenshot displays the NRG Oncology website interface. At the top, there is a dark red navigation bar with the NRG ONCOLOGY logo on the left and links for Contact Us, News, Member Login, and Search... on the right. Below this is a white navigation bar with dropdown menus for Patients, Clinical Trials, Committees & Programs, About Us, and Meetings & Resources, along with a red Support NRG button. The main content area has a dark blue header with the text 'Center for Innovation in Radiation Oncology'. Below this, a white box contains the title 'Contouring Atlases, Templates & Tools' and a disclaimer. A grid of links for various cancer types is provided. On the right, a red sidebar contains an 'About Us' section with a dropdown menu listing various topics.

NRG ONCOLOGY
Advancing Research. Improving Lives.™

Contact Us News Member Login Search...

Patients ▾ Clinical Trials ▾ Committees & Programs ▾ About Us ▾ Meetings & Resources ▾ Support NRG

Center for Innovation in Radiation Oncology

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

About Us

About Us >

- [Center for Innovation in Radiation Oncology](#)
- Membership ▾
- Who We Are & What We Do ▾
- Policies & Bylaws
- Biospecimen Bank
- [Center for Innovation in Radiation Oncology](#) ▾
 - Brain Tumors
 - Breast Cancer
 - Gastrointestinal Cancer
 - Genitourinary Cancer
 - Gynecologic Cancer

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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

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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

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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

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

Radiopharmaceutical Therapy items behind the login below:

- Radium-223 Dichloride Dosimetry Template
- Lu177 Dosimetry Template (Revised April 2022)

NRG Oncology/CIRO – OTHER

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

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

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

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)
- NRG Protocol Radiation Therapy Section Template: Adaptive (MR-Linac Systems)
- 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

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Slide Title

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