

Advanced Practice Radiation Therapist Educational Framework

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Introduction

Currently, there is not a nationally recognized Advanced Practice Radiation Therapist (APRT) role or curriculum within the United States of America.

On January 28, 2026, the American Society for Radiation Oncology released a statement opposing the creation of a national APRT role at this current time, while acknowledging that some individual institutions are using APRT roles to meet institutional-level needs.

Subsequently, ASRT published the [Consensus Committee on the Future of Medical Imaging and Radiation Therapy: White Paper From the Work Group Articulating Career Pathways in Radiation Therapy](#) to outline guardrails of what APRTs are not at individual institutions within the United States and what an APRT at an individual institution could be at this time.

The ASRT-led work group included appointees from the American Association of Medical Dosimetrists, American Association of Physicists in Medicine, American College of Radiology, American Society for Radiation Oncology, American Registry of Radiologic Technologists, American Society of Radiologic Technologists, Joint Review Committee on Education in Radiology Technology, Elekta, Medical Dosimetrist Certification Board, Siemens Healthineers and Society for Radiation Oncology Administrators. The work group included two appointees from the grassroots advanced practice radiation therapy working group, which was formally integrated into ASRT's member and volunteer structure in late 2025.

Separate from the above ASRT-led work group, an educational framework was developed by the grassroots advanced practice radiation therapy working group prior to its formal integration with ASRT's member and volunteer structure. This framework provides guidance for individual educational programs considering formal tracks or degrees for APRTs so that any proposed education aligns with the clinical guardrails set forth by the white paper.

ASRT educational frameworks supplement its curricula with updated educational guidelines for specific academic topics. It should be noted that the ASRT has no statutory authority to mandate that educational programs comply with the content of an ASRT educational framework. This framework is suitable for programs offered at a master degree level. Educational programs have a responsibility to consider and abide by state regulations and institutional policies.

Four Pillars of Advanced Practice

Grounded in the four pillars of advanced practice—education, research, clinical practice, and leadership and management—this educational framework promotes the integration of advanced knowledge, critical thinking, and systems level awareness for clinical and professional leadership. This framework is adaptable to meet institutional, regional, and state needs, supporting both program development and individual career advancement.

Education

The education pillar highlights the APRT's dual role as both educator and lifelong learner. APRTs contribute to the development of others through delivering educational programs for colleagues, students, and interprofessional teams, and fostering a culture of continuous learning and excellence in professional practice. Equally, they are responsible for their own ongoing professional development, maintaining self-awareness of their learning needs and engaging in reflective practice to enhance their expertise. This pillar also encompasses patient and caregiver education; APRTs provide clear, compassionate, and evidence-based information that empowers individuals to understand and actively participate in the treatment process. Through these combined efforts, APRTs advance the knowledge base, confidence, and competence of both the healthcare team and the patients they serve.

Research

Engagement in research is a vital component of the APRT role, enabling professionals to contribute to the advancement of radiation therapy. APRTs are involved in applying evidence-based practices that aim to improve patient outcomes, evaluating new techniques, and conducting independent research, that will contribute to the body of knowledge in radiation therapy and oncology. By participating in research initiatives, APRTs help to shape best practices in clinical settings and drive innovation in patient care. This pillar also extends to applying peer-reviewed literature to make decisions and to develop patient safety initiatives and quality improvement projects.

Clinical Practice

In the clinical practice pillar, APRTs apply elevated knowledge of radiation therapy, treatment techniques, and communication with patients to support care. They demonstrate technical excellence while managing complex and evolving clinical situations, using advanced clinical reasoning and accountability in every decision. Working under the supervision of a radiation oncologist, APRTs integrate scientific evidence, comprehensive oncologic understanding, patient-specific factors, and professional judgment to guide safe, effective treatment. This advanced level of responsibility enhances patient experience and outcomes, and strengthens collaboration within the interprofessional radiation oncology team.

Leadership and Management

Effective leadership and management are critical for APRTs, who must influence and enhance practice standards within their departments. This involves implementing new workflows, guiding therapist teams, managing care paths, and contributing to strategic planning initiatives. By demonstrating strong leadership skills, APRTs help improve practice efficiency and foster a supportive atmosphere that prioritizes patient care.

Reflective Practice Across All Four Pillars of Advanced Practice

In addition to addressing each pillar of advanced practice, programs must prioritize teaching future APRTs the importance of continuous critical reflection and assessment of their own practice to identify and address learning gaps as practice evolves. It is imperative for an APRT to regularly evaluate their confidence, competence, and capability, be evaluated, and undergo routine evaluation of their performance. The educational framework should guide the development of individualized learning plans that are consistently updated, providing a focus on the continuing development of the APRT. Programs may incorporate established reflective practice frameworks—such as Borton’s “What? So What? Now What?” model (1970), Gibbs’ Reflective Cycle (1988), and Schön’s theories of reflection-in-action and reflection-on-action (1983, 1987)—to provide structure and consistency in cultivating reflective skills. This critical reflective process should be integrated across all four pillars of practice, reinforcing the principle of lifelong learning that is central to the APRT role. Furthermore, institutions are encouraged to assess the value and impact of APRTs, recognizing that dedicated time for engaging with these pillars can lead to substantial benefits, including reduced patient waiting times and improved satisfaction.

Formal Evaluation and Assessments

Programs are required to establish a formal process for assessing the competence of their students. Skills acquisition should follow a structured, progressive approach, from foundational proficiency to advanced clinical judgment and autonomy. Importantly, advanced practice is not defined by the performance of a specific task or skill, but by the application of those skills through critical thinking, evidence-based decision-making, and leadership in clinical care. Competence assessment must be embedded within a formal mentorship model that supports APRT learners as they progress from novice to expert healthcare providers. All evaluations should be conducted by qualified mentors with domain-specific expertise. For instance, a medical physicist may assess contouring-related or technical competencies, while a radiation oncologist—who holds clinical oversight of the APRT role—evaluates competencies within their area of clinical responsibility.

Beyond these task-specific assessors, programs should appoint an overarching clinical mentor, a radiation oncologist, who maintains a holistic view of the APRT’s development. This mentor ensures consistency across assessments, integrates feedback from interprofessional evaluators, and provides longitudinal guidance throughout training. This structured mentorship framework promotes accurate, meaningful evaluation, fosters professional growth, and ensures alignment with the expectations of advanced practice. Routine review of assessment processes should confirm ongoing consistency with contemporary standards, emerging technologies, and best practices in radiation therapy.

Educational Framework, Competency, and Specialization

This APRT Educational Framework establishes the foundational knowledge required of all APRTs, regardless of clinical focus or practice setting. Completion of this educational framework is essential to ensure consistency, quality, and professional standards across all educational programs preparing future APRTs. While this guide defines the core educational framework, it is understood that each APRT's clinical specialization will evolve from the unique needs of the clinical environment, institutional priorities, and the learner's individualized training experiences with the radiation oncologist. Demonstrated clinical competence - acquired through supervised practice, structured mentorship, and performance assessment - forms the basis upon which specialization is developed. Programs are encouraged to align clinical training opportunities with competencies given the learner's interest and departmental needs, allowing future APRTs to build depth in specific areas of practice, such as but not limited to palliative care, brachytherapy, and theranostics. This approach ensures that all APRTs share a standardized foundation of advanced practice education, while maintaining flexibility for programmatic innovation and responsiveness to evolving clinical demands.

Professional Portfolio Development

As part of their training, educational programs might require APRTs to develop a professional portfolio that documents their clinical experiences, competencies, reflective practice, and contributions to education, research, and leadership. This portfolio serves as a tangible record of progression through the program, demonstrating mastery of core competencies and decision-making capabilities. Beyond graduation, the portfolio provides a framework for ongoing professional development, allowing APRTs to track achievements, showcase specialized expertise, and support career advancement. It also serves as a reflective tool to guide continuous improvement, inform future learning goals, and highlight contributions to patient care, departmental initiatives, and the broader radiation oncology community.

Additional Considerations

The content and objectives of the educational framework are organized to meet the mission, goals and needs of APRT programs. Items within each section may be modified to meet regional, state or institutional needs. Regulations on practice vary by state and institution. The educational program shall ensure that:

- Professional liability coverage is adequate.
- Adequate supervision is provided.
- Rigorous evaluation of competency occurs regularly.
- Compliance with federal and state regulation.

Example of Program Structure and Design

Individual institutions should create electives for the second year or throughout the coursework to meet the needs of local health care institutions and mentor radiation oncologists and to allow flexibility and areas of expertise to education programs based on local needs, access to care, and emerging technologies. Programs should include electives and tailored experiences based on program resources, expertise, and departmental needs. This chart gives examples that can be adapted by institution. The framework, as written, allows time for the inclusion of institutionally appropriate electives.

Progression	Content	Example 1	Example 2
Prior to Admission	Entry Criteria and Knowledge	Application process and preparation to confirm that applicants have strong knowledge and experience in the radiation therapy curriculum content areas.	Application process and preparation to confirm that applicants have strong knowledge and experience in the radiation therapy curriculum content areas.
Year 1: Theoretical and professional underpinnings of advanced practice	Core Educational Framework Part I: Foundational Content	Content and objectives included in framework and one institutional elective.	Content and objectives included in framework and two institutional electives.
Year 2: Application and mastery — the practice, leadership, and scholarly integration phase	Core Educational Framework Part II: Applied Practice	Content and objectives included in framework and three institutional electives.	Content and objectives included in framework and two institutional electives that build on year 1 electives.

Summary

In summary, this APRT Educational Framework provides the common educational baseline necessary for safe and effective advanced practice radiation therapy, while the demonstration of competence in specialized areas allows each APRT to shape their professional identity within the broader radiation oncology team.

Entry Criteria and Knowledge

APRT candidates are required to hold a current radiation therapy credential and are recommended to have at least five years of clinical experience in radiation therapy practice, prioritizing clinical competence, leadership and expertise. This section represents an inventory of preexisting knowledge and skills gained through prior academic experience and reinforced through professional practice. It is intended to aid future APRTs in career planning and the educational program in developing pre-assessment tools for candidate selection.

Leadership and Team Building

APRTs must apply leadership and team-building skills in complex clinical environments. Candidates should have a foundational understanding of leadership theory, team dynamics, and communication strategies, enabling them to mentor colleagues, advocate for patients, and lead quality improvement initiatives.

Essential Knowledge and Application

- Apply leadership theories to guide team interactions and decision-making.
- Communicate effectively across interprofessional teams, including conflict resolution and negotiation.
- Analyze principles of high-performing teams to support collaboration and workflow optimization.
- Participate in and lead quality improvement initiatives, integrating evidence-based practice.
- Demonstrate ethical judgment and professional responsibility in leadership roles.

Management and Organizational Skills

Candidates should demonstrate foundational management and organizational abilities that support leadership, workflow efficiency, and professional growth. These skills enable APRTs to navigate departmental priorities, lead change, and engage in reflective practice.

Essential Knowledge and Application

- Apply strategic planning and change management principles to clinical and operational scenarios.
- Demonstrate negotiation, conflict resolution, and motivational strategies to optimize team performance.
- Apply financial and resource management principles to inform decision-making for technology, workflow, and departmental initiatives.
- Engage in self-reflection to identify learning gaps, develop individualized learning plans, and track professional growth.
- Apply stress management, time management, and emotional intelligence skills to support personal and team effectiveness.

Quality, Safety, and Risk Management

Candidates should have foundational knowledge in quality assurance, patient safety, and risk management, enabling informed decision-making in the identification, mitigation, and prevention of clinical risks.

Essential Knowledge and Application

- Lead and participate in safety checks, equipment verification, and QA processes.
- Conduct root cause analyses relevant to their scope of work and develop strategies to mitigate risk.
- Implement and evaluate quality improvement initiatives to enhance patient outcomes and care.
- Promote a culture of safety, high reliability, and continuous process improvement.

Advanced Practice Radiation Therapy Educational Framework

Core Educational Framework Part I: Foundational Content

Year 1: Theoretical and professional underpinnings of advanced practice

Professionalism, Reflective Practice, and Interprofessional Collaboration

Description

This foundational course supports the development of the APRT's professional identity and readiness for advanced clinical practice. Learners will cultivate the habits, behaviors, and communication skills expected of advanced practitioners, including reflective practice, ethical decision-making, wellbeing, and effective interprofessional collaboration. Emphasis is placed on clinical reasoning within the scope of a radiation therapist, maintaining a culture of lifelong learning, and contributing positively to team dynamics. Learners will also begin building a professional portfolio that documents their growth, competence, and evolving role within the clinical environment.

Objectives

- Demonstrate reflective practice to assess personal learning needs, decision-making, and areas for growth.
- Construct and maintain a professional portfolio that documents competence, development, and scholarly contributions.
- Engage in continuing professional development (CPD) and promote lifelong learning behaviors within the team.
- Apply emotional intelligence, communication strategies, and cultural competence to enhance team interactions.
- Participate effectively in interprofessional meetings, demonstrating understanding of roles and shared responsibilities.
- Use conflict-resolution strategies to maintain psychological safety and effective team functioning.
- Integrate emerging evidence and technology into personal practice to support safe, high-quality care.
- Apply strategies to promote personal and professional wellbeing, resilience, and fitness to practice.

Content

Professional Identity & Professionalism

- I. Principles of APRT professionalism
- II. Ethical practice and independent clinical judgment
- III. Reflective practice frameworks and self-assessment
- IV. Lifelong learning and CPD models (Kolb, Knowles, Dreyfus & Dreyfus)

- V. Regulatory, accreditation, and credentialing expectations

Professional Portfolio Development

- VI. Components of an APRT portfolio
- VII. Documenting clinical competence and advanced decision-making
- VIII. Logging CPD, teaching, research, and leadership activities
- IX. Using portfolios for evaluation and advancement

Professional Wellbeing & Resilience

- X. Emotional intelligence
- XI. Stress management, burnout recognition, and boundary setting
- XII. Reflection as a tool for maintaining capability

Interprofessional Collaboration & Communication

- XIII. IPEC competencies
- XIV. Role clarity and shared decision-making
- XV. Communication strategies (SBAR, assertive communication, cultural competence)
- XVI. Team dynamics, psychological safety, and conflict resolution

Evidence-Informed Personal Practice

- XVII. Using research to guide practice
- XVIII. Integrating new technologies into clinical decision-making
- XIX. Staying current through societies, conferences, and literature

Foundations of Clinical Research and Evidence Appraisal

Description

This course establishes foundational knowledge in research literacy, inquiry, and evidence-based practice. It supports the development of critical thinking, professional growth, and the ability to interpret and apply research findings to clinical practice under the supervision of a radiation oncologist. Through engagement with scholarly literature, APRTs strengthen their capacity to evaluate the quality, validity, and applicability of research while contributing to the advancement of the profession.

Objectives

- Analyze research articles to determine the accuracy, validity, and clinical relevance of findings.
- Integrate information literacy principles into professional and academic work.
- Critique research publications for methodological rigor and relevance to radiation therapy practice.
- Formulate focused, answerable research questions based on identified evidence gaps.
- Identify how clinical trials inform evidence-based practice.
- Synthesize professional literature to support evidence-based decision-making and clinical innovation.
- Apply evidence appraisal to improve patient care, clinical outcomes, and professional practice.
- Demonstrate ethical understanding of research governance, integrity, and dissemination standards.

Content

- I. Intellectual Inquiry and Research Analysis**
 - a. Source, credibility, and quality of publications
 - b. Relevance and impact of background literature
 - c. Critical appraisal frameworks (CASP, PRISMA, etc.)
 - d. Risk of bias assessment tools (e.g., ROBINS-I for non-randomized studies)
 - e. Research bias and study validity
- II. Application of Evidence to Practice**
 - a. Levels of evidence and hierarchy of study designs
 - b. Clinical trials
 - c. Translating research findings into clinical protocols
 - d. Developing recommendations for practice improvement and innovation
- III. Professional Ethics and Accountability**
 - a. Institutional Review Board (IRB) process: submission requirements, informed consent, and protection of vulnerable populations
 - b. HIPAA compliance and data de-identification protocols
 - c. HIPAA-compliant and secure data management, confidentiality, and record retention
 - d. Avoiding research misconduct: fabrication, falsification, plagiarism, and conflict of interest

- e. Authorship ethics and transparency in reporting
- IV. Writing and Disseminating Research**
 - a. Scholarly writing: structuring a manuscript for peer review, proper citation, and academic integrity
 - b. Understanding and engaging with the peer review process
 - c. Translating research outcomes into clinical, educational, or policy change
 - d. Strategies for interprofessional collaboration in dissemination and implementation

Regulation, Law, and Ethics in Advanced Practice Radiation Therapy

Description

This course integrates the ethical, legal, and regulatory frameworks governing advanced practice in radiation therapy in the United States. APRTs must demonstrate a comprehensive understanding of healthcare law, professional accountability, and regulatory compliance to ensure safe, ethical, and effective patient care. Emphasis is placed on interpreting and applying healthcare legislation, understanding institutional and governmental oversight, and navigating ethical dilemmas encountered in complex clinical environments.

Learners will explore federal, state, and institutional policies that define and influence the scope of advanced practice, including licensure, reimbursement, credentialing, and professional regulation. Learners will identify and document their individual scope of practice boundaries—institutional, state, and national—recognizing how these frameworks shape autonomy and professional responsibility. This course also fosters leadership in advocacy and governance, preparing APRTs to contribute to policy development, regulatory reform, and the advancement of the profession through engagement with professional organizations and governmental agencies.

Objectives

- Identify and describe key federal and state regulatory and accrediting agencies and their roles in radiation oncology.
- Interpret and apply healthcare laws, regulations, and policies that influence radiation oncology and advanced practice roles.
- Define and articulate personal and institutional scope of practice boundaries within applicable legal and regulatory frameworks.
- Analyze and resolve ethical dilemmas in advanced clinical and professional contexts using structured ethical decision-making models.
- Demonstrate professional accountability through adherence to legal, ethical, and institutional standards of care.
- Engage in advocacy efforts that support patient access, professional advancement, and health policy reform.

Content

I. Health Care Law and Regulatory Frameworks

- A. Regulatory Bodies and Oversight: NRC, FDA, OSHA, CMS, The Joint Commission, APEX/ACR/ACRO, and state radiation control agencies.
- B. Regulatory Scope: Oversight of radioactive materials, device approvals, personnel qualifications, QA programs, reimbursement, and billing.
- C. Compliance and Reporting: Documentation standards, audit preparation, incident reporting, and consequences of non-compliance.
- D. Licensure and Credentialing: Legal mechanisms governing APRT recognition, advanced scope, and role delineation.
- E. Health Policy and Legislation:
 1. How health policy is developed, implemented, and reformed.

2. Legislative issues impacting advanced practice: scope of practice, licensure, reimbursement, and regulatory change.
 3. Strategies for effective advocacy and policy engagement.
- II. Ethics and Professional Conduct in Advanced Practice**
- A. Ethical Principles and Frameworks: Autonomy, beneficence, non-maleficence, justice, fidelity, and integrity.
 - B. Decision-Making Models: Application of structured ethical reasoning to complex patient care and leadership scenarios.
 - C. Advanced Practice-Specific Issues:
 1. Ethical implications of expanded clinical scope.
 2. Informed consent and patient refusal in complex or high-risk treatments.
 3. Confidentiality, dual relationships, and maintaining professional boundaries.
 - D. Professional Standards:
 1. ARRT Code of Ethics, ASRT Practice Standards, and guidance from ASTRO, ACR, and SROA.
 2. Continuing professional development (CPD), maintenance of certification (MOC), and peer accountability.
- III. Legal Responsibility and Risk Management**
- A. Legal Foundations of Practice:
 1. Elements of negligence, malpractice, and liability in advanced clinical decision-making.
 2. Institutional and personal risk management strategies.
 3. Documentation and record-keeping requirements for legal defensibility and patient safety.
 - B. Institutional Policy Integration:
 1. Aligning advanced practice with organizational governance and credentialing frameworks.
 2. Defining authority for clinical decision-making, delegation, and supervision within interprofessional teams.
- IV. Advocacy, Governance, and Professional Leadership**
- A. Professional and Governmental Relations:
 1. Engaging with agencies, legislators, and stakeholders to shape health policy.
 2. Partnering with professional organizations to advance APRT recognition.
 - B. Patient Advocacy:
 1. Promoting equitable access to radiation therapy services.
 2. Supporting legislation that enhances quality, safety, and professional practice.
 - C. Leadership in Ethics and Compliance:
 1. Establishing departmental cultures of ethical practice, transparency, and accountability.
 2. Serving as a resource for ethical consultation and regulatory interpretation within the clinical setting.

Research Methods

Description

This course develops advanced technical and procedural skills required to design, implement, and analyze clinical and educational research. Building on foundational principles, learners gain practical experience in research design, data collection, and statistical or qualitative analysis. Emphasis is placed on methodological rigor, accurate data interpretation, and application of findings to practice improvement, interprofessional collaboration, and innovation.

Objectives

- Design quantitative, qualitative, mixed-methods, and review-based research relevant to radiation therapy practice.
- Select appropriate study designs and data collection methods to address research questions.
- Apply statistical and qualitative analysis techniques to interpret data accurately and meaningfully.
- Explore scoping and systematic reviews to synthesize evidence and identify gaps in the literature.
- Critically evaluate methodological strengths and limitations to ensure validity, reliability, and reproducibility of results.
- Integrate research findings with interprofessional collaboration and clinical practice relevance.

Content

I. Conducting Research

- a. Quantitative Methods:
 - i. Experimental and quasi-experimental designs
 - ii. Observational studies (cohort, case-control, and cross-sectional)
 - iii. Concordance studies assessing interobserver and interprofessional agreement
 - iv. Study planning and statistical power: determining sample size, conducting power calculations, and interpreting effect sizes
 - v. Hypothesis testing, t-tests, ANOVA, regression, and multivariate analysis
- b. Qualitative Methods:
 - i. Phenomenology, grounded theory, ethnography, case study, and narrative inquiry
 - ii. Data collection strategies: interviews, focus groups, document review, and observation
 - iii. Coding, thematic analysis, and establishing trustworthiness (credibility, dependability, confirmability)
- c. Mixed-Methods Approaches:
 - i. Convergent, explanatory, and exploratory sequential design
 - ii. Integrating quantitative and qualitative findings for comprehensive analysis
- d. Review-Based Research:

- i. Scoping reviews for mapping current evidence and identifying gaps
- ii. Systematic reviews and meta-analyses for evidence synthesis using PRISMA or JBI methodology

II. Analysis

- a. Descriptive Statistics:
 - i. Data types, measures of central tendency, and variability
- b. Inferential Statistics:
 - i. Hypothesis testing, confidence intervals, t-tests, ANOVA, chi-square, correlation, regression, and mixed-effects modeling
- c. Epidemiologic Measures:
 - i. Measures of association (odds ratio, relative risk)
 - ii. Outcome assessment frameworks in oncology (CTCAE for toxicity grading and RECIST for treatment response evaluation)
 - iii. Survival analysis (Kaplan-Meier, log-rank tests)
- d. Qualitative Data Analysis:
 - i. Coding frameworks, pattern identification, and thematic development
- e. Mixed-Methods Integration:
 - i. Data merging, triangulation, and interpretation across methodologies

Core Educational Framework Part II: Applied Practice

Year 2: Application and mastery — the practice, leadership, and scholarly integration phase

Educational Practice, Change Management, and Health System Engagement

Description

This course prepares APRTs to design, deliver, and evaluate educational programs that elevate clinical practice across departments and the broader health system. Building on the Core Educational framework Part 1 foundations, learners will apply instructional design principles, advanced communication, and evaluation strategies to support healthcare teams, patients, caregivers, and communities. The course emphasizes the APRT's role in improving system performance through education, policy engagement, and evidence-based innovations. Learners will develop structured educational materials, assess outcomes, and contribute to system-level initiatives that enhance safety, quality, and patient experience, using change-management, implementation-science, and project-management principles to support sustainable improvements.

Objectives

- Assess educational needs for clinicians, students, patients, caregivers, and communities.
- Develop evidence-based educational programs using instructional design and educational framework-development methodologies.
- Create measurable learning objectives and SMART goals to guide program evaluation.
- Deliver interactive, engaging education tailored to diverse audiences and learning needs.
- Communicate effectively and compassionately with patients and caregivers, adapting to literacy, culture, prognosis, and context.
- Apply plain language communication techniques to ensure patient-facing materials and verbal education are clear, understandable, and actionable, supporting health literacy, informed decision-making, and engagement as partners in care.
- Lead interprofessional education sessions, promoting shared learning and collaborative practice.
- Integrate research, emerging technologies, and innovations into educational materials and clinical recommendations.
- Evaluate educational outcomes and revise programs for improved effectiveness.
- Analyze healthcare delivery processes and contribute to system-level improvements through education, policy support, and protocol development.
- Advocate for safe, evidence-based practice by identifying system gaps and proposing educational or procedural solutions.
- Apply change-management, implementation-science, project-management, and organizational-behavior principles to guide effective adoption and sustainability of new practices.

Content

- I. Foundations of Educational Program Development**
 - A. Instructional design models (e.g., ADDIE, Bloom's, adult learning theory)
 - B. Writing measurable outcomes and SMART goals
 - C. Needs assessments (surveys, interviews, workflow analysis, performance data)
- II. Educational Framework Design and Implementation**
 - A. Developing lesson plans, simulations, cases, and multimedia resources
 - B. Tailoring content for learners: peers, students, interprofessional teams, patients, caregivers
 - C. Technology-enhanced learning: LMS, digital tools, remote learning
- III. Professional and Interprofessional Education**
 - A. Facilitating team-based learning, workshops, and debriefs
 - B. Leading knowledge translation and post-conference updates
 - C. Supporting colleagues' professional development and mentoring emerging practitioners
 - D. Integrating new clinical evidence, technologies, and workflows into team training
- IV. Patient and Caregiver Education**
 - A. Health literacy, cultural competence, and communication strategies
 - B. Behavior change models and counseling techniques
 - C. Supporting survivorship, treatment navigation, and symptom management
 - D. Countering misinformation and developing inclusive education resources (multimedia, multilingual, ADA-compliant)
 - E. Using plain language strategies to communicate complex clinical information effectively, ensuring patients and families understand treatment, side effects, and care instructions.
- V. Assessment and Evaluation**
 - A. Formative and summative assessment methods
 - B. Evaluating knowledge retention, skill application, and patient understanding
 - C. Using feedback and outcome measures for continuous improvement
- VI. Change Management, Implementation Science, and Organizational Leadership**
 - A. Principles of change management and leading practice transformation
 - B. Implementation science frameworks to support adoption of evidence-based innovations
 - C. Project management skills for planning, executing, and evaluating educational or system-level initiatives
 - D. Organizational behavior concepts relevant to interprofessional teams, communication dynamics, and system culture
 - E. Strategies for sustaining change, reducing variation, and promoting continuous improvement
- VII. Health System Engagement and Policy Integration**
 - A. Understanding healthcare delivery structures and clinical operations within radiation oncology and how the APRT role interfaces with these systems.
 - B. Identifying system-level gaps through workflow analysis, educational needs assessments, and interprofessional communication.

- C. Evaluating how the APRT role can best serve the specific health system they practice in—including clinical flow, workforce needs, access challenges, safety priorities, and institutional goals.
- D. Participating in policy formation, protocol development, and quality-improvement (QI) initiatives that enhance safety, efficiency, and standardization.
- E. Using data, outcome measures, and patient feedback to drive improvements in safety, compliance, patient experience, and operational performance.
- F. Advocating for APRT integration within teams, service lines, and professional organizations, ensuring the role aligns with system needs and supports institutional priorities.
- G. Leveraging educational and system-level initiatives to strengthen overall clinical performance, reduce variation, support staff development, and enhance patient-centered care.

VIII. Community Engagement and Outreach

- A. Developing public education programs
- B. Collaborating with community organizations and professional societies
- C. Engaging in outreach that improves awareness, health literacy, and access to care

Advanced Patient Care

Description

APRTs support patient-centered care by integrating clinical expertise, psychosocial support, and evidence-informed interventions under the supervision of the radiation oncologist. This course emphasizes enhanced assessment skills, care coordination, supportive care, and interprofessional communication. All care is delivered through the lens of patients as partners, ensuring that patient values, preferences, and active engagement guide decision-making and care planning. APRTs act as clinical leaders, mentors, and advocates, applying advanced judgment to support safe, effective care for complex or high-acuity patient populations.

Objectives

- Conduct comprehensive APRT-level patient assessments, including functional, psychosocial, cognitive, and treatment-specific domains.
- Contribute to individualized, evidence-based care plans and support implementation under radiation oncologist supervision.
- Recognize adverse reactions, escalate to the radiation oncologist, and collaborate with the interprofessional team to ensure safe patient care.
- Educate patients and families on treatment expectations, side-effect awareness, and supportive care strategies using principles of health literacy and shared decision-making.
- Identify and communicate signs of acute radiation-related toxicities to appropriate staff.
- Participate in interprofessional care coordination to promote continuity, safety, and quality across the treatment trajectory.
- Mentor and support staff in delivering evidence-based, patient-centered care for complex patient scenarios.
- Engage patients as active partners in their care, ensuring that assessments, care planning, and decision-making reflect patient priorities, preferences, and values.

Content

I. Patient Assessment

- A. Functional, psychosocial, and cognitive domains, assessed with patient collaboration to reflect priorities and goals.
- B. Differentiating symptoms from disease progression
- C. Integrating patient-reported outcomes (PROMs) and quality-of-life measures to guide supportive care strategies in partnership with patients.
- D. Identifying symptom and facilitating timely communication to the clinical team.
- E. Applying foundational knowledge of systemic therapy and contrast media (indications, contraindications, and common interactions) to support safe assessment, triage, and escalation of patient concerns.

II. Patient Education and Communication

- A. Applying counseling strategies to support informed patient and family engagement as active partners in care.
- B. Incorporating cultural competence, health literacy, and psychosocial considerations into communication and care planning.

III. Supportive Care

- A. Coordinating interprofessional care and facilitating team-based decision-making to optimize safety and outcomes.
- B. Mentoring and guiding junior staff in approaches to complex patient management.
- C. Advocating for patient needs across institutional workflows, including palliative care, survivorship planning, and specialized populations.

Advanced Clinical Practice

Description

This course prepares APRTs to apply advanced technical knowledge—such as multimodality imaging and contemporary treatment technologies—under the supervision of a radiation oncologist. APRTs integrate imaging data to guide tumor targeting, assess advanced delivery processes, troubleshoot workflow challenges, and contribute to protocol development and staff education. Their role focuses on technical assessment, coordination, and implementation within physician-defined treatment intent, supporting precision, safety, and efficiency in modern radiation therapy.

Objectives

- Apply clinical judgment to integrate multimodal imaging (e.g., CT, MRI, PET, and emerging modalities) into treatment planning and adaptive workflows.
- Evaluate image-guided and adaptive radiation processes under the supervision of the radiation oncologist, ensuring safety, accuracy, and adherence to evidence-based practice.
- Collaborate with the interprofessional team to optimize imaging protocols, treatment verification strategies, and workflow integration of new clinical technologies.
- Contribute to protocol development, staff education, and quality initiatives that promote informed decision-making and effective use of advanced imaging and delivery techniques.

Content

- I. Image Integration and Application**
 - A. Application of imaging data to support adaptive planning, motion management,.
 - B. Evaluation of image quality and imaging anomalies to support safe and effective clinical decisions.
- II. Advanced Treatment and Delivery Technologies**
 - A. Support the integration of imaging and verification systems into treatment workflows by assessing technical feasibility, identifying workflow implications, and ensuring alignment with physician-defined treatment intent.
 - B. Provide evidence-informed recommendations to the radiation oncologist regarding technology utilization by summarizing patient-specific considerations (e.g., anatomical, motion, imaging, or setup factors).
 - C. Explore principles and clinical considerations for emerging technologies (e.g., stereotactic, proton, brachytherapy, FLASH, theranostics).
- III. Plan Evaluation, Verification, and Quality Assurance**
 - A. Collaborate in brachytherapy planning discussions by identifying workflow, imaging, and procedural considerations.
 - B. Support quality and safety initiatives by participating documentation reviews, and data-driven protocol updates, ensuring alignment with institutional practice standards.
- IV. Leadership, Education and Safety**
 - A. Participate in decision-support for developing and implementing imaging and technology protocols aligned with clinical objectives and safety standards.

- B. Provide mentorship and education to therapist staff on effective and informed use of advanced imaging and delivery techniques.

Capstone Research Project

Description

The Capstone Research Project provides APRTs the opportunity to apply foundational knowledge and research methods to a structured, practice-relevant project. Learners design, implement, analyze, and disseminate a project that addresses a clinical, educational, or operational question within radiation therapy, which may take the form of a traditional research study, a clinical audit, a service evaluation, or a service improvement initiative. This experience integrates ethical conduct, methodological rigor, and evidence-based practice to generate meaningful contributions to the field.

Objectives

- Identify a clinically or educationally relevant problem and formulate a focused, answerable research question
- Develop a research proposal, including methodology, data collection plan, feasibility assessment, and resource allocation
- Obtain Institutional Review Board (IRB) or equivalent ethical approval for applicable human subjects research
- Collect, manage, and analyze data according to the selected research methodology
- Interpret findings within the context of current literature and professional practice
- Communicate and present scientific findings in a professional format (poster, oral presentation, or manuscript)
- Propose evidence-informed recommendations for practice, policy, or education based on study results
- Reflect on the research process, identifying lessons learned and areas for professional growth

Content

- I. Project Development**
 - a. Problem identification and literature review
 - b. Formulation of research objectives and hypotheses or study aims
 - c. Selection of appropriate research design and methodology
 - d. Feasibility assessment, timeline, and resource planning
- II. Ethics and Regulatory Compliance**
 - a. IRB submission and approval process
 - b. Informed consent and protection of human subjects
 - c. HIPAA and data de-identification protocols
- III. Data Collection and Analysis**
 - a. Implementation of quantitative, qualitative, or mixed-methods data collection
 - b. Application of statistical or thematic analysis techniques learned in Research Methods
 - c. Ensuring data integrity, validity, and reliability throughout the project
- IV. Dissemination and Knowledge Translation**
 - a. Preparing results for professional presentation, publication, or departmental reporting

- b. Communicate scientific findings to relevant stakeholders
- c. Translating findings into recommendations for clinical practice, educational innovation, or quality improvement initiatives
- d. Self-reflection and evaluation of the research process, professional development, and contribution to the field

Resources

This list of references can assist educators in sampling the pool of resources that pertain to advanced practice radiation therapy. The list should be viewed as a snapshot of available materials. Omission of any title is not intentional. Because the creation of literature and media related to the field is dynamic, educators are encouraged to search additional sources for recent updates, revisions and additions to this title collection.

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SAFE EUROPE WP8 factsheet:

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Appendix: Educational Framework Work Group

We would like to extend special recognition to the professionals who volunteered their time as members of the educational framework project:

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