*National Imaging Associates, Inc.	
Clinical guidelines **PANCREATIC CANCER**	**Original Date: June 2013**
Radiation Oncology	**Last Revised Date: May 2023**
Guideline Number: NIA_CG_134	**Implementation Date: January 2024**

GENERAL INFORMATION

- *It is an expectation that all patients receive care/services from a licensed clinician. All appropriate supporting documentation, including recent pertinent office visit notes, laboratory data, and results of any special testing must be provided. If applicable: All prior relevant imaging results and the reason that alternative imaging cannot be performed must be included in the documentation submitted.*
- *Where a specific clinical indication is not directly addressed in this guideline, medical necessity determination will be made based on widely accepted standard of care criteria. These criteria are supported by evidence-based or peer-reviewed sources such as medical literature, societal guidelines and state/national recommendations.*

INDICATIONS FOR RADIATION THERAPY

2D and 3D conformal radiation therapy techniques are considered medically necessary for treatment of pancreatic cancer.

Neoadjuvant (Pre-Operative) or Resectable or Borderline Resectable without evidence of metastatic[1]

- No standard treatment regimen currently exists for this subset of patients. If neoadjuvant radiation therapy is delivered, a dose of 45-54 Gy in 1.8-2.5 Gy fractions or 36 Gy in 2.4 fractions are viable options.

Adjuvant (Post-Operative) Resectable Without Evidence of Metastatic Disease[1]

- For resected cases (45-50.4 Gy in 1.8-2 Gy fractions) with potential boost to the high-risk regions (5-9 Gy). Up to 33 fractions. IMRT should be considered for post-operative radiation after a pancreatoduodenectomy (Whipple procedure).

Unresectable/Locally Advanced Without Evidence of Metastatic Disease[1]

- Radiation delivered in 45-54 Gy (1.8-2.5 Gy fractions). Up to 30 fractions. More protracted courses delivering high doses through a hypofractionated approach (67.5 Gy in 15 fractions or 75Gy in 25 fractions) are also acceptable.

Palliative[1]

- Radiation delivered in 25-36 Gy in 2.4-5.0 Gy fractions is usual for patients with metastatic disease who require palliation for obstruction or pain. Up to 15 fractions.

Local Recurrence after Resection without Evidence of Systemic Metastatic Disease

- RT dose generally consists of 45-54 Gy in 1.8 to 2.0 Gy fractions. Up to 30 fractions.[1]

TREATMENT OPTIONS (Will be reviewed on a case-by-case basis)

Intensity Modulated Radiation Therapy (IMRT)

IMRT is not indicated as a standard treatment option and should not be used routinely for the delivery of radiation therapy for pancreatic cancer. IMRT is strictly defined by the utilization of inverse planning modulation techniques. IMRT may be appropriate for limited circumstances in which radiation therapy is indicated and 3D conformal radiation therapy (3D-CRT) techniques cannot adequately deliver the radiation prescription without exceeding normal tissue radiation tolerance, the delivery is anticipated to contribute to potential late toxicity or tumor volume dose heterogeneity is such that unacceptable hot or cold spots are created.

Clinical rationale and documentation for performing IMRT rather than 2D or 3D-CRT treatment planning and delivery will need to:

- Demonstrate how 3D-CRT isodose planning cannot produce a satisfactory treatment plan (as stated above) via the use of patient-specific dose volume histograms and isodose plans.
- Provide tissue constraints for both the target and affected critical structures.

Per RTOG 1102,[2,3] for neoadjuvant, definitive, palliative, and recurrent disease, not more than 30% of the total volume of kidneys can received ≥ 18 Gy. If only one kidney is functional, not more than 10% of the volume can receive ≥ 18 Gy. Maximum dose to stomach, duodenum, and jejunum is 55 Gy. Mean dose of liver cannot exceed 30 Gy. Maximum dose to D0.03cc of spinal cord must be ≤ 45 Gy.

Per RTOG 0848,[4] for adjuvant therapy, mean dose to bilateral kidneys must be < 18 Gy. If only one kidney is functional, not more than 15% of that kidney can receive ≥ 18 Gy, and not more than 30% can received ≥ 14 Gy. Maximum dose to stomach, duodenum, and jejunum is ≤ 54 Gy, < 10% of each organ volume can receive between 50 and 53.99 Gy, < 15% of the volume of each organ can received between 45 and 49.99 Gy. Mean dose of liver must be ≤ 25 Gy. Maximum dose to D0.03cc of spinal cord must be ≤ 45 Gy.

Stereotactic Body Radiation Therapy (SBRT)[1]

Stereotactic Body Radiation Therapy (SBRT) is appropriate to treat locally advanced or recurrent

disease without evidence of distant metastasis **or** to treat a previously irradiated field. IMRT to 60 Gy in 15 fractions is an alternative to SBRT for ablative treatment.

Proton Beam Radiation Therapy

Proton beam is not an approved treatment option for pancreatic cancer. Proton beam has not been proven a superior treatment to conventional radiation therapy.

Intra Operative Radiation Therapy (IORT)

The role of intraoperative radiation therapy for pancreatic cancer is controversial but may be reasonable for patient's undergoing resection that may result in closer involved margins. IORT may be considered on a case-by-case basis.

BACKGROUND

Pancreatic cancer typically occurs later in life. Risk factors include smoking, alcohol use, obesity, diabetes, and certain chemical exposures. Pancreatitis has also been shown to have an increased risk of developing pancreatic cancer. Surgical resection is potentially the only curative approach, but most patients present with more advanced stage disease. Overall, the actuarial five-year survival rate is approximately 20%.

The goal of these guidelines is to delineate appropriate indications of the employment of radiation therapy in the treatment of pancreatic cancer and to define suitable methods of delivery of radiation therapy for these indications.

REFERENCES

1. NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines): Pancreatic Adenocarcinoma Version 2.2022. National Comprehensive Cancer Network (NCCN). Updated December 6, 2022. Accessed December 7, 2022. https://www.nccn.org/professionals/physician_gls/pdf/pancreatic.pdf
2. Ram AN, Rosati LM, Herman JM. Pancreatic Cancer: Radiation Therapy Planning. In: Hong T, Das P, eds. *Radiation Therapy for Gastrointestinal Cancers*. Springer International Publishing; 2017:91-101.
3. Brunner TB, Haustermans K, Huguet F, et al. ESTRO ACROP guidelines for target volume definition in pancreatic cancer. *Radiother Oncol*. Jan 2021;154:60-69. doi:10.1016/j.radonc.2020.07.052
4. Ling TC, Slater JM, Mifflin R, et al. Evaluation of normal tissue exposure in patients receiving radiotherapy for pancreatic cancer based on RTOG 0848. *J Gastrointest Oncol*. 2015;6(2):108-114. doi:10.3978/j.issn.2078-6891.2014.094

POLICY HISTORY

Date	Summary
May 2023	• Added to SBRT: IMRT to 60 Gy in 15 fractions is an alternative to SBRT for ablative treatment. • Added to Unresectable, locally advanced: More protracted courses delivering high doses through a hypofractionated approach (67. 5 Gy in 15 fractions or 75 Gy in 25 fractions) are also acceptable. • Added to post-operative radiation: IMRT should be considered for post-operative radiation after a pancreatoduodenectomy (Whipple procedure). • Added to Adjuvant (post-operative radiation): Up to 33 fractions • Added Local Recurrence after Resection without Evidence of Systemic Metastatic Disease**:** RT dose generally consists of 45-54 Gy in 1.8 to 2.0 Gy fractions. Up to 30 fractions • Deleted Additional Resources • Changed "Treatment options requiring physician review" to Treatment Options (will be reviewed on a case-by-case basis)
January 2022	Added: Dose constraints for neoadjuvant, definitive, palliative and recurrent disease based on RTOG 1102 and dose constraints for adjuvant therapy based on RTOG 0848.

Reviewed / Approved by NIA Clinical Guideline Committee

Disclaimer: *National Imaging Associates, Inc. (NIA) authorization policies do not constitute medical advice and are not intended to govern or otherwise influence the practice of medicine. These policies are not meant to supplant your normal procedures, evaluation, diagnosis, treatment and/or care plans for your patients. Your professional judgement must be exercised and followed in all respects with regard to the treatment and care of your patients. These policies apply to all Evolent Health LLC subsidiaries including, but not limited to, National Imaging Associates ("NIA"). The policies constitute only the reimbursement and coverage guidelines of NIA. Coverage for services varies for individual members in accordance with the terms and conditions of applicable Certificates of Coverage, Summary Plan Descriptions, or contracts with governing regulatory agencies. NIA reserves the right to review and update the guidelines at its sole discretion. Notice of such changes, if necessary, shall be provided in accordance with the terms and conditions of provider agreements and any applicable laws or regulations.*