National Imaging Associates, Inc.*	
Clinical guidelines: **GASTRIC CANCER**	**Original Date: June 2013**
Radiation Oncology	**Last Revised Date: January 2022**
Guideline Number: NIA_CG_130	**Implementation Date: January 2023**

INDICATIONS FOR RADIATION THERAPY

Three-dimensional conformal radiation therapy (3D-CRT) is considered medically necessary for the following with the following clinical indications[1]:

- Pre-operative (Potentially Resectable) T2, T3, or T4 Any N, M0
  or
- Primary Therapy (Unresectable/Medically Unfit) Any N, Any T, M0
  or
- Post-operative -Surgical Resection T2, T3, T4, Any N or Any T, N+ *or* Positive margins, *or* M1

Dosage Guidelines:

- 45-50.4Gy up to 28 fractions

TREATMENT OPTIONS REQUIRING PHYSICIAN REVIEW

Intensity Modulated Radiation Therapy (IMRT)[1]

IMRT is not indicated as a standard treatment option and should not be used routinely for the delivery of radiation therapy for gastric 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**.** The role of intensity modulated radiation therapy, according to current National Comprehensive Cancer Network Guidelines may be appropriate in selected cases to reduce dose to normal structures, such as heart, lungs, kidneys, and liver. However, uncertainties from variations in stomach filling and respiratory motion need to be considered.

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

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- Demonstrate how 3D-CRT isodose planning cannot produce a satisfactory treatment plan (as stated above) via the use of a patient-specific dose volume histograms and isodose plans.

- Provide tissue constraints for both the target and affected critical structures.

Proton Beam Radiation Therapy
Proton beam is not an approved treatment option for gastric cancer. There are limited clinical studies comparing proton beam therapy to 3-D conformal radiation. Overall, studies have not shown clinical outcomes to be superior to conventional radiation therapy.

Stereotactic Body Radiation Therapy
Stereotactic Body Radiation Therapy (SBRT) is not an approved treatment option for the treatment of gastric cancer.

BACKGROUND
For patients with resectable gastric cancer, radiation therapy has been used both in the pre-operative and post-operative settings. External beam radiation therapy alone is of limited use for patients with locally unresectable gastric cancer with no evidence of improved survival. Combined chemoradiation, however, does result in improved survival, and thus combined modality treatment is typically supported. The role of IMRT (intensity modulated radiation therapy) may be appropriate in selected cases to reduce dose to normal structures, such as heart, lungs, kidneys, and liver, but should be considered on a case-by-case basis.

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

POLICY HISTORY

Date	Summary
January 2022	No significant changes
February 2021	Updated References
February 2020	Updated references
February 2019	Added and updated references

REFERENCES

1. NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines): Gastric Cancer Version 5.2021. National Comprehensive Cancer Network (NCCN). Updated October 6, 2021. Accessed December 14, 2021. https://www.nccn.org/professionals/physician_gls/pdf/gastric.pdf

ADDITIONAL RESOURCES

1. Alani S, Soyfer V, Strauss N, Schifter D, Corn BW. Limited advantages of intensity-modulated radiotherapy over 3D conformal radiation therapy in the adjuvant management of gastric cancer. *Int J Radiat Oncol Biol Phys*. Jun 1 2009;74(2):562-6. doi:10.1016/j.ijrobp.2008.09.061
2. Key Statistics About Stomach Cancer. American Cancer Society. Updated January 22, 2021. Accessed December 14, 2021. https://www.cancer.org/cancer/stomach-cancer/about/key-statistics.html
3. Daroui P, Jabbour SK, Herman JM, et al. ACR Appropriateness Criteria® Resectable Stomach Cancer. *Oncology (Williston Park).* Aug 2015;29(8):595-602, c3.
4. Chakravarty T, Crane CH, Ajani JA, et al. Intensity-modulated radiation therapy with concurrent chemotherapy as preoperative treatment for localized gastric adenocarcinoma. *Int J Radiat Oncol Biol Phys*. Jun 1 2012;83(2):581-6. doi:10.1016/j.ijrobp.2011.07.035
5. Lohr F, Boda-Heggemann J, Mai SK, Wenz F. IMRT for gastric cancer: what is its full potential? In regard to Alani et al. (*Int J Radiat Oncol Biol Phys* 2009;74:562-566). *Int J Radiat Oncol Biol Phys*. Oct 1 2009;75(2):635; author reply 635-6. doi:10.1016/j.ijrobp.2009.06.058
6. Minn AY, Hsu A, La T, et al. Comparison of intensity-modulated radiotherapy and 3-dimensional conformal radiotherapy as adjuvant therapy for gastric cancer. *Cancer*. Aug 15 2010;116(16):3943-52. doi:10.1002/cncr.25246

Reviewed / Approved by NIA Clinical Guideline Committee

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.