**Small Intestine Cancer Treatment**

**Treatment - Health professionals**

* [**General Information About Small Intestine Cancer**](https://cdr.cancer.gov/cgi-bin/cdr/QCforWord.py?DocId=CDR0000062902&DocType=Summary:rs&DocVersion=None&parmstring=yes&parmid=165386#_1)
  + [**Incidence and Mortality**](https://cdr.cancer.gov/cgi-bin/cdr/QCforWord.py?DocId=CDR0000062902&DocType=Summary:rs&DocVersion=None&parmstring=yes&parmid=165386#_138)
  + [**Follow-up and Survivorship**](https://cdr.cancer.gov/cgi-bin/cdr/QCforWord.py?DocId=CDR0000062902&DocType=Summary:rs&DocVersion=None&parmstring=yes&parmid=165386#_151)
* [**Cellular Classification of Small Intestine Cancer**](https://cdr.cancer.gov/cgi-bin/cdr/QCforWord.py?DocId=CDR0000062902&DocType=Summary:rs&DocVersion=None&parmstring=yes&parmid=165386#_3)
* [**Stage Information for Small Intestine Cancer**](https://cdr.cancer.gov/cgi-bin/cdr/QCforWord.py?DocId=CDR0000062902&DocType=Summary:rs&DocVersion=None&parmstring=yes&parmid=165386#_10)
  + [**AJCC Stage Groupings and TNM Definitions**](https://cdr.cancer.gov/cgi-bin/cdr/QCforWord.py?DocId=CDR0000062902&DocType=Summary:rs&DocVersion=None&parmstring=yes&parmid=165386#_133)
* [**Small Intestine Adenocarcinoma Treatment**](https://cdr.cancer.gov/cgi-bin/cdr/QCforWord.py?DocId=CDR0000062902&DocType=Summary:rs&DocVersion=None&parmstring=yes&parmid=165386#_36)
* [**Small Intestine Leiomyosarcoma Treatment**](https://cdr.cancer.gov/cgi-bin/cdr/QCforWord.py?DocId=CDR0000062902&DocType=Summary:rs&DocVersion=None&parmstring=yes&parmid=165386#_60)
* [**Recurrent Small Intestine Cancer Treatment**](https://cdr.cancer.gov/cgi-bin/cdr/QCforWord.py?DocId=CDR0000062902&DocType=Summary:rs&DocVersion=None&parmstring=yes&parmid=165386#_72)
* [**Changes to This Summary (02/19/2021)**](https://cdr.cancer.gov/cgi-bin/cdr/QCforWord.py?DocId=CDR0000062902&DocType=Summary:rs&DocVersion=None&parmstring=yes&parmid=165386#_100)

**General Information About Small Intestine Cancer**

**Incidence and Mortality**

Estimated new cases and deaths from small intestine cancer in the United States in 2021:[[1](https://cdr.cancer.gov/cgi-bin/cdr/QCforWord.py?DocId=CDR0000062902&DocType=Summary:rs&DocVersion=None&parmstring=yes&parmid=165386#CL_1_1)]

* New cases: 11,390.
* Deaths: 2,100.

Adenocarcinoma, lymphoma, sarcoma, and carcinoid tumors account for the majority of small intestine malignancies, which, as a whole, account for only 4% of all gastrointestinal malignancies.[[2](https://cdr.cancer.gov/cgi-bin/cdr/QCforWord.py?DocId=CDR0000062902&DocType=Summary:rs&DocVersion=None&parmstring=yes&parmid=165386#CL_1_2), [3](https://cdr.cancer.gov/cgi-bin/cdr/QCforWord.py?DocId=CDR0000062902&DocType=Summary:rs&DocVersion=None&parmstring=yes&parmid=165386#CL_1_3), [4](https://cdr.cancer.gov/cgi-bin/cdr/QCforWord.py?DocId=CDR0000062902&DocType=Summary:rs&DocVersion=None&parmstring=yes&parmid=165386#CL_1_4), [5](https://cdr.cancer.gov/cgi-bin/cdr/QCforWord.py?DocId=CDR0000062902&DocType=Summary:rs&DocVersion=None&parmstring=yes&parmid=165386#CL_1_5)]

**Follow-up and Survivorship**

As in other gastrointestinal malignancies, the predominant modality of treatment is surgery when resection is possible, and cure relates to the ability to completely resect the cancer.

Carcinoid tumors of the small intestine are covered elsewhere as a separate cancer entity. (Refer to the PDQ summary on [Gastrointestinal Carcinoid Tumor Treatment [Adult]](https://cdr.cancer.gov/cgi-bin/cdr/QcReport.py?DocId=CDR0000062893&Session=guest) for more information.)

**References:**

1. American Cancer Society: Cancer Facts and Figures 2021. American Cancer Society, 2021. Available online. Last accessed June 02, 2021.
2. Chamberlain R, Ghalyaie N, Patil S: Small bowel cancer. In: DeVita VT Jr, Lawrence TS, Rosenberg SA, et al., eds.: DeVita, Hellman, and Rosenberg’s Cancer: Principles & Practice of Oncology. 11th ed. Wolters Kluwer, 2019, pp 884-94.
3. Serour F, Dona G, Birkenfeld S, et al.: Primary neoplasms of the small bowel. J Surg Oncol 49 (1): 29-34, 1992. PMID: 1548877
4. Matsuo S, Eto T, Tsunoda T, et al.: Small bowel tumors: an analysis of tumor-like lesions, benign and malignant neoplasms. Eur J Surg Oncol 20 (1): 47-51, 1994. PMID: 8131869
5. Chow JS, Chen CC, Ahsan H, et al.: A population-based study of the incidence of malignant small bowel tumours: SEER, 1973-1990. Int J Epidemiol 25 (4): 722-8, 1996. PMID: 8921448

**Cellular Classification of Small Intestine Cancer**

Tumors that occur in the small intestine include the following:

* Adenocarcinoma (majority of cases).
* Lymphoma (uncommon), which is usually of the non-Hodgkin type. (Refer to the PDQ summary on [Adult Non-Hodgkin Lymphoma Treatment](https://cdr.cancer.gov/cgi-bin/cdr/QcReport.py?DocId=CDR0000062707&Session=guest) for more information.)
* Sarcoma (most commonly leiomyosarcoma and more rarely angiosarcoma or liposarcoma).
* Carcinoid tumors. (Refer to the PDQ summary on [Gastrointestinal Carcinoid Tumor Treatment [Adult]](https://cdr.cancer.gov/cgi-bin/cdr/QcReport.py?DocId=CDR0000062893&Session=guest) for more information.)
* Gastrointestinal stromal tumors. (Refer to the PDQ summary on [Gastrointestinal Stromal Tumors Treatment [Adult]](https://cdr.cancer.gov/cgi-bin/cdr/QcReport.py?DocId=CDR0000639481&Session=guest) for more information.)

Approximately 25% to 50% of the primary malignant tumors in the small intestine are adenocarcinomas, and most occur in the duodenum.[[1](https://cdr.cancer.gov/cgi-bin/cdr/QCforWord.py?DocId=CDR0000062902&DocType=Summary:rs&DocVersion=None&parmstring=yes&parmid=165386#CL_3_1)] Small intestine carcinomas may occur synchronously or metachronously at multiple sites.

Leiomyosarcomas occur most often in the ileum.

Some 20% of malignant lesions of the small intestine are carcinoid tumors, which occur more frequently in the ileum than in the duodenum or jejunum and may be multiple.

It is uncommon to find malignant lymphoma as a solitary small intestine lesion.

**References:**

1. Small Intestine. In: Amin MB, Edge SB, Greene FL, et al., eds.: AJCC Cancer Staging Manual. 8th ed. Springer; 2017, pp. 221–34.

**Stage Information for Small Intestine Cancer**

The treatment sections of this summary are organized according to histopathologic type rather than stage.

**AJCC Stage Groupings and TNM Definitions**

The American Joint Committee on Cancer (AJCC) has designated staging by TNM (tumor, node, metastasis) classification to define small intestine cancer. This staging classification applies only to adenocarcinomas arising in the nonampullary duodenum and small intestine. Nonadenocarcinomas arising in the small intestine should have a TNM assigned but are not assigned a stage classification.[[1](https://cdr.cancer.gov/cgi-bin/cdr/QCforWord.py?DocId=CDR0000062902&DocType=Summary:rs&DocVersion=None&parmstring=yes&parmid=165386#CL_10_1)]

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| **Table 1. Definitions of Primary Tumor (T)a** | |
| **T Category** | **T Criteria** |
| TX | Primary tumor cannot be assessed. |
| T0 | No evidence of primary tumor. |
| Tis | High-grade dysplasia/carcinoma *in situ*. |
| T1 | Tumor invades the lamina propria or submucosa. |
| −T1a | Tumor invades the lamina propria. |
| −T1b | Tumor invades the submucosa. |
| T2 | Tumor invades the muscularis propria. |
| T3 | Tumor invades through the muscularis propria into the subserosa, or extends into nonperitonealized perimuscular tissue (mesentery or retroperitoneum) without serosal penetration.b |
| T4 | Tumor perforates the visceral peritoneum or directly invades other organs or structures (e.g., other loops of small intestine, mesentery of adjacent loops of bowel, and abdominal wall by way of serosa; for duodenum only, invasion of pancreas or bile duct). |

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| *aReprinted with permission from AJCC: Small Intestine. In: Amin MB, Edge SB, Greene FL, et al., eds.: AJCC Cancer Staging Manual. 8th ed. New York, NY: Springer, 2017, pp 221–34.* |
| *bFor T3 tumors, the nonperitonealized perimuscular tissue is, for the jejunum and ileum, part of the mesentery and, for the duodenum in areas where serosa is lacking, part of the interface with the pancreas.* |

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| **Table 2. Definitions of Regional Lymph Node (N)a** | |
| **N Category** | **N Criteria** |
| NX | Regional lymph nodes cannot be assessed. |
| N0 | No regional lymph node metastasis. |
| N1 | Metastasis in one or two regional lymph nodes. |
| N2 | Metastasis in three or more regional lymph nodes. |

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| *aReprinted with permission from AJCC: Small Intestine. In: Amin MB, Edge SB, Greene FL, et al., eds.: AJCC Cancer Staging Manual. 8th ed. New York, NY: Springer, 2017, pp 221–34.* |

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| **Table 3. Definitions of Distant Metastasis (M)a** | |
| **M Category** | **M Criteria** |
| M0 | No distant metastasis. |
| M1 | Distant metastasis present. |

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| *aReprinted with permission from AJCC: Small Intestine. In: Amin MB, Edge SB, Greene FL, et al., eds.: AJCC Cancer Staging Manual. 8th ed. New York, NY: Springer, 2017, pp 221–34.* |

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| --- | --- | --- | --- |
| **Table 4. Prognostic Stage Groups for Adenocarcinomaa** | | | |
| **Stage** | **T** | **N** | **M** |
| 0 | Tis | N0 | M0 |
| I | T1−2 | N0 | M0 |
| IIA | T3 | N0 | M0 |
| IIB | T4 | N0 | M0 |
| IIIA | Any T | N1 | M0 |
| IIIB | Any T | N2 | M0 |
| IV | Any T | Any N | M1 |

|  |
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| *T = primary tumor; N = regional lymph node; M = distant metastasis.* |
| *aReprinted with permission from AJCC: Small Intestine. In: Amin MB, Edge SB, Greene FL, et al., eds.: AJCC Cancer Staging Manual. 8th ed. New York, NY: Springer, 2017, pp 221–34.* |

**References:**

1. Small Intestine. In: Amin MB, Edge SB, Greene FL, et al., eds.: AJCC Cancer Staging Manual. 8th ed. Springer; 2017, pp. 221–34.

**Small Intestine Adenocarcinoma Treatment**

**Standard treatment options:**

1. For resectable primary disease:
   * Radical surgical resection.[[1](https://cdr.cancer.gov/cgi-bin/cdr/QCforWord.py?DocId=CDR0000062902&DocType=Summary:rs&DocVersion=None&parmstring=yes&parmid=165386#CL_36_1), [2](https://cdr.cancer.gov/cgi-bin/cdr/QCforWord.py?DocId=CDR0000062902&DocType=Summary:rs&DocVersion=None&parmstring=yes&parmid=165386#CL_36_2)]
2. For unresectable primary disease:
   * Surgical bypass of obstructing lesion.
   * Palliative radiation therapy.

**Treatment options under clinical evaluation:**

1. For unresectable primary disease:
   * Clinical trials evaluating methods to improve local control, such as the use of radiation therapy with radiosensitizers with or without systemic chemotherapy.
2. For unresectable metastatic disease:
   * Clinical trials evaluating the value of new anticancer drugs and biologicals (phase I and phase II studies).

**References:**

1. Rose DM, Hochwald SN, Klimstra DS, et al.: Primary duodenal adenocarcinoma: a ten-year experience with 79 patients. J Am Coll Surg 183 (2): 89-96, 1996. PMID: 8696551
2. North JH, Pack MS: Malignant tumors of the small intestine: a review of 144 cases. Am Surg 66 (1): 46-51, 2000. PMID: 10651347

**Small Intestine Leiomyosarcoma Treatment**

**Standard treatment options:**

1. For resectable primary disease:
   * Radical surgical resection.
2. For unresectable primary disease:
   * Surgical bypass of obstructing lesion and radiation therapy.
3. For unresectable metastatic disease:
   * Palliative surgery.
   * Palliative radiation therapy.
   * Palliative chemotherapy.

**Treatment options under clinical evaluation:**

* For unresectable primary or metastatic disease:
  + Clinical trials evaluating the value of new anticancer drugs and biologicals.

**Recurrent Small Intestine Cancer Treatment**

**Standard treatment options:**

1. For metastatic adenocarcinoma or leiomyosarcoma:
   * No standard effective chemotherapy exists for patients with recurrent metastatic adenocarcinoma or leiomyosarcoma of the small intestine. These patients should be considered candidates for clinical trials evaluating the use of new anticancer drugs or biologicals in phase I and phase II trials.
2. For locally recurrent disease:
   * Surgery.
   * Palliative radiation therapy.
   * Palliative chemotherapy.
   * Clinical trials evaluating ways of improving local control, such as the use of radiation therapy with radiosensitizers with or without systemic chemotherapy.

**Changes to This Summary (02/19/2021)**

The PDQ cancer information summaries are reviewed regularly and updated as new information becomes available. This section describes the latest changes made to this summary as of the date above.

[**General Information About Small Intestine Cancer**](https://cdr.cancer.gov/cgi-bin/cdr/QCforWord.py?DocId=CDR0000062902&DocType=Summary:rs&DocVersion=None&parmstring=yes&parmid=165386#_1)

Updated [statistics](https://cdr.cancer.gov/cgi-bin/cdr/QCforWord.py?DocId=CDR0000062902&DocType=Summary:rs&DocVersion=None&parmstring=yes&parmid=165386#_103) with estimated new cases and deaths for 2021 (cited American Cancer Society as reference 1).