Pancreatic Cancer: Staging and Treatment

What is staging for cancer?

Staging is the process of learning how much cancer is in your body and where it is. For pancreatic cancer, your blood may be checked for tumor marker levels, such as CA 19-9 (carbohydrate antigen 19-9) and CEA (carcinoembryonic antigen). You may have imaging tests like CT, MRI, and/or PET scans to help stage your cancer. Procedures such as an endoscopic retrograde cholangiopancreatography (ERCP) and percutaneous transhepatic cholangiography (PTC) may also be used. Your providers need to know about your cancer and your health so that they can plan the best treatment for you.

Staging looks at the size of the tumor and where it is, and if it has spread to other organs. The staging system for pancreatic cancer is called the “TNM system,” as described by the American Joint Committee on Cancer. It has three parts:

- **T**- Describes the size/location/extent of the "primary" tumor in the pancreas.
- **N**- Describes if the cancer has spread to the lymph nodes.
- **M**- Describes if the cancer has spread to other organs (metastases).

Your healthcare provider will use the results of the tests you had to figure out your TNM result and combine these to get a stage from 0 to IV (4).

How is pancreatic cancer staged?

Staging for pancreatic cancer is based on:

- The location and size of the tumor.
- If the tumor has spread to the lymph nodes. If so, how many lymph nodes are affected.
- If the tumor has spread to other organs. This is called metastasis.

Staging is important because it helps to guide your treatment options. The staging system is very complex. Below is a summary of this staging system. Talk to your provider about the stage of your cancer.

Stage 0 (Tis, N0, M0): Called “carcinoma *in situ*.” The cancer is only in the top layers of cells in the pancreatic duct. It has not spread to deeper tissues (Tis). It has not spread to nearby lymph nodes (N0). It has not spread to distant sites (M0).

Stage IA (T1, N0, M0): The cancer is only in the pancreas and is no bigger than 2 cm (T1). It has not spread to nearby lymph nodes (N0). It has not spread to distant sites (M0).

Stage 1B (T2, N0, M0): The cancer is only in the pancreas and is 2 to 4 cm in size (T2). It has not spread to nearby lymph nodes (N0). It has not spread to distant sites (M0).

Stage IIA (T3, N0, M0): The cancer is only in the pancreas and is bigger than 4 cm in size (T3). It has not spread to nearby lymph nodes (N0). It has not spread to distant sites (M0).

Stage IIB (T1, N1, M0): The cancer is confined to the pancreas and is no bigger than 2 cm in size (T1) AND it has spread to no more than 3 lymph nodes (N1). It has not spread to distant sites (M0); **OR** (**T2, N1, M0):** The cancer is confined to the pancreas and is 2 to 4 cm in size (T2) AND it has spread to more than 3 lymph nodes

(N1). It has not spread to distant sites (M0); **OR** (**T3, N1, M0):** The cancer is confined to the pancreas and is bigger than 4 cm (T3) AND it has spread to more than 3 lymph nodes (N1). It has not spread to distant sites (M0).

Stage III (T1, N2, M0): The cancer is confined to the pancreas and is no bigger than 2 cm in size (T1) AND it has spread to 4 or more nearby lymph nodes (N2). It has not spread to distant sites (M0); **OR (T2, N2, M0):** The cancer is confined to the pancreas and is 2 to 4 cm in size (T2) AND it has spread to 4 or more nearby lymph nodes (N2). It has not spread to distant sites (M0); **OR(T3, N2, M0):** The cancer is confined to the pancreas and is bigger than 4 cm in size (T3) AND it has spread to 4 or more nearby lymph nodes (N2). It has not spread to distant sites (M0); **OR (T4, Any N, M0):** The cancer has spread outside of the pancreas and into major blood vessels (T4). The cancer may have spread to nearby lymph nodes (Any N). It has not spread to distant sites (M0).

Stage IV (Any T, Any N, M1): The cancer is any size (Any T). It may have spread to nearby lymph nodes (Any N). The cancer has spread to distant sites (M1).

How is pancreatic cancer treated?

Treatment for pancreatic cancer is based on the size and location of the tumor and if it has spread to the lymph nodes or other organs. There can be more than one type of treatment used to treat pancreatic cancer. Some of the treatments used are:

- Surgery.
- Ablation/Embolization.
- Radiation Therapy.
- Chemotherapy.
- Targeted Therapy.
- Immunotherapy.
- Clinical Trials.

Surgery

Surgery for pancreatic cancer can be used to better stage your cancer, to possibly cure the cancer, or for palliative purposes (to help with symptoms or to prevent complications, such as a blocked bile duct).

Surgery to stage your cancer is done using laparoscopic surgery. During laparoscopic surgery, small incisions (surgical cuts) are made in your abdomen (belly). Long, thin scopes are used to look at the pancreas and other organs. A biopsy (removal of tissue that is looked at under a microscope) may be done to check cells for cancer.

If your provider thinks surgery can be done to possibly cure the cancer and remove (resect) all or some of the tumor, there are a few types of surgery that may be used. Curative surgery is often only attempted for tumors that are in the head of the pancreas.

- **Standard Whipple (pancreaticoduodenectomy):** Removal of the pancreatic head (and sometimes the body), gallbladder, bile duct, and a part of both the stomach (pylorus), small intestine (duodenum), and nearby lymph nodes. The pancreas that is left will continue to make digestive juices and insulin. This surgery is often done with a large incision in the abdomen, but can be done by some surgeons with laparoscopic incisions. It is important to have this procedure done at a center where they do many Whipple surgeries a year.
- **Distal pancreatectomy:** Only the tail of the pancreas, or the tail and a part of the body are removed. The spleen is often also removed.

- **Total pancreatectomy:** The whole pancreas, gallbladder, spleen, and part of the stomach and small intestine are removed. After this surgery, you will no longer have a pancreas to make insulin and other hormones. You will be diabetic and will rely on insulin.

These are major surgeries with many possible side effects. Your provider will talk with you about the risks and benefits, as well as side effects of these surgeries.

Sometimes when your surgeon attempts surgery to resect or possibly cure your cancer, it becomes clear that the cancer has spread too much to be removed. Your surgeon may then choose to do a less extensive surgery to help with symptoms. This is called palliative surgery. Palliative surgery is not meant to cure the cancer but instead help with management of side effects.

A common problem for tumors in the head of the pancreas is a blocked bile duct. Tumors in the head of the pancreas can block the common bile duct, causing jaundice (yellowing of the skin and eyes), pain, nausea, vomiting, and lack of appetite. There are two ways to fix a blocked bile duct:

- **Stent:** A stent is used to keep the bile duct open. Stents are often placed during an endoscopic retrograde cholangiopancreatography (ERCP), which doesn't need an incision. They may also be placed during a percutaneous transhepatic cholangiography (PTC), where a long, thin needle is inserted through your abdomen and into your liver and bile duct.
- **Bypass:** A bypass is done to reroute or change direction of the flow of bile. The new route for bile is now from the common bile duct directly into the small intestine, instead of through the pancreas. This can be done with a large incision in your abdomen or laparoscopically.

Your provider will talk to you about which type of procedure or surgery would be best for your treatment plan. They will be able to answer any questions you may have and be able to give you more details about how to prepare for and how to care for yourself after your surgery or procedure is done. Talk with your provider about the risks and benefits of surgery for your pancreatic cancer.

Ablation/Embolization

Ablation and embolization are done to kill smaller tumors, especially those that have spread (metastasized) to other organs. These are often not done to cure the cancer, but to help with symptoms.

Ablation uses heat or cold to kill the tumors. Examples are:

- **Radiofrequency ablation (RFA):** High-energy radio waves are used to heat and kill the cancer cells.
- **Microwave thermotherapy:** Microwaves are used to heat and kill the cancer cells.
- **Ethanol (alcohol) ablation:** Alcohol is used to kill the cancer cells.
- **Cryosurgery/Cryoablation:** Very thin gasses are passed through a thin, metal probe to kill the cancer cells.

During embolization, something is injected into an artery to block blood flow to cancer cells, killing those cells.

- **Arterial embolization:** A catheter (thin, flexible tube) is placed through an artery in your upper thigh. Medications or other materials are placed through the catheter to your hepatic (liver) artery. This blocks blood flow to the pancreatic cancer cells.
- **Chemoembolization**: Chemotherapy is used during embolization. Chemotherapy medications are placed through the catheter to kill cancer cells.
- **Radioembolization**: Radiation therapy is used during embolization. Small radioactive beads are placed through the catheter to kill cancer cells.

Radiation Therapy

Radiation therapy is the use of high-energy x-rays to kill cancer cells. Radiation can be done before, during, or after surgery, and is often used along with chemotherapy (called chemoradiation).

Radiation can also be used if you are not healthy enough to have surgery or to ease symptoms of pain or a blockage. Talk with your provider about if and when radiation will be a part of your treatment.

Chemotherapy

Chemotherapy is the use of anti-cancer medications to treat cancer. Chemotherapy can be used before surgery (called neoadjuvant chemotherapy) or after surgery (called adjuvant chemotherapy).

Chemotherapy medications used to treat pancreatic cancer may include gemcitabine, 5-fluorouracil, oxaliplatin, albumin-bound paclitaxel, capecitabine, cisplatin, irinotecan, liposomal irinotecan, paclitaxel, and docetaxel.

Your provider will talk to you about when you will receive this medications and side effects that you may have.

Targeted Therapy

These therapies target specific changes on a cell that help cancer grow and spread. Your tumor will be tested for these specific targets. Certain therapies are used for each target:

- **Epidermal growth factor receptor (EGFR):** Erlotinib.
- **PARP**: Olaparib.
- **NTRK**: Larotrectinib and entrectinib.

Your provider will talk to you about which targeted therapies are right for you and how to manage any side effects.

Immunotherapy

Immunotherapy uses your body’s own immune system to find and kill cancer cells. It is also called biologic therapy. Pembrolizumab is an immunotherapy medication being used to treat pancreatic cancers.

Clinical Trials

You may be offered a clinical trial as part of your treatment plan. To find out more about current clinical trials, visit the OncoLink Clinical Trials Matching Service.

Making Treatment Decisions

Your care team will make sure you are included in choosing your treatment plan. This can be overwhelming as you may be given a few options to choose from. It feels like an emergency, but you can take a few weeks to meet with different providers and think about your options and what is best for you. This is a personal decision. Friends and family can help you talk through the options and the pros and cons of each, but they cannot make the decision for you. You need to be comfortable with your decision – this will help you move on to the next steps. If you ever have any questions or concerns, be sure to call your team.

You can learn more about pancreatic cancer at OncoLink.org.