

# The Silent Killer

## Statement of Problem

Pancreatic cancer is the second leading cause of cancer-related death in the U.S., and more than 56,700 Americans will be diagnosed with pancreatic cancer this year.<sup>1</sup> There is not currently an established early detection method for pancreatic cancer, which makes it difficult to diagnose in its earlier and more treatable stages. The symptoms for this type of cancer are very subtle and people tend to ignore them, which is why it is more difficult to diagnose than other types of cancer.<sup>1</sup>

## Prognosis

The prognosis for pancreatic cancer heavily depends on the stage of diagnosis, size and type of tumor, lymph node involvement, and degree of metastasis at the time of diagnosis. The earlier the cancer is diagnosed and treated, the better the prognosis; unfortunately, most cases are diagnosed at later, more difficult-to-treat stages. Most people are diagnosed at stage IV, which is when the disease has metastasized, so most have a five-year survival rate of 1 percent. The average person diagnosed with late stage pancreatic cancer will live for about 1 year after diagnosis, however, there is a 5-10 percent chance that you could live up to 5 years after diagnosis.<sup>2</sup>

## Symptoms

The symptoms depend on which part of the pancreas the cancer starts in.

- Head of Pancreas
  - Jaundice
  - Finding tumors at an early stage
- Body or Tail of Pancreas
  - Gray, pale, greasy stools that are more buoyant.
  - Diagnosis in later stages.<sup>3</sup>

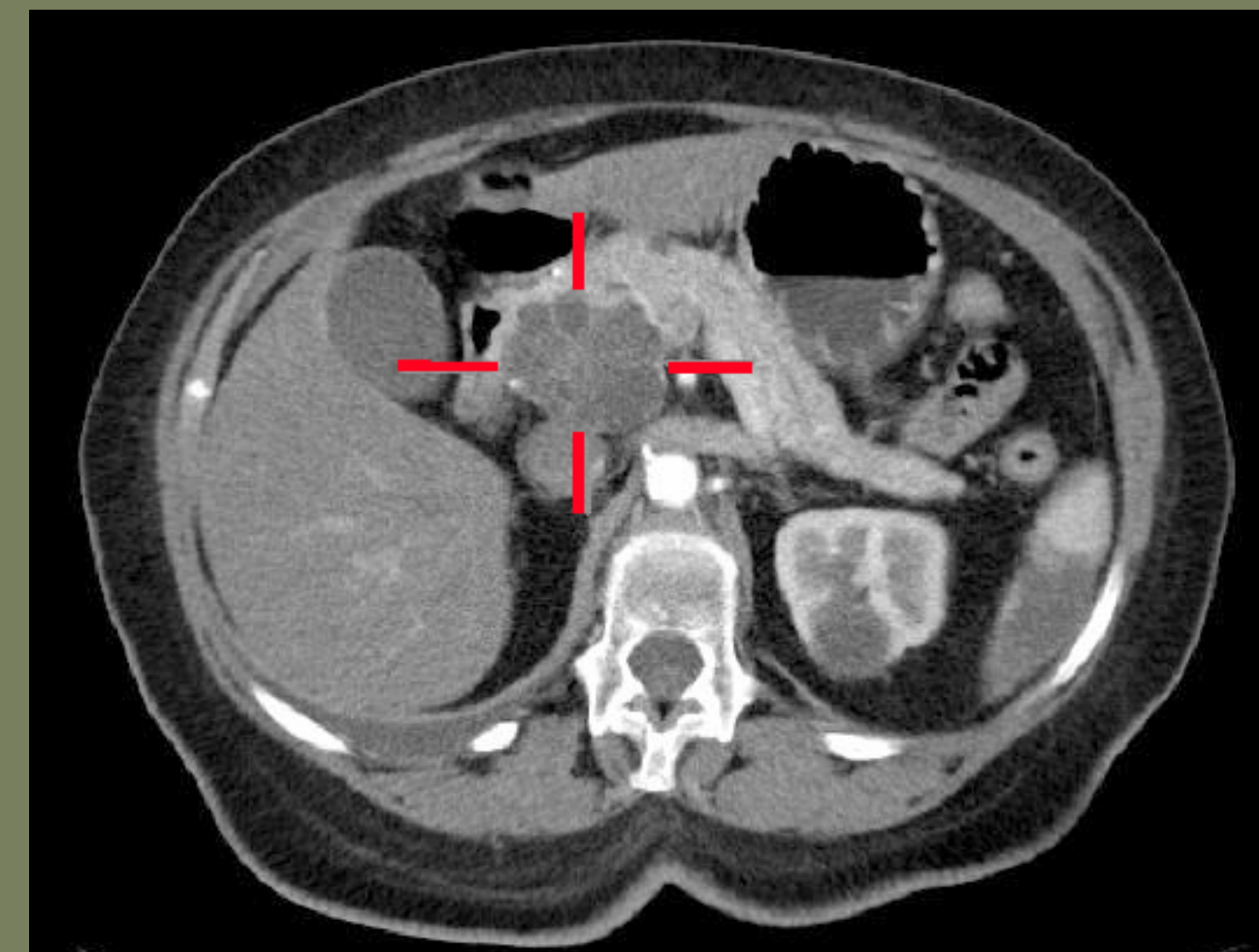


## Use of Imaging- CT

The imaging tests that are used to help diagnose pancreatic cancer include:

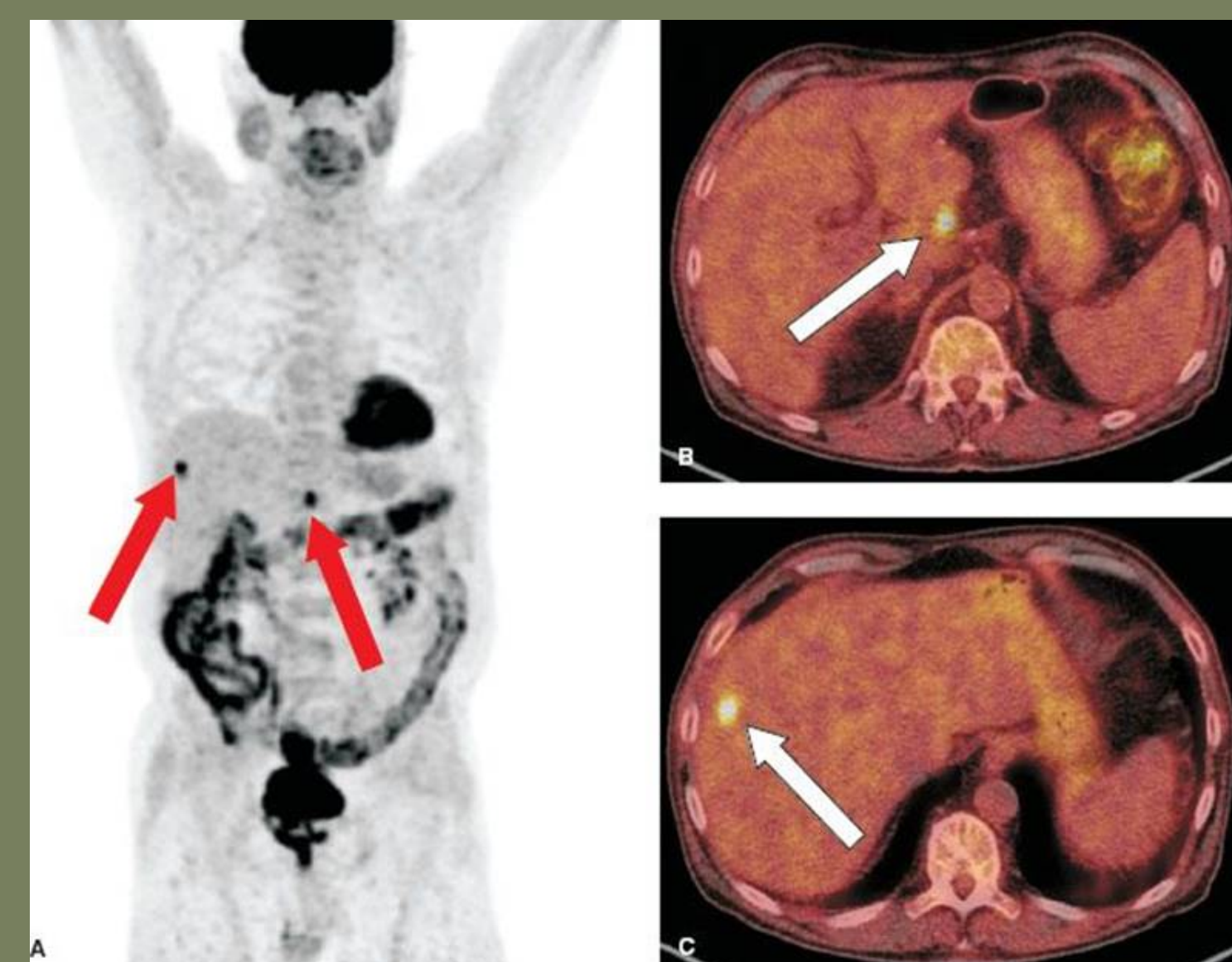
- Computed tomography (CT) scan
- Magnetic resonance imaging (MRI)
- Ultrasound
- Positron emission tomography (PET) scan.

CT scans are usually used to diagnose pancreatic cancer because the scan shows the pancreas fairly clearly. If the cancer has metastasized to organs surrounding the pancreas, as well as, to lymph nodes and distant organs.



## Use of Imaging- PET CT

- A PET scan can be used to look for spread from exocrine pancreatic cancers.
- A PET/CT scan may also be ordered, which lets the doctor compare areas of higher radioactivity on the PET scan with the more detailed appearance of that area on the CT scan at the same time.<sup>4</sup>



## Use of Imaging- MRI

There are two different MRI scans that are used in helping diagnose pancreatic cancer.

1. MR Cholangiopancreatography (MRCP)
  - Used to look at the pancreas and bile ducts and see if they are blocked, narrowed, or dilated.
2. MR Angiography (MRA)
  - Used to look at the blood vessels.<sup>4</sup>



## Treatment

Treatment is based on the stage of cancer that the person has. It is also based on if the cancer is resectable, borderline resectable, unresectable, or metastatic. The cancer will first spread within the abdomen and to the liver, but it could also spread to the lungs, bones, brain, and other organs.<sup>6</sup> The treatment options for pancreatic cancer include: surgery, chemotherapy, and radiation therapy. These are treatment options that increase survival rate or relieve symptoms, but rarely produce a cure.<sup>5</sup>

## Stages

The stage of cancer describes how much cancer is in the body, and helps determine the best way to treat based on how serious the cancer is. The earliest stage of pancreatic cancer is stage 0 and then range from stages I (1) through IV (4). The lower the number, the less the cancer has spread and the higher the survival rate. Stage IV means a more advanced cancer, therefore, a lower survival rate. Stage is determined by the extent of the tumor, if the cancer has spread to nearby lymph nodes, and if the cancer has metastasized to distant sites. There is also stage grouping. Numbers or letters after T, N, and M provide more details about each of these factors. Once a person's T, N, and M categories have been determined, this information combined in a process called stage grouping to assign an overall stage.<sup>5</sup>

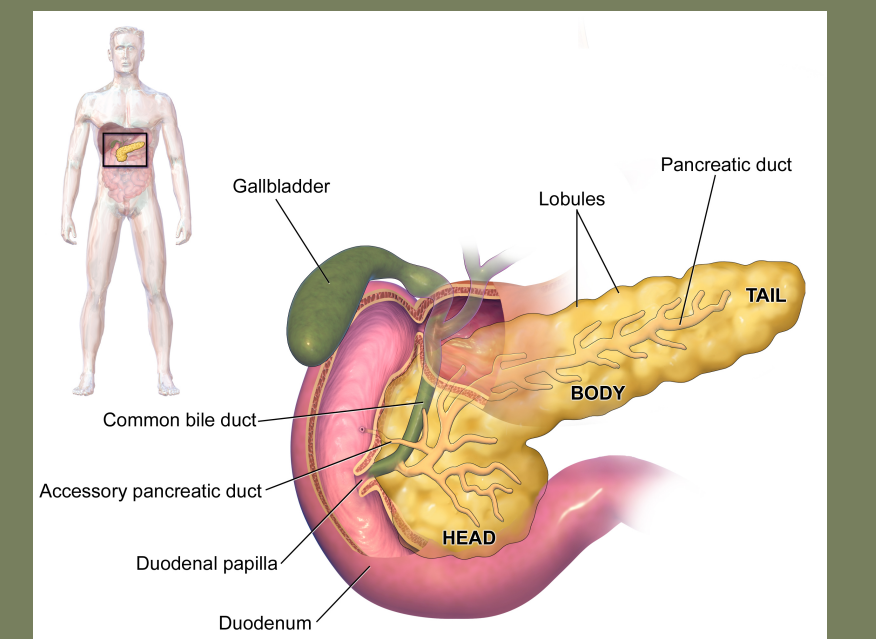
Table 1: AJCC Pancreas Cancer TNM Classification (1)

T	N	M
Tx- Primary tumor cannot be assessed	Nx- regional lymph nodes cannot be assessed	M0- no distant metastasis
T0- No evidence of primary tumor		M1- distant metastasis
Tis carcinoma in situ	N0- no regional lymph node metastasis	
T1- tumor limited to the pancreas, 2cm or less in size	N1- regional lymph node metastasis	
T2- tumor limited to the pancreas, greater than 2cm in size		
T3- tumor extends beyond pancreas but without involvement of the celiac axis or superior mesenteric artery		
T4- tumor involves the celiac axis or the superior mesenteric artery (unresectable)		

## Surgery

People with pancreatic cancer usually have some form of surgery as part of their treatment plan; However, surgical removal of the tumor is possible in less than 20% of patients, because detection is often in late stages when the cancer has spread beyond the pancreas.<sup>7</sup> For the people that can have surgery, however, the location of the tumor within the pancreas and whether the tumor has affected blood vessels and other organs near the pancreas will determine what type of surgery is performed. There are 3 different types of surgeries that can be performed on a person with pancreatic cancer.

1. The Whipple Procedure is performed on tumors located in the head of the pancreas. During this surgery, the head of the pancreas is removed, as well as the first part of the small intestine, the gallbladder, and part of the bile duct. After those structures are removed the remaining part of the pancreas, stomach, and intestines are reconnected so the person is still able to digest food.<sup>6</sup>
2. A Distal Pancreatectomy is performed on tumors that are located in the body or tail of the pancreas. During this procedure, the body and tail are removed, and often times the spleen is also removed because the artery that is supplying blood to the spleen lies along the body and tail of the pancreas. Because of this, the blood vessel can get blocked, and infection or tumor can spread to the spleen.<sup>6</sup>
3. A total pancreatectomy is performed on tumors located in all three areas of the pancreas. During this procedure, the entire pancreas is removed as well as the gallbladder, spleen, nearby lymph nodes and parts of the stomach, small intestine, and bile duct.<sup>6</sup>



## Chemotherapy

- Chemotherapy can be used before or after surgery and can be used alone or in combination with radiation. It can also help ease symptoms and increase survival rates for patients with tumors that have metastasized.
- Side effects include, abnormal blood-cell counts, fatigue, diarrhea, mouth sores, and a weakened immune system.
- There are also newer and more advanced chemotherapy options that help avoid damaging normal, healthy tissues while continuing to stop the cancer cells from spreading.<sup>6</sup>

## Radiation Therapy

Radiation is usually done with chemotherapy as part of the main treatment in people whose cancers have grown beyond the pancreas and can't be removed surgically. It is also sometimes used to help relieve symptoms, such as pain, in people with advanced cancers or who aren't healthy enough for other treatments like surgery.

- Possible side effects of radiation therapy include: skin changes in area getting radiation (ranging from redness to blistering and peeling), nausea and vomiting, diarrhea, fatigue, loss of appetite, and weight loss. Radiation can also lower blood counts which can increase the risk of serious infection. Usually these effects go away within a few weeks after the treatment is complete.<sup>7</sup>

## Resources

<sup>1</sup> 7 Facts Everyone Should Know About Pancreatic Cancer - Pancreatic Cancer Action Network. Pancreatic Cancer Action Network. <https://www.pancreas.org/news/7-facts-everyone-should-know-about-pancreatic-cancer/>. Published 2020. Accessed November 19, 2020.  
<sup>2</sup> Pancreatic Cancer Prognosis. <https://www.hopkinsmedicine.org/health/conditions-and-diseases/pancreatic-cancer-prognosis>. Published 2020. Accessed November 19, 2020.  
<sup>3</sup> Hayes K. 5 Warning Signs of Pancreatic Cancer. AMP. <https://www.amp.org/health/conditions-and-diseases/pancreatic-cancer-prognosis.html>. Published 2020. Accessed November 19, 2020.  
<sup>4</sup> Tests for Pancreatic Cancer. Cancer.org. <https://www.cancer.org/cancer/pancreatic-cancer/detection-diagnosis-staging/diagnosis.html>. Published 2020. Accessed November 19, 2020.  
<sup>5</sup> Pancreatic Cancer Facts. Heriety Foundation for Pancreatic Cancer Research. Heriety Foundation for Pancreatic Cancer Research. <http://pancreaticcancer.org/pancreatic-cancer-facts/>. Published 2020. Accessed November 19, 2020.  
<sup>6</sup> AJCC 8. Pancreatic Cancer. Radiologyinfo.org. <https://www.radiologyinfo.org/info/diag/pancreatic-cancer>. Published 2020. Accessed November 19, 2020.  
<sup>7</sup> Radiation Therapy for Pancreatic Cancer. Cancer.org. <https://www.cancer.org/cancer/pancreatic-cancer/treating/radiation-therapy.html>. Published 2020. Accessed November 19, 2020.

