

Awareness and Resources for Better Self-Management of Pancreatic Cancer

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Submitted: 01 Feb 2019; **Accepted:** 06 Feb 2019; **Published:** 20 Feb 2019**Abstract**

There are many types of cancers, some can be visibly suspicious and detectable, and some are hard to know until they progress to advanced stage. Unfortunately, the cancer in advance stage could be fatal and the treatment could yield simply extending the life span for a short-term. One of such cancers is the pancreatic cancer which has been reported in the literature as the fourth leading cause of cancer deaths in the United States. In recent time, pancreatic cancer received additional attention due to the fact that several prominent figures, including Apple co-founder Steve Jobs, U.S. Supreme Court Justice Ruth Bader Ginsburg, and actor Patrick Swayze have passed away with pancreatic cancer. Literature indicates that there is no standard screening protocol for pancreatic cancer currently. Additionally, it was noted that pancreatic cancer is highly lethal because it spreads rapidly and is not easily detectable in its initial stages.

In view of the severity of pancreatic cancer, it is important that individuals gain awareness about pancreatic cancer so that they could self-manage and be proactive in taking measures at early stages so that it can be treatable for long-term benefit. This paper presents an awareness and knowledge to general population about pancreatic cancer, types of diagnosis, preventive steps, prominent cancer treatment facilities, and supportive resources for patients and caregivers.

Keywords: Cancer, Pancreases, Therapy, Surgery, Diagnosis, Caregivers

non-curable chronic disease that has high mortality and considered as most devastating. [1-3].

Introduction

Historically, Cancer has been considered as the devastating disease which requires tremendous efforts in detection, treatment, and self-management. Though there is no single medicine that could cure cancer hundred percent, researchers in this field have made significant progress over the years in terms diagnosis and treatment. Cancer is typically considered as a combination of biological and genetic disease which originates with life cycle of cells in the body becoming abnormal in terms of division and diminishing. This uncontrolled manner of cell behavior could lead to malignant cells that eventually form masses of tumor in the body which would severely impact the normal function of organs in the body. In a normal process of a human body, the cells are considered building blocks which continuously undergo division, diminishing, and replacement by themselves in a controlled fashion. Cancer starts when a cell is altered due to some biological and generic interaction within the body which then gets uncontrolled and generates multiples of cells without diminishing. As a result, the accumulation of uncontrollably growing cells can form a mass of tumor composed of a cluster of such abnormal cells. The growth of abnormal cells in an uncontrolled fashion could spread to different parts of the body spreading the cancer, which would impact the normal functionality of other organs in the body. Cancer in advanced stages is typically considered as

American Cancer Society (ACS) closely tracks the developments in this area reported that there are over 100 different types of cancer which are classified based on origination cell [4]. The tumors (cancer) can grow and interfere with normal functionality of the body such as digestive, nervous, and circulatory systems. Tumor can be classified as benign and malignant. Malignant tumors are dangerous as these types cells can spread to other parts of the body through blood or lymphatic systems. As per ACS, Cancer is the second most common cause of death in the US, and accounts for nearly 1 of every 4 deaths.

Based on the historical data, it was reported that people of age 50 years or older have high risk of getting cancer. It was reported that 87% of all cancers in the United States are diagnosed in people of age 50 years or older. In addition to genetic history, behaviors such as smoking, unhealthy diet, physical inactiveness, etc. are noted as possible causes for cancer. It was reported that 41% among the men, and 38% among women develop cancer during their lifespan. These are the general statistics for the purpose of awareness.

The below picture shows the significance of different types of cancers over the years.

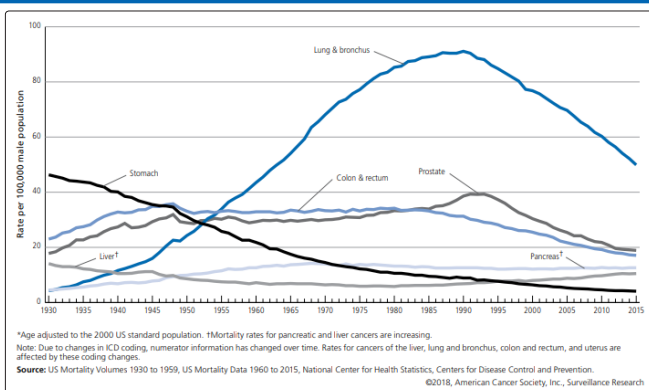


Figure 1: Trends in Age-adjusted Cancer Death rates by Site, Males, US, 1930-2015 [4]

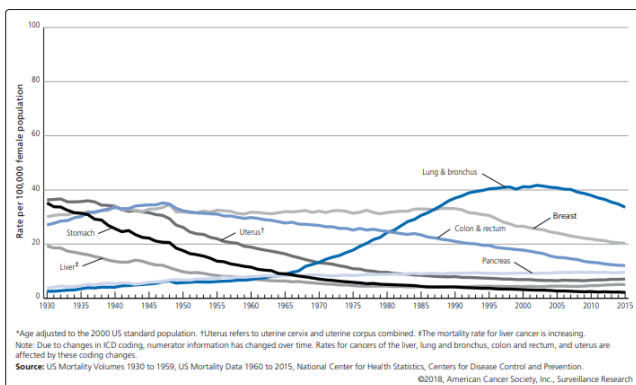


Figure 2: Trends in Age-adjusted Cancer Death Rates by Site, Female, US, 1930-2015 [4]

	Male	Female
Estimated New Cases		
Prostate	164,690 19%	Breast 266,120 30%
Lung & bronchus	121,680 14%	Lung & bronchus 112,250 13%
Colon & rectum	75,610 9%	Colon & rectum 64,640 7%
Urinary bladder	62,380 7%	Uterine corpus 63,230 7%
Melanoma of the skin	55,150 6%	Thyroid 40,900 5%
Kidney & renal pelvis	42,680 5%	Melanoma of the skin 36,120 4%
Non-Hodgkin lymphoma	41,730 5%	Non-Hodgkin lymphoma 32,950 4%
Oral cavity & pharynx	37,160 4%	Pancreas 26,240 3%
Leukemia	35,030 4%	Leukemia 25,270 3%
Liver & intrahepatic bile duct	30,610 4%	Kidney & renal pelvis 22,660 3%
All sites	856,370 100%	All sites 876,980 100%
Estimated Deaths		
Lung & bronchus	83,550 26%	Lung & bronchus 70,500 25%
Prostate	29,430 9%	Breast 40,920 14%
Colon & rectum	27,290 8%	Colon & rectum 23,240 8%
Pancreas	23,020 7%	Pancreas 21,310 7%
Liver & intrahepatic bile duct	20,540 6%	Ovary 14,070 5%
Leukemia	14,270 4%	Uterine corpus 11,350 4%
Esophagus	12,850 4%	Leukemia 10,100 4%
Urinary bladder	12,520 4%	Liver & intrahepatic bile duct 9,660 3%
Non-Hodgkin lymphoma	11,510 4%	Non-Hodgkin lymphoma 8,400 3%
Kidney & renal pelvis	10,010 3%	Brain & other nervous system 7,340 3%
All sites	323,630 100%	All sites 286,010 100%

Figure 3: Leading Sites of New Cancer Cases and Deaths – 2017 Estimates [4]

The Medical News Today (MNT) Editorial team summarized some of the below as fast Facts on cancer [2]:

1. More than 575,000 people die of cancer, and more than 1.5 million people are diagnosed with cancer per year in the US.
1. Cancer is considered as one of the leading causes of morbidity and mortality worldwide.
2. It is believed that cancer risk can be reduced by avoiding tobacco, limiting alcohol intake, limiting UV ray exposure from the sun and tanning beds and maintaining a healthy diet, level of fitness and seeking regular medical care.

3. The most common sites of cancer among men are lung, prostate, colon, rectum, stomach and liver.
4. The most common sites of cancer among women are breast, colon, rectum, lung, cervix and stomach.

From the above literature review, it can be noted that Pancreatic cancer is the top 4th cause of deaths among men as well as women. It was also reported that five-year survival rate of pancreatic cancer is less than 5%, and the mortality rate has not declined over last few decades making the pancreatic cancer as one of the greatest challenges. A few reasons for this challenge include difficulty of early detection and many risk factors. It was reported that the combination of difficult to detect it early, availability of only a few treatment methods, and high mortality rate makes the experience of pancreatic cancer different from the experience of other cancers for both patients and families [5]. An early and effective detection and intervention for pancreatic cancer has been an urgent need for both patients and their caregivers. Lewis, Frost and Venne (2009) found that even individuals who have high-risk does not have required knowledge levels of pancreatic cancer screening despite their desire for the information [6]. Lewis et al indicate that there are no standard screening protocols are available for screening for pancreatic cancer currently.

In this paper, pancreatic cancer related information is presented from the novice and common person perspective. Section 2 of this paper describes the pancreas and related pancreatic cancer. Section 3 describes severity, symptoms and risks of pancreatic cancer. Some of the commonly known diagnosis and treatment methods for pancreatic cancer are discussed in section 4. Preventive steps, prominent facilities, support groups and impact on caregivers is discussed on Section 5. The paper ends with a conclusion in the last section.

Pancreatic Cancer

The pancreas is one of the organs located in the back of the abdomen, behind the stomach. Typically, it is approximately 6-8 inches long spongy, tube-shaped. Pancreas does critical functions such as creating digestive juices (enzymes) that help the intestines break down food, and to produce hormones that control the body's use of sugars and starches. The below Figure 4 show the Pancreas location in respect to stomach and back. Pancreatic cancer typically originates in the tissues of pancreas. It was reported that Pancreatic cancer is rarely detected at the early stage due to its intricate location. Additionally, it spreads quickly to nearby organs. It was noted that family history with diabetes with weight loss, jaundice or pain in the upper abdomen can be sign for detailed screening.

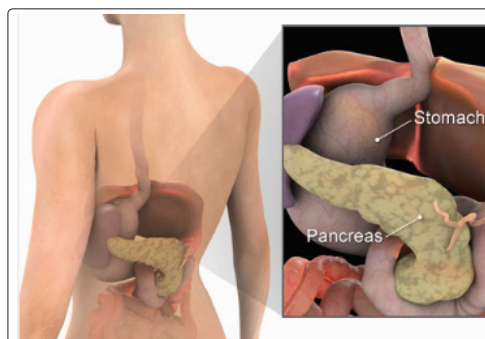


Figure 4: Pancreas location in respect to stomach and back [7]

Some literature terms pancreas as a pear-shaped, and the wider end is called the head, the middle part is called the body, and the tapered end is called the tail as shown in the below Figure 5. It was described that the pancreas heads are on the right side of human body, and the tail is close to stomach on the left side of the abdomen. The pancreas makes digestive juices that breaks down fats and sugars in the digestive system, and it secretes hormones required for the body to regular nutrients. The pancreas is considered as a key organ which essentially converts the food we want into energy for the body's cells. [8,7].

Severity, symptoms and risks of pancreatic cancer

The American Cancer Society (ACS) reports that pancreatic cancer is commonly seen in patients in the 60-80 years age range; it estimates that pancreatic cancer is the fourth leading cause of cancer deaths in the United States. It was reported that 1 in 71 (1.41%) as the lifetime risk factor of developing pancreatic cancer. It was estimated about 53,670 new cases of pancreatic cancer will be diagnosed in the US in 2017. In one of the studies, incidence trends from 2004 through 2013 shown that pancreatic cancer rates have increased by about 1% per year in whites, but it was stable in blacks. In another study, it was reported estimates deaths of 43,090 in 2017 in both men and women [4].

Literature indicates that the signs of pancreatic cancer may include pain the upper abdomen, loss of appetite, dark urine, itchy skin, light-colored stools, weight loss, digestive problems, enlarged gallbladder, depression, chronic pancreatitis, pruritus, diabetes, blood clots, fatigue, jaundice, nausea, vomiting, acholic stool, anorexia, etc. [4,9,10]. It was discussed that the jaundice caused by tumors near the bile duct, severe abdominal pain, nausea and vomiting can be used as indicators to screen for pancreatic cancer. Additionally, it was discussed that nausea, vomiting, and weight loss symptoms were also seen in 35-45% of patients with pancreatic cancer. Feeling of fatigue can be another symptom of pancreatic cancer. In was also listed that 75-90% of patients with pancreatic cancer have abdominal pain. Blood clots, diabetes, and diarrhea and cramping after can be considered as other symptoms of pancreatic cancer.

Some of the commonly reported risk factors include smoking, hereditary, body mass index, chlorinated hydrocarbon exposure, diabetes mellitus, obesity, excessive alcohol consumption can lead to chronic pancreatitis to some extent. It was described that the combination of smoking, long-standing diabetes and poor diet increases the risk of pancreatic cancer beyond the risk of any one of these factors alone. More specifically, it was mentioned that the bile duct blockage in pancreas due to tumor can lead to jaundice in 70-85% of patients [10,11].

Diagnosis and Treatment methods

There have been continued research on methodologies for early detection and treatment of pancreatic cancer. It is often challenging to diagnose pancreatic cancer due to insufficient prominent symptoms, and difficult to extract biopsy for microscopic and lab evaluations. Imaging technologies such as ultrasonography (US), computed tomography (CT), magnetic resonance imaging (MRI), positron emission tomography (PET), and endoscopic ultrasonography (EUS) are commonly used in detection pancreatic cancer [9,10,12,13].

Regarding the treatment methods, surgery, chemotherapy and radiation therapy are commonly used options. Type of treatment

depends on the stage and location of the pancreatic cancer. Typically, it is categorized as operable cancer, locally advanced, and metastatic cancer. Operable means, the tumor can be removed with surgery (also called resectable). A tumor which is found only in pancreas with no evidence of spread to other nearby organs can be called locally advanced cancer that can be treated with a combination of chemotherapy and radiation or chemotherapy only. For the patients with cancer that has spread to other parts of the body called metastatic disease can be treated using chemotherapy. The healthcare team whoever examines and evaluates the patients will be able to decide the type of appropriate treatment with a goal to remove and/or stop the growth of cancer. It was mentioned that pancreatic cancer can be cured and/or managed for a lifetime if it was detected in early stage and it did not spread to other organs, and if can be removed in its entirety by surgery [12,13,10]. As mortality associated with resection is relatively commensurate in comparison with other methods, surgery can be considered as a viable option depending upon the stage of pancreatic cancer. National Cancer Institute categorizes the stages of pancreatic cancer as follows: Stage 0 – Cancer found only in the lining of the pancreatic ducts; Stage 1 – Cancer has formed in pancreas only; Stage 2 – Cancer may have spread or advanced to nearby tissue and organs; Stage 3 – Cancer has spread or progressed to the major blood vessels near the pancreas; and Stage 4 – Cancer may be of any size and spread to distant organs such as the liver, lung, etc [9,10,14].

Preventive steps, prominent facilities, support groups and impact on caregivers

Preventive steps

By following healthy tips such as proper diet, exercise, non-use of tobacco and alcohol, and stop smoking can help in significantly reducing the risk of getting cancers. It was reported that 20% of all cancers diagnosed in the US are caused by a combination of excessive alcohol & smoking, and poor physical activity & nutrition. Many studies including one of the earliest studies from 1975 which had 142 patients with adenocarcinoma of the pancreas indicate that excessive cigarette smoking and diet with high in fat and/or cholesterol appear to contribute to high risk of cancer of the pancreas [15]. It was described that cigarette smoking can increase blood lipids which may influence development of pancreatic cancer. Another early study in this respect reported similar findings that smoking is the major known risk factor pancreatic cancer attributed to 20%-30% of all cases [16]. Additionally, it was stated that determination of molecular pathways and new modalities to enhance early detection are the key challenges the healthcare teams should investigate.

Prominent facilities

List of a few facilities which are well known for Cancer treatment [17]:

Name of the Cancer Treatment Facility and its Location	Brief description about the Facility
University of Texas MD Anderson Cancer Center, Houston, TX 77030-4000	Univ. of Texas MD Anderson Cancer Center in Houston, TX is nationally ranked in 3 adult specialties and 1 pediatric specialty.
Memorial Sloan Kettering Cancer Center, New York, NY 10065-6007	Memorial Sloan Kettering Cancer Center in New York, NY is nationally ranked in 4 adult specialties and 1 pediatric specialty.
Mayo Clinic, Rochester, MN 55902-1906	Mayo Clinic in Rochester, MN is nationally ranked in 15 adult specialties and 7 pediatric specialties.

Dana-Farber/Brigham and Women's Cancer Center, Boston, MA 02215-5418	Dana-Farber Cancer Institute in Boston, MA is nationally ranked in 1 adult specialty and 1 pediatric specialty.
Seattle Cancer Alliance/ Univ. of Washington Medical Center, Seattle, WA 98109-4405	Seattle Cancer Care Alliance in Seattle, WA is nationally ranked in 1 adult specialty.
Johns Hopkins Hospital, Baltimore, MD 21205-1832	Johns Hopkins Hospital in Baltimore, MD is nationally ranked in 15 adult specialties and 10 pediatric specialties.
Cleveland Clinic, Cleveland, OH 44195-5108	Cleveland Clinic in Cleveland, OH is nationally ranked in 14 adult specialties and 10 pediatric specialties.
Hospitals of the Univ. of Pennsylvania-Penn Presbyterian, Philadelphia, PA 19104-4206	Hospitals of the University of Pennsylvania-Penn Presbyterian in Philadelphia, PA is nationally ranked in 11 adult specialties.
Moffitt Cancer Center and Research Institute, Tampa, FL 33612-9497	Moffitt Cancer Center and Research Institute in Tampa, FL is nationally ranked in 2 adult specialties.
UCSF Medical Center, San Francisco, CA 94143-0296	UCSF Medical Center in San Francisco, CA is nationally ranked in 15 adult specialties and 10 pediatric specialties.
Stanford Health Care-Stanford Hospital, Stanford, CA 94304-2203	Stanford Health Care-Stanford Hospital in Stanford, CA is nationally ranked in 13 adult specialties.
Massachusetts General Hospital, Boston, MA 02114-2696	Massachusetts General Hospital in Boston, MA is nationally ranked in 16 adult specialties and 4 pediatric specialties.
UCLA Medical Center, Los Angeles, CA 90095-8358	UCLA Medical Center in Los Angeles, CA is nationally ranked in 15 adult specialties and 8 pediatric specialties.
University of Michigan Hospitals-Michigan Medicine, Ann Arbor, MI 48109	University of Michigan Hospitals-Michigan Medicine in Ann Arbor, MI is nationally ranked in 15 adult and 10 pediatric specialties.
USC Norris Cancer Hospital-Keck Medical Center of USC, Los Angeles, CA 90089-0112	USC Norris Comprehensive Cancer Center in Los Angeles, CA is nationally ranked in 1 adult specialty.
Northwestern Memorial Hospital, Chicago, IL 60611-2908	Northwestern Memorial Hospital in Chicago, IL is nationally ranked in 11 adult specialties.
Mayo Clinic-Phoenix, Phoenix, AZ 85054-4502	Mayo Clinic-Phoenix in Phoenix, AZ is nationally ranked in 10 adult specialties.
Mayo Clinic Jacksonville, Jacksonville, FL 32224-1865	Mayo Clinic Jacksonville in Jacksonville, FL is nationally ranked in 7 adult specialties.
Siteman Cancer Center, Saint Louis, MO 63110-1003	Barnes-Jewish Hospital in Saint Louis, MO is nationally ranked in 12 adult specialties.
Jefferson Health-Thomas Jefferson Univ. Hospitals, Philadelphia, PA 19107-5084	Jefferson Health-Thomas Jefferson Univ. Hospitals in Philadelphia, PA is nationally ranked in 11 adult specialties.
City of Hope Helford Clinical Research Hospital, Duarte, CA 91010-3012	City of Hope Helford Clinical Research Hospital in Duarte, CA is nationally ranked in 2 adult specialties.

New York-Presbyterian Hospital-Columbia and Cornell, New York, NY 10065-4870	New York-Presbyterian Hospital-Columbia and Cornell in New York, NY is nationally ranked in 14 adult and 10 pediatric specialties.
Ohio State Univ. James Cancer Hospital, Columbus, OH 43210-1240	Ohio State Univ. James Cancer Hospital in Columbus, OH is nationally ranked in 1 adult specialty.
University of North Carolina Hospitals, Chapel Hill, NC 27514-4220	University of North Carolina Hospitals in Chapel Hill, NC is nationally ranked in 6 adult specialties and 7 pediatric specialties.
University of Kansas Hospital, Kansas City, KS 66160-7200	University of Kansas Hospital in Kansas City, KS is nationally ranked in 8 adult specialties.

Support Resources

Government agencies and non-government group has been actively working in advancing cancer research and cancer education. Additionally, these groups have been tracking the statistics and also providing moral support to the cancer patients. Below list shows some of the well-known organizations that can be contacted to seek support in terms of treatments opportunities and required education and support.

Names of the Organization	Contact Phone#
American Cancer Society	800-227-2345
American Lung Association	800-586-4872
Cancer Hope Network	800-552-4366
Cancer Research and Prevention Foundation	800-227-2732
Cancer Care	800-813-4673
Center for Cancer Research	301-496-4345
Centers for Disease Control and Prevention Cancer Information	800-232-4636
Fight Colorectal Cancer	877-427-2111
Inflammatory Breast Cancer Research Foundation	877-786-7422
International Myeloma Foundation	800-452-2873
Kidney Cancer Association	800-850-9132
Leukemia and Lymphoma Society	800-955-4572
Living Beyond Breast Cancer	888-753-5222
Lung Cancer Alliance	800-298-2436
Lymphoma Research Foundation	800-500-9976
Melanoma Research Foundation	800-673-1290
Multiple Myeloma Research Foundation	203-229-0464
National Brain Tumor Society	800-770-8287
National Breast Cancer Coalition	800-622-2838
National Cancer Institute	800-422-6237
National Cervical Cancer Coalition	800-685-5531
National Coalition for Cancer Survivorship	888-650-9127
Oral Cancer Foundation	949-646-8000
Ovarian Cancer National Alliance	866-399-6262
Pancreatic Cancer Action Network	877-272-6226
Prostate Cancer Foundation	800-757-2873
Skin Cancer Foundation	212-725-5176

Susan G. Komen Breast Cancer Foundation	877-465-6636
The Ulman Cancer Fund for Young Adults	888-393-3863
Thyroid Cancer Survivor's Association	877-588-7904
Uniting Against Lung Cancer	212-627-5500

Impact on Caregivers

The patients with cancer and his/her caregivers go through severe emotional roller coaster with uncertainty about the cure. The thought of end of one's life itself puts tremendous physical, physiological, and emotional stress both on patient as well as on caregivers. In spite of prominent support groups, the reality of potential end of life of the patient is unimaginable. One of the earliest studies in this regard reported that caregivers felt anger, weakness, exhaustion, grief, and sadness [18]. It was discussed that knowing such feelings of caregivers could help the healthcare community to plan appropriate interventions and research. Another study about caregivers highlights that families play critical role in emotional and hopeless aspects of patient [19]. It was mentioned that physicians at the service must promote excellent communication with family and patient, encourage appropriate advance care planning, explain the options available to make decisions, provide comfort and conveniences of patients, demonstrate empathy for family relationships, and attend to family grief and bereavement. Further it was suggested that caring well for the family caregivers at the end of life improves sustenance and meaning in their own work. Petrin et al notes that relatives of pancreatic patients struggle through both the initial diagnosis and its aftermath, seeking to balance their own sad feelings and to continue support with hope [5]. Further it was stated that the support systems are very important regardless of the source of the support as the things may happen too fast to cope up with by themselves alone.

Conclusion

This paper presented a brief review of literature on cancers and in particular the pancreatic cancer. It was noted that the pancreatic cancer has been considered as fourth leading cause of deaths among all types of cancers. Due to intricate location of pancreas and difficult to reach for biopsy, pancreas has been challenging to detect in its early stages. Identification of this cancer at a later stage leaves only limited choices of treatments in the form of therapies and medication which may not cure the pancreatic cancer completely. In regard to proactive healthy steps such as proper diet, exercise, non-use of tobacco and alcohol, and stop smoking can help in significantly reducing the risk of getting cancers. This paper presented the symptoms, risks, the facilities, supporting resources, and the impact on caregivers. Due to the dangerous nature of pancreatic cancer, an early and effective detection and intervention is an urgent need for both patients and their caregivers. The researchers and supporting organizations must continue to strive hard to make head-ways on finding feasible and optimal solutions to cure pancreatic cancer.

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