

Pancreatic Cancer in PEI

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- In the last 10 years, there have been 221 cases of pancreatic cancer diagnosed in PEI for an average of 22 cases diagnosed each year.
- Although the number of cases increases over time, the incidence rate for pancreatic cancer has been slowly decreasing in PEI.
- In addition to being male, advancing age is a risk factor for pancreatic cancer.
- Over half of pancreatic cancers in PEI are diagnosed at stage IV.
- In the last 10 years, there have been 166 pancreatic cancer deaths in PEI for an average of 17 deaths each year.
- Although pancreatic cancer is the 10th most commonly diagnosed cancer in PEI, it is the 5th most common cancer death in PEI.
- The overall mortality rate has been decreasing in PEI.
- In PEI, the median survival time once diagnosed is less than 4 months.

In 2017, the Canadian Cancer Society published the Canadian Cancer Statistics 2017 with a chapter on “Special Topic: Pancreatic Cancer”.¹ This chapter describes the biology and epidemiology of pancreatic cancer in Canada. It also reviews what is known about the risk factors for pancreatic cancer. Many of the comparisons to Canadian cancer rates in this update and other information about pancreatic cancer are from this resource. PEI pancreatic cancer rates are calculated from the PEI Cancer Registry.

The pancreas is an organ located in the abdomen just below the stomach. It has both an endocrine function, secreting hormones including insulin into the blood to control glucose levels and an exocrine function, secreting enzymes into the small intestine to aid in digestion. Most of the pancreas is made up of the exocrine cells, thus approximately 90% of the pancreatic cancers diagnosed in Canada are pancreatic ductal adenocarcinoma.

Although pancreatic cancer is not diagnosed often, it is a concerning diagnosis because of its very low survival rate. The poor survival rate is a result of a general lack of symptoms until the cancer is already locally advanced or metastatic.

How common is pancreatic cancer in PEI?

In the last 10 years (2009-2018), there have been 221 cases diagnosed in PEI for an average of 22 cases diagnosed each year. Of these cases, 122 (55%) were diagnosed in men and 99 (45%) were diagnosed in women. It is the 10th most common cancer in PEI and makes up 2.4% of all cancers recently diagnosed.

The number of cases of pancreatic cancer has increased since the 1980's (data not shown). There are three reasons why the number of cases of cancer increases over time. The first is the increasing population in PEI. The more people that live in PEI, the more cancer cases will be diagnosed. The second reason is the advancing age of the population. Because advancing age increases the risk of pancreatic cancer diagnosis, there will be more cases diagnosed as PEI's population grows older. The third reason the number of cases may increase is there are other risk factors that increases the risk of being diagnosed with cancer. Increasing risk due to other factors and chance can be measured by age-standardizing the data to remove the increases from increasing population size and advancing age of the population. After removing size and age increases, the only thing left is the contribution of risk factors and chance to increasing the risk of pancreatic cancer.

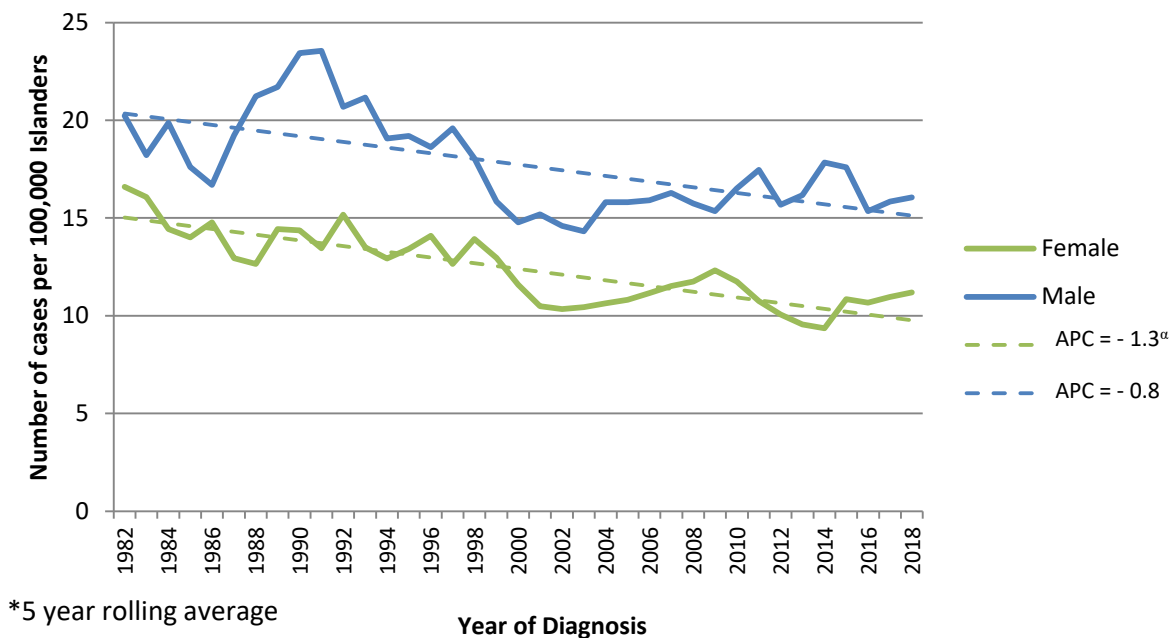


Figure 1: Trends in age-standardized incidence rates* and annual percent change (APC) for pancreatic cancer by sex, PEI, 1982-2018 (^aindicates significant decrease, p<0.05)

Figure 1 displays the age-standardized incidence rates per 100,000 people for pancreatic cancer in males and females in PEI. The dashed lines are the trend rates from year to year. Overall, each year the rate of diagnoses decreased by 0.8% each year for males and 1.3% each year in females in PEI. The rate in Canadian males has been decreasing by 0.3% each year while in Canadian females, the rate has been relatively stable since 1992. Being male is a risk factor for pancreatic cancer. Males in PEI consistently have a higher age-standardized rate than females in PEI; however, the rates are not significantly different.

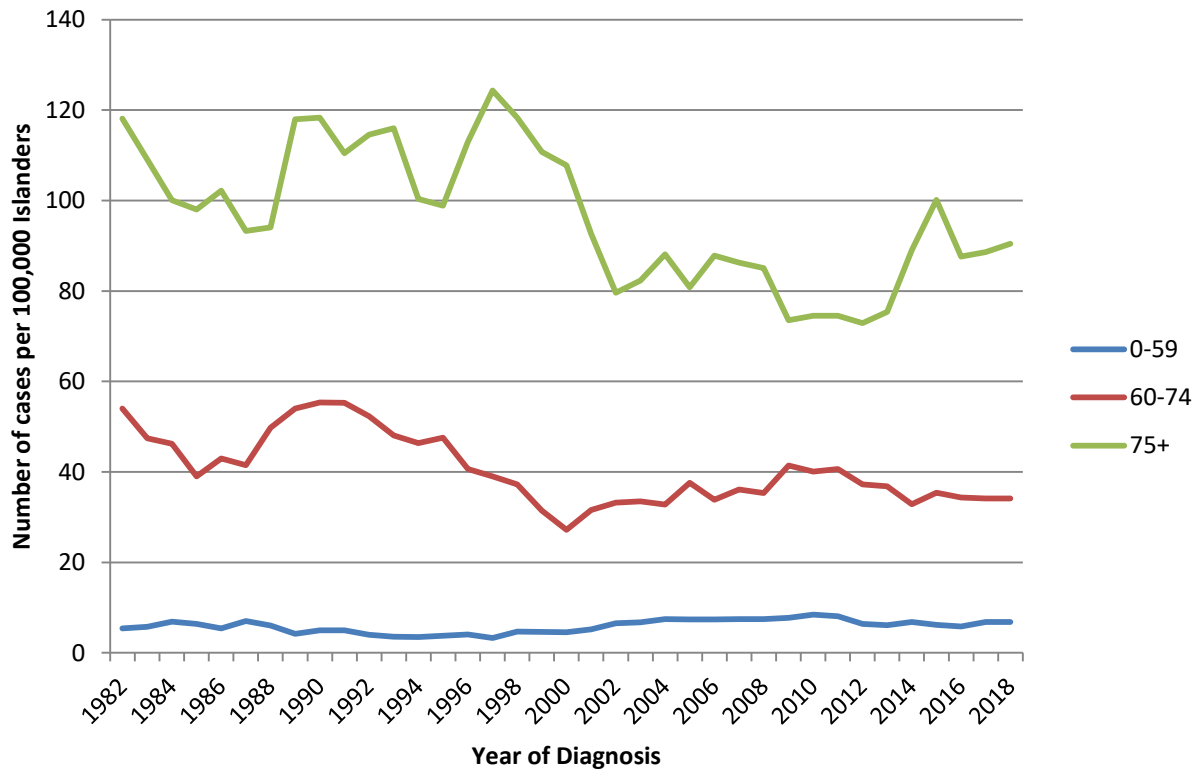
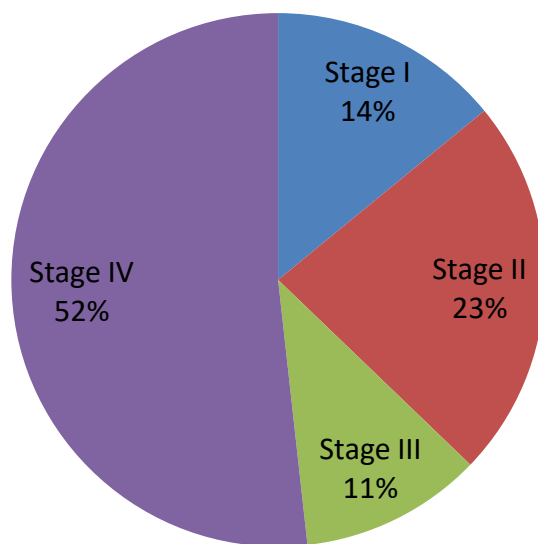


Figure 2: Age-specific incidence rates for pancreatic cancer in PEI, 1982-2019

In addition to being male, advancing age is also a non-modifiable risk factor for pancreatic cancer. Figure 2 displays the difference in incidence rate for three age groups in PEI. Although the risk of being diagnosed with pancreatic cancer has decreased since the late 1990's, Islanders 75 years old and older are about twice as likely to be diagnosed with pancreatic cancer than those 60-74 years old. This pattern of increasing risk as people age is similar in Canada. The median age for those diagnosed with pancreatic cancer is 71 years old in Island females and 70 for Island males.

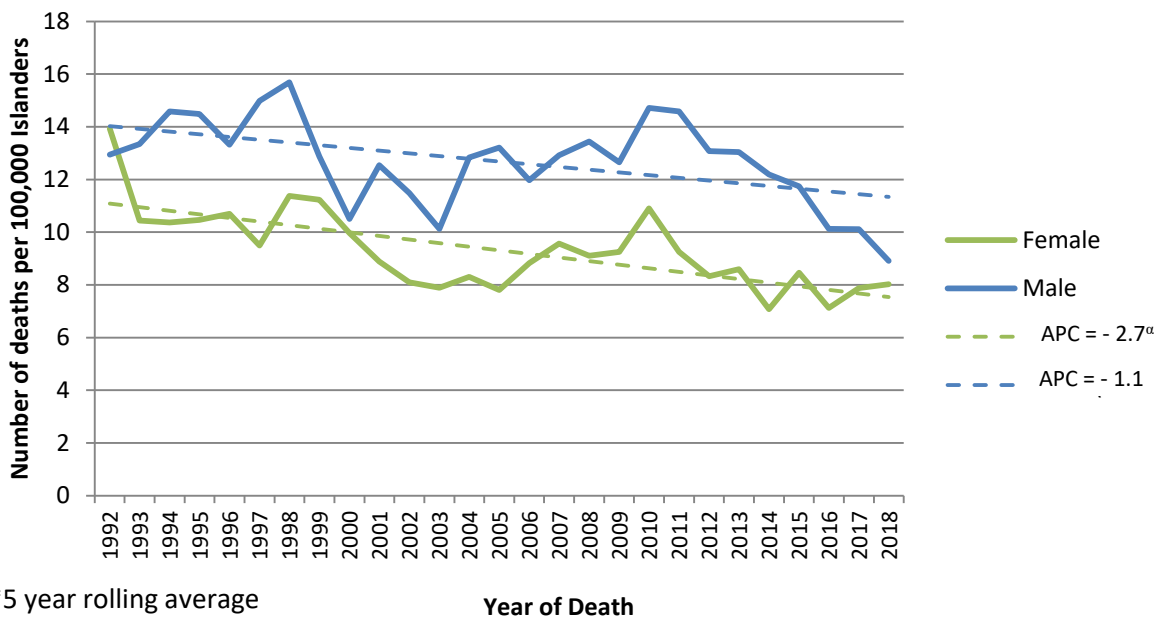


Over half of pancreatic cancers in PEI are diagnosed at stage IV (figure 3). This is similar to all of Canada. Late stage diagnoses make treating pancreatic cancers difficult. Many methods to screen high risk individuals for early detection have been under investigation, but none have been advanced beyond the research studies.²

Figure 3: Proportion of Pancreatic Cancer by stage, PEI, 2009-2017

How many Islanders die from pancreatic cancer each year?

Late diagnosis and aggressive behavior of pancreatic cancer in PEI increases the risk of death in the patient. In the last 10 years (2009-2018), there have been 166 pancreatic cancer deaths in PEI for an average of 17 deaths each year. Of these deaths, 89 (54%) were in men and 77 (46%) were diagnosed in women. **Although pancreatic cancer is the 10th most commonly diagnosed cancer in PEI, it is the 5th most common cancer death in PEI and makes up 4.6% of all cancers deaths.** Recent predictions suggest that pancreatic cancer deaths will be the 3rd most common cancer death (behind colorectal and lung cancer deaths) in Canada in the near future and the 2nd most common cancer death in the US after lung cancer by 2030.



*5 year rolling average

Year of Death

Figure 4: Trends in age-standardized mortality rates* and annual percent change (APC) for pancreatic cancer by sex, PEI, 1992-2018 (^aindicates significant decrease, p<0.05)

The mortality rate for pancreatic cancer in PEI has been decreasing overall since the early 1990's. The overall mortality rate has been decreasing as the rate and trend line can be seen in figure 4. In the last 5 years (2014-2018) the average rate was 7 deaths per 100,000 Island females and 10 deaths per 100,000 Island males. Comparing to rates listed in the Canadian Cancer Statistics 2017, the PEI rates are not higher than the 2013 Canadian rates.

The dashed lines are the trends from year to year. On average, each year the rate of mortality decreased by 1.1% each year for males and 2.7% each year in females. The rate in Canadian females has been decreasing only minimally since 1992 while it decreased significantly by 0.6% each year in Canadian males. Males in PEI consistently have a higher age-standardized mortality rate than females in PEI; however, in recent years the rates are becoming similar.

How long do Islanders live once diagnosed with pancreatic cancer?

In the past decade (2009-2018) there was an average of 22 Islanders diagnosed each year. During the same period, there was an average of 17 deaths each year. The high number of deaths relative to the number of cases diagnosed is indicative of a poor survival rate. In PEI, the median survival time once diagnosed is less than 4 months. This is very similar to the median survival time in Canada.

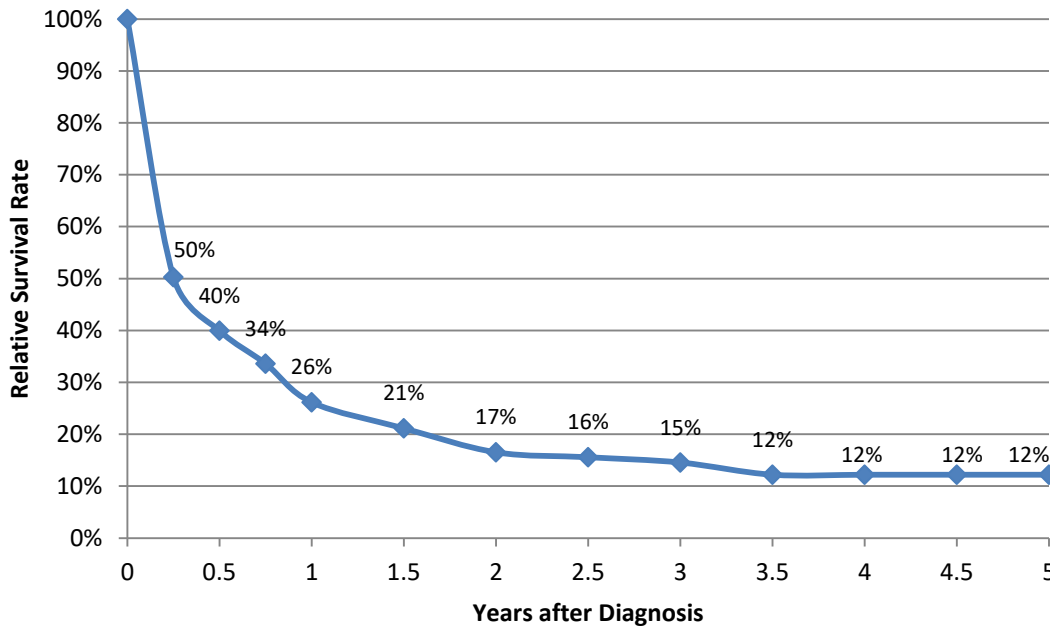


Figure 5: 5-Year Relative Survival Rate for pancreatic cancer in PEI, 2013-2017

The probability of surviving with pancreatic cancer compared to surviving without a pancreatic cancer diagnosis is the relative survival rate. Figure 5 demonstrates the rapid decrease in relative survival rate after diagnosis. After one year almost 75% of patients have died from the cancer adjusting for non-cancer deaths. **Pancreatic cancer has the poorest survival of all of the cancers measured in PEI.** Although PEI has a 5-year relative survival rate of 12%, the small population in PEI and small number of pancreatic cancers diagnosed can lead to large variations in results described by the large 95% confidence interval of (7%-20%).

Although the females tend to have a higher survival, it is not significantly better than the survival in males. Advancing age decreases the survival time as Islanders >75years old had the lowest relative survival rates.

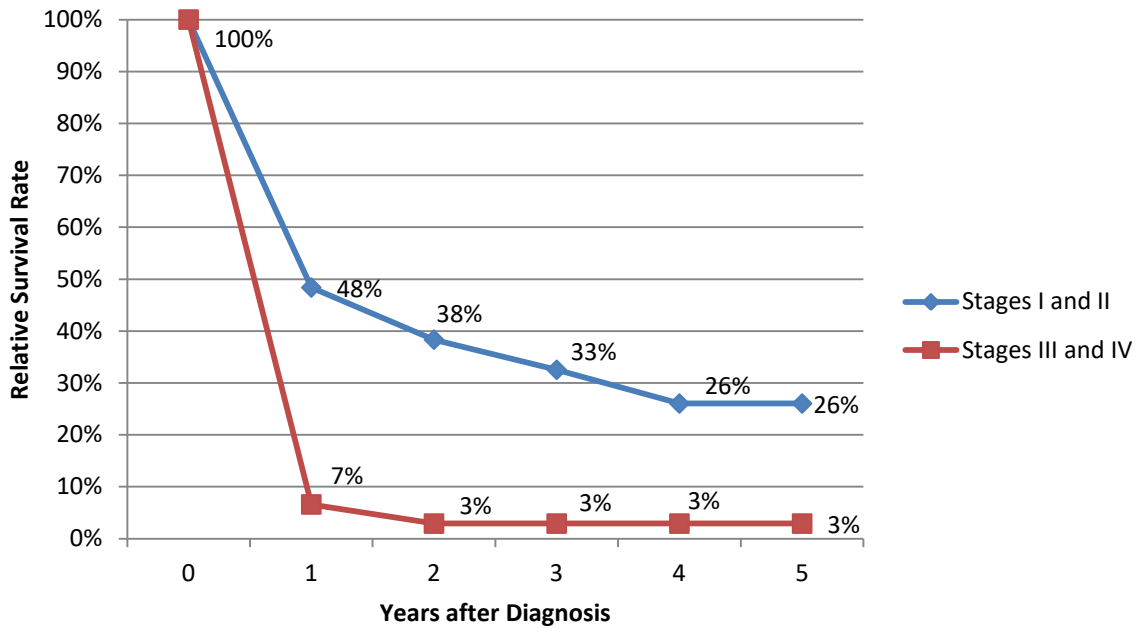


Figure 6: 5-Year Relative Survival Rate for pancreatic cancer in PEI by stage level, 2013-2017

Identification of pancreatic cancer early in the disease process is essential to improving survival times. Figure 6 shows the relative survival rates for early stages (I and II) and late stages (III and IV). At five years after diagnosis, the relative survival rate for early stages is 26% compared to 3% in later stages.

What can be done to improve outcomes for pancreatic cancer?

Limiting modifiable risk factors may be a useful approach to disease prevention. Smoking cessation and keeping a health body weight are first steps in prevention. Unfortunately, many pancreatic cancers are more likely connected to non-modifiable risk factors such as family history and genetic mutations, making prevention more challenging.

Early diagnosis by a screening program has been investigated using body fluids¹ and imaging technologies including ultrasound, CT, PET, and MRI scans on high risk individuals.² High risk individuals are identified as those individuals with a family history, genetic mutations, and certain medical conditions such as diabetes and pancreatitis (chronic or hereditary in nature). At this time, these screening programs for high risk individuals are still at the research phase.

Treatment for pancreatic cancer usually involves surgical resection of cancer combined with chemotherapy. As many patients are diagnosed when the cancer has already spread, surgery is not an option and treatment may include life prolonging chemotherapy and/or palliative care.

Pancreatic cancer is both difficult to diagnose due to lack of symptoms until late in disease and treat due to lack of beneficial treatment options. Multiple studies are being conducted to identify important genetic risk factors, different methods of early detection, different characteristics of tumors to personalize the treatments, and improved treatments. Noteworthy progress is being made and survival times will benefit from the changes that are on the horizon.

More information for patients and caregivers can be found in the educational booklet, A Brief Guide to Pancreatic Cancer, published online by Craig's Cause Pancreatic Cancer Society (<http://www.craigsc ause.ca/page.asp?ID=32>).³

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1. Canadian, Cancer Society. Canadian Cancer Statistics 2017 [Internet]. Toronto, ON; 2017 [cited 2019 Feb 28]. Available from: Available at: cancer.ca/Canadian-Cancer-Statistics-2017-EN.pdf
2. Chhoda A, Lu L, Clerkin BM, Risch H, Farrell JJ. Current Approaches to Pancreatic Cancer Screening. In Netherlands: Elsevier Science B.V., Amsterdam; 2019. p. 22. Available from: <https://proxy.library.upei.ca/login?url=http%3a%2f%2fsearch.ebscohost.com%2flogin.aspx%3fdirect%3dtrue%26db%3dedtbl%26AN%3dvdc.100073659561.0x000001%26site%3dedslive%26scope%3dsite%26profile%3Deds>
3. Craig's Cause Pancreatic Cancer Society | Educational Booklet and Video [Internet]. [cited 2020 Jan 7]. Available from: <http://www.craigsc ause.ca/page.asp?ID=32>