Pancreatic Cancer

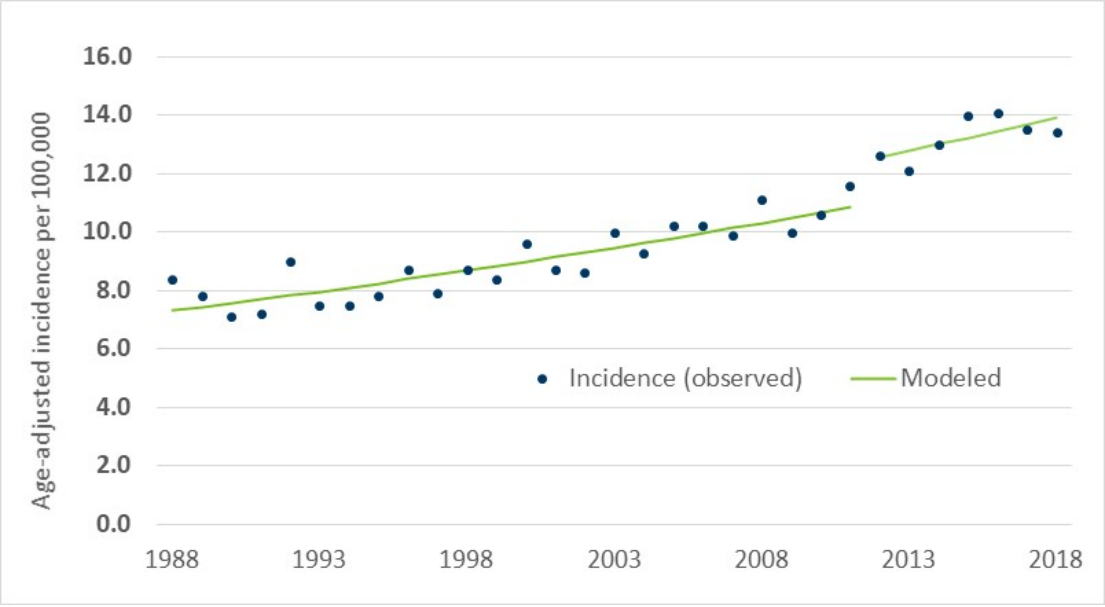
FACTS AND FIGURES

The pancreas is an abdominal organ connected to the small intestine. It makes and transports enzymes needed for digesting proteins, carbohydrates, and fats. The pancreas also produces the hormones insulin and glucagon that regulate blood sugar levels.[1] About 90% of pancreatic cancers are called ductal adenocarcinomas and these occur in the parts of the pancreas involved in digestion.[2] Pancreas cancers often do not cause symptoms until after the cancer has spread to the liver and other sites in the body, making this cancer difficult to treat. Reducing the burden of pancreas cancers through early diagnosis and improved therapies is important. Pancreas cancer is one of the 10 most common cancers diagnosed and one of the 10 most common cancer causes of death for males and females in Minnesota.[3]

The rate of newly diagnosed pancreatic cancers is increasing

The rate of newly diagnosed pancreatic cancers has increased 1.74% per year since 1988. The rate of new cases jumped between 2011 and 2012, reflecting a change in cancer reporting rules. Prior to 2012, all new cancers reported to the Minnesota Cancer Reporting System (MCRS) had to have tissue confirmation. Beginning in 2012, the reporting rules expanded to include new cancers diagnosed without tissue confirmation. The modeled trend line shows that the rate of increase has been constant since 1988. However, the jump in this line suggests that pancreatic cancer incidence in Minnesota was underestimated prior to 2012.

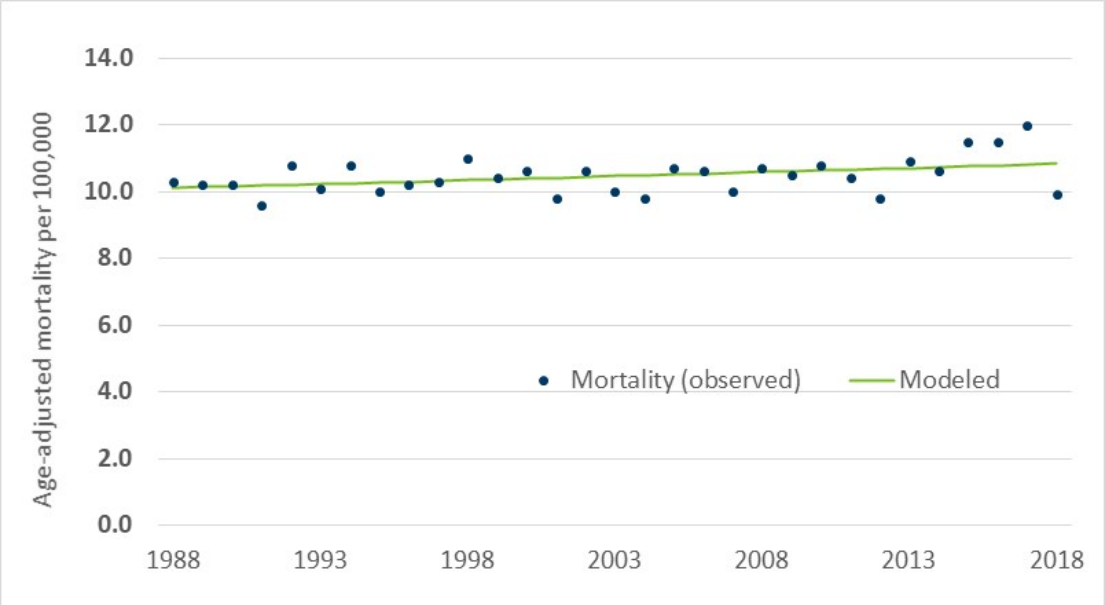
Pancreatic cancer incidence has increased over the past 31 years.



Mortality from pancreatic cancer has slightly increased

Since 1988, the mortality rate for pancreatic cancer has fluctuated from year-to-year with the overall trend gradually increasing (0.23% per year). The mortality rate dropped rapidly between 2017 and 2018. We will need several more years of mortality data to determine if this drop reflects a significant downward trend in the rate of deaths from pancreas cancer.

Pancreatic cancer mortality has slightly increased since 1988



Pancreatic cancer burden, 2014-2018

Between 2014 and 2018, there were 4,494 new pancreatic cancer diagnoses and 3,671 deaths from pancreatic cancer in Minnesota. Ninety-five percent of these cancers occurred in Minnesotans aged 50 or more years. The age-adjusted rates were 13.6 per 100,000 for incidence and 11.1 per 100,000 for mortality. Nearly three-quarters of pancreas cancers were either regional or distant (i.e., late) stage at first diagnosis. As such, five-year relative survival for pancreas cancer diagnosed between 2011 and 2017 is low (14.2%). Overall, 50% of Minnesotans with newly diagnosed with pancreas cancer survive their cancer eight months after diagnosis, but only four months if diagnosed with distant stage disease (median relative survival) as seen in the table below.

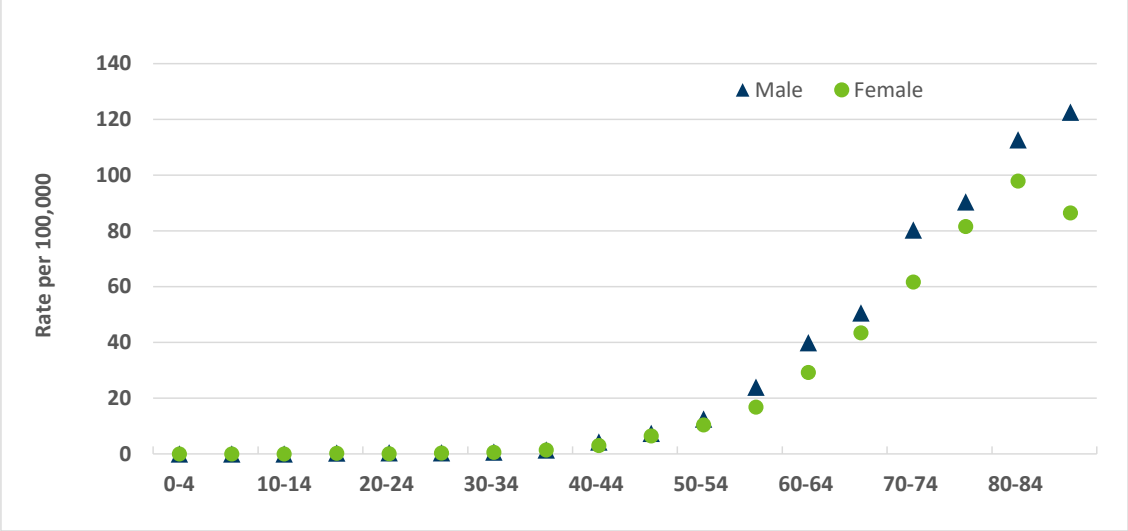
Five-year relative survival by stage at first diagnosis

Stage at diagnosis	2014-2018 Number	2014-2018 Percent	5-Year relative survival for 2011 to 2017	Median relative survival (months)
Localized	716	16%	46.2%	21.6
Regional	1,285	29%	16.8%	14.9
Distant	1,955	44%	4.3%	4.0
Unstaged	538	12%	9.6%	5.5
Overall	4,494	100.0%	14.2%	7.9

Pancreatic cancer incidence and mortality rates are highest in men and older Minnesotans

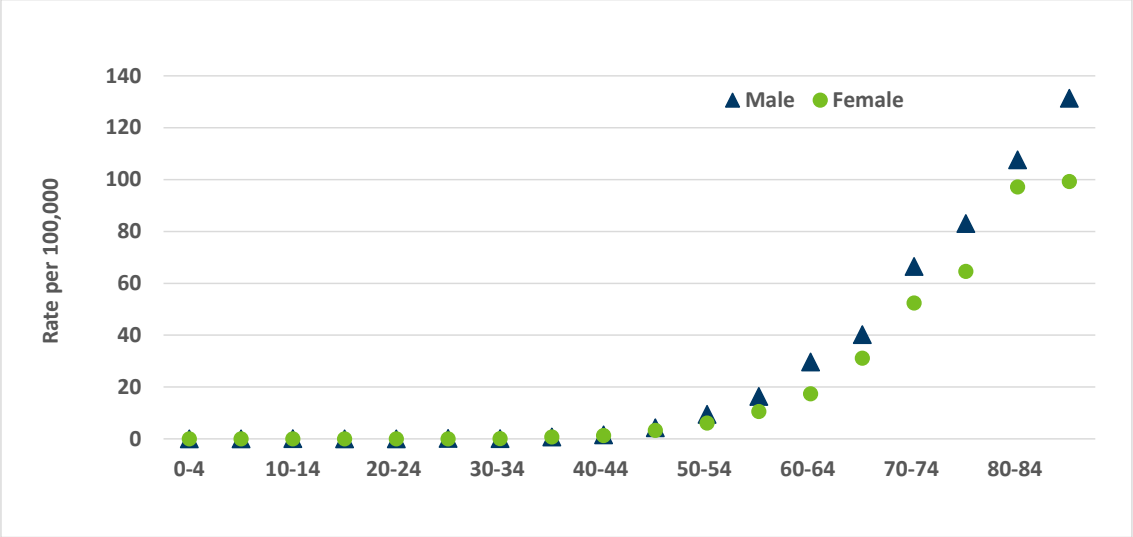
Pancreas cancer incidence and mortality rates show a steady increase with each decade of age after 40 years. For 2014-2018, age-adjusted incidence per 100,000 was 0.4 for those under 40 years compared with 31.1 for those 40 or more years. Overall and by age group, pancreas cancer incidence was greater for males than females (age-adjusted rate of 15.3 versus 12.3 per 100,000).

After age 50, pancreas cancer incidence rates are higher for males than females



The age-adjusted mortality rate was 0.1 per 100,000 for those under age 40 compared with 25.6 for those age 40 and older. Overall and by age-group, mortality per 100,000 was higher for males than females (age-adjusted rate of 12.8 for males versus 9.7 for females).

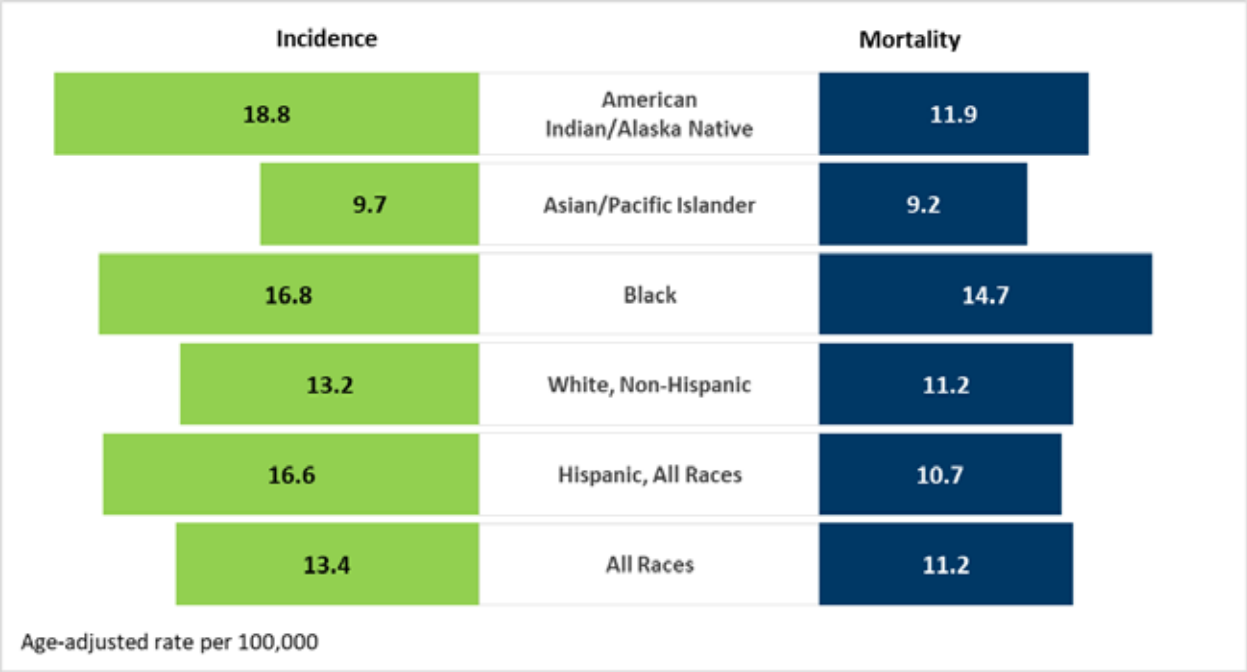
Pancreatic cancer mortality rates are higher for males than females after age 50



Pancreatic cancer rates differ by race and ethnicity

Incidence and mortality rates were highest for American Indian/Alaska Natives and Blacks and lowest for Asian and Pacific Islanders.

2013-2017 incidence and mortality rates by race and ethnicity



Pancreatic cancer rates are similar across Minnesota

The 2014 and 2018 age-adjusted incidence and mortality rates for the seven-county Twin Cities Metro and Greater Minnesota were nearly identical: incidence per 100,000 was 13.8 for the Metro versus 13.4 for Greater Minnesota, and mortality per 100,000 was 11.0 for the Metro versus 11.2 for Greater Minnesota.

Signs and symptoms of pancreatic cancer[1,4]

- Jaundice
- Dark urine
- Itchy skin
- Light-colored or greasy stools
- Back or abdominal pain
- Weight loss or loss of appetite
- Nausea and vomiting
- Gallbladder or liver enlargement
- Blood clots
- Diabetes

Risk and protective factors for pancreatic cancer

We do not completely understand the causes of pancreas cancer, but some factors have been consistently linked to increased risk. Pancreatic cancer has been linked to individual characteristics like age and family history that cannot be changed. However, an estimated 25% of pancreatic cancers recently diagnosed in adults aged 30 or older were attributed to modifiable lifestyle factors.[5] Public health efforts focusing on what we can change may lead to reductions in the incidence of this cancer.

- **Age**[1,6] – Pancreatic cancer is a disease of individuals 40 or more years of age and risk increases substantially after age 50 years.
- **Sex**[2,6] – Pancreas cancer is more common among males than females. Research suggests that the differences in risk may be related to differences in cigarette smoking/tobacco use. Unknown genetic factors may also play a role.
- **Race/ethnicity**[2,6] – Compared to Whites, the rates of pancreatic cancer are consistently higher for Blacks and American Indians/Alaska Natives and are lower for Asian/Pacific Islanders.
- **Genetics**[1,2,6] – Research has linked pancreatic cancer to specific genetic mutations. Certain inherited mutations within families account for 5 to 10% of all pancreas cancers. Some

mutations in specific genes that are not inherited have also been linked to the development of pancreatic cancer.

- **Diabetes**[2,6] – Type 2 diabetes has been associated with an increased risk of pancreatic cancer. The duration of time since a diagnosis and type of medications taken for diabetes may play a role in the development of pancreas cancer. A recent diagnosis of diabetes may signal early-stage pancreatic cancer.
- **Chronic pancreatitis**[2,6] – Chronic pancreatitis results is the long-term inflammation of the pancreas and is a well-established risk for pancreatic cancer.
- **Tobacco use**[1,2,5] – Cigarette smoking is strongly and consistently associated with an increased risk of pancreas cancer. Approximately 10% of pancreatic cancers have been attributed to cigarette smoking but other research suggests as much as 20-25% of pancreas cancers could be attributed to cigarette smoking. Fortunately, the risk of pancreas cancer appears to decrease with time since stopping smoking and approaches that of never smokers.
- **Obesity**[1,2,5] – Approximately 17% of pancreatic cancers are attributed to obesity/overweight. Researchers are actively studying the effect of excess weight on the body's complex physiological systems and how this might increase risk.
- **Workplace exposures**[8] – Studies of cancers in workers in specific occupations or industries have linked certain workplace exposures to increased risk of pancreatic cancer.

References

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