

# Patients with Jaundice or a Pancreatic Mass or Cyst as an Initial Indication Receive the Quickest Pancreatic Cancer Diagnoses

Team A: Jackie Gerhart, MD; Kersten Bartelt, RN; Emily Higgs

Team B: Louis Kazaglis, MD; Joe Deckert; PhD

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## Key Findings:

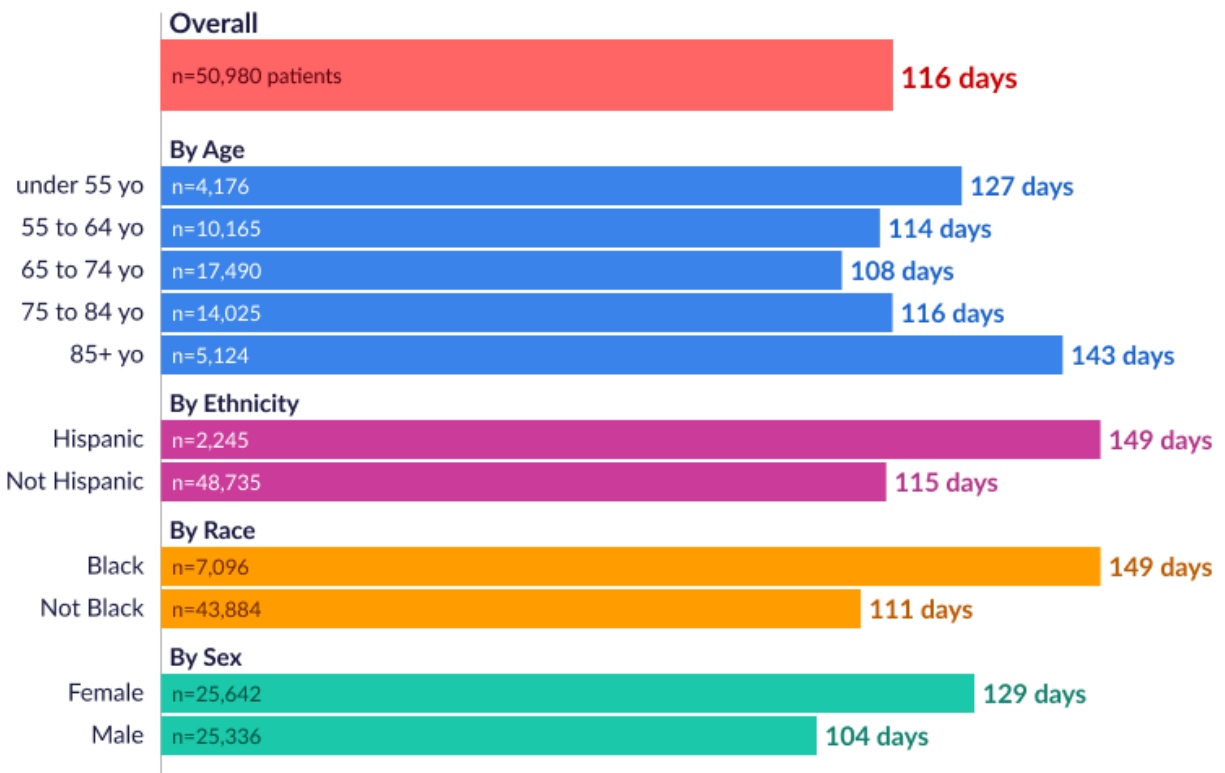
- The median time from the first recorded clinical finding with established association to pancreatic cancer diagnosis is 116 days. However, this varies significantly by the clinical indication initially identified.
- Black or Hispanic patients had a median time to diagnosis of 149 days while those over age 85 had a median of 143 days.
- Patients with jaundice, a pancreatic mass, or a pancreatic cyst had the shortest median time to diagnosis (6 days), while those with cardiovascular-related symptoms had the longest (126 days).

Pancreatic cancer is one of the most aggressive malignancies, often diagnosed at advanced stages due to a lack of early symptoms.<sup>1</sup> Early detection remains a significant challenge, with diagnostic delays contributing to poor survival rates.<sup>2</sup> This study examines the time from the first recorded symptom, sign, or lab abnormality to a documented pancreatic cancer diagnosis and whether that time varies across populations.

We studied 50,980 patients diagnosed with pancreatic cancer between 2014 and 2024, excluding individuals with a cancer diagnosis of any type prior to their first documented symptom, sign, or abnormal lab. Time to diagnosis was calculated from the first recorded clinical finding known to be potentially associated with pancreatic cancer.

The median time to diagnosis across all patients was 116 days, as seen in Figure 1. When stratified by demographic factors, we found that patients aged 85+ experienced the longest time to diagnosis, with a median of 143 days, while those aged 65-74 had the shortest median time to diagnosis of 108 days. The median time to diagnosis was longer for Hispanic and Black patients at 149 days, while those who were non-Hispanic had a median of 115 days and non-Black patients had a median of 111 days. Female patients experienced longer time to diagnosis, with a median of 129 days, compared to male patients, whose median time was 104 days.

## Median Time to Pancreatic Cancer Diagnosis by Demographic Factors

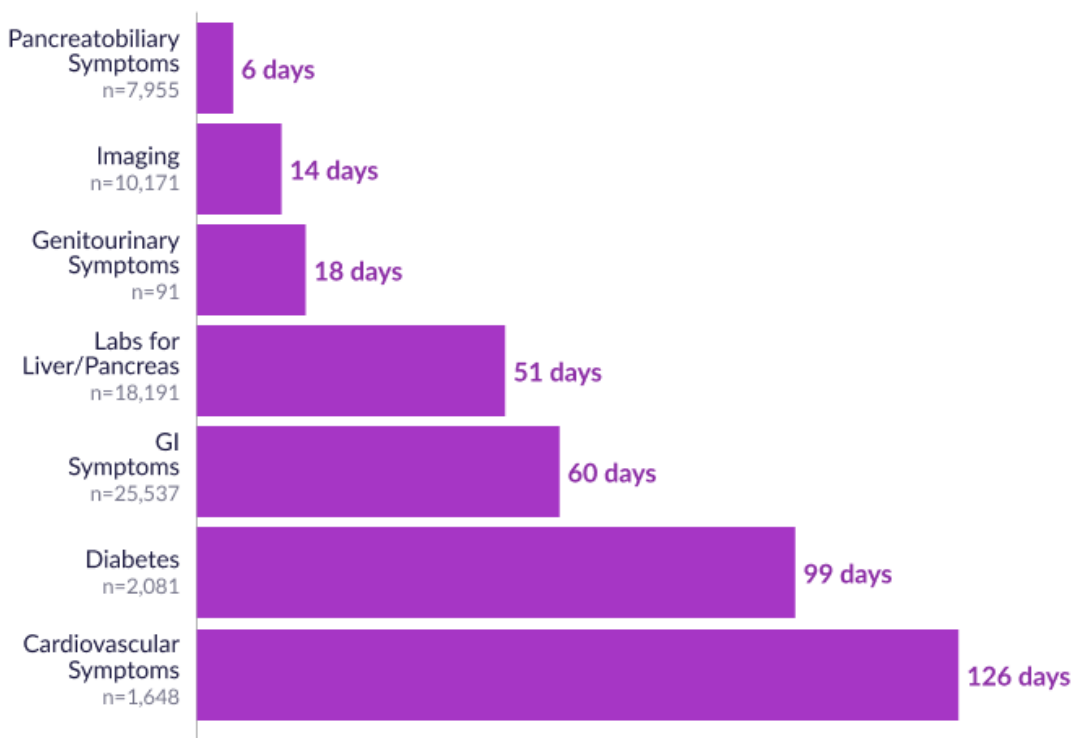


"Median Time to Pancreatic Cancer Diagnosis by Demographic Factors," 2025. EpicResearch.org

Figure 1. The median time to a pancreatic cancer diagnosis from the earliest recorded clinical finding by demographic factors.

We further studied median time to diagnosis based on the category of the earliest clinical finding that could be associated with a pancreatic cancer diagnosis. Patients were represented in multiple categories if more than one indication was documented on the same day. Patients who had pancreatobiliary symptoms, such as jaundice, a pancreatic mass, or a pancreatic cyst, had the shortest median time to diagnosis at 6 days. Those who had imaging were diagnosed within 14 days. On the other hand, patients with less specific indications like cardiovascular symptoms, such as blood clots, or new onset of diabetes had much longer median times to diagnosis, with several months between the initial indication and diagnosis of pancreatic cancer.

## Median Time to Pancreatic Cancer Diagnosis by Earliest Clinical Finding



"Median Time to Pancreatic Cancer Diagnosis by Earliest Clinical Finding," 2025. EpicResearch.org

Figure 2. The median time to a pancreatic cancer diagnosis by first clinical finding type.

These data come from Cosmos, a dataset created in collaboration with a community of Epic health systems representing more than 296 million patient records from 1,600 hospitals and more than 39,000 clinics from all 50 states, Lebanon, and Saudi Arabia. This study was completed by two teams that worked independently, each composed of a clinician and research scientists. The two teams came to similar conclusions. Graphics by Brian Olson.

## References

1. Can pancreatic cancer be found early? American Cancer Society. February 5, 2024. <https://www.cancer.org/cancer/types/pancreatic-cancer/detection-diagnosis-staging/detection.html>. Accessed February 5, 2025.
2. Khalaf N, Liu Y, Kramer JR, El-Serag HB, Kanwal F, Singh H. Defining and understanding diagnostic delays among pancreatic cancer patients: A retrospective cohort study. Clin Gastroenterol Hepatol. 2025;23(1):179-181.e3. doi:10.1016/j.cgh.2024.07.006

## Data Definitions

Term	Definition
Study period	Pancreatic cancer diagnoses 2014-2024
Study population - inclusions	Patients who have two <b>pancreatic cancer</b> diagnoses and: <ul style="list-style-type: none"> <li>• At least one <b>face-to-face visit</b> within a year prior to the first pancreatic cancer diagnosis</li> </ul>

	<ul style="list-style-type: none"> <li>At least one <b>face-to-face visit</b> one to three years prior to the diagnosis</li> </ul> <p>The first visit-related diagnosis will be considered this patient's diagnosis date</p>
<b>Study population - exclusions</b>	Patients who have had <b>pancreatic cancer</b> or <b>other cancers</b> diagnosed before the pancreatic cancer diagnosis
<b>Exposures</b>	The first of these signs within a year before the diagnosis: <b>diabetes, labs for liver/pancreas, imaging, gastrointestinal symptoms, genitourinary symptoms, pancreatobiliary symptoms, cardiovascular symptoms, or general symptoms</b>
<b>Stratifications</b>	Age <b>Race and ethnicity</b> Legal sex
<b>Limitations</b>	Notes and imaging result documentation are not included in this study, though the order for imaging was included. Those whose lab is a first sign in our data might have sought care at a site that doesn't contribute to Cosmos for their first sign or symptom, or they may have delayed seeking care.
<b>Pancreatic cancer</b>	A diagnosis with ICD-10-CM code C25*
<b>Face-to-face visit</b>	An encounter with type Emergency, Office visit, Well Child, Follow-Up, Telemedicine, Urgent care, Walk-In, Inpatient Admission, HOV to Inpatient, or Emergency to Inpatient
<b>Other cancer</b>	A diagnosis with ICD-10-CM code C00-D09* (excluding C25*, C43*, C44*, and C69*), D18*, D22*, D23*, D24*, D25*, or D37-D48* (except D37.8 or D37.9)
<b>Diabetes</b>	New onset of type 1: ICD-10-CM code E10* New onset of type 2: ICD-10-CM code E11* New <b>HbA1c</b> >= 6.5
<b>Labs for liver/pancreas</b>	A <b>CA 19-9</b> blood test with any result or <b>amylase, lipase, AST, ALT, alkaline phosphatase, bilirubin</b> marked abnormal
<b>Imaging</b>	Abdominal US: CPT code 76700 or 76705 MRI: CPT code 74181, 74182, or 74183 ERCP: CPT code 43260 – 43265, 43273 – 43278, or 47555 - 47556 EUS: CPT code 43237, 43238, or 43242 CT Abdomen/pelvis: CPT code 74150, 74160, 74170, or 74176 - 74178 Pancreas fluoroscopy: CPT code 74329
<b>Gastrointestinal symptoms</b>	Abdominal pain: ICD-10-CM code R10* (excluding R10.2 and R10.83) or chief complaint of ABDOMINAL PAIN Loss of appetite: ICD-10-CM code R63.0 or chief complaint of POOR APPETITE GI bleed: ICD-10-CM code K92.2 or chief complaint of GI BLEEDING Diarrhea: ICD-10-CM code K52.9, K51.9, or R19.7 or chief complaint of DIARRHEA Indigestion: ICD-10-CM code K30* Constipation: ICD-10-CM code K59* or chief complaint of CONSTIPATION Fat in stool: ICD-10-CM code R19* Nausea: ICD-10-CM code R11* or chief complaint of NAUSEA or NAUSEA/VOMITING

	Flatulence: ICD-10-CM code R14* Heartburn: ICD-10-CM code R12* or chief complaint of HEARTBURN Blood in stool: ICD-10-CM code K92.1 or chief complaint of BLACK OR BLOODY STOOL Problems swallowing: ICD-10-CM code R13.10 or chief complaint of DIFFICULTY SWALLOWING
<b>Genitourinary symptoms</b>	Dark urine: ICD-10-CM code R82.99
<b>Pancreatobiliary symptoms</b>	Pancreatic mass: ICD-10-CM code K86.9 Pancreatic cyst: ICD-10-CM code K86. 2 Jaundice: ICD-10-CM code R17 or chief complaint of JAUNDICE
<b>Cardiovascular symptoms</b>	Blood clots (DVT & PE): ICD-10-CM code I82* or I26*
<b>General symptoms</b>	Unexplained thirst: ICD-10-CM code R63.1 Fever: ICD-10-CM code R50* or chief complaint of FEVER Tiredness: ICD-10-CM code R53* or chief complaint or FATIGUE Itching: ICD-10-CM code L29* or chief complaint or ITCHING Back pain: ICD-10-CM code M54.5 or chief Complaint of BACK PAIN Weight loss: ICD-10-CM code R63.4 or chief complaint of WEIGHT LOSS
<b>HbA1c</b>	A lab with LOINC code 17856-6, 17855-8, 4548-4, or 4549-2
<b>CA 19-9</b>	A lab with LOINC code 2009-9, 24108-3, 26924-1, 50781-4, 83084-4, or 97750-4
<b>Amylase, lipase</b>	A lab with LOINC code 3040-3, 77146-9, 76630-3, 56776-8, 15023-5, 15024-3, 15025-0, 56782-6, 14589-6, 54472-6, 15020-1, 15021-9, 15022-7, 1806-9, 1807-7, 1808-5, 25313-8, 49251-2, 25312-0, 72571-3, 72572-1, 1798-8, 100740-0, 6697-7, 1810-1, 1802-8, 1803-6, 1804-4, 1805-1, or 1809-3
<b>AST</b>	A lab with LOINC code 88112-8, 30239-8, or 1920-8
<b>ALT</b>	A lab with LOINC code LOINC code 77144-4, 76625-3, 1744-2, 1743-4, or 1742-6
<b>Alkaline phosphatase</b>	A lab with LOINC code 77141-0, 6768-6, or 1783-0
<b>Bilirubin</b>	A lab with LOINC code 59828-4, 59827-6, 42719-5, or 1975-2
<b>Race and ethnicity</b>	Non-exclusive flags for Black and Hispanic

**Table 1: Median Time to Pancreatic Cancer Diagnosis by Demographic Factors**

	Patients	Average Days To Dx	Median Days To Dx
<b>Overall</b>			
	50980		116
<b>By Age</b>			
under 55 yo	4176	152	127
55 to 64 yo	10165	146	114
65 to 74 yo	17490	144	108
75 to 84 yo	14025	146	116
85+ yo	5124	157	143
<b>By Ethnicity</b>			
Hispanic	2245	160	149

Not Hispanic	48735	146	115
<b>By Race</b>			
Black	7096	162	149
Not Black	43884	144	111
<b>By Sex</b>			
Female	25642	152	129
Male	25336	142	104

**Table 2: Median Time to Pancreatic Cancer Diagnosis by Earliest Clinical Finding**

Indication	Patients	Average Days To Dx	Median Days To Dx
Cardiovascular Symptoms	1,648	152	126
Diabetes	2,081	128	99
GI Symptoms	25,537	119	60
Lab	18,191	115	51
Genitourinary Symptoms	91	64	18
Imaging	10,171	79	14
Pancreatobiliary Symptoms	7,955	46	6