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Risk of Pancreatic Cancer in Indeterminate Pancreatic Cysts

Presenters:

Eleanor Ormsby, MD, MPH

Marilyn Kwan, PhD

Michael Hartmann, MS

DOR/TPMG Cancer Research Symposium

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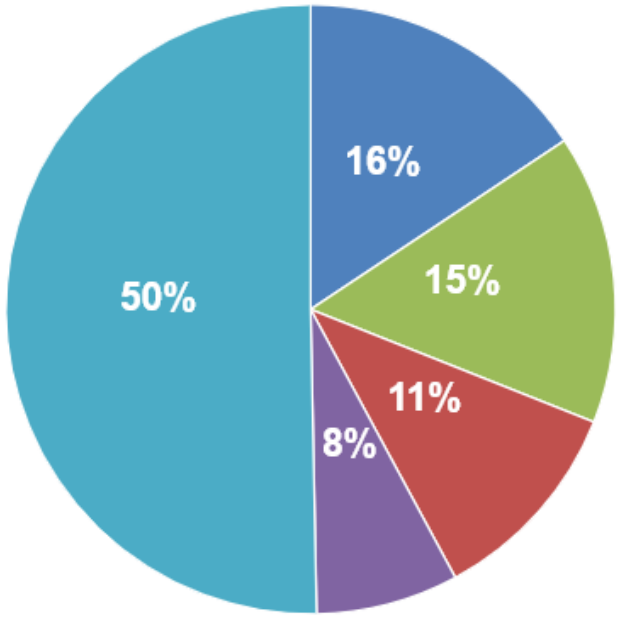
Pancreatic Cancer: Facts and Figures

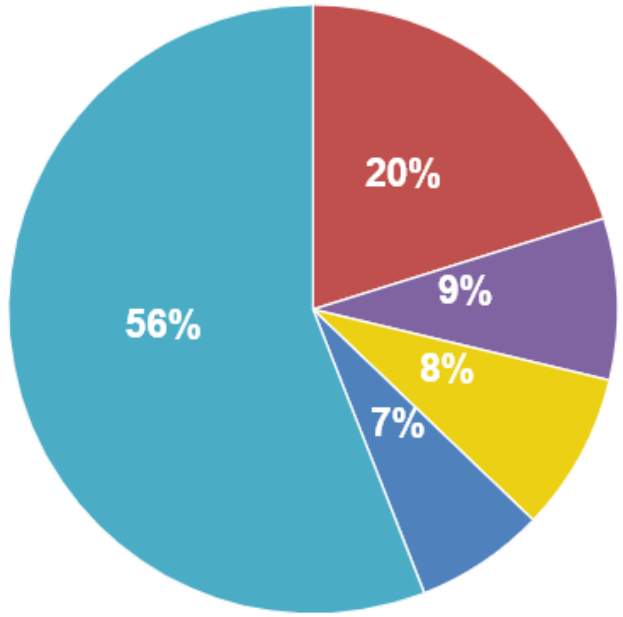
Estimated New Cases in 2025	67,440
% of All New Cancer Cases	3.3%

New Cancer Cases, 2025



- Breast: 319,750 (16%)
- Prostate: 313,780 (15%)
- Lung and bronchus: 226,650 (11%)
- Colon and rectum: 154,270 (8%)
- Other: 1,027,460 (50%)

Cancer Deaths, 2025



- Lung and bronchus: 124,730 (20%)
- Colon and rectum: 52,900 (9%)
- Pancreas: 51,980 (8%)
- Breast: 42,680 (7%)
- Other: 345,830 (56%)

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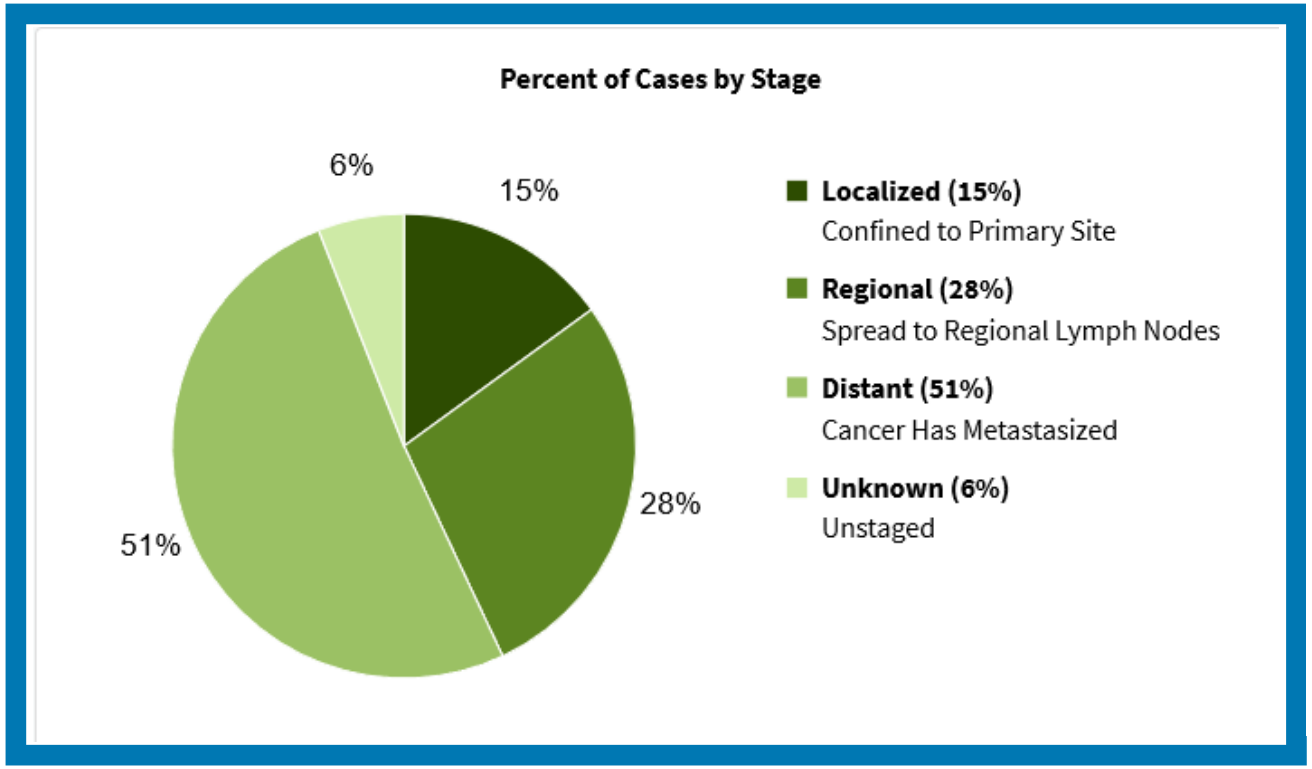
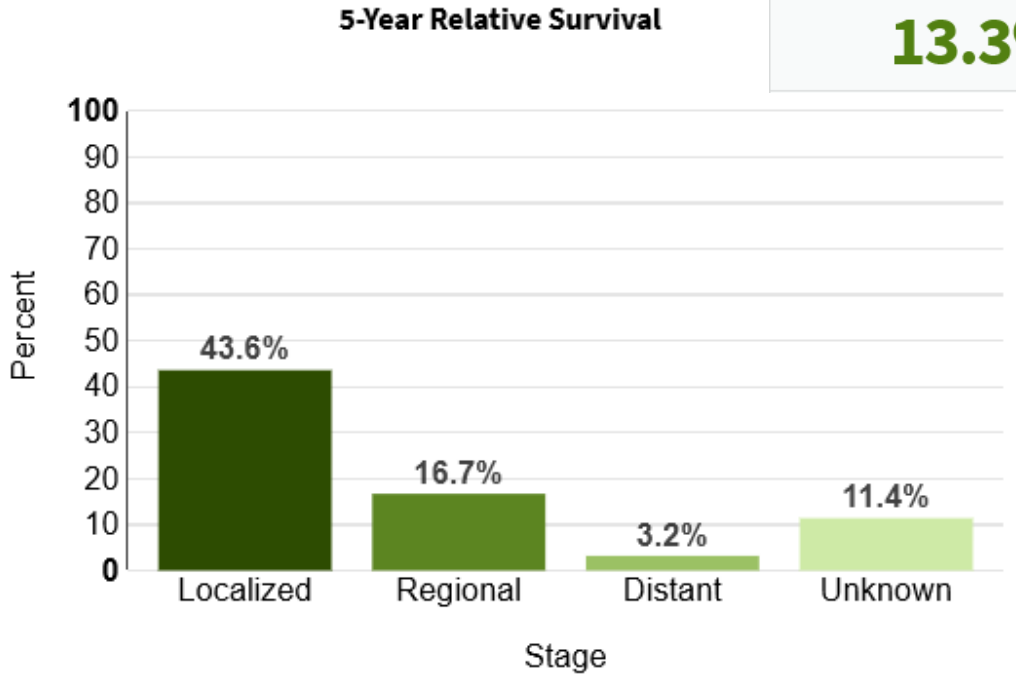
Pancreatic Cancer
Stage at Detection & 5-Year Overall Survival Rate



5-Year Relative Survival
13.3%



SEER 21 (Excluding IL) 2015–2021, All Races, Both Sexes by SEER Combined Summary Stage

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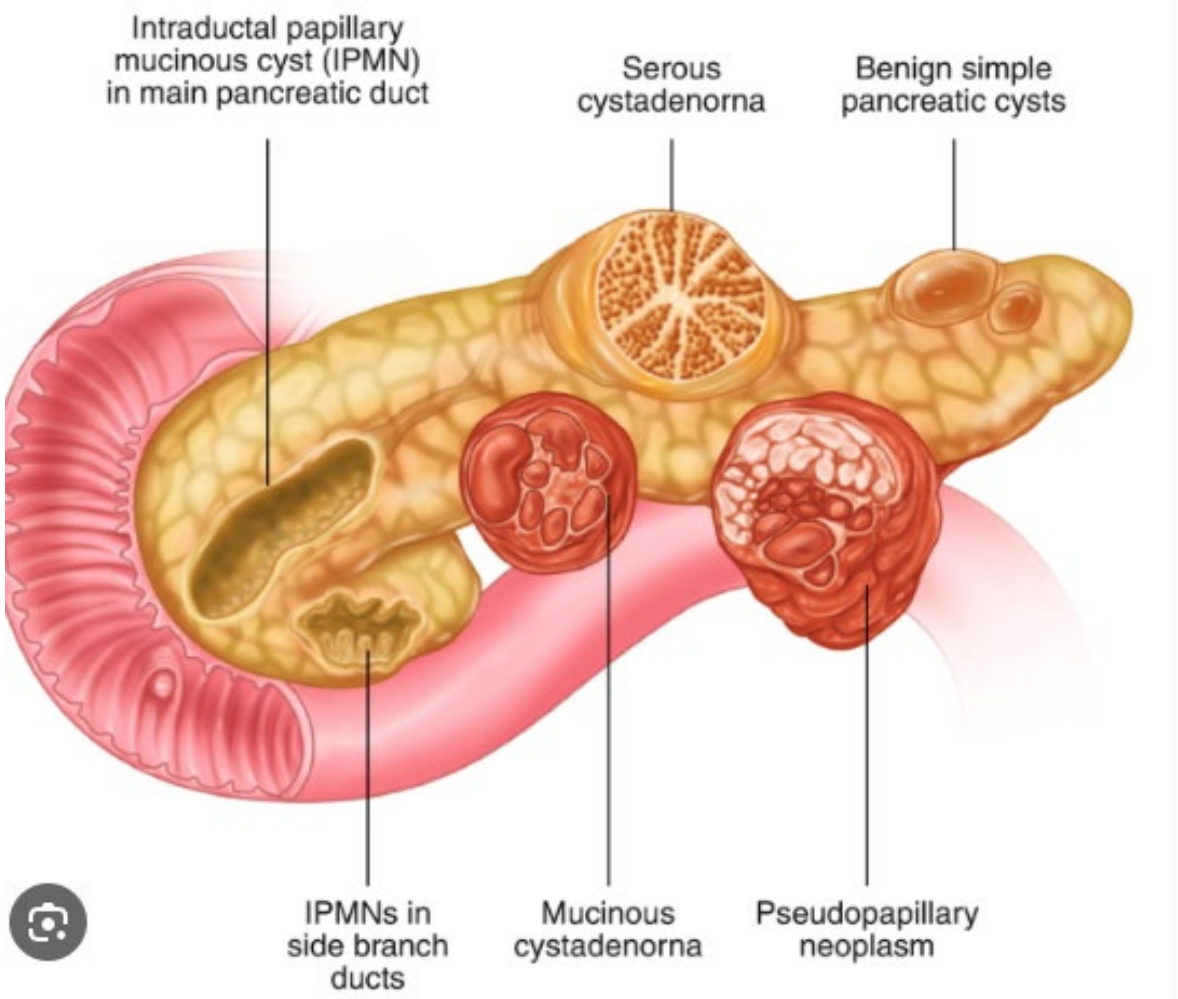
Risk Factors of Pancreatic Cancer

- Family history or inherited risk
- Gene mutation such as BRCA 2
- Newly diagnosed with type 2 diabetes
- Tobacco use
- Chronic pancreatitis
- **Cystic lesions of pancreas**

Pancreatic Cysts

- Most pancreatic cysts are benign
- However, some pancreatic cysts are precursors to pancreatic ductal adenocarcinoma
- Field Defect:
  - Presence of cyst increases whole gland risk of pancreatic cancer at site away from the cyst (Miller et al. 2022)
  - Incidental pancreatic cysts found by CT or MR imaging are associated with increased mortality for patients <65 years and an overall increased risk of pancreatic adenocarcinoma (Chernyak et al. 2014)

- It is not clear how long and how often these incidental cysts should be followed
  - Overlap between image characteristics of benign cysts and premalignant cysts
  - Indolent nature of premalignant cysts, Follow-up guidelines vary worldwide



Aunan, J.R., Al-Saiddi, M.S., Stutchfield, B., Jamieson, N.B., Søreide, K. (2021). Pancreatic Cystic Lesions and Risk of Cancer. In: Søreide, K., Stättner, S. (eds) Textbook of Pancreatic Cancer. Springer, Cham. https://doi.org/10.1007/978-3-030-53786-9_50

Pancreas Cyst Guidelines

SENDAI 2006: International IPMN Consensus Guidelines
Tanaka, et al. Pancreatology 2006

FUKUOKA (Updated SENDAI) 2012:
International IPMN Consensus Guidelines
Tanaka, et al. Pancreatology 2012

Surveillance of Sb-IPMN
Tanaka, et al. Pancreatology 2012

AGA 2015: Clinical Guidelines
Vege SS, et al. Gastro 2015

American College of Radiology. Management of Incidental Pancreatic Cysts: A White Paper of the ACR Incidental Findings Committee. Megibow et al. J Am Coll Radiol. 2017 Jul;14(7):911-923.

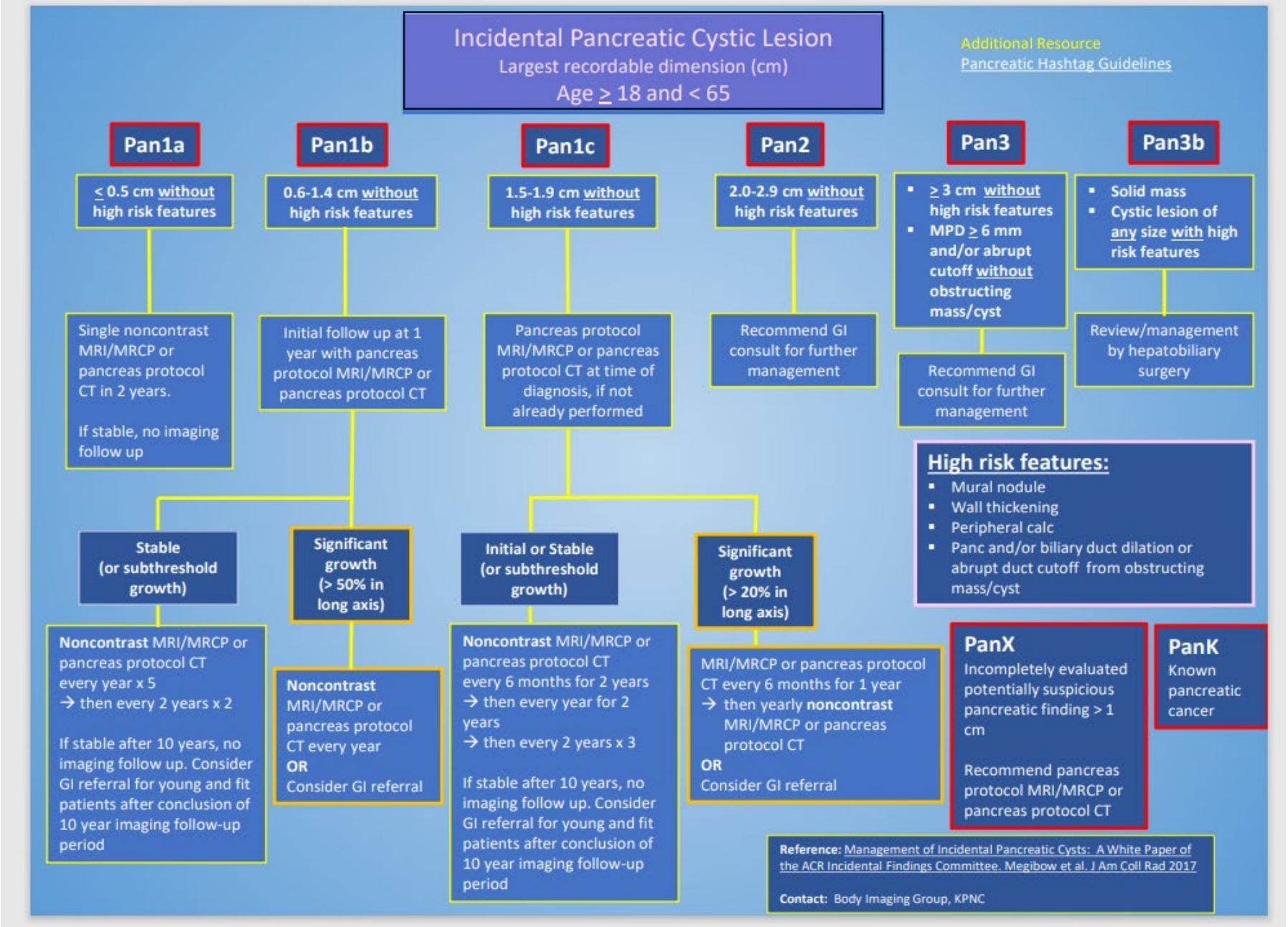
KPNC Pancreas Hashtag System

- Beginning 2017, KPNC multidisciplinary group on standardization of CT and MRI reporting and follow up management.
- Mostly based on the latest ACR guideline.
- Standardize reporting of imaging results and explicitly link findings to clinical recommendations and actions.
- “Hard stop” constraint. Radiologist cannot finalize the report unless a #pan tag or a smart-text phrase.

Pancreatic Hashtag Working Group

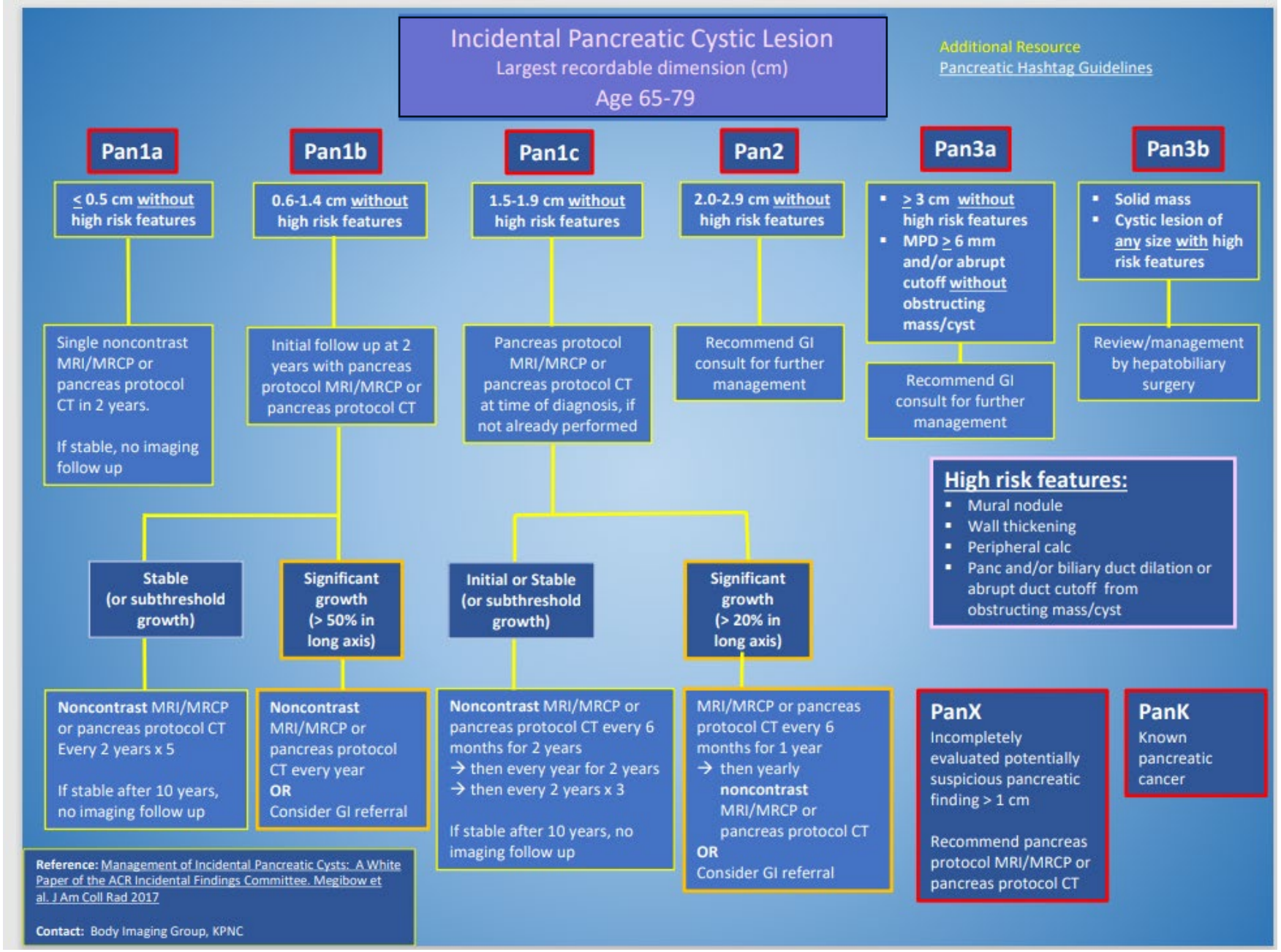
Terry Jue, MD	Gastroenterology, SFO Kaiser
Derek Kubota, MD	Radiology, EBA Kaiser
Craig Munroe, MD	Gastroenterology, SFO Kaiser
Eleanor Ormsby, MD	Radiology, North Valley Kaiser
Rene Ramirez, MD	Hepatobiliary Surgery, SLN Kaiser
Kristin Schueler, MD	Radiology, SJO Kaiser

Special Thanks to Dr. Patrick Chang for Regional Template Hashtag Support!



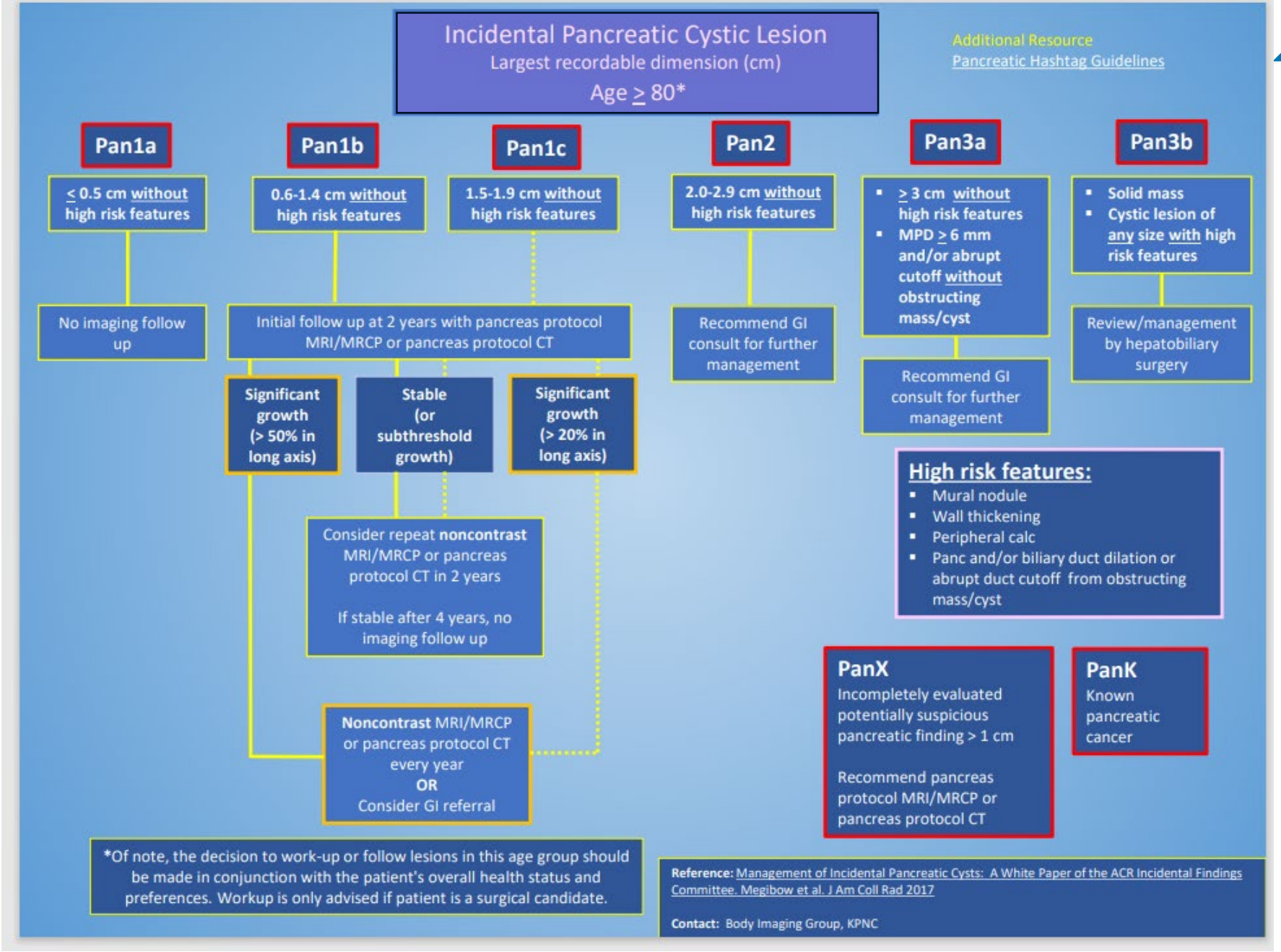
KPNC RADIOLOGY PANCREAS HASHTAG CLINICAL RESOURCE

Age ≥ 18 and <65



KPNC RADIOLOGY PANCREAS HASHTAG CLINICAL RESOURCE

Age 65-79



KPNC RADIOLOGY PANCREAS HASHTAG CLINICAL RESOURCE

Age ≥ 80

PANCREATOBILIARY

Association of Standardized Radiology Reporting and Management of Abdominal CT and MRI With Diagnosis of Pancreatic Cancer

Eleanor L. Ormsby,[*] Kourosh Kojouri,[‡] Patrick C. Chang,[*] Teresa Y. Lin,[§] Brooke Vuong,[‡] Rene M. Ramirez,[‡] Kristin M. Schueler,[*] Clifford F. Sweet,[*] and Lisa J. Herrinton[§]

[*]Department of Radiology, [‡]Department of Surgical Oncology, and [§]Division of Research, Kaiser Permanente Northern California, Oakland, California

Clin Gastroenterol Hepatol. 2023 Mar;21(3):644-652.e2. doi: 10.1016/j.cgh.2022.03.047. Epub 2022 Apr 15. PMID: 35436626.

#Pan3 Results

- Pre- and post-implementation patients (total 318,331) during 2016 to 2019.
- 46% increase in the odds of pancreatic cancer diagnosis among all stages within 120 days of index imaging **(OR: 1.46; 95% CI: 1.04-2.06)**
  - Sensitivity analysis within 60 days of imaging, adjusted OR was nearly identical **(OR: 1.47; 95% CI: 1.05-2.06)**
- Automatic referral of #Pan3 to a regional multidisciplinary committee enhances rapid follow up and treatment plan which can help mortality rate and decrease false positive cases.
- Potential unintended consequence of the tagging system was an increase in imaging follow-up of pancreatic cysts for a low prevalent disease. Exact number difficult to tell since overall imaging utilization has increased since the pandemic with increased ER and outpatient visits.
- Preliminary Data on Small Pancreatic Cysts: Short term cancer risk of #Pan1 and #Pan2 may be low, based on 1-3 years of follow-up.

New Pancreatic Cyst Hashtag Study (2025-2026)

In a retrospective cohort of KPNC patients who were screened for pancreatic cysts on CT or MRI exams:

1. What is the cumulative incidence rate of pancreatic cancer overall and among #Pan cyst types (1a, 1b, 1c, 2, 3a)?
2. What are other risk factors that increase risk of pancreatic cancer in patients with pancreatic cysts?

Funded by the DOR/TPMG Rapid Analytics Unit

New Study: Current #Pan1 (a-c), #Pan2 and #Pan3a

Inclusion

- All KPNC members aged ≥18 years who had abdominal CT or MRI exams
- Enrollment Window: January 1, 2018 - December 31, 2021.
- Unique Patients with a valid scan (2018-2021): 569,757
- Pan categorization to be based on patient's initial scan during time-period Index date defined as date of initial scan

Outcome

- Patients whose pancreatic cyst is diagnosed as cancer during follow-up period
- The final diagnosis of each patient's cyst identified on index date, the date of CT/MRI scan
- *Follow-up period:* From index date (date of first scan) to the end of December 31, 2024

Clinical Actions and Changes Anticipated

- Provide improved follow-up hashtag guidelines based and risk-based stratified model.
- Optimize CT and MRI utilization using evidence-based, risk-stratified surveillance.
- Select higher risk patients for more intensive surveillance, while allowing low risk patients to undergo less intensive surveillance.
- Longer follow-up intervals or shorter duration of follow up overall for those in lower risk categories.
- Refine regional reporting templates and clinical smart phrases to support consistent interpretation and follow-up.

Key Takeaways

- **Pancreatic cysts present an opportunity for early cancer detection.**
- **The KPNC #Pan structured reporting system improves consistency and early identification.**
- **Long-term risk data will support evidence-based, risk-stratified surveillance recommendations.**

Questions and Recommendations?

Thank you!

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