USING AN ARTIFICIAL INTELLIGENCE-POWERED PANCREATIC CYST SAFETY NET TO ASSESS DIFFERENCES IN PANCREATIC CYST MANAGEMENT GUIDELINES

Brian Li, MD

DDW2025
Digestive Disease Week®
MAY 3–6, 2025 | SAN DIEGO, CA
EXHIBIT DATES: MAY 4–6, 2025
@DDWMeeting | #DDW2025

DISCLOSURE INFORMATION

Brian Li, MD

I have no conflicts of interest to disclose

A COMMON SCENARIO…

Hey Doc! This CT scan found that I have a cyst in my pancreas. The report says that this cyst will need to be monitored.
What do you recommend?

Which guideline?

AGA

ACR

ACG

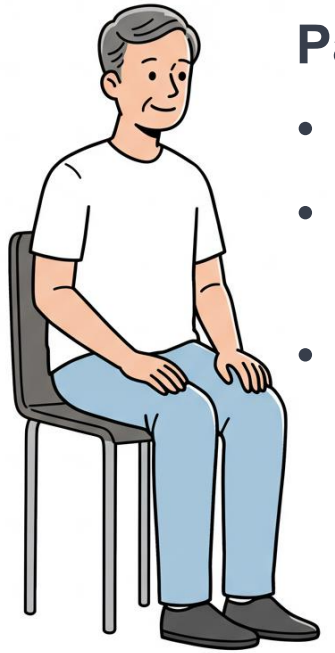
Fukuoka

Kyoto

THE PROBLEM

- Variations in individual practice
- Confusion for patients and referring providers
- Loss to follow up

CYST MANAGEMENT: TWO COMPONENTS



Patient-Doctor Relationship:

- Patient preferences & goals
- Patient overall health & trajectory
- Shared clinical decision-making

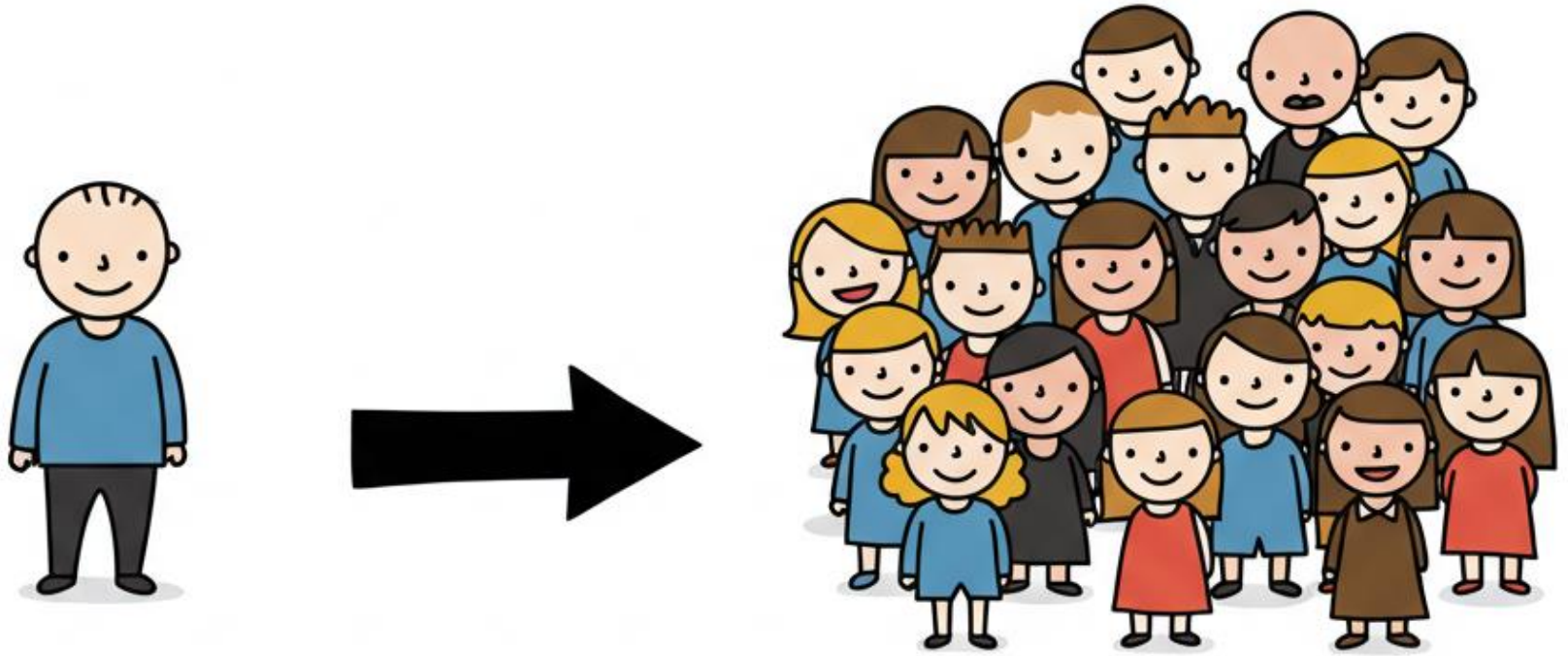
Allows clinician to spend more time with the patient

Data Review:

- Assess the imaging findings and clinical data
- Understand relevant cyst features
- Apply guideline based best clinical practices

AI can help offload these tasks

BUILDING A SAFETY NET



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AI THINKING LIKE A CLINICIAN

1. Is there a pancreatic cyst?
2. What features does this cyst have?
3. Based on these features, what would different guidelines recommend?

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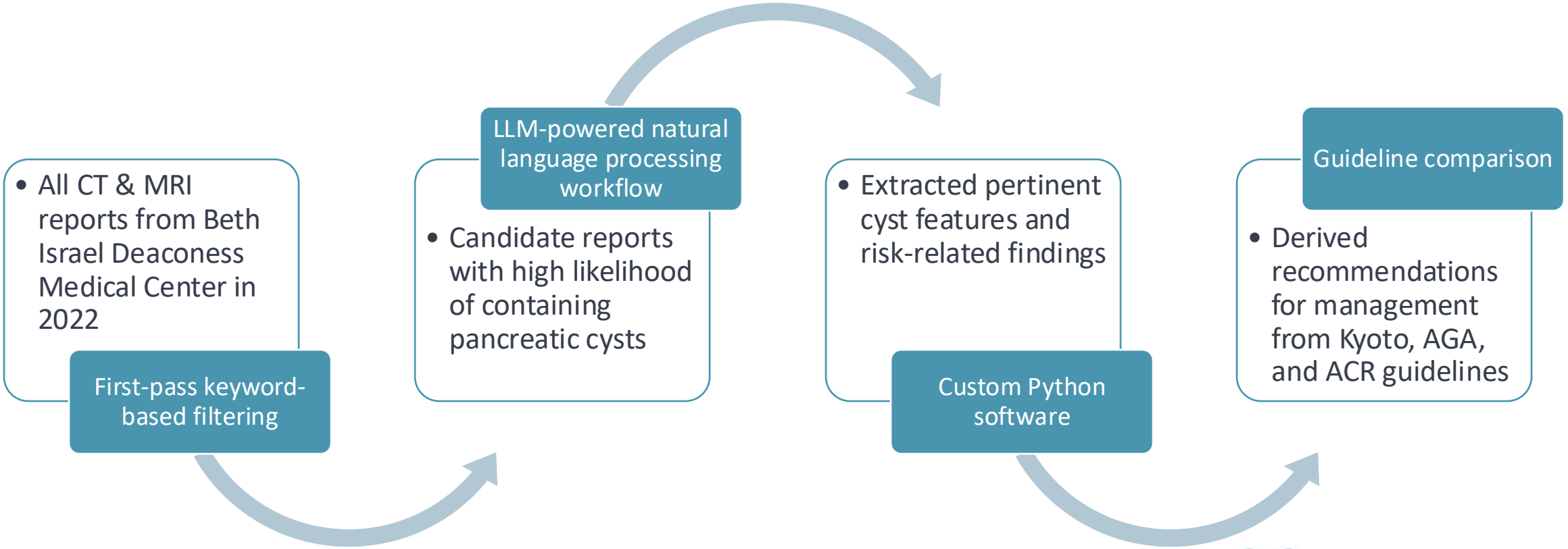
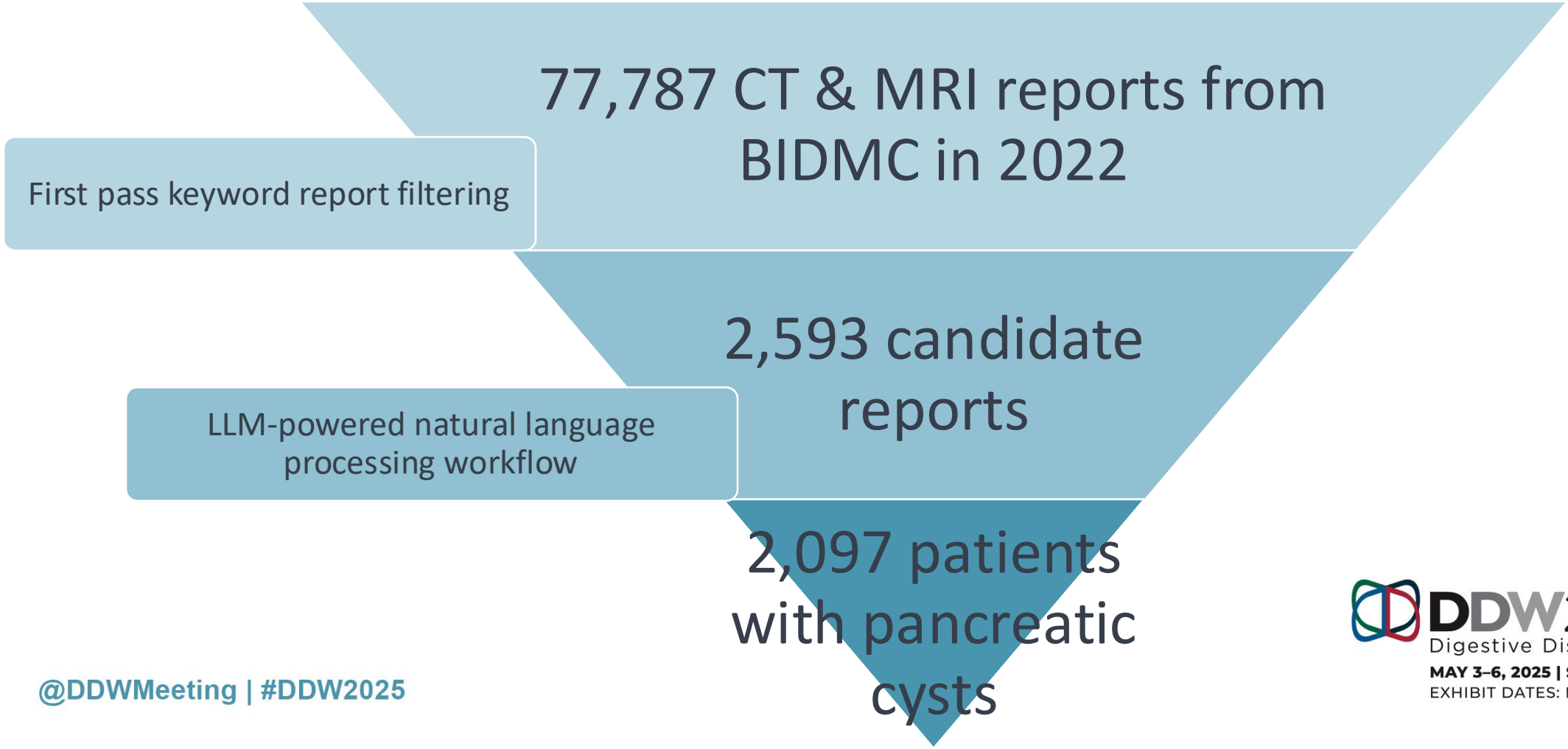
AI PIPELINE



SAFETY NET THROUGHPUT



CYST FEATURES EXTRACTED BY AI PIPELINE

- Cyst size
- Number of cysts
- Cyst location (head, neck, tail, etc.)
- Solid component
- Wall thickening
- Peripheral calcification
- Enhancing mural nodule
- Main duct communication
- Main duct diameter
- Local lymphadenopathy
- Distal atrophy
- Recommendations included in the imaging report

Changes over time:

- Change in cyst size (growth rate)
- Change in main duct diameter
- Cyst stable time period

Patient clinical features:

- Acute pancreatitis
- Elevated CA 19-9
- Obstructive jaundice
- New onset diabetes
- Family history of pancreatic cancer

Ongoing autonomous capture of high number of patients and cyst features!

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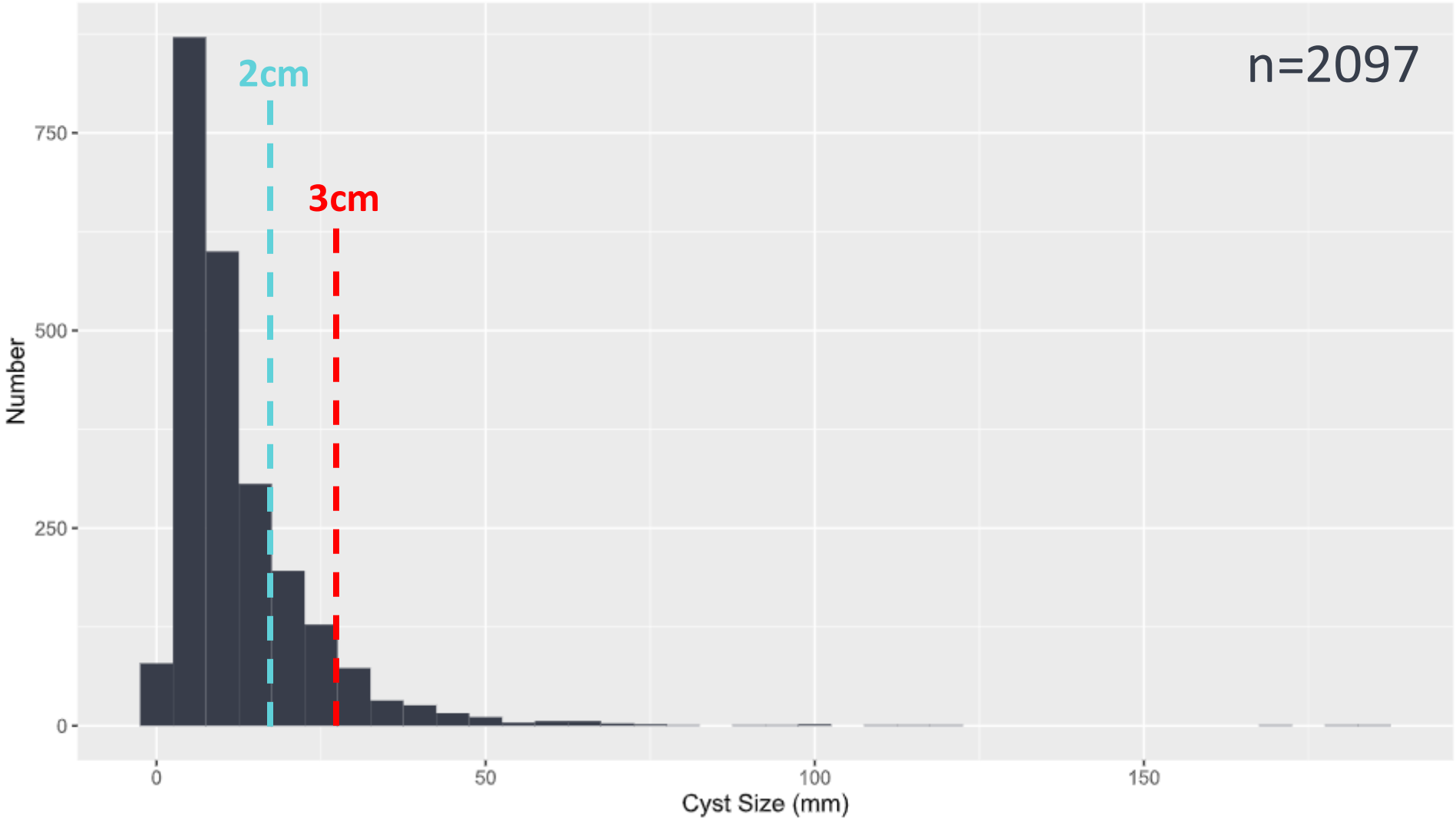
CYST SIZE DISTRIBUTION



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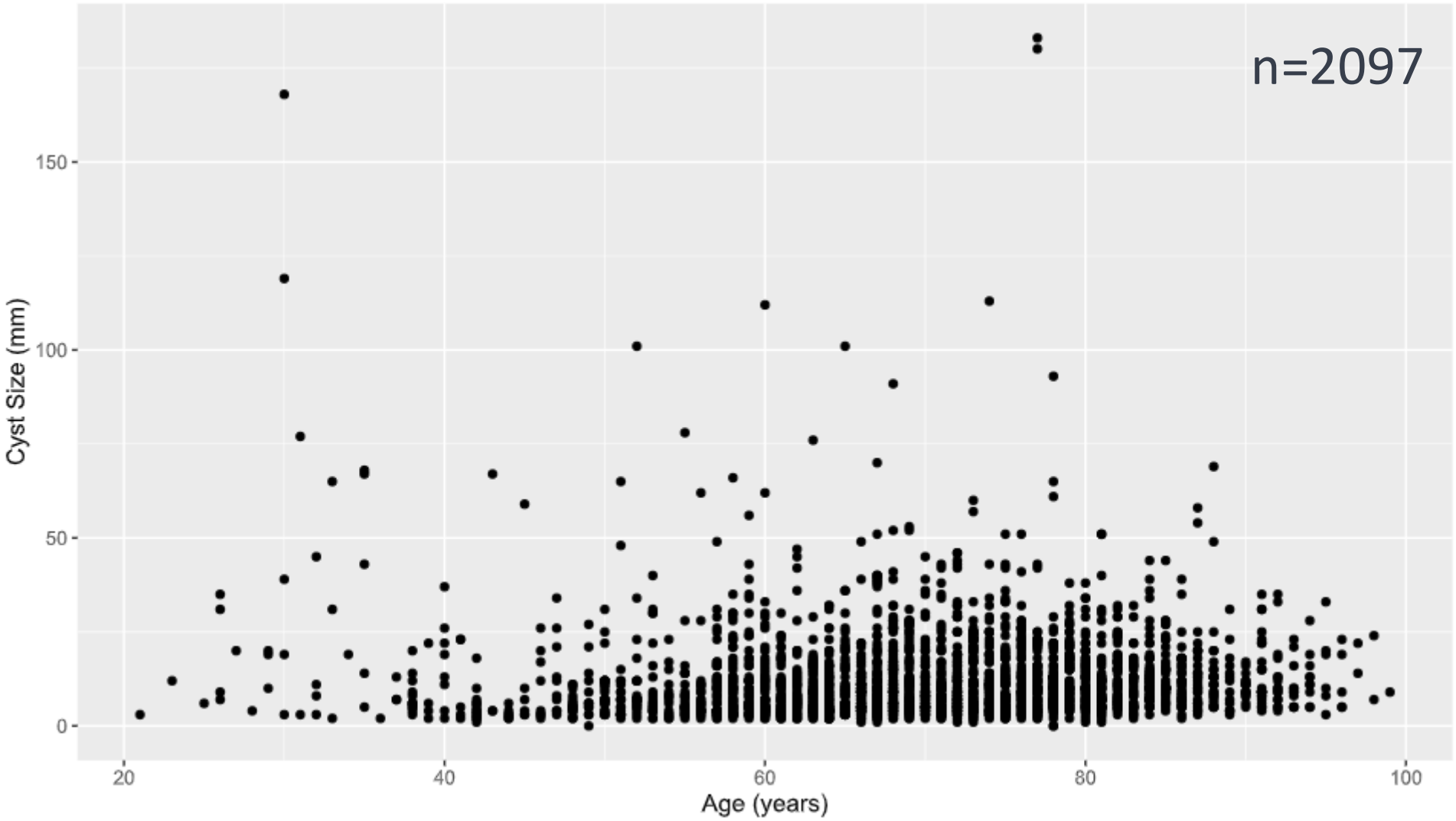
CYST SIZE VS AGE



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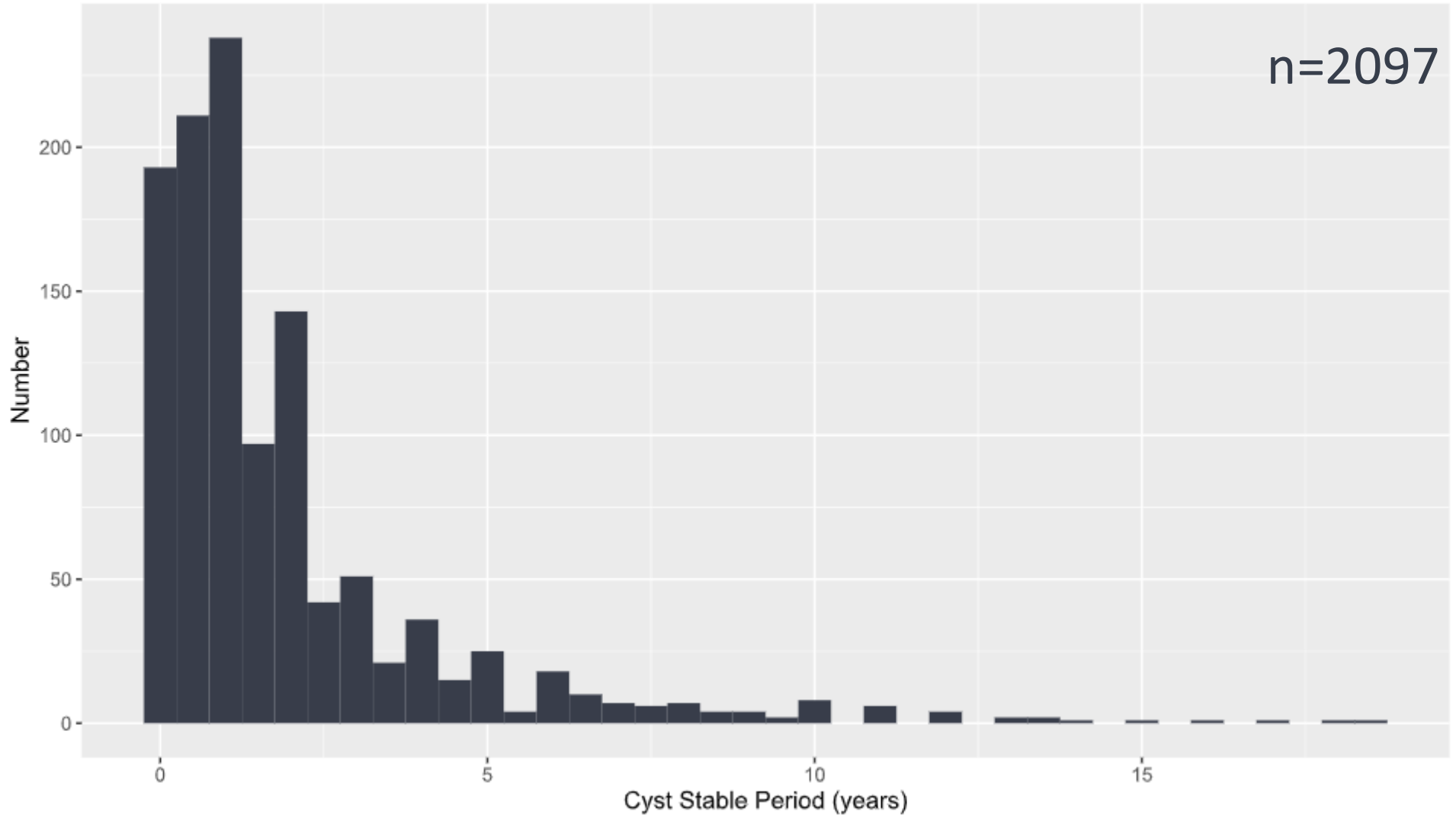
CYST STABLE PERIOD



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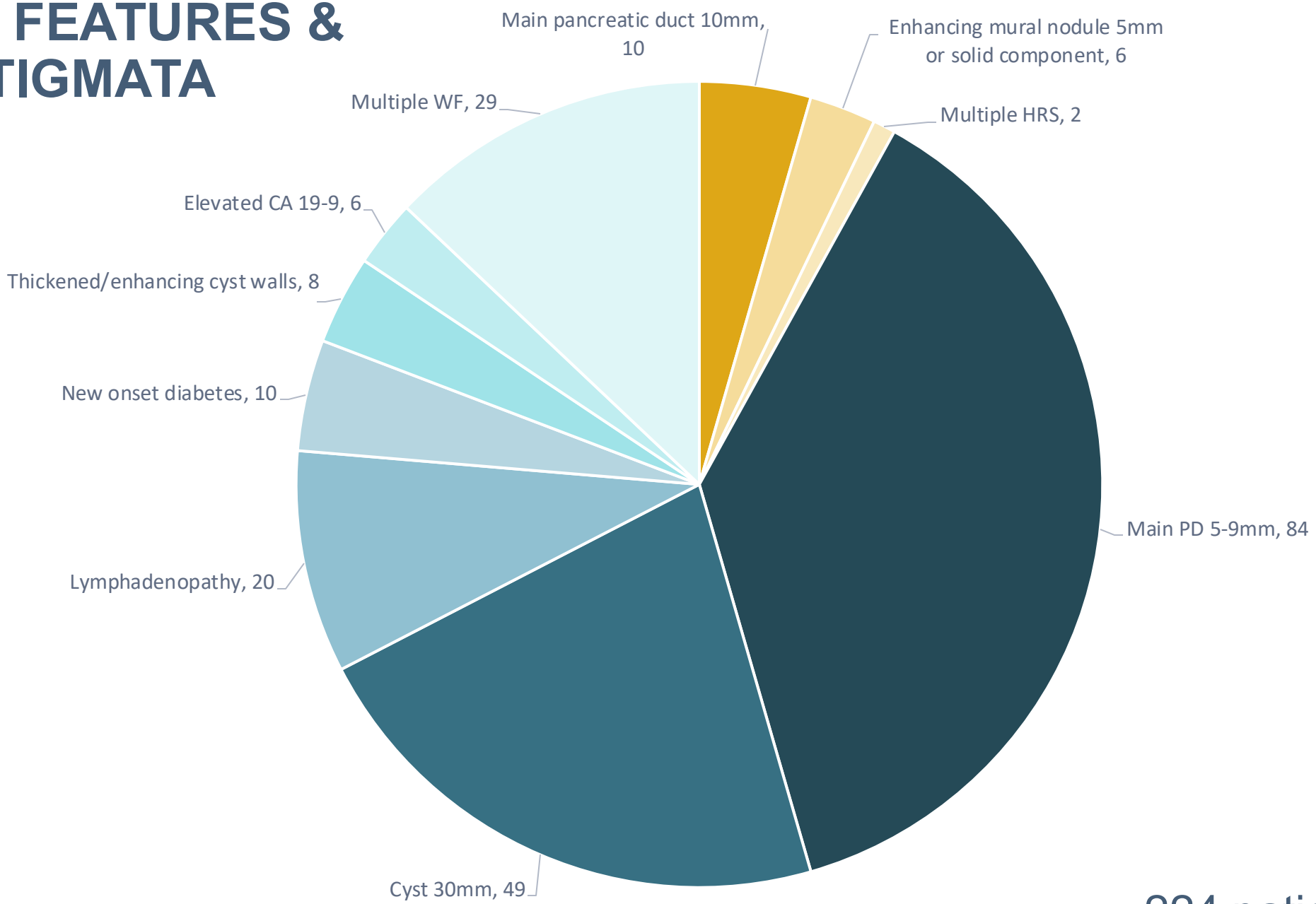
WORRISOME FEATURES & HIGH RISK STIGMATA



224 patients

GUIDELINE RECOMMENDATIONS

n=2097	Kyoto	AGA	ACR
MRI recommended	1724 (82.2%)	1708 (81.4%)	1568 (74.8%)
6 months	897 (42.8%)	0 (0.0%)	222 (10.6%)
12 months	75 (3.6%)	971 (46.3%)	637 (30.4%)
18 months	752 (35.9%)	0 (0.0%)	0 (0.0%)
24 months	0 (0.0%)	737 (35.1%)	709 (33.8%)
EUS recommended	206 (9.8%)	69 (3.3%)	381 (18.2%)
Surgery recommended	112 (5.3%)	6 (0.3%)	40 (1.9%)
Recommend stop surveillance	191 (9.1%)	207 (9.9%)	339 (16.2%)
Unable to make recommendation	73 (3.5%)	113 (5.4%)	150 (7.2%)

COST COMPARISON

	Kyoto (per patient)	AGA (per patient)	ACR (per patient)
MRCP costs	$5,511,145 ($2,723)	$5,459,998 ($2,752)	$5,012,457 ($2,574)
EUS costs	$613,925 ($303)	$205,635 ($104)	$1,135,464 ($583)
Total non-surgical costs	$6,125,070 ($3,026)	$5,665,633 ($2,856)	$6,147,921 ($3,157)

FUTURE PROOF?

As guidelines and institutional practice patterns evolve over time, the safety net code can be readily updated to match the most current guidelines:

- Plug and play capability to switch between different guidelines
- No need for manual chart review
- Patients previously compliant with old guidelines but now requiring change in management due to new guidelines can be readily identified

ACKNOWLEDGEMENTS

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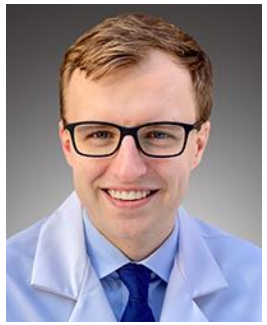

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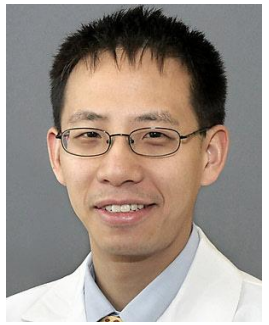

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