Understanding Suicide Rate, Risk Factors and Trends Among Head and Neck Cancer Survivors

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DISCLOSURES

- None

Background

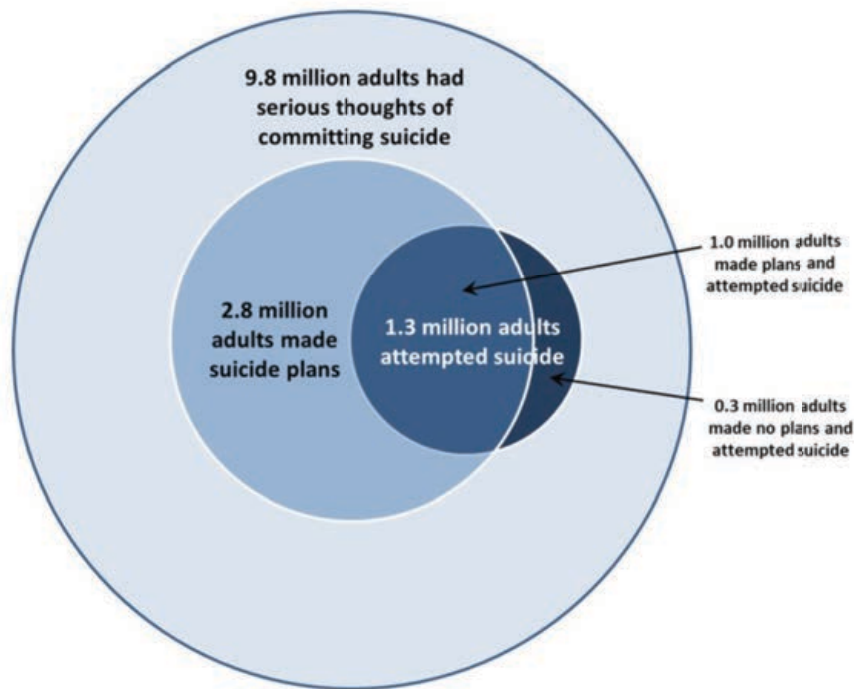# **Background**

- Suicide

Past Year Suicidal Thoughts and Behaviors Among U.S. Adults (2016)

Data Courtesy of SAMHSA

9.8 million adults had serious thoughts of committing suicide

2.8 million adults made suicide plans

1.3 million adults attempted suicide

1.0 million adults made plans and attempted suicide

0.3 million adults made no plans and attempted suicide

Suicide by Method (2016)	
Data Courtesy of CDC	
Suicide Method	**Number of Deaths**
Total	44,965
Firearm	22,963
Suffocation	11,642
Poisoning	6,698
Other	3,662

Estimated new cancer cases in the US, 2018

1,762,450
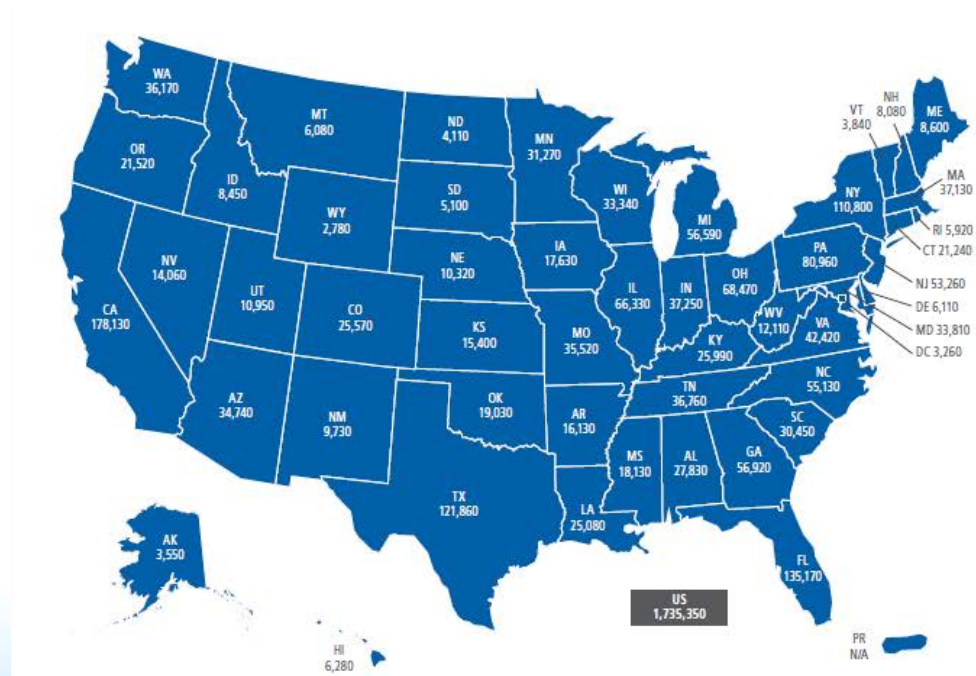
Estimated Numbers of Cancer Survivors as of January 1, 2019

16.9 million →

WA 352,830
OR 195,790
ID 70,970
MT 54,850
ND 35,390
MN 276,770
WI 288,410
MI 526,100
NY 1,029,090
VT 31,530
NH 76,990
ME 87,630
MA 402,930
RI 62,770
CT 224,290
NJ 504,050
DE 50,760
MD 254,540
DC 17,920
WY 30,370
SD 39,330
IA 172,030
NE 99,460
IL 602,890
IN 273,060
OH 536,430
PA 711,240
WV 107,520
VA 373,580
NV 120,200
UT 105,310
CO 207,460
KS 139,660
MO 275,980
KY 233,120
NC 428,800
CA 1,734,870
AZ 354,530
NM 102,100
OK 189,540
AR 131,070
TN 298,950
SC 255,110
GA 410,740
AL 223,990
MS 123,480
LA 213,580
TX 1,041,750
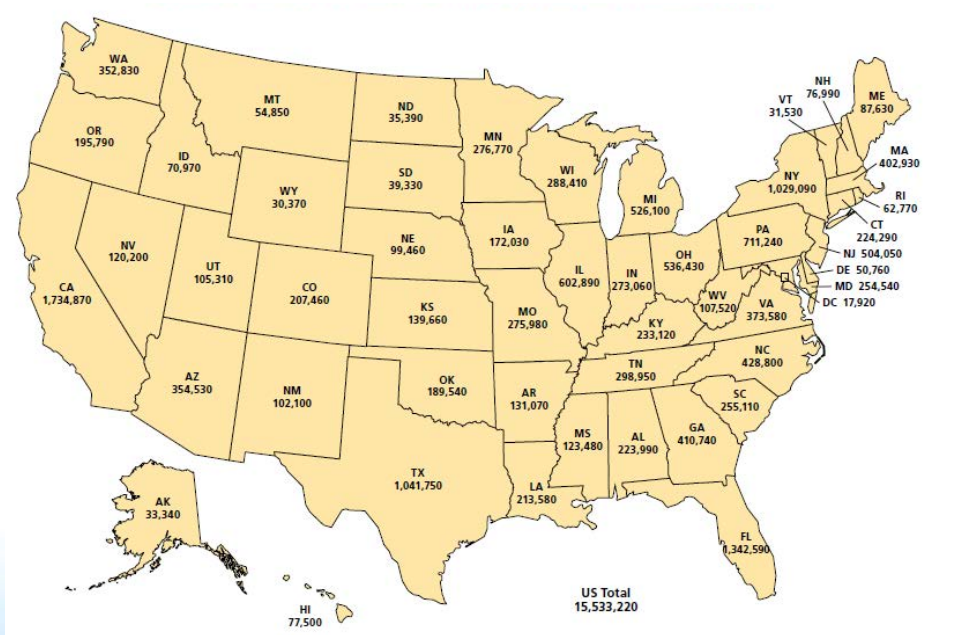AK 33,340
HI 77,500
FL 1,342,590

US Total 15,533,220

What do cancer patients die from?

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- Index cancers

- Second primaries

- Non-cancer

  competing causes:
  - Cardiovascular disease…
  - **Suicide**

CANCER-ASSOCIATED SUICIDE

- 50% greater risk than general US population

- Lifetime suicide risk

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CANCER-ASSOCIATED SUICIDE: WHY?

- Acute and late toxicities
- Unmet psychosocial needs
- Esthetics and functionality
- Pain and fear of recurrence

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WHY HEAD AND NECK CANCER?

- Depression common
- Choice between esthetics and function
- Facial disfigurement and body image issues
- Financial toxicity

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WHY THE STUDY?

JAMA Oncology

Journals ⌄   Enter Search Term

✉ February 2018

More ▽

Primary Cancer vs Competing Causes of Death in Survivors of Head and Neck Cancer

Matthew C. Simpson, MPH[1]; Sean T. Massa, MD[1]; Eric Adjei Boakye, MA[2]; Jastin L. Antisdel, MD[1]; Katherine A. Stamatakis, PhD, MPH[3]; Mark A. Varvares, MD[4]; Nosayaba Osazuwa-Peters, BDS, MPH, CHES[1]

≫ Author Affiliations

Each year post-HNC diagnosis: 26% increase in the odds of dying from competing causes

Figure. Conditional Probability Plot Showing the Time Point During Years of Follow-up When Competing Causes of Death Surpass Primary Head and Neck Cancer (HNC) as the Leading Cause of Death in the HNC Population
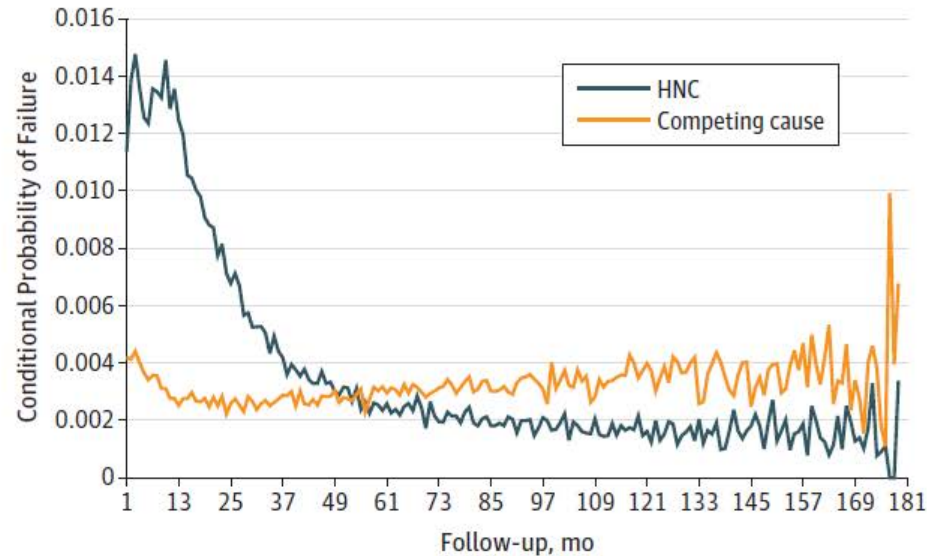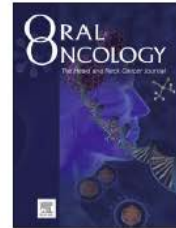

The plots cross at approximately 56 months after diagnosis.

Competing causes of death in the head and neck cancer population

Sean T. Massa [a,*], Nosayaba Osazuwa-Peters [a], Kara M. Christopher [b], Lauren D. Arnold [c], Mario Schootman [c], Ronald J. Walker [a], Mark A. Varvares [d]

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[b] Cancer Center, Saint Louis University School of Medicine, St. Louis, MO, United States
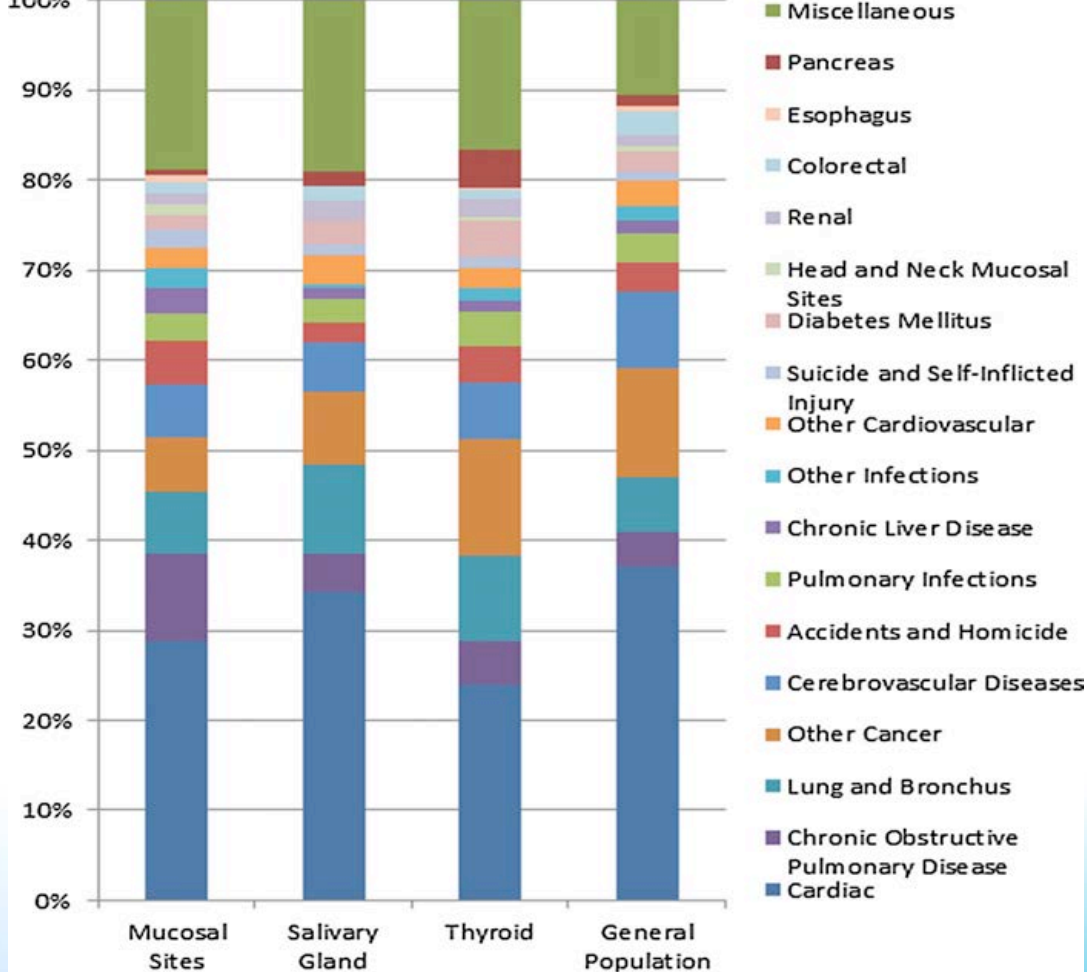[c] College for Public Health and Social Justice, Department of Epidemiology, Saint Louis University, St. Louis, MO, United States
[d] Department of Otolaryngology, Massachusetts Eye and Ear Infirmary, Harvard Medical School, Boston, MA, United States

ARTICLE INFO

ABSTRACT

Factors associated with increased risk of suicide among survivors of head and neck cancer: A population-based analysis

Nosayaba Osazuwa-Peters[a,b,c,*], Lauren D. Arnold[b,c], Travis M. Loux[c], Mark A. Varvares[d], Mario Schootman[c]

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[b] Saint Louis University Cancer Center, St. Louis, United States
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[d] Department of Otolaryngology, Massachusetts Eye and Ear Infirmary, Harvard Medical School, Boston, United States

- Male to female ratio: new cases/deaths: 3:1

- Male to female ratio: suicide in general US population: 4:1

- Male to female HNC suicide ratio: ≈ 6:1

Poisson regression relative risk model for head and neck cancer suicide, 1975–2014 ($n = 1036$).

	aRR	95% CI
Gender		
Male	5.74	3.88, 8.50
Female		Ref
HPV-relatedness[**]		
HPV-related	0.87	0.58, 1.29
Not HPV-related		Ref
Age		
≥70	2.74	1.71, 4.39
60–69	2.55	1.61, 4.04
40–59	2.16	1.37, 3.41
18–39		Ref
Race		
Hispanic	0.25	0.14, 0.43
Non-Hispanic Black	0.20	0.12, 0.33
Non-Hispanic Other	0.38	0.25, 0.56
Non-Hispanic White		Ref
Marital status		
Divorced/separated	1.30	1.00, 1.69
Never married	1.09	0.83, 1.43
Widowed	1.48	1.10, 1.99
Married		Ref

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Original Article

Suicide Risk Among Cancer Survivors: Head and Neck Versus Other Cancers

Nosayaba Osazuwa-Peters, BDS, PhD, MPH, CHES[1,2,3]; Matthew C. Simpson, MPH[1]; Longwen Zhao, MS[3]; Eric Adjei Boakye, MA, PhD(c)[4]; Stephanie I. Olomukoro, MD, MPH[5]; Teresa Deshields, PhD, ABPP[6]; Travis M. Loux, PhD[3]; Mark A. Varvares, MD, FACS[7]; and Mario Schootman, PhD[3]

BACKGROUND: Cancer survivors face psychosocial issues that increase their risk of suicide. This study examined the risk of sui
across cancer sites, with a focus on survivors of head and neck cancer (HNC). **METHODS:** The Surveillance, Epidemiology, and

- Pancreatic cancer: 86.4/100,000 PY

- Head and neck: 63.4/100,000 PY

	Cancer survivors (n=4,219,097)	Frequency of suicide (n=4,493)	Suicide mortality rate per 100,000 person-years	p-value
Cancer site (%)				<0.01
Pancreas	119108 (2.8)	93 (2.1)	86.4	
Head and Neck	151167 (3.6)	404 (9.0)	63.4	
Lung and Bronchus	572239 (13.6)	553 (12.3)	59.3	
Stomach	76225 (1.8)	81 (1.8)	48.9	
Liver	80779 (1.9)	47 (1.1)	41.1	
Urinary Bladder	184884 (4.4)	315 (7.0)	35.5	
Brain and Other Nervous System	60265 (1.4)	42 (0.9)	29.8	
Testis	30709 (0.7)	55 (1.2)	27.2	
Prostate	736360 (17.5)	1229 (27.4)	26.6	
Colon and Rectum	453390 (10.8)	495 (11.0)	25.0	
Non-Hodgkin Lymphoma	191342 (4.5)	209 (4.7)	24.7	
Melanoma of the Skin	191615 (4.5)	256 (5.7)	23.3	
Leukemia	114537 (2.7)	93 (2.1)	22.8	
Kidney and Renal Pelvis	141344 (3.4)	139 (3.1)	22.3	
Ovary (excluding certain histologies)	71596 (1.7)	39 (0.9)	15.4	
Hodgkin Lymphoma	26868 (0.6)	24 (0.5)	15.1	
Cervix Uteri	47853 (1.1)	32 (0.7)	13.3	
Thyroid	123696 (2.9)	60 (1.3)	8.4	
Female Breast	700808 (16.6)	287 (6.4)	7.0	
Corpus and Uterus, NOS	144312 (3.4)	40 (0.9)	5.3	

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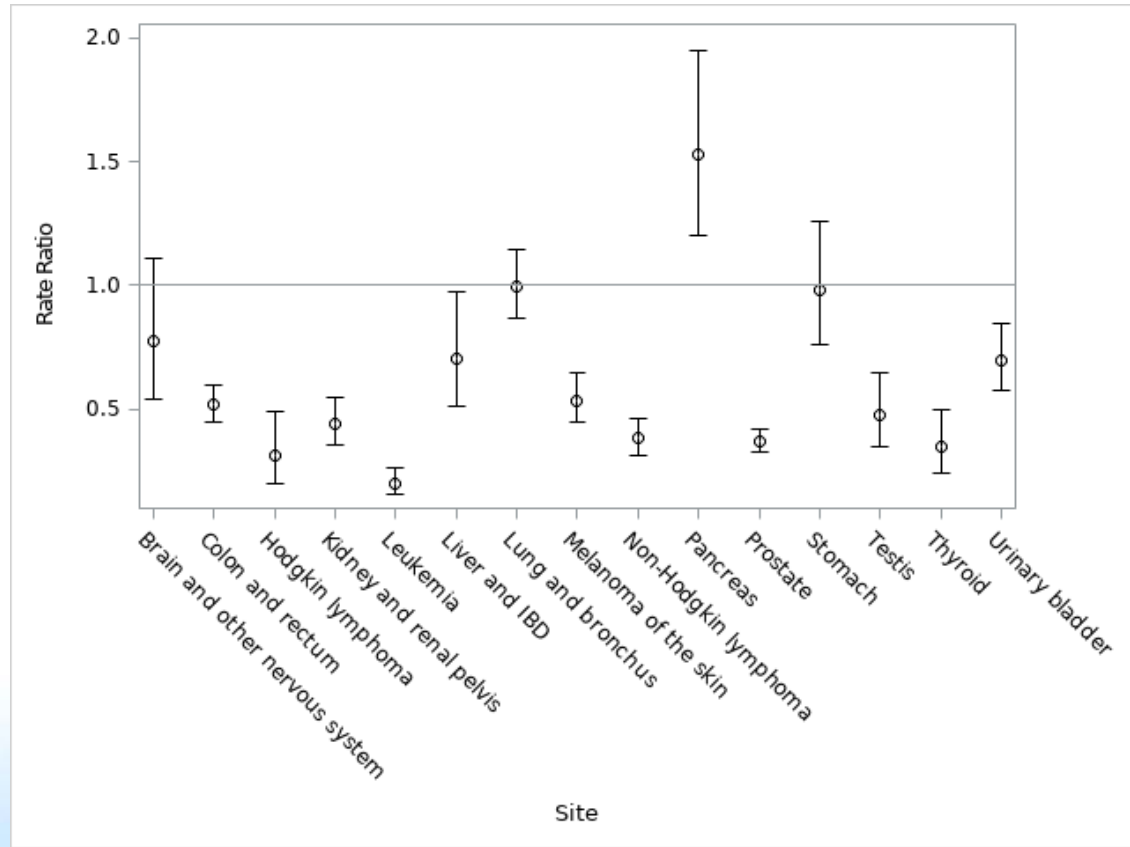MAKES EXCELLENT
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Fully adjusted model: head and neck cancer vs. all non-head and neck cancer sites combined

	Adjusted Rate Ratio (aRR)	95% Confidence Interval
Site		
Non-HNC (ref)	1.00	1.00
Head and neck cancer	1.97	1.77, 2.19
Sex		
Female (ref)	1.00	1.00
Male	5.63	5.17, 6.13

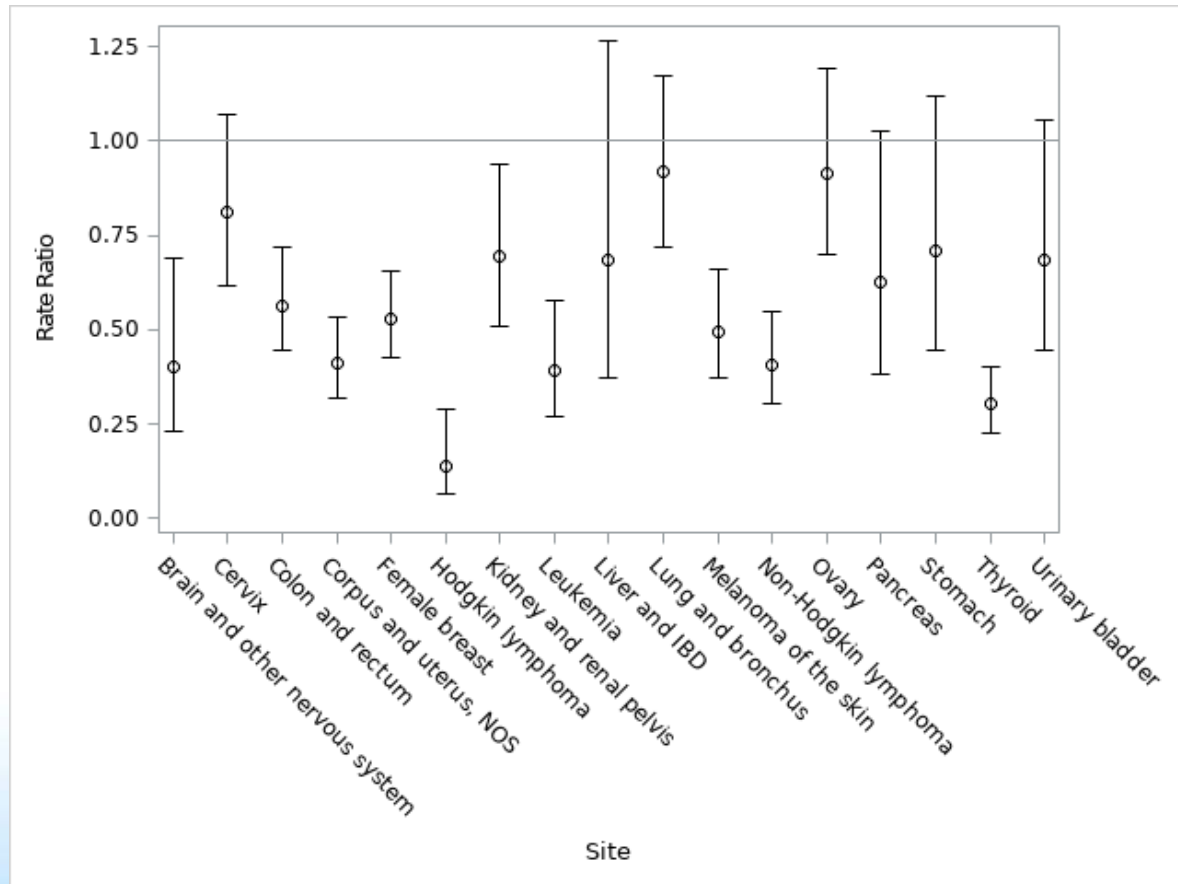Fully adjusted model: risk of suicide among male HNC survivors vs. other cancers

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Fully adjusted model: risk of suicide among female HNC survivors vs. other cancers

SUMMARY OF FINDINGS

- Pancreatic cancer (86.4/100,000 PY);
  HNC (63.4/100,000 PY)

- HNC survivors two times likelier to die by suicide than other survivors (aRR=1.97, 95% CI 1.77, 2.19)

- Only male pancreatic cancer survivors had higher suicide risk than HNC (aRR=1.53, 95% CI 1.21, 1.95)

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TAKE-HOME POINTS

- Pancreatic cancer (86.4/100,000 PY);
  HNC (63.4/100,000 PY)

- HNC survivors two times likelier to die by suicide than other survivors (aRR=1.97, 95% CI 1.77, 2.19)

- Only male pancreatic cancer survivors had higher suicide risk than HNC (aRR=1.53, 95% CI 1.21, 1.95)

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CLINICAL/PUBLIC HEALTH IMPLICATIONS

1. Provide evidence for incorporating suicide prevention clinics into the mainstream of individualized cancer survival care plan

2. Provide evidence to support including lifelong suicide surveillance in the NCCN guidelines, making it standard medical practice

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LIMITATIONS AND STRENGTHS

- Retrospective data (difficulty establishing causality)
- Difficulty delineating self-inflicted injury/suicide vs. accidents/adverse effects (potential misclassification)
- Comorbidities, e.g., depression not available in SEER
- No information on existing psychiatric conditions, family history of suicide, or use of medications
- HPV-tumor status classified through anatomic proxy

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Collaborators/Coauthors:

- Lauren D Arnold, PhD, MPH
- Matthew C Simpson, MPH
- Sean T Massa, MD
- Longwen Zhao, MS
- Eric Adjei Boakye, MA, PhD(c)
- Ronald J Walker, MD
- Kara Christopher, MS, MPH, PhD(c)
- Stephanie Olomukoro, MD, MPH
- Travis Loux, PhD
- Mario Schootman, PhD
- Mark A Varvares, MD, FACS

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THANK YOU!