

# **Evaluation of Completeness of Lymph Node Count in the North American Association of Central Cancer Registries for Selected Cancers**

**Data Assessment Work Group**

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# Background

- **Examining adequate number of regional lymph nodes is considered as a measure of quality of care for some cancers.**
  - ✓ colon cancer
  - ✓ female breast cancer
  - ✓ non-small cell lung cancer (NSCLC)
- **“Regional Nodes Examined” became a component of the Collaborative Staging System for cases diagnosed on or after January 1, 2004.**

# Background

- **The completeness of this information in population-based cancer registries is unknown.**

# Objective

- **To evaluate quality of “regional nodes examined” information for colon cancer, female breast cancer, and NSCLC in the North American Association of Central Cancer Registries (NAACCR) database.**

# Methods

- **We used NAACCR Incidence-CiNA Analytic File, 1995-2011.**
- **Inclusion criteria**
  - ✓ **First primary invasive stage I-III colon cancer, female breast cancer, and NSCLC diagnosed between 2007 and 2011 in the US cancer registries**
  - ✓ **Aged 20 years and older**
  - ✓ **Received modified radical/ radical/ extended radical mastectomy for female breast cancer**
  - ✓ **Received site-specific surgery for NSCLC and colon cancer**

# Methods

## ➤ Exclusion criteria

- ✓ Registries with 100% unknown/blank information for “regional nodes examined”
- ✓ Those who received pre-operative radiation therapy

## Methods

- **Unknown/blank information for “regional nodes examined” was determined if cases had blank or 95-99 values for “regional nodes examined”.**
  - **A total of 22 registries for female breast cancer and NSCLC, and 43 registries for colon cancer fulfilled our selection criteria.**
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# Methods

- **We analyzed percentages of unknown/blank information for “regional nodes examined” by race, diagnosis year, registry, census tract-level poverty, stage, and county-level metro/non-metro status.**

# Results

- **A total of 149,601 colon cancer, 73,911 female breast cancer, and 5,522 NSCLC cases were included.**
- **For all races combined**
  - ✓ **1.8% of female breast cancer**
  - ✓ **8.3% of NSCLC**
  - ✓ **0.8% of colon cancer cases had unknown/blank information for “regional nodes examined”**

**Table 1.** Percentage of unknown regional lymph node count for stage I-III female breast cancer, non-small cell lung cancer, and colon cancer by selected variables

<b>Variable</b>	<b>Category</b>	<b>Breast cancer</b>	<b>NSCLC</b>	<b>Colon cancer</b>
		% unknown	% unknown	% unknown
Race				
	White	1.72%	8.41%	0.79%
	Black	2.32%	7.37%	0.77%
	American Indian/Alaska Native	1.47%	20.00%	0.92%
	Asian/Pacific Islander	1.02%	8.19%	0.66%
	Unknown	2.68%	3.57%	0.85%
Diagnosis year				
	2007	1.56%	8.82%	1.08%
	2008	1.91%	7.90%	0.81%
	2009	2.00%	7.35%	0.82%
	2010	1.66%	8.45%	0.69%
	2011	1.70%	9.26%	0.48%
% below poverty				
	< 5.0%	1.59%	3.51%	0.28%
	5.0% - 9.99%	1.68%	8.60%	0.48%
	10.0% - 19.99%	1.73%	7.68%	0.81%
	20.0% +	2.10%	11.74%	1.12%
	Unknown	0.00%	25.00%	4.62%
Metro/non-metro				
	Metropolitan Counties	1.65%	8.14%	0.64%
	Nonmetropolitan Counties	2.34%	9.03%	1.39%

Abbreviations: NSCLC, non-small cell lung cancer

# Results

- **No substantial variation in percentage of unknown/blank information for “regional nodes examined” between 2007 and 2011, and stage at diagnosis for each of the three cancer types.**
  - ✓ **Colon cancer: 0.9% (stage I), 0.6%(stage II), < 1.0% (stage III)**

# Results

- **No substantial variation in percentage of unknown/blank information for “regional nodes examined” between racial groups.**
- **Registries generally had similar percentages of unknown/blank information for “regional nodes examined” for each of the three cancer types. Examples with higher percentage:**
  - ✓ **North Carolina 4.17%(BC), 9.07%(NSCC), 3.62% (CC)**
  - ✓ **South Carolina 3.48%(BC), 9.09%(NSCLC), 2.00%(CC)**

# Results

- **Cases residing in poor neighborhoods had higher percentages of unknown/blank information than cases residing in affluent neighborhoods (>20% below poverty line vs. < 5% below poverty line)**
  - ✓ **2.1% vs. 1.6% for breast cancer**
  - ✓ **11.7% vs. 3.5% for NSCLC**
  - ✓ **1.1% vs. 0.3% for colon cancer**

# Results

- **Cases reported from non-metropolitan areas had higher percentages of unknown/blank information compared with those reported from metropolitan areas (county with population > 1 million)**
  - ✓ **2.3% vs. 1.7% for breast cancer**
  - ✓ **9.0% vs. 8.1% for NSCLC**
  - ✓ **1.4% vs. 0.6% for colon cancer**

# Conclusions

- **Information on ‘regional nodes examined’ for colon cancer cases was remarkably complete and better than for NSCLC and female breast cancer cases in NAACCR database, but varied by census tract-level poverty and county-level metro/non-metro status.**

# Conclusions

- **The percentage of unknown/blank information for “regional nodes examined” varied by census tract level-poverty, especially for NSCLC from 3.5% in the most affluent area to 11.7% in the poorest area.**

Thank you