

## LUNG CANCER

*Includes Invasive and Primary Cancers Only; Does Not Include Carcinoma In Situ or Metastatic Cancer*

### Background

This case definition was developed in 2010 by the Armed Forces Health Surveillance Center (AFHSC) in collaboration with a working group of subject matter experts from the Office of the Assistant Secretary of Defense for Health Affairs (ASDHA), the United States Army Public Health Command (USAPHC) and the United States Military Cancer Institute. The definition was developed for the purpose of epidemiological surveillance of invasive cancers and was used in a June 2012 Medical Surveillance Monthly Report (MSMR) article on incident diagnoses of cancers.<sup>1</sup>

### Clinical Description

Lung cancer is a malignancy that forms in the tissues of the lung, usually in the cells lining air passages. It is estimated to be the leading cause of cancer death and the second leading cause of new cancer cases in both men and women in the United States for 2012.<sup>2</sup> Cigarette smoking is the most common cause of lung cancer; additional causes include other types of tobacco use, breathing and inhalation of second hand smoke, exposure to asbestos or radon, and heredity.<sup>3</sup>

### Case Definition and Incidence Rules

For surveillance purposes, a case of lung cancer is defined as:

- *One hospitalization* with any of the defining diagnoses of lung cancer (see ICD9 and ICD10 code lists below) in the *primary* diagnostic position; or
- *One hospitalization with a V-code* indicating a radiotherapy, chemotherapy, or immunotherapy treatment procedure (see ICD9 and ICD10 code lists below) in the *primary* diagnostic position; AND any of the defining diagnoses of lung cancer (see ICD9 and ICD10 code lists below) in the *secondary* diagnostic position; or
- *Three or more outpatient medical encounters*, occurring *within a 90-day period*, with any of the defining diagnoses of lung cancer (see ICD9 code list below) in the *primary* or *secondary* diagnostic position.

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<sup>1</sup> Armed Forces Health Surveillance Center. Incident Diagnoses of Cancers and Cancer-related Deaths, Active Component, U.S. Armed Forces, 2000-2011. *Medical Surveillance Monthly Report (MSMR)*. 2012 June; 19(6): 18-22.

<sup>2</sup> American Cancer Society. Cancer Facts & Figures 2012. Atlanta: American Cancer Society; 2012. See <http://www.cancer.org/research/cancerfactsstatistics/cancerfactsfigures2015/index>. Accessed August 2015.

<sup>3</sup> Alberg AJ, Ford FG, Samet JM. Epidemiology of lung cancer: ACCP evidence-based clinical practice guidelines (2<sup>nd</sup> edition). *Chest* 2007; 132 (3 Suppl): 29S-55S.



### Case Definition and Incidence Rules *(continued)*

#### Incidence rules:

For individuals who meet the case definition:

- The incidence date is considered the date of the first hospitalization or outpatient medical encounter that includes a defining diagnosis of lung cancer.
- An individual is considered an incident case only *once per lifetime*.

#### Exclusions:

- None

### Codes

The following ICD9 codes are included in the case definition:

Condition	ICD-10-CM Codes	ICD-9-CM Codes
Lung cancer	<i>C34 (malignant neoplasm of bronchus and lung)</i>	<i>162 (malignant neoplasm of lung and bronchus)</i>
	C34.0 (malignant neoplasm of main bronchus)	162.2 (malignant neoplasm of main bronchus)
	- C34.00 (malignant neoplasm of <i>unspecified</i> main bronchus)	
	- C34.01 (malignant neoplasm of <i>right</i> main bronchus)	
	- C34.02 (malignant neoplasm of <i>left</i> main bronchus)	
	C34.1 (malignant neoplasm of upper lobe, bronchus or lung)	162.3 (malignant neoplasm of upper lobe, bronchus or lung)
	- C34.10 (malignant neoplasm of upper lobe, <i>unspecified</i> bronchus or lung)	
	- C34.11 (malignant neoplasm of upper lobe, <i>right</i> bronchus or lung)	
	- C34.12 (malignant neoplasm of upper lobe, <i>left</i> bronchus or lung)	
	C34.2 (malignant neoplasm of middle lobe, bronchus or lung)	162.4 (malignant neoplasm of middle lobe, bronchus or lung)
		<i>(continued on next page)</i>



	C34.3 (malignant neoplasm of lower lobe, unspecified bronchus or lung)	162.5 malignant neoplasm of (lower lobe, bronchus or lung)
	- C34.30 (malignant neoplasm of lower lobe, <i>unspecified</i> bronchus or lung)	
	- C34.31 (malignant neoplasm of lower lobe, <i>right</i> bronchus or lung)	
	- C34.32 (malignant neoplasm of lower lobe, <i>left</i> bronchus or lung)	
	C34.8 (malignant neoplasm of overlapping sites of bronchus and lung)	162.8 (malignant neoplasm of other parts of bronchus or lung)
	- C34.80 (malignant neoplasm of overlapping sites of <i>unspecified</i> bronchus and lung)	
	- C34.81 (malignant neoplasm of overlapping sites of <i>right</i> bronchus and lung)	
	- C34.82 (malignant neoplasm of overlapping sites of <i>left</i> bronchus and lung)	
	C34.9 (malignant neoplasm of unspecified part of bronchus or lung)	162.9 (malignant neoplasm of bronchus and lung, unspecified)
	- C34.90 (malignant neoplasm of unspecified part of <i>unspecified</i> bronchus or lung)	
	- C34.90 (malignant neoplasm of unspecified part of <i>right</i> bronchus or lung)	
	- C34.90 (malignant neoplasm of unspecified part of <i>left</i> bronchus or lung)	

Procedures	ICD-10-CM Codes	ICD-9-CM Codes
Related treatment procedures  (Radiotherapy, chemotherapy, immunotherapy)	Z51.0 (encounter for antineoplastic radiation therapy)	V58.0 (radiotherapy)
	Z51.1 (encounter for antineoplastic chemotherapy and immunotherapy)	V58.1 (encounter for chemotherapy and immunotherapy for neoplastic conditions)
	- Z51.11 (encounter for antineoplastic chemotherapy)	V58.11 (encounter for antineoplastic chemotherapy)
	- Z51.12 (encounter for antineoplastic immunotherapy)	V58.12 (encounter for antineoplastic immunotherapy)



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## Development and Revisions

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- In September of 2015 the case definition was updated to include ICD10 codes.
- This case definition was developed in 2010 by the Armed Forces Health Surveillance Center (AFHSC) in collaboration with a working group of subject matter experts. The definition was developed based on expert consensus opinion, reviews of the ICD9 codes, the scientific literature, and previous AFHSC analyses.

### *Case Definition and Incidence Rule Rationale*

- This case definition is designed to capture cases of *invasive* lung cancer only. Carcinoma in situ is not included in this definition.
- This case definition is designed to capture cases of *primary* lung cancer only. Metastatic cancers are not included in this case definition.
- Case finding criteria for this definition requires one hospitalization record with a case-defining ICD9 or ICD10 code for lung cancer in the *primary* diagnostic position *unless* a code for a related treatment procedure is in the primary diagnostic position; then the case-defining ICD9 or ICD10 code for lung cancer is allowed in the *secondary* diagnostic position.
- The case finding criterion of *three or more outpatient medical encounters, within a 90-day period*, with a defining diagnosis of lung cancer is used to identify cases that do not meet the other criteria in the definition. Exploratory analysis of the Defense Medical Surveillance System (DMSS) data revealed that this criterion yielded optimal specificity.<sup>4</sup> The period of 90 days was established to allow for the likelihood that “true” cases of lung cancer would have second and third encounters within that interval.
- This case definition was developed for a report on ten different invasive cancers. As such, the same case finding criteria are used for all types of cancer in the report. This broad application of a single case definition may affect the sensitivity and specificity in varying ways for the individual cancers. Furthermore, surgical treatment procedures such as hysterectomy, mastectomy, prostatectomy, and other procedures unique to certain types of cancer are not included in the code set for individual cancers.

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## Reports

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AFHSC reports on lung cancer in the following reports:

- Periodic MSMR articles on cancers and cancer-related deaths.

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## Review

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Sep 2015	Case definition reviewed and updated by the AFHSC Surveillance Methods and Standards (SMS) working group.
Sept 2012	Case definition reviewed and adopted by the AFHSC Surveillance Methods and Standards (SMS) working group.
June 2012	Case definition reviewed and adopted by the AFHSC MSMR staff.

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<sup>4</sup> Detailed information on this analysis is available through AFHSC MSMR staff; reference DMSS Requests #R080127, #R080159, #R090184, #R090302, #R090341, #R100181, and #R100303 (DoD Cancer Incidence), 2008-2009.



**Comments**

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