

BREAST CANCER

Includes Invasive Cancers Only; Does Not Include Ductal Carcinoma In Situ (DCIS), Lobular Carcinoma In Situ (LCIS) and Male Breast Cancer

Background

This case definition was developed by the Armed Forces Health Surveillance Branch (AFHSB) for the purpose of descriptive epidemiological reports on invasive cancers among active duty Service members.¹

Clinical Description

Breast cancer forms in the tissues of the breast, most commonly in the ducts and lobules. After skin cancer, breast cancer is the most common type of cancer among women in the United States and the second leading cause of cancer deaths (after lung cancer). When the breast cancer tumor is small and is producing no symptoms, the prospects for successful treatment and cure are highest. For this reason, early detection through mammography is strongly recommended. A family history of breast cancer and the presence of certain genetic mutations carry an increased risk, but most women who develop breast cancer have neither of these factors. Other risk factors for breast cancer include advancing age, overweight or obesity, use of menopausal hormone therapy, physical inactivity, and alcohol consumption. Treatment of breast cancer may involve surgery, radiotherapy, chemotherapy, and hormone therapy.²

Case Definition and Incidence Rules

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

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

Incidence rules:

For individuals who meet the case definition:

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¹ Armed Forces Health Surveillance Center. Incident diagnoses of cancers and cancer-related deaths, active component, U.S. Armed Forces, 2005-2014. *Medical Surveillance Monthly Report (MSMR)*. 2016 July; 23(7): 23-31.

² American Cancer Society. Cancer Facts & Figures 2019. Atlanta: American Cancer Society; 2019. <https://www.cancer.org/research/cancer-facts-statistics/all-cancer-facts-figures/cancer-facts-figures-2019.html>. Accessed July 2019.



Case Definition and Incidence Rules *(continued)*

- The incidence date is considered the date of the first hospitalization or the first of the three or more outpatient medical encounters occurring within a 90-day period that includes a case defining diagnosis of breast cancer (see *Case Definition and Incidence Rule Rationale*).
- An individual is considered an incident case only *once per lifetime*.

Exclusions:

- None

Codes

The following ICD9 and ICD10 codes are included in the case definition:

Condition	ICD-10-CM Codes	ICD-9-CM Codes
Breast cancer	<i>C50 (malignant neoplasm of breast)</i>	<i>174 (malignant neoplasm of female breast)</i>
	C50.01 (malignant neoplasm of nipple and areola, female)	174.0 (malignant neoplasm of nipple and areola, female breast)
	- C50.011 (malignant neoplasm of nipple and areola, <i>right</i> female breast)	
	- C50.012 (malignant neoplasm of nipple and areola, <i>left</i> female breast)	
	- C50.019 (malignant neoplasm of nipple and areola, <i>unspecified</i> female breast)	
	C50.11 (malignant neoplasm of central portion of breast, female)	174.1 (malignant neoplasm of central portion of female breast)
	- C50.111 (malignant neoplasm of central portion of <i>right</i> female breast)	
	- C50.112 (malignant neoplasm of central portion of <i>left</i> female breast)	
	- C50.119 (malignant neoplasm of central portion of <i>unspecified</i> female breast)	
	C50.21 (malignant neoplasm of upper-inner quadrant of breast, female)	174.2 (malignant neoplasm of upper-inner quadrant)
	- C50.211 (malignant neoplasm of upper-inner quadrant of <i>right</i> female breast)	
	- C50.212 (malignant neoplasm of upper-inner quadrant of <i>left</i> female breast)	



- C50.219 (malignant neoplasm of upper-inner quadrant of <i>unspecified</i> female breast)	
C50.31 (malignant neoplasm of lower-inner quadrant of breast, female)	174.3 (malignant neoplasm of lower-inner quadrant)
- C50.311 (malignant neoplasm of lower-inner quadrant of <i>right</i> female breast)	
- C50.312 (malignant neoplasm of lower-inner quadrant of <i>left</i> female breast)	
- C50.319 (malignant neoplasm of lower-inner quadrant of <i>unspecified</i> female breast)	
C50.41 (malignant neoplasm of upper-outer quadrant of breast, female)	174.4 (malignant neoplasm of upper-outer quadrant)
- C50.411 (malignant neoplasm of upper-outer quadrant of <i>right</i> female breast)	
- C50.411 (malignant neoplasm of upper-outer quadrant of <i>left</i> female breast)	
- C50.419 (malignant neoplasm of upper-outer quadrant of <i>unspecified</i> female breast)	
C50.51 (malignant neoplasm of lower-outer quadrant breast, female)	174.5 (malignant neoplasm of lower-outer quadrant)
- C50.511 (malignant neoplasm of lower-outer quadrant of <i>right</i> female breast)	
- C50.512 (malignant neoplasm of lower-outer quadrant of <i>left</i> female breast)	
- C50.519 (malignant neoplasm of lower-outer quadrant of <i>unspecified</i> female breast)	
C50.61 (malignant neoplasm of axillary tail of breast, female)	174.6 (malignant neoplasm of axillary tail)
- C50.611 (malignant neoplasm of axillary tail of <i>right</i> female breast)	
- C50.611 (malignant neoplasm of axillary tail of <i>left</i> female breast)	
- C50.619 (malignant neoplasm of axillary tail of <i>unspecified</i> female breast)	
C50.81 (malignant neoplasm of overlapping sites of breast, female)	174.8 (malignant neoplasm of other specified sites of female breast)
- C50.811 (malignant neoplasm of overlapping sites of <i>right</i> female breast)	(continued on next page)



	- C50.812 (malignant neoplasm of overlapping sites of <i>left</i> female breast)	
	- C50.819 (malignant neoplasm of overlapping sites of unspecified female breast)	
	C50.91 (malignant neoplasm of breast of <i>unspecified</i> site, female)	174.9 (malignant neoplasm of breast, female, unspecified)
	- C50.911 (malignant neoplasm of unspecified site of <i>right</i> female breast)	
	- C50.912 (malignant neoplasm of unspecified site of <i>left</i> female breast)	
	- C50.919 (malignant neoplasm of unspecified site of <i>unspecified</i> female breast)	

Procedures	ICD-10-CM Codes	ICD-9-CM Codes
Related treatment procedures	Z51.0 (encounter for antineoplastic radiation therapy)	V58.0 (radiotherapy)
<i>(Radiotherapy, chemotherapy, immunotherapy)</i>	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)

Development and Revisions

- 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 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 case definition was developed based on reviews of the ICD9 codes, the scientific literature, and previous AFHSC analyses.
- 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 sets for individual cancers.



Case Definition and Incidence Rule Rationale

- This case definition is designed to capture cases of *invasive* female breast cancer only. Codes ICD9 233.0 (carcinoma in situ of breast and genitourinary system) / ICD10 D05.90 (unspecified type of carcinoma in situ of unspecified breast) which includes ductal carcinoma in situ (DCIS) and lobular carcinoma in situ (LCIS) are not included in the code set. Carcinoma in situ represents approximately 20% of new breast cancer cases and has different prognoses and treatments than invasive breast cancer.² Because DCIS and LCIS can progress to invasive cancer, women with these diagnoses should be carefully monitored for progression.²
- Case finding criteria for this definition requires one hospitalization record with a case-defining ICD9 or ICD10 code for breast cancer in the *first* diagnostic position *unless* a code for a related treatment procedure is in the *first* diagnostic position; then the case-defining ICD9 or ICD10 code for breast cancer is allowed in the *second* diagnostic position.
- The case finding criterion of *three or more outpatient medical encounters, within a 90-day period*, with a case defining diagnosis of breast cancer is used to identify cases that do not meet the other criteria in the definition. For outpatient encounters, the incident date is considered the first of the three encounters occurring within the 90-day period (e.g., if a woman has four breast cancer codes on 1 Jan 12, 1 Dec 15, 8 Dec 15, and 15 Dec 15, the incident date would be 1 Dec 15. 1 Jan 12 would be considered a screening encounter and dropped). Exploratory analysis of the Defense Medical Surveillance System (DMSS) data revealed that this criterion yielded optimal specificity.³ The period of 90 days was established to allow for the likelihood that “true” cases of breast cancer would have second and third encounters within that interval.
- For the purposes of counting new incident cases, AFHSB uses a once per lifetime incidence rule unless a specific timeframe is more appropriate and is specified (e.g., individuals may be counted as an incident case once every 365 days). Historically, a "once per surveillance period" incidence rule was used due to limited data in the Defense Medical Surveillance System (DMSS), but that is no longer necessary.

Reports

AFHSB reports on female breast cancer in the following reports:

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

Review

Aug 2019	Case definition reviewed and updated by the AFHSB Surveillance Methods and Standards (SMS) working group.
Sep 2015	Case definition reviewed and updated by the AFHSC Surveillance Methods and Standards (SMS) working group.
Dec 2012	Case definition reviewed and adopted by the AFHSC Surveillance Methods and Standards (SMS) working group.
Jun 2012	Case definition reviewed and adopted by the AFHSC <i>MSMR</i> staff.

³ Detailed information on this analysis is available through AFHSB *MSMR* staff; reference DMSS Requests #R080127, #R080159, #R090184, #R090302, #R090341, #R100181, and #R100303 (DoD Cancer Incidence), 2008-2009.



Comments

None

