

## HODGKIN LYMPHOMA

### Background

This case definition was developed by the Armed Forces Health Surveillance Division (AFHSD) for the purpose of descriptive epidemiological reports on invasive cancers among active duty Service members.<sup>1</sup> The case definition uses the “standard” AFHSD oncology case definition.

### Clinical Description

Hodgkin lymphoma (HL), previously known as Hodgkin’s disease, is a rare group of blood cancers that affect the lymphatic system. The condition typically presents in young adults with painless cervical or above diaphragmatic lymphadenopathy. Unexplained weight loss, high fevers, and night sweats may be present. Definitive diagnosis requires a lymph node or organ biopsy which typically reveals large mononuclear Hodgkin and multinucleated Reed-Sternberg cells, neoplastic inflammatory cells and T lymphocytes. There are two distinct categories of HL: classical HL which accounts for approximately 95 percent of HL and nodular lymphocyte-predominate HL.<sup>2</sup> The exact etiology is the disease is unknown; however, there is an increased risk of disease in individuals with Epstein-Barr and human immunodeficiency virus. Treatment depends upon histology, disease stage and specific prognostic factors, (i.e., age >45 yrs., stage IV-disease, male gender, WBC >15,000/ml, lymphocyte < 600/ml, albumin <4.0g/dL and hemoglobin < 10.5g/dL). The goal of treatment is cure and the prognosis is good with a 5-year overall survival for stage 1 or 2a of approximately 90 percent.<sup>3</sup>

### Case Definition and Incidence Rules (March 2025 - present)

For surveillance purposes, a case of Hodgkin lymphoma is defined as:

- *One hospitalization with a case defining diagnosis of Hodgkin lymphoma (see ICD9 and ICD10 code lists below) in the first diagnostic position; or*
- *One hospitalization with a procedure code indicating radiotherapy, chemotherapy, or immunotherapy treatment (see ICD9 and ICD10 code lists below) in the first diagnostic position; AND a case defining diagnosis of Hodgkin lymphoma (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 a case defining diagnosis of Hodgkin lymphoma (see ICD9 and ICD10 code list below) in the first or second diagnostic position.*

#### *Incidence rules:*

- For individuals who meet the case definition:

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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, 2005-2014. *MSMR* 2016; July; 23(7): 23-31.

<sup>2</sup> American Cancer Society. Cancer Facts & Figures 2024. Available at: <https://www.cancer.org/research/cancer-facts-statistics.html>. Accessed March 2025.

<sup>3</sup> Kaseb H, Babiker HM. Hodgkin Lymphoma. [Updated 2023 Jun 26]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK499969>. Accessed March 2025.



### Case Definition and Incidence Rules (continued)

- The incidence date is considered the date of the first hospitalization or outpatient medical encounter that includes a case defining diagnosis of Hodgkin lymphoma.
- An individual is considered an incident case *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
Hodgkin lymphoma	<i>C81 (Hodgkin lymphoma)</i>	<i>201 (Hodgkin's disease)</i>
	<i>C81.0 (nodular lymphocyte predominant Hodgkin lymphoma...)</i>	<i>201.4 (Hodgkin's disease, lymphocytic-histiocytic predominance...)</i>
	- C81.00 (unspecified site)	- 201.40 (unspecified site, extranodal and solid organ sites.)
	- C81.01 (lymph nodes of head, face and neck)	- 201.41 (lymph nodes of head, face and neck)
	- C81.02 (intrathoracic lymph nodes)	- 201.42 (intrathoracic lymph nodes)
	- C81.03 (intra-abdominal lymph nodes)	- 201.43 (intra-abdominal lymph nodes)
	- C81.04 (lymph nodes of axilla and upper limb)	- 201.44 (lymph nodes of axilla and upper limb)
	- C81.05 (lymph nodes of inguinal region and lower limb)	- 201.45 (lymph nodes of inguinal region and lower limb)
	- C81.06 (intrapelvic lymph nodes)	- 201.46 (intrapelvic lymph nodes)
	- C81.07 (spleen)	- 201.47 (spleen)
	- C81.08 (lymph nodes of multiple sites)	- 201.48 (lymph nodes of multiple sites)
	- C81.09 (extranodal and solid organ sites)	- 201.40 (above)
	- C81.0A (in remission); <i>new 2025</i>	<i>No data available to convert ICD10 codes added after 2018.</i>
	<i>C81.1 (nodular sclerosis Hodgkin lymphoma...)</i>	<i>201.5 (Hodgkin's disease, nodular sclerosis...)</i>

*(continued on next page)*



	<ul style="list-style-type: none"> <li>- C81.10 (unspecified site)</li> <li>- C81.11 (lymph nodes of head, face and neck)</li> <li>- C81.12 (intrathoracic lymph nodes)</li> <li>- C81.13 (intra-abdominal lymph nodes)</li> <li>- C81.14 (lymph nodes of axilla and upper limb)</li> <li>- C81.15 (lymph nodes of inguinal region and lower limb)</li> <li>- C81.16 (intrapelvic lymph nodes)</li> <li>- C81.17 (spleen)</li> <li>- C81.18 (lymph nodes of multiple sites)</li> <li>- C81.19 (extranodal and solid organ sites)</li> <li>- C81.1A (in remission); <i>new 2025</i></li> </ul>	<ul style="list-style-type: none"> <li>- 201.50 (unspecified site, extranodal and solid organ sites.)</li> <li>- 201.51 (lymph nodes of head, face and neck)</li> <li>- 201.52 (intrathoracic lymph nodes)</li> <li>- 201.53 (intra-abdominal lymph nodes)</li> <li>- 201.54 (lymph nodes of axilla and upper limb)</li> <li>- 201.55 (lymph nodes of inguinal region and lower limb)</li> <li>- 201.56 (intrapelvic lymph nodes)</li> <li>- 201.57 (spleen)</li> <li>- 201.58 (lymph nodes of multiple sites)</li> <li>- 201.50 (above)</li> </ul> <p><i>No data available to convert ICD10 codes added after 2018.</i></p>
	<i>C81.2 (mixed cellularity Hodgkin lymphoma...)</i>	<i>201.6 (Hodgkin's disease, mixed cellularity...)</i>
	<ul style="list-style-type: none"> <li>- C81.20 (unspecified site)</li> <li>- C81.21 (lymph nodes of head, face and neck)</li> <li>- C81.22 (intrathoracic lymph nodes)</li> <li>- C81.23 (intra-abdominal lymph nodes)</li> <li>- C81.24 (lymph nodes of axilla and upper limb)</li> <li>- C81.25 (lymph nodes of inguinal region and lower limb)</li> <li>- C81.26 (intrapelvic lymph nodes)</li> <li>- C81.27 (spleen)</li> <li>- C81.28 (lymph nodes of multiple sites)</li> <li>- C81.29 (extranodal and solid organ sites)</li> <li>- C81.2A (in remission); <i>new 2025</i></li> </ul>	<ul style="list-style-type: none"> <li>- 201.60 (unspecified site, extranodal and solid organ sites.)</li> <li>- 201.61 (lymph nodes of head, face and neck)</li> <li>- 201.62 (intrathoracic lymph nodes)</li> <li>- 201.63 (intra-abdominal lymph nodes)</li> <li>- 201.64 (lymph nodes of axilla and upper limb)</li> <li>- 201.65 (lymph nodes of inguinal region and lower limb)</li> <li>- 201.66 (intrapelvic lymph nodes)</li> <li>- 201.67 (spleen)</li> <li>- 201.68 (lymph nodes of multiple sites)</li> <li>- 201.60 (above)</li> </ul> <p><i>No data available to convert ICD10 codes added after 2018.</i></p>
	<i>C81.3 (lymphocyte depleted Hodgkin lymphoma...)</i>	<i>201.7 (Hodgkin's disease, lymphocytic depletion...)</i> <i>(continued on next page)</i>



	<ul style="list-style-type: none"> <li>- C81.30 (unspecified site)</li> <li>- C81.31 (lymph nodes of head, face and neck)</li> <li>- C81.32 (intrathoracic lymph nodes)</li> <li>- C81.33 (intra-abdominal lymph nodes)</li> <li>- C81.34 (lymph nodes of axilla and upper limb)</li> <li>- C81.35 (lymph nodes of inguinal region and lower limb)</li> <li>- C81.36 (intrapelvic lymph nodes)</li> <li>- C81.37 (spleen)</li> <li>- C81.38 (lymph nodes of multiple sites)</li> <li>- C81.39 (extranodal and solid organ sites)</li> <li>- C81.3A (in remission); <i>new 2025</i></li> </ul>	<ul style="list-style-type: none"> <li>- 201.70 (unspecified site, extranodal and solid organ sites.)</li> <li>- 201.71 (lymph nodes of head, face and neck)</li> <li>- 201.72 (intrathoracic lymph nodes)</li> <li>- 201.73 (intra-abdominal lymph nodes)</li> <li>- 201.74 (lymph nodes of axilla and upper limb)</li> <li>- 201.75 (lymph nodes of inguinal region and lower limb)</li> <li>- 201.76 (intrapelvic lymph nodes)</li> <li>- 201.77 (spleen)</li> <li>- 201.78 (lymph nodes of multiple sites)</li> <li>- 201.70 (above)</li> </ul>
	<p><i>C81.4 (lymphocyte-rich Hodgkin lymphoma...)</i></p> <ul style="list-style-type: none"> <li>- C81.40 (unspecified site)</li> <li>- C81.41 (lymph nodes of head, face and neck)</li> <li>- C81.42 (intrathoracic lymph nodes)</li> <li>- C81.43 (intra-abdominal lymph nodes)</li> <li>- C81.44 (lymph nodes of axilla and upper limb)</li> <li>- C81.45 (lymph nodes of inguinal region and lower limb)</li> <li>- C81.46 (intrapelvic lymph nodes)</li> <li>- C81.47 (spleen)</li> <li>- C81.48 (lymph nodes of multiple sites)</li> <li>- C81.49 (extranodal and solid organ sites)</li> <li>- C81.4A (in remission); <i>new 2025</i></li> </ul>	<p>201.4[0-8] (above)</p>
		<p><i>No data available to convert ICD10 codes added after 2018.</i></p> <p><i>(continued on next page)</i></p>



	<i>C81.7 (other Hodgkin lymphoma...)</i>	<i>201.0 (Hodgkin's paragranuloma...)</i> <i>201.1 (Hodgkin's granuloma...)</i> <i>201.2 (Hodgkin's sarcoma...)</i>
-	C81.70 (unspecified site)	- 201.[00,10,20] (unspecified site, extranodal and solid organ sites.)
-	C81.71 (lymph nodes of head, face and neck)	- 201.[01,11,21] (lymph nodes of head, face and neck)
-	C81.72 (intrathoracic lymph nodes)	- 201.[02,12,22] (intrathoracic lymph nodes)
-	C81.73 (intra-abdominal lymph nodes)	- 201.[03,13,23] (intra-abdominal lymph nodes)
-	C81.74 (lymph nodes of axilla and upper limb)	- 201.[04,14,24] (lymph nodes of axilla and upper limb)
-	C81.75 (lymph nodes of inguinal region and lower limb)	- 201.[05,15,25] (lymph nodes of inguinal region and lower limb)
-	C81.76 (intrapelvic lymph nodes)	- 201.[06,16,26] (intrapelvic lymph nodes)
-	C81.77 (spleen)	- 201.[07,17,27] (spleen)
-	C81.78 (lymph nodes of multiple sites)	- 201.[08,18,28] (lymph nodes of multiple sites)
-	C81.79 (extranodal and solid organ sites)	- 201.[00,10,20] (above)
-	C81.7A (in remission); <i>new 2025</i>	<i>No data available to convert ICD10 codes added after 2018.</i>
	<i>C81.9 (Hodgkin lymphoma, unspecified...)</i>	<i>201.9 (Hodgkin's disease, unspecified type...)</i>
-	C81.90 (unspecified site)	- 201.90 (unspecified site, extranodal and solid organ sites.)
-	C81.91 (lymph nodes of head, face and neck)	- 201.91 (lymph nodes of head, face and neck)
-	C81.92 (intrathoracic lymph nodes)	- 201.92 (intrathoracic lymph nodes)
-	C81.93 (intra-abdominal lymph nodes)	- 201.93 (intra-abdominal lymph nodes)
-	C81.94 (lymph nodes of axilla and upper limb)	- 201.94 (lymph nodes of axilla and upper limb)
-	C81.95 (lymph nodes of inguinal region and lower limb)	- 201.95 (lymph nodes of inguinal region and lower limb)
-	C81.96 (intrapelvic lymph nodes)	- 201.96 (intrapelvic lymph nodes)
-	C81.97 (spleen)	- 201.97 (spleen)
-	C81.98 (lymph nodes of multiple sites)	- 201.98 (lymph nodes of multiple sites) <i>(continued on next page)</i>



	<ul style="list-style-type: none"> <li>- C81.99 (extranodal and solid organ sites)</li> </ul>	<ul style="list-style-type: none"> <li>- 201.90 (above)</li> </ul>
	<ul style="list-style-type: none"> <li>- C81.9A (in remission); <i>new 2025</i></li> </ul>	<i>No data available to convert ICD10 codes added after 2018</i>

Procedures	ICD-10-CM Codes	ICD-9-CM Codes
<i>Related treatment procedures (Radiotherapy, chemotherapy, immunotherapy)</i>	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)
	<ul style="list-style-type: none"> <li>- Z51.11 (encounter for antineoplastic chemotherapy)</li> </ul>	<ul style="list-style-type: none"> <li>- V58.11 (encounter for antineoplastic chemotherapy)</li> </ul>
	<ul style="list-style-type: none"> <li>- Z51.12 (encounter for antineoplastic immunotherapy)</li> </ul>	<ul style="list-style-type: none"> <li>- V58.12 (encounter for antineoplastic immunotherapy)</li> </ul>

## Development and Revisions

- This case definition was developed in March 2025 by the Defense Health Agency (DHA) Health Surveillance & Epidemiology (HSE) cancer surveillance Sub Working Group (SubWG). The case definition was developed based on reviews of the ICD10 codes, the scientific literature and previous AFHSD analyses.
- In 2024, the DHA HSE cancer surveillance SubWG evaluated and expanded the list of cancers in the AFHSD cancer report to include breast (female), bladder, brain, cervical, colorectal, kidney (renal), leukemia, liver (hepatic), lung/bronchial, non-Hodgkin lymphoma, ovarian, pancreatic, prostate, stomach (gastric) and testicular cancer.
- In a 2019 *Monthly Surveillance Medical Report (MSMR)* article, analysis of the AFHSD standard oncology case revealed the definition had a high positive predictive value (PPV) for capturing cases of common cancers, (e.g., breast, prostate, testicular), and a low-to-moderate PPV for rarer cancers, (e.g., gallbladder, intestinal, laryngeal). Analyses also revealed the case definition was less sensitive for identifying cancers of the brain and nervous system, lung and bronchus, bones and joints, and liver (PPV $\leq$  50 percent); these cases often represented metastases rather than true incident cases. While the broad application of a single case definition may affect the sensitivity and specificity in varying ways for the individual cancers, the PPV for all the cancers included in the report are  $>70$  percent, and most have a PPV  $\geq$  90 percent.<sup>4</sup>
- In September of 2015 the case definition was updated to include ICD10 codes.
- The standard AFHSD oncology case definition was originally developed in 2011 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 for a report on 10 different *invasive* cancers. The case definition was developed based on reviews of the ICD9 codes, the scientific literature and previous AFHSC analyses.

<sup>4</sup> Webber, B, Rogers, A, Pathak, S, Robbins, A. Positive Predictive Value of an Algorithm Used for Cancer Surveillance in the U.S. Armed Forces. *MSMR* 2019; 26(12):18-23.



### Case Definition and Incidence Rule Rationale

- The definition and classifications used in this case definition are based on the World Health Organization (WHO) Classification of Tumors of Hematopoietic and Lymphoid Tissues, Revised 4<sup>th</sup> edition.<sup>5</sup>
- In the 2019 *MSMR* article, cases of Hodgkin lymphoma identified using the standard AFHSD oncology case definition had a total PPV of 93.9 percent [CI 86.3-98.0]; female 92.9 percent [CI 66.1-99.8], male 94.1 percent [CI 85.6-98.4], among a subset of active component and retired officers.<sup>4</sup>
- The case finding criteria of *three or more outpatient medical encounters, within a 90-day period*, is used to identify cases that do not meet the other criteria in the definition. Exploratory analysis of Defense Medical Surveillance System (DMSS) data revealed this criterion yielded optimal specificity.<sup>6</sup>
  - A period of 90 days allows for the likelihood that “true” cases of Hodgkin lymphoma will have second and third encounters within that timeframe. The timeframe is based on the following standards of care: (1) following a biopsy of a clinically suspicious lymph node, the average time to obtain a pathology report and definitive diagnosis is 1-3 weeks; (2) individuals whose biopsy results are positive for Hodgkin lymphoma are likely to have a follow-up visit for treatment within 4 weeks of a definitive diagnosis; and (3) individuals are likely to have follow-up visits to monitor clinical indicators of disease within the 90-day timeframe.<sup>7</sup>
  - For outpatient encounters, the incident date is considered the first of the three encounters occurring within the 90-day period, (e.g., if an individual has four Hodgkin lymphoma 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).
- To maintain consistency with the standard AFHSD methodology for surveillance of invasive cancers, AFHSD uses a *once per lifetime* incidence rule. The workgroup recognizes individuals, may be considered disease free after treatment or after an extended period of time, (e.g., 5 years), with no clinical evidence of disease. Individuals who develop a recurrence after being disease free could, theoretically, be counted as a new incident case. However, for surveillance of cancer using administrative, (i.e., billing), data, it is difficult to identify individuals who are disease free after treatment.

### Code Set Determination and Rationale

- Procedure codes (ICD10 and CPT) indicating surgical treatment of individual cancers such as hysterectomy, mastectomy, prostatectomy, and other procedures unique to certain types of cancers are not included in the code set. While procedure codes may increase the specificity of case finding criteria in select circumstances, analyses can be labor intensive and the effort does not necessarily guarantee a better case definition, (i.e., the definition may still identify false positive cases).
- *Screening for disease* codes ICD10 Z12.xx / ICD9 V76.xx (encounter for screening for malignant neoplasms) are not included in the code set. Screening codes are used for “testing for disease or

<sup>5</sup> Swerdlow, S. H., Campo, E., Harris, N. L., Jaffe, E. S., Pileri, S., Stein, H., & Thiele, J. (2017). *WHO Classification of Tumors of Hematopoietic and Lymphoid Tissues* (4<sup>th</sup> ed., Vol. 2). International Agency for Research on Cancer.

<sup>6</sup> Detailed information on these analyses is available through AFHSD; reference DMSS Requests #R230308, #R230378 and #R240009.

<sup>7</sup> Hodgkin Lymphoma. National Comprehensive Cancer Network (NCCN) Guidelines Version 2.2023. <https://www.nccn.org/guidelines/recently-published-guidelines>. Accessed March 2025.



disease precursors in seemingly well individuals so that early detection and treatment can be provided for those who test positive for the disease, (e.g., screening mammogram).<sup>8</sup> They would not be used for follow-up medical encounters of a specific disease.

- *Personal history of malignant neoplasms* (ICD10 Z85.xx) codes are not included in the code set. While these codes may be beneficial for identifying individuals with a history of cancer, analysis of administrative data reveal these codes lack the specificity to count incident cancer cases and are inconsistently used by providers.<sup>9</sup> Given these findings, the AFHSD does not use personal history codes to exclude prevalent cases, (i.e., individuals with a history of cancer), nor to identify individuals who are disease free after treatment.

Personal history codes are intended to be used by providers for individuals who have a history of cancer *and* documented evidence in the medical record that the malignancy has been “excised or eradicated and all treatment is complete.” They are not used for a “self-reported” history of malignancy, and they should be used in conjunction with ICD10 codes for follow-up visits (Z08- encounter for follow-up examination after completed treatment for a malignant neoplasm), aftercare visits (Z51.0 - encounter for antineoplastic radiation therapy; Z51.1- encounter for antineoplastic chemotherapy and immunotherapy), and screening visits (Z12 - encounter for screening for malignant neoplasms).<sup>10</sup>

## Reports

The AFHSD reports on Hodgkin lymphoma in the following reports:

- Periodic *MSMR* articles.

## Review

Mar 2025	Case definition reviewed and adopted by the AFHSD Surveillance Methods and Standards (SMS) working group.
Mar 2025	Case definition developed by the DHA HSE cancer surveillance SubWG.

## Comments

None

<sup>8</sup> ICD-10-CM Official Guidelines for Coding and Reporting. FY 2022—Updated April 1, 2022. (October 1, 2021–September 30, 2022. <https://stacks.cdc.gov/view/cdc/126426>. Accessed March 2025.

<sup>9</sup> Analysis performed by the Defense Centers of Public Health-Dayton. Encounters with at least one Z85.x code in any diagnostic position (dx1- dx20) were pulled from Comprehensive Ambulatory Professional Encounter Records (CAPER) and Standard Inpatient Data Records (SIDR) for all Tri-Service beneficiaries between October 2016 and March 2024. A total of 546,962 encounters were identified. Of these, 68,395 (13%) had at least one neoplasm diagnosis (ICD10 C00-D49). With administrative data, there is no way to determine if the neoplasm codes refer to a resolved malignancy or a new cancer diagnosis. Records with conjunction codes for follow-up (Z08), aftercare (Z51.[0.1] and screening (Z12) were queried: 420,236 (77%) had no conjunction codes in any diagnostic position suggesting providers use personal history codes independent of the purpose of the visit and potentially inconsistently.

<sup>10</sup> Bredehoeft, Emily. Clear Up Confusion as to When Cancer Becomes “History Of.” American Academy of Professional Coders (AAPC). <https://www.aapc.com/blog/40016-clear-up-confusion-as-to-when-cancer-becomes-history-of/>. Accessed March 2025.

