Heme-Lymph Updates

2021dx

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Change Log

- Revision History for the Hematopoietic Project - SEER Registrars (cancer.gov)

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New histologies. These histologies can only be used for cases diagnosed 2021+

Note: In the Hematopoietic database, the "Help me code for diagnosis year" must be 2021 to view information on these histologies

9715/3: Anaplastic large cell lymphoma, ALK-negative/Breast implant-associated anaplastic large cell lymphoma
9749/3: Erdheim-Chester Disease
9766/3: Lymphomatoid granulomatosis grade 3
9819/3: B-lymphoblastic leukemia/lymphoma, BCR-ALB1 like
9877/3: Acute myeloid leukemia with mutated NPM1
9878/3: Acute myeloid leukemia with biallelic mutation of CEBPA
9879/3: Acute myeloid leukemia with mutated RUNX1
9912/3: Acute myeloid leukemia with BCR-ABL1
9968/3: Myeloid/lymphoid neoplasm with PCM1-JAK2
9993/3: Myelodysplastic syndrome with ring sideroblasts and multilineage dysplasia

Note: Same primaries and transformations were also updated to incorporate the new histologies

*New Histology

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The following histologies are now a /1 (instead of a /3) and are no longer reportable starting with 2021 diagnoses
9725/3: Hydroa vacciniforme-like lymphoma (New preferred name: Hydroa vacciniforme-like lymphoproliferative disorder)
Note: See 9725/1 for 2021+
9971/3: Post-transplant lymphoproliferativer disorder (PTLD)
Note: See 9971/1 for 2021+

The following histolog codes and terms are obsolete and have a new code starting with 2021 diagnoses
9826/3: Burkitt Leukemia (for diagnosis 2021+, coded as 9687/3 Burkitt lymphoma with primary site C421)
9991/3: Refractory neutropenia (for diagnosis 2021+, coded as 9980: Myelodysplastic syndrome with single lineage dysplasia)
9992/3: Refractory thrombocytopenia (for diagnosis 2021+, coded as 9980: Myelodysplastic syndrome with single lineage dysplasia)

Change in histology 9751/3
Only Langerhans cell histiocytosis, disseminated is a /3 for 2021+ diagnoses. All other terminology, including Langerhans cell histiocytosis, NOS, is now a /1 (see updated alternate names list when "help me code for diagnosis" is 2021)

*Changes

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9591/1: Monoclonal B-cell lymphocytosis, non-CLL type
9673/1: In situ mantle cell neoplasia
9680/1: EBV-positive mucocutaneous ulcer ← EBVMCU may transform to DLBCL. DLBCL first reportable primary.
9695/1: In situ follicular neoplasia
9702/1: Indolent T-cell lymphoproliferative disorder of the gastrointestinal tract
9709/1: Primary cutaneous CD4-positive small/medium T-cell lymphoproliferative disorder (previously listed as an alternate name in 9709/3)
9738/1: HHV8-positive germinotropic lymphoproliferative disorder
9761/1: IgM monoclonal gammopathy of undetermined significance
9823/1: Monoclonal B-cell lymphocytosis, CLL-type ← May transform to CLL/SLL. CLL/SLL first reportable primary.

*Histology: Not Reportable

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- **CHOOSE THE RIGHT YEAR**
  - **New histologies**
  - **Obsolete histologies**
  - **Changes in behavior**
- **In H-L database:**

Help me code for diagnosis year :

2021

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Steps for using Heme DB

- Update to “Steps in Priority Order for Using the Heme DB and Hematopoietic Coding Manual”
- Search function has recently changed

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Step 1: Identify working histology code

- a. Search the Heme DB using any of the methods below
  - i. Search using a unique word in the diagnosis; for example, “precursor” if the diagnosis is precursor acute lymphoblastic leukemia
    - • Avoid searching on general terms such as “leukemia” or “lymphoma.” This type of search will return too many results.
  - ii. Search on the complete name (diagnosis). For example, “acute myelomonocytic leukemia”. Two different results will appear
    - • 107 neoplasms match any term. The words may appear in any part of the entry (alternate names, abstractor notes, transformations, etc.)
    - • 10 neoplasms match all terms. This is when all three words occur together
  - iii. You can also search on abbreviations such as AMML for acute myelomonocytic leukemia, DLBCL for diffuse large B-cell lymphoma, or AML for acute myeloid leukemia.
- b. “Show Alternate Names”: This box appears under the Search box. If this box is checked, the results will include an additional column that shows where alternate names include the words being search
- c. Search on histology code if desired, i.e., 9867/3.
- d. When multiple results are displayed, click on the desired term (e.g. acute myelomonocytic leukemia) to display the record.

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Step 2: Use MPH Rules

- a. Start with rule M1, move through the rules in consecutive order and stop at the first rule that applies. The M rule references in the Heme DB are to be used as a guide only.
- b. Use the Hematopoietic Multiple Primaries Calculator in the Heme DB **only when instructed** by the rules in the Hematopoietic Manual.

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Step 3: Use PH Rules

- a. When the PH rules lead you to a different histology code, enter that code in the Heme DB search box and display the record for that histology
- b. The PH rules referenced in the Heme DB are the most common rule(s) used to code Primary Site and Histology for the selected histology. More than one Module/PH Rule may be needed to code Primary Site and Histology.

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Step 4: Determine primary site

- a. See Primary Site Coding Instructions.
- b. For certain histologies, only one primary site code is displayed in the Heme DB
  - i. The primary site code displayed under Primary Site(s) is the only site code to be used for that histology Hematopoietic and Lymphoid Neoplasm Coding Manual 23
  - ii. All leukemia, myelodysplastic syndromes and chronic myeloproliferative diseases are assigned primary site bone marrow C421. There are no exceptions. This rule was implemented in ICD-O-2 in 1992.
- c. When there is no primary site code listed under Primary Site(s) in the Heme DB
  - i. Review the Primary Site Text field for common primary sites or other primary site instructions and rules.
  - ii. Search the Hematopoietic Manual and/or database to find applicable modules.
  - iii. Read the Abstractor Notes to find other information regarding sites of involvement for stages II, III, and IV lymphomas. Use the Abstractor Notes to confirm that the site/histology combination indicated by the involvement documented in the medical record is probable. You may also seek a physician's help in determining the primary site.

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Step 5: Determine Grade

- Note: Grade is no longer collected for cases diagnosed 1/1/2018 and forward
- a. See the Grade field in the Heme DB
- b. See the Grade rules in the manual when grade cannot be coded using the Heme DB

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Primary Site

- Per Jennifer Ruhl: Not all sites of involvement are used to assign primary sites. Some sites of disease may be metastatic.
- Module 7 (PH18-PH27)
- Note 2: Do not simply code the site of a biopsy; use the information available from imaging to determine the correct primary site
- Note 3: Secondary involvement of distant lymph nodes (for an extranodal lymphoma), bone marrow, liver, spleen or CNS are included in the stage fields only. This secondary involvement excludes rare primary lymphoid neoplasms of spleen, multifocal lung involvement, liver or CNS (see PH Rules). **Secondary involvement of distant site(s) is disregarded for the purpose of coding primary site.** For lymphoid neoplasms, this secondary or distant involvement is akin to metastasis for solid tumors and does not alter the primary site assigned by the physician or determined using the PH Rules.

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Diagnostic Confirmation

Coding Diagnostic Confirmation (NAACCR Item #490)

Codes for Hematopoietic and Lymphoid Neoplasms (9590/3-9993/3)

Microscopically Confirmed

Code	Description
1	Positive histology • Includes: peripheral blood smear only
2	Positive cytology
3	Positive histology PLUS: • Positive immunophenotyping AND/OR • Positive genetic studies • Includes: peripheral blood smear followed by flow cytometry ***(Effective for cases diagnosed 1/1/2010 and later)***
4	Positive microscopic confirmation, method not specified

Not Microscopically Confirmed

Code	Description
5	Positive laboratory test/marker study ***Note 1:*** Includes cases with positive immunophenotyping or genetic studies and ***no*** histological confirmation ***Note 2:*** This does **not** include cases where a peripheral blood smear is done (code 1) and peripheral blood smear followed by flow cytometry (code 3)
6	Direct visualization without microscopic confirmation
7	Radiology and other imaging techniques without microscopic confirmation
8	Clinical diagnosis only (other than 5, 6 or 7)

Confirmation Unknown

Code	Description
9	Unknown whether or not microscopically confirmed; death certificate only

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Code 1

1. Tissue from lymph node(s), organ(s) or other tissue specimens from biopsy, frozen section, surgery, or autopsy

2. Bone marrow specimens (aspiration and biopsy)

3. Peripheral blood smear

    a. Can be used as a histological diagnosis for any of the hematopoietic histologies (9590/3-9993/3)

4. Leukemia only (9800/3-9948/3): positive histology also includes

    a. Complete blood count (CBC)

    b. White blood count (WBC)

Note: A registrar may not abstract a hematopoietic neoplasm based on a CBC or WBC with abnormal counts alone. There must be a diagnosis of a reportable Heme neoplasm on the CBC or WBC report or a subsequent physician diagnosis based on the WBC or CBC. Neoplasm microscopically confirmed AND

    c. Immunophenotyping, genetic testing, or JAK2 not done OR

    d. Immunophenotyping, genetic testing, or JAK2 done but negative (non-diagnostic) for the neoplasm being abstracted

    Example: Acute myelomonocytic leukemia (9867/3) CD10+. CD10+ is not listed under Immunophenotyping for this histology, so diagnostic confirmation should be 1.

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Code 1

5. IHC studies are done, but the patient has a provisional (NOS) diagnosis or one or more provisional diagnoses.

6. Historical cases not already in the database if information states that there was histologic confirmation

    Example: Patient diagnosed in 2012 with Stage III mantle cell lymphoma, diagnosed by LN biopsy. Mantle cell lymphoma not in the database. Now presents with DLBCL in 2015.

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Code 2
Rarely used for heme lymph

1. Examination of fluid such as spinal fluid, peritoneal fluid, or pleural fluid
2. Paraffin block specimens from concentrated spinal fluid, peritoneal fluid, or pleural fluid
3. A specimen that fails to provide enough tissue to do a histologic examination - in this case, the report will be a cytology report rather than a pathology report

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Code 3: Pos histology PLUS pos Immunophenotyping or genetic testing

1. Cases with pos histology AND immunophenotyping genetic testing or JAK2 is listed in definitive dx method and testing:
   1. Confirms neoplasm OR
   2. Identifies more specific histology
   3. Peripheral smear followed by flow cytometry
2. NOS histology and not a provisional dx and genetics/immunophenotyping performed.

   Example 1 (Identifying a more specific histology): Bone marrow biopsy positive for acute myeloid leukemia (9861/3). Genetic testing positive for AML with inv (16) (p13.1q22) (9871/3). Code Diagnostic Confirmation code 3, positive histology and positive genetic testing, which identified a more specific histology

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Staging

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LN Chains

- Appendix C
- Bilateral
  - Left and right cervical = 2 REGIONS for staging EOD & AJCC

Table C1: Lymph Node/Lymph Node Chain Reference Table
***The right and left are separate regions per AJCC**

Lymph Node/Lymph Node Chain	Use for Multiple Primaries in Heme	ICD-O Lymph Node Region(s)	TNM Staging
Abdominal	C772	Intra-abdominal	Mesenteric
Anorectal (pararectal)	C775	Pelvic	Pelvic, right and left*
Anterior axillary (pectoral)	C773	Axilla or arm	Axillary, right and left*

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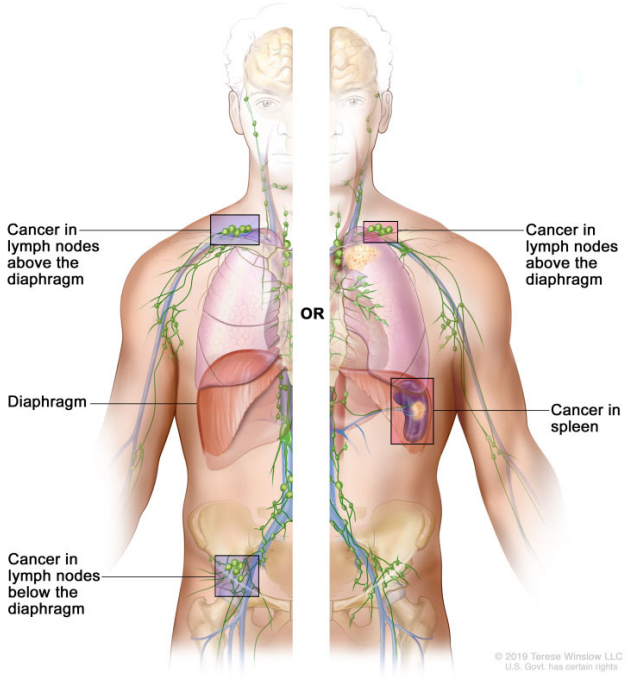
Regions separated by right and left ~and~ Regions separated by diaphragm



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Chains vs Regions

ONE REGION = head, face, neck

1. Cervical, NOS
2. Buccal
3. Facial
4. Internal jugular

FOUR CHAINS

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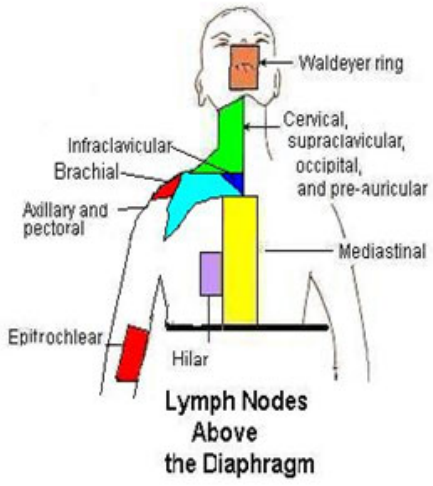
BILATERAL

TWO REGIONS FOR **STAGING**



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- Bilateral Cervical Lymph node involvement
- EOD 300 [bilateral makes this 2 regions]

Code	Description	SS2018 T
100	Single lymph node region involved Involvement of multiple nodal chains in the SAME lymph node region	L
200	Single extralymphatic site › WITHOUT nodal involvement Multifocal involvement (except multifocal lung involvement, see codes 700 or 800) of one extralymphatic organ/site › WITHOUT nodal involvement	L
300	Two or more lymph node regions involved › SAME side of diaphragm	RE

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LN Involvement

SEER*RSA v2.0

EOD Pri Tumor Lymphoma schema

- **Note 4: Any mention** of the terms including fixed, matted, mass in the hilum, mediastinum, retroperitoneum, and/or mesentery, palpable, enlarged, shotty, lymphadenopathy **are all regarded as involvement** for lymphomas when determining appropriate code.

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Appendices A-D

- Appendix A History of Hematopoietic and Lymphoid Neoplasm Coding
- Appendix B WHO Classification of Tumors of Hematopoietic and Lymphoid Tissues Histology Lineage
- Appendix C Lymph Node/Lymph Node Chain Reference Table
- Appendix D: Introduction to Genetic Nomenclature

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Appendix B

Table B6: Acute Myeloid Leukemia (AML) and Related Precursor Neoplasms

WHO Preferred Term	ICD-O
Acute myeloid leukemias with recurrent genetic abnormalities	
Acute myeloid leukemia (megakaryoblastic) with t(1;22)(p13.3;q13.1); *RBM15-MKL1*	9911/3
Acute myeloid leukemia with *BCR-ABL1* (2021)+	9912/3*
Acute myeloid leukemia with biallelic mutation of *CEBPA* (2021+)	9878/3*
Acute myeloid leukemia with inv(3)(q21.3q26.2) or t(3;3)(q21.3;q26.2); *GATA2, MECOM*	9869/3
Acute myeloid leukemia with inv(16)(p13.1q22) or t(16;16)(p13.1;q22); *CBFB-MYH11*	9871/3
Acute myeloid leukemia with mutated *NPM1* (2021+)	9877/3*
Acute myeloid leukemia with mutated *RUNX1* (2021+)	9879/3*

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Appendix D Intro to Genetic Nomenclature

Pg 81-84 in Heme-Lymph Manual document

Selected Types of Abnormalities/Mutations

Mutation Type	Abbreviation(s)	Description	Nomenclature Example(s)
Insertion *	ins	Addition of DNA into a gene.	ins(18;5)(q21.1;q31.2)
Deletion	del	Removal of DNA; may occur in one or more base pairs, entire gene(s), or chromosome arm (p or q).	del(5q); del(6q21)
Duplication *	dup	DNA abnormally copied one or more times.	dup(21); FLT3-ITD (Where ITD = internal tandem duplication)
Inversion	inv	Rearrangement within a single chromosome in which a chromosome segment undergoes breakage and rearrangement within itself.	inv(16); inv(3); inv(16)(p13.1;q22); inv(3)(q21;q26.2) (Sometimes described as a translocation between a single chromosome: t(16;16)(p13.1;q22))
Translocation	t(x;x) **	Rearrangement between two chromosomes in which a chromosome segment breaks off and attaches to a different chromosome.	t(9;22); t(8;21); t(9;22)(q34;q11.2); t(8;21)(q22;q22)
Trisomy	(XY, +x) **	An extra copy (three total copies) of the specified chromosome.	47(XY,+8); Trisomy 21; Gain of chromosome 9 (Sometimes these are referred to as just "Trisomy" or "Gain of" abnormalities without abbreviation or specific karyotype notation.)
Monosomy	(XY,-x) **	The presence of only one chromosome from the specified chromosome pair.	45(XY,-16); Monosomy 7; Loss of chromosome 5 (Sometimes these are referred to as just "Monosomy" or "Loss of" abnormalities without abbreviation or specific karyotype notation.)

* Uncommon as a sole genetic/molecular abnormality documented in heme/lymphoid neoplasms.

** Where lowercase "x" represents the chromosome number involved.

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- Search
  - Term or code from appendix B
  - Acronyms or Genetics
    - RAEB
    - (p23;q34.1)
- Alternate names in database
  - Not all parts of genetic string are necessary
  - 9897/3 Example

Alternate Names

Acute myeloid leukemia, MLL
Acute myeloid leukemia with 11q23 (MLL) abnormalities
Acute myeloid leukemia with t(9;11)(p22;q23); MLLT3-MLL
Acute myeloid leukemia with t(9;11)(p22;q23) resulting in KMT2A-MLLT3

- Genetics Data or Immunophenotyping
  - Terms positive or expression mean the same thing per Dr. Nashelsky

Immunophenotyping

BCL2 expression and positive
BCL6 positive
CD5 negative
CD10 expression and positive
CD19 expression
CD20 positive

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Results: ABNORMAL FISH RESULTS

Probe Normal range Result (% abnormal nuclei)
CKS1B/p18 [1q21/1p32] Gain of CKS1B <1.5%
Loss of p18 <5.6% normal
TAS2R1/CEP9/CEP15 [5p15.31/9CEN/15CEN] Gain of 5 <1%
Gain of 9 <1.2%
Gain of 15 <1% normal
D13S319/13q34 [13q14.3/13q34] 13q deletion <4.4%
Monosomy 13 <4% normal
IgH [14q32.3] IgH rearrangement <1% Two clones; 1) breakapart rearrangement (78%) 2) atypical breakapart rearrangement with an extra copy of 3'IgH (10%)
p53/CEP10 [17p13.1/10cen] Loss of p53 <3.7% normal
FGFR3/IgH [4p16.3/14q32.3] Dual fusion <1% No fusion
CCND1 XT/IgH [11q13/14q32.3] Dual fusion <1% Two clones; 1) dual fusion (78%) 2) triple fusion (8%)
IgH/MAF [14q32.3/16q23] Dual fusion <1% No fusion

2/24/2021 BONE MARROW FINAL INTERPRETATION:

Bone marrow aspirate, clot and biopsy: Plasma cell myeloma in a hypercellular bone marrow (70%) showing trilineage hematopoiesis with a decreased myeloid to erythroid ratio and 60% plasma cells by CD138 immunostain. See comment.

COMMENT:
Flow cytometry (FC21-00617) reveals a 22% population of kappa-monotypic plasma cells, indicating a plasma cell neoplasm.

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FINAL DIAGNOSIS: Bone marrow and peripheral blood: - chronic myeloid leukemia, BCR/ABL positive.

ADDENDUM: CYTOGENETICS, ONCOLOGY CHROMOSOME ANALYSIS:
- Karyotype: 46,XX,t(9;22)(q34.1;q11.2)[5]
- Interpretation: ABNORMAL FEMALE KARYOTYPE-SEE COMMENT.

Cytogenetic analysis shows an abnormal female karyotype. All cells show the 9;22 translocation that leads to fusion of the ABL1 and BCR genes (Philadelphia chromosome). The t(9;22) is characteristic of CML and response to BCR/ABL1 tyrosine kinase inhibitors.

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- Feb 2021 NAACCR Lymphoma webinar
  - CLL/SLL AJCC changes
  - Assigning primary site, stage

Thank You
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