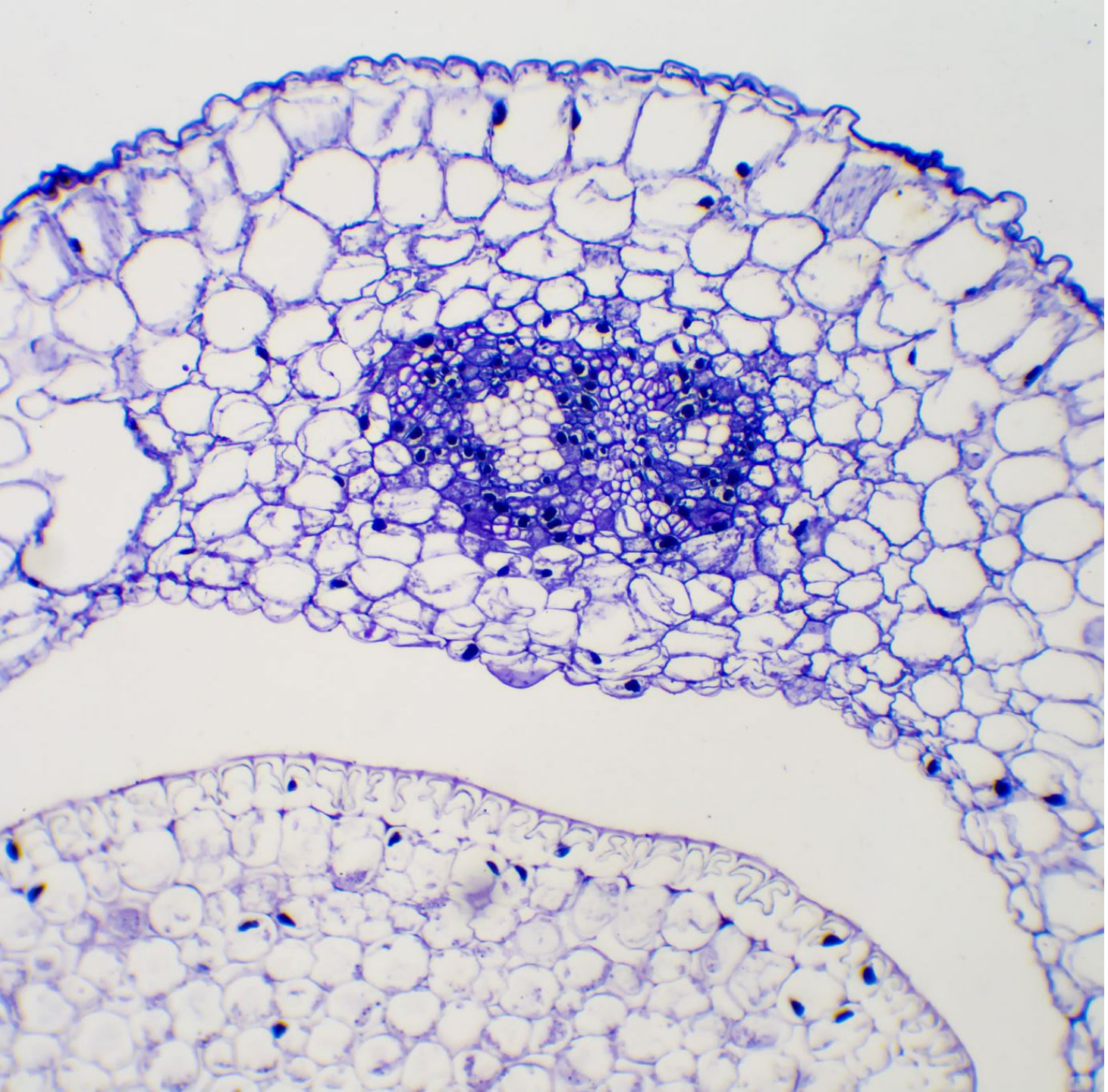


HEMATOPOIETIC part II

FCDS

June 17, 2026

Betty Malanowski

Important points from Hemato part 1

-**Leukemias** are **blood** cancers while **lymphomas** origin are **lymph nodes** or other lymphoid tissue forming solid tumors. In some situations, they may overlap.

-For Multiple Myeloma we saw diagnostic confirmation **5** for Bence Jones protein, SPEP (SERUM Protein Electrophoresis) or UPEP (URINE Protein Electrophoresis) with their respective M spike.

-Remember: "First course of therapy ends when the treatment plan is completed or Remission is achieved, no matter how long it takes to complete the plan."

-We saw some Diagnostic Confirmation including Blood work (CBC and WBCs count coded as 1 Histology) as a Provisional Diagnosis for a Physician for Leukemias and other blood disorders. –Please always include **CBC**(Complete Blood Count) and **white blood cells** is **lab text** for leukemias-

- **Leukemia** only (9800/3-9948/3)
  - Positive histology also includes complete blood count (CBC) or white blood count (WBC)
    - 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 by the managing physician based on the CBC or WBC report.**
    - If immunophenotyping, genetic testing, or JAK2 is done and positive, see code 3
      - Code 1 is applicable if immunophenotyping, genetic testing, or JAK2 are done and not diagnostic, or if unknown if these were done

Diagnostic Confirmation 1, 3 or Cytology

If Immunophenotyping or Genetics is **not diagnostic**, code to 1-Histology

- Note that just because a marker may be listed in the immunophenotyping or genetic fields, it does not mean the one marker is confirming the diagnosis. For many neoplasms, especially the B-cell lymphomas, there is a wide range of immunophenotyping results that are shared (CD19 Y CD20 are for B-cell). (**More** confusion to code!)

- Genetics are the more definitive way to identify or confirm a specific neoplasm

Hematopoietic and Lymphoid Neoplasm Coding Manual 23

Cytology is the examination of cells rather than tissue. It includes sputum smears, bronchial brushings, bronchial washings, prostatic secretions, breast secretions, gastric fluids, spinal fluid, peritoneal fluid, urinary sediment, and cervical and vaginal smears. It does not include FNA (which is Histology for Cancer Registry purposes).

Important points from Hemato part 1

-Reportability for MDS started in 2001

Historical cases before 2001 are NOT reportable!

Based on the implementation of the **International Classification of Diseases for Oncology, 3rd Edition (ICD-O-3)**, which went into effect for cases diagnosed in **2001 and later**, the behavior code for Myelodysplastic Syndromes (MDS) was updated from **/1 (borderline malignancy or low malignant potential)** to **/3 (malignant primary site)**.
Therefore, MDS historical cases before 2001 are NOT Reportable to FCDS.

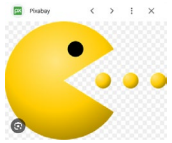
-We saw some Skin Lymphomas and skin lymphoma treatments.

-We saw Leukemia Cutis as a manifestation of a leukemia and not a skin lymphoma.

-We saw:

Langerhans cell Histiocytosis (LCH) Reportability

9751/3 Langerhans cell Histiocytosis Reportable prior to 2021
9751/1 Langerhans cell Histiocytosis, NOS for 2021+ "Non-Reportable"
2021+ Only LCH Disseminated/MULTISYSTEM is Reportable 9751/3
All other forms of LCH are not reportable, except: Brain/CNS 9751/1



-We saw **Not** to use the Multiple Primary Calculator **first**

Instructions for Multiple Primaries

- **First: DATABASE** for Histology and look if there is **TRANSFORMATION** involved (M8-M13).
- **Second**: Hemato **MANUAL** for rules **M1-M14** and **STOP** at the first rule that applies.
- **Last**: Then Rule **M15: MULTIPLE** PRIMARY **CALCULATOR**

ary of the Multiple Primary Rules

Quiz

32 y/o single white female diagnosed on January 16 2025 with Acute Myeloid Leukemia (AML). Dermatology pathology of Dec 1, 2025 found Myeloid sarcoma.

What is the correct coding:

a) 9861/3 (AML) and 9930/3 (Myeloid sarcoma)

b) 9861/3 (AML)

b) 9861/3 same primary

If the *myeloid* *sarcoma* occurs after the diagnosis of the leukemia, that is a manifestation of the leukemia and is the same primary.

See Multiple Primary Rule M3

Rule M3: Acute myeloid leukemia/myeloid sarcoma or Mast cell leukemia/mast cell sarcoma

1. Abstract a single primary when a myeloid or mast cell **sarcoma** is diagnosed during the initial clinical workup **OR** after a leukemia of the same lineage.
   a. Acute myeloid leukemia (Table B6: Acute myeloid leukemia), and myeloid sarcoma are diagnosed during the same clinical workup.
      - ***Example 1:*** Patient noted to have a solid tumor mass. Biopsy revealed myeloid sarcoma. Further workup included labs which were concerning for AML. Bone marrow biopsy positive for AML. Abstract one primary, the AML (See PH Rules, Module 5). This is the same primary since both the myeloid sarcoma and AML were diagnosed during the clinical workup.
   b. Acute myeloid leukemia initially diagnosed (Table B6: Acute myeloid leukemia), and myeloid sarcoma diagnosed at a later time.
      - ***Example 2:*** Acute myeloid leukemia (AML) diagnosed in 2024. In 2025, a soft tissue mass was biopsied, and the pathology report final diagnosis was myeloid sarcoma. This is the same primary. Presence of the myeloid sarcoma is a manifestation of the acute myeloid leukemia.
   c. Mast cell leukemia and mast cell sarcoma diagnosed during the same clinical workup.
   d. Mast cell leukemia diagnosed first followed by mast cell sarcoma diagnosed at a later time.

Multiple Primaries Calculator

The Multiple Primaries Calculator was designed to be used with the coding manual. Fol
calculator. Use the Multiple Primaries Calculator when the rules instruct you to do so. If
Hematopoietic Primaries Table (PDF) instead. This calculator should only be used for ca

Morphology Code 1	9861/3	**Diagnosis Year 1**	2025	
Morphology Code 2	9930/3	**Diagnosis Year 2**	2025	Calculate

New Primary

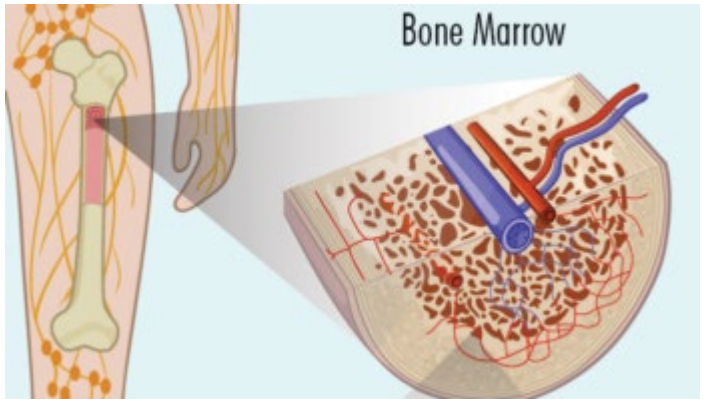
M3 applies before M15 (Multiple Calculator)

Instructions for Multiple Primaries

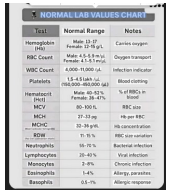
- **First: DATABASE** for Histology and look if there is **TRANSFORMATION** involved (**M8-M13**).
- **Second**: Hemato **MANUAL** for rules **M1-M14** and **STOP** at the first rule that applies.
- **Last**: Then Rule **M15:** **MULTIPLE** PRIMARY **CALCULATOR**

ary of the Multiple Primary Rules

Multiple Primary Rule	Covers	Comments
M1 (Single primary)	Limited information, death certificate only cases	
M2 (Single primary)	Same histology, same primary	Exception for 9699/3, need to review
M3 (Single primary)	Myeloid sarcoma and Acute Myeloid leukemia or Mast cell sarcoma and Mast cell leukemia	Histologies: 9740, 9742, 9930, and all AML histologies
M4 (Single primary)	Two or more NHL's diagnosed in the same biopsy	See PH11 or PH15 for histology
M5 (Single primary)	Hodgkin and non-Hodgkin in the same biopsy	See PH14 for histology
M6 (Multiple primaries)	Hodgkin and non-Hodgkin in different biopsies	
M7 (Single primary)	More specific histology and NOS histology	*Example*: Follicular lymphoma (specific histology) and NHL, NOS (NOS histology) Review same primaries section in the Hematopoietic database
M8 (Single primary)	Chronic and acute neoplasm diagnosed at the same time and there is one biopsy	Histologies must have information in the Transformation to or Transformation from field in the database
M9 (Single primary)	Chronic and acute neoplasm diagnosed at the same time and there is no documentation of the biopsy(ies)	Histologies must have information in the Transformation to or Transformation from field in the database
M10 (Multiple primaries)	Chronic and acute neoplasm diagnosed at different times	Histologies must have information in the Transformation to or Transformation from field in the database
M11 (Multiple primaries)	Chronic and acute neoplasm diagnosed at the same time and there are two biopsies	Histologies must have information in the Transformation to or Transformation from field in the database
M12 (Single primary)	Acute neoplasm reverts to chronic neoplasm, no (or unknown), treatment given for acute neoplasm	Histologies must have information in the Transformation to or Transformation from field in the database
M13 (Multiple primaries)	Acute neoplasm reverts to chronic neoplasm and treatment given for the acute neoplasm	Histologies must have information in the Transformation to or Transformation from field in the database
M14 (Single Primary)	Post transplant lymphoproliferative disorder (9971/3) with an accompanying hematopoietic neoplasm	See PH1 for coding histology
M15 (Multiple primaries calculator)		See Multiple Primaries Calculator



Blood



Conclusion: The Critical Role of CBC in Leukemia Detection

A Complete Blood Count (CBC) test is key in finding leukemia. It gives clues that might suggest leukemia. These clues come from blood cell counts and how the cells look.

The CBC helps spot odd white blood cell counts and blast cells. It also finds other issues with blood cell making. These signs can lead to more tests like bone marrow biopsies and molecular tests to confirm leukemia.

The CBC is a vital first step in finding leukemia. It helps doctors spot leukemia early. This way, they can start treatment right away.

https://int.livhospital.com

Hematopoietic stem cells (HSCs): Immature cells that develop into all types of blood cells, including red blood cells, white blood cells, and platelets.

They harvest STEM CELL for transplants

Bone marrow

Multipotential hematopoietic stem cell (Hemocytoblast)

-blasts

Common myeloid progenitor

Common lymphoid progenitor

Megakaryoblast

Promegakaryocyte

Megakaryocyte

Proerythroblast (Pronormoblast)

Basophilic erythroblast

Polychromatic erythroblast

Orthochromatic erythroblast (Normoblast)

Polychromatic erythtocyte [1] (Reticulocyte)

Myeloblast

B. promyelocyte

B. myelocyte

B. metamyelocyte

B. band

N. promyelocyte

N. myelocyte

N. metamyelocyte

N. band

E. promyelocyte

E. myelocyte

E. metamyelocyte

E. band

Monoblast

Promonocyte

Lymphoblast

Prolymphocyte

BABY IMMATURE cells

Stem cells

Committed progenitor cells

Mature cells

Blood

Tissue

Thrombocytes (Platelets)

Thrombopoiesis

Erythrocyte [2] (Red blood cell)

Erythropoiesis

Basophil

Neutrophil

Eosinophil

Granulopoiesis

Monocyte

Monocytopoiesis

Small lymphocyte [4]

Natural killer cell (Large granular lymphocyte)

Mast cell

Macrophage

B lymphocyte

T lymphocyte

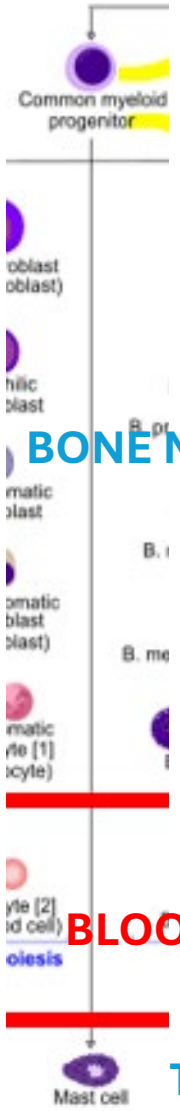
Lymphopoiesis

Plasma cell

Lymphoid dendritic cell [3]

Mast cell leukemia	9742/3

MASTOCYTOSIS



Do NOT code Systemic Mastocytosis.

CODE AGGRESSIVE Systemic Mastocytosis (9741/3)!

Table B3: Mastocytosis

WHO Preferred Term	ICD-O
Cutaneous mastocytosis	9740/1
• Maculopapular cutaneous mastocytosis	9740/1
• Diffuse cutaneous mastocytosis	9740/1
• Mastocytoma	9740/1
Systemic mastocytosis	9741/1
• Indolent systemic mastocytosis	9741/1
• Bone marrow mastocytosis	9741/1
• Smoldering systemic mastocytosis	9741/1
Aggressive systemic mastocytosis	9741/3
Systemic mastocytosis with an associated hematological neoplasm	9741/3
Mast cell leukemia	9742/3
Mast cell sarcoma	9740/3

Mast cells are WBCs from the MYELOID LINE which are present normally in tissues to help with the immune response against invaders. They increase in numbers during a cold/allergies (degranulation of mast cells gives us the sneezing, itchy, watery eyes, inflammation), parasites, injury… and help with inflammation to recruit more cells. Expel pathogens by increasing mucous (flush out!) and other mechanisms.

- In Mast cell leukemia 9742/3

>= **20**% atypical mast cells in bone marrow, with >= **10**% in the bloodstream. (Leukemia is **blood** cancer). Mast cells should not be in the blood!

- Mast cell sarcoma 9740/3

Rare, high aggressive, malignant single or multiple **solid** tumors formed by neoplastic mast cells that destroy surrounding tissues.

- Systemic Mastocytosis with an associated hematological neoplasm

Systemic Mastocytosis with an **Associated Hematological Neoplasm** (SM-AHN)

Systemic mastocytosis with an associated hematological neoplasm	9741/3

- If the diagnosis is SM-AHN occurs at the same time as another hematological neoplasm:

  …for example, with **CMML** (Chronic Myelo-Monocytic Leukemia), then this is the same primary and the histology is 9741/3

- If the **CMML** is diagnosed first, followed later by the SM-AHN,

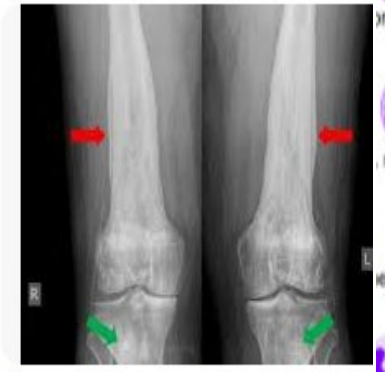
  …then the SM-AHN is a secondary primary

Erdheim-Chester Disease 9749/3

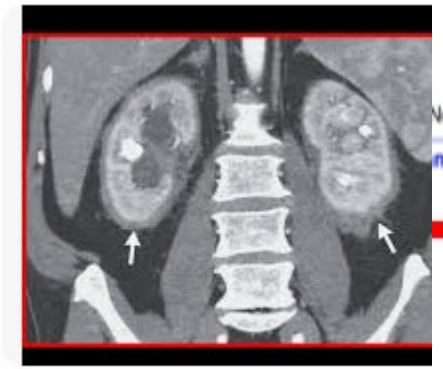
Table B12: Histiocyte/macrophage neoplasms

WHO Preferred Term	ICD-O
Histiocytic neoplasms	
Juvenile xanthogranuloma (JXG)	9749/1
Erdheim-Chester disease (ECD)	9749/3
Rosai-Dorfman disease (RDD)	9749/3
ALK positive histiocytosis	9750/3

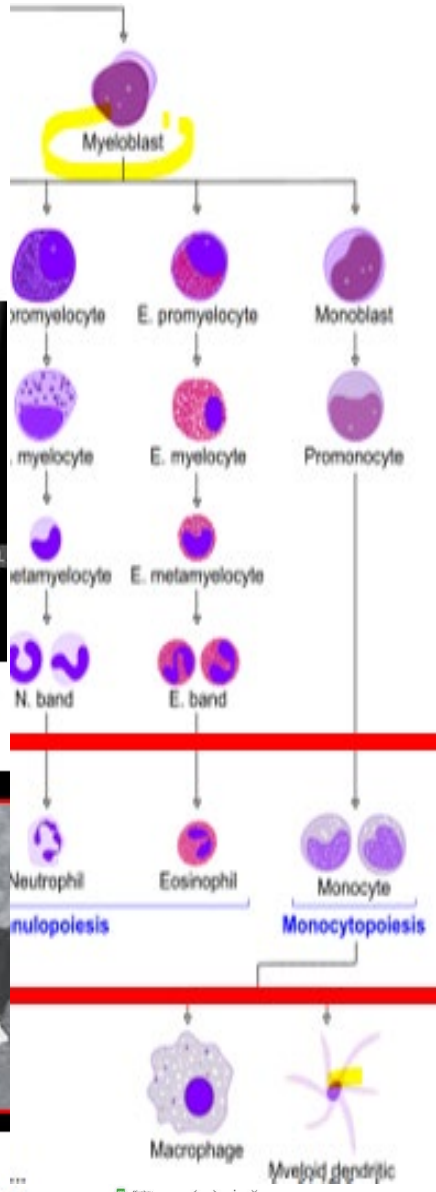
- Derive from the monocyte-macrophage cells. These are non-Langerhans histiocyte that often take on a "foamy" appearance because they accumulate lipids (fats).
- It is a multi systemic non-Langerhans cell histiocytosis.
- It was thought to be a reactive inflammatory disorder, but it was reclassified by the WHO in 2016 as a hemato/myeloid neoplasm(clonal malignancy).
- This neoplasm became reportable starting Jan 1, 2021
- Often coded to Bone(C40._) or Retroperitoneum (C48.0)but it can be multisystemic.
- En retroperitoneum causes fibrosis (scar tissue).



Journal of Case Reports and Images
Erdheim-Chester disease ...



Instagram
Hairy Kidney" in Erdheim–Chester ...



- **Subtypes:**

Classic. In 95% of pts with Bilateral Osteosclerosis (hardening of long bones as femur and tibia) with bone pain, Hairy kidney (infiltration of cells and fibrosis) IN 63% of cases. High risk of Diabetes insipidus, xanthelasma (patches of lipids) in eyelids.

Non-Classical: Lacks the typical bone findings but higher rates of heart involvement: "Coated Aorta" periaortic infiltration.

- Osteosclerosis develops from the infiltration of abnormal, **lipid**-laden **macrophages** into the bone marrow, triggering intense inflammation, subsequent bone remodeling, and abnormal thickening of the bone by increasing bone mineral density. In response to inflammation and marrow infiltration, osteoblasts are activated contributing to bone thickening and bone mineral density increases leading to sclerosis. Osteosclerosis is the abnormal hardening of bone due to excessive calcium deposits or increased trabeculae.

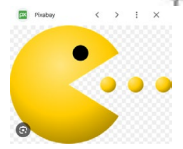
Epidemiology and Mortality

Age: 55-60 median age, pediatric cases rare
Incidence: less 1000 cases reported, male predominance
Survival: 32 months average

5 year survival: 80 %
(has risen from 68%)
CNS involvement, cardiovascular/heart complications and age over 60 have a poorer prognosis.

IHC Markers:

- **Positive (+):** CD68, CD163, and Factor XIIIa.
- **Negative (-):** CD1a and Langerin (CD207)—this is critical for distinguishing ECD from Langerhans Cell Histiocytosis (LCH).



CLL/SLL

Chronic Lymphocytic **LEUKEMIA**/Small Lymphocytic **LYMPHOMA**

(Blood Cancer)C421 (Lymph Nodes)C779

Comes from the LYMPHOID line. It is a B-Cell lymphocyte Neoplasm (WBCs)
Represent different manifestations of the same disease.

CLL/SLL

An indolent (slow-growing) cancer in which immature lymphocytes (white blood cells) are found in the blood and bone marrow and/or in the lymph nodes. CLL (chronic lymphocytic leukemia) and SLL (small lymphocytic lymphoma) are the same disease, but in CLL cancer cells are found mostly in the blood and bone marrow. In SLL cancer cells are found mostly in the lymph nodes. CLL/SLL is a type of non-Hodgkin lymphoma. Also called chronic lymphocytic leukemia/small lymphocytic lymphoma.

NIH NATIONAL CANCER INSTITUTE

Definition

Chronic lymphocytic leukemia / small lymphocytic lymphoma (*CLL/SLL*) is a B-cell lymphoma comprising monomorphic small mature B cells that frequently coexpress CD5 and CD23. A peripheral blood diagnosis of chronic lymphocytic leukemia (CLL) requires a B-cell count of ≥ 5 × 109/L, with the characteristic morphology and immunophenotype. A tissue-based diagnosis of small lymphocytic lymphoma (SLL) requires organ enlargement (e.g. lymphadenopathy > 15 mm) and its infiltration by the above neoplastic B cells. Although CLL and SLL represent the same disease, the latter term is used for cases with < 5 × 109/L circulating B cells and nodal, splenic, or other extramedullary involvement. (WHO 5th edition)

Hemato Database

CLL >=5,000,000,000

LEUKEMIA

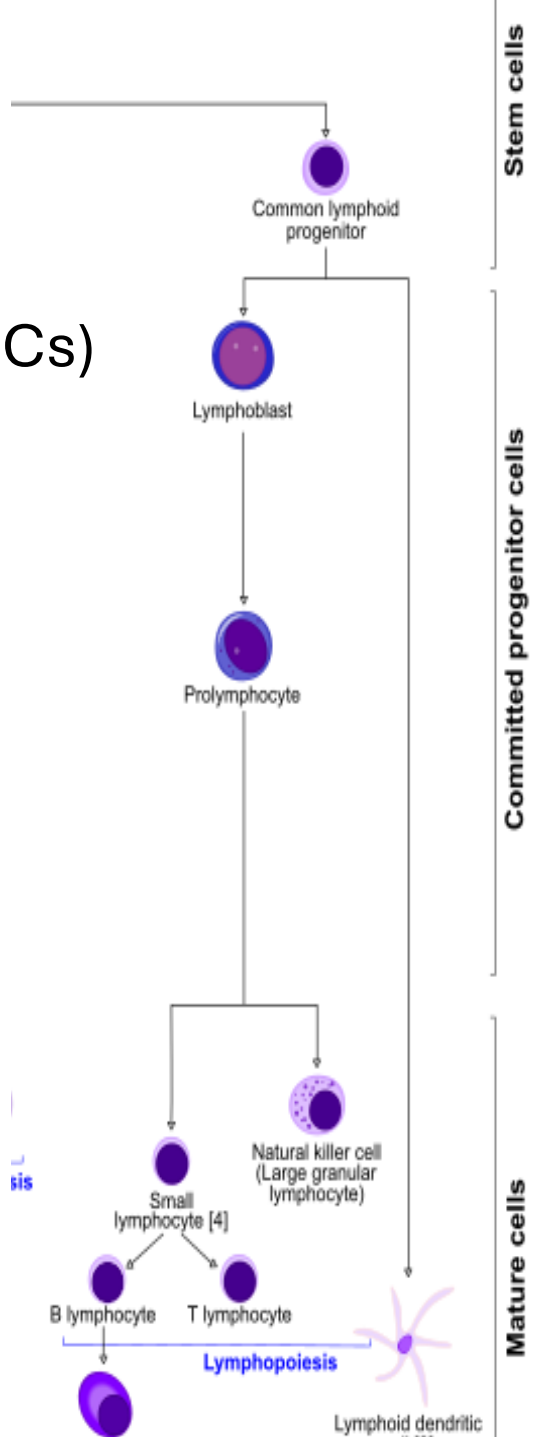
SLL <5,000,000,000

LYMPHOMA

Progression and Transformation

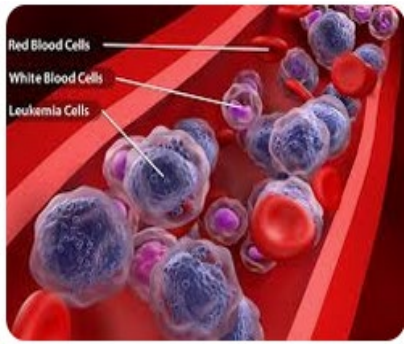
2-8% of CLL patients transform to DLBCL

<1% of CLL patients develop classical Hodgkin lymphoma

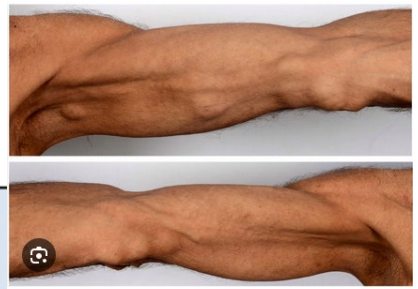


CLL/SLL 9823/3

Chronic Lymphocytic **LEUKEMIA**/Small Lymphocytic **LYMPHOMA**



WebMD
Acute Myeloid Leukemia (AML): Sy...



A rare involvement of epitrochlear lymph nodes in mantle cell lympho... Visit ›

Module 3: Chronic lymphocytic leukemia/small lymphocytic lymphoma (CLL/SLL) PH5-PH6
Chronic lymphocytic leukemia/small lymphocytic lymphoma (CLL/SLL) 9823/3

Rule PH5: Bone marrow and/or peripheral blood involved (WITH or WITHOUT lymph node(s), tissue(s), and/or organ(s))

1. Code the primary site to bone marrow (C421) when the bone marrow and/or peripheral blood are involved.
   a. Involvement of lymph node(s), tissue(s), and/or organ(s) is not taken into account.
   b. If the bone marrow and/or peripheral blood are not involved, or it's unknown if they are involved, see Rule PH6 .

Rule PH6: Bone marrow AND peripheral blood NOT involved, or UNKNOWN if involved

1. Code the primary site to the involved lymph nodes, organs, or tissue when there is no bone marrow and/or peripheral blood involvement, OR when it is unknown if there is bone marrow and/or peripheral blood involvement.
2. If the bone marrow and/or the peripheral blood are involved, see Rule PH5.
3. See Primary site coding tips for additional information on coding primary site.
4. See Appendix C for help identifying lymph node names, chains, regions and codes.
5. See Module 7 and the Hematopoietic database to determine primary site.

Leukemia is "BLOOD cancer"
Lymphoma is in LYMPH NODES.

Rule PH5

Code to C**421** because it is a **Leukemia** (Peripheral BLOOD) and bone marrow involvement.

Blood cancer

Rule PH6

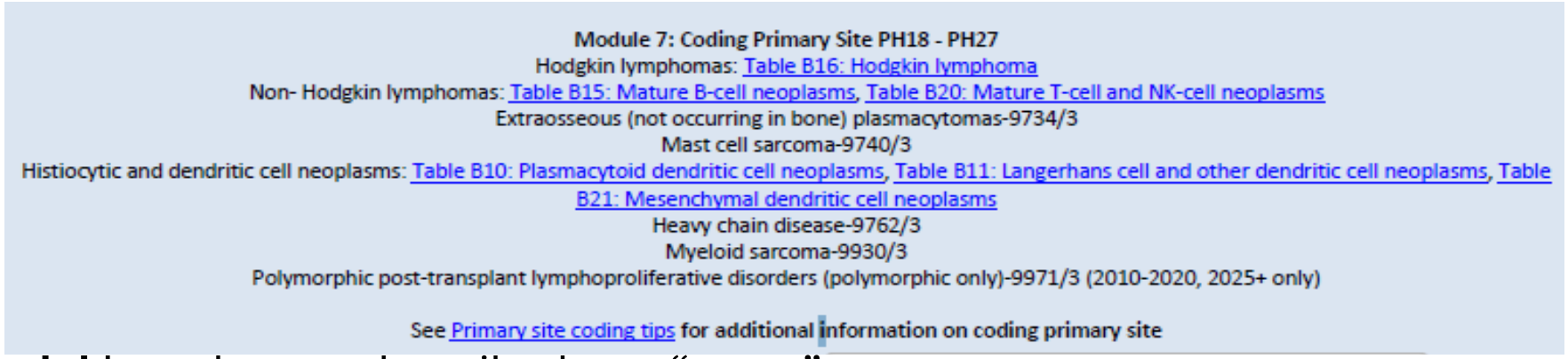
Code to C**779** for involved **lymph** nodes (Lymphoma). Or code primary site to the **organ** or **tissue** involved.

Skin is an organ.
Cutaneous lymphoma : Sezary

SOLID tumors

Module 7: Coding primary site PH18 –PH27

Module 7 is used mostly for assigning primary site for Lymphomas,



Module 7: Coding Primary Site PH18 - PH27

Hodgkin lymphomas: Table B16: Hodgkin lymphoma

Non- Hodgkin lymphomas: Table B15: Mature B-cell neoplasms, Table B20: Mature T-cell and NK-cell neoplasms

Extraosseous (not occurring in bone) plasmacytomas-9734/3

Mast cell sarcoma-9740/3

Histiocytic and dendritic cell neoplasms: Table B10: Plasmacytoid dendritic cell neoplasms, Table B11: Langerhans cell and other dendritic cell neoplasms, Table B21: Mesenchymal dendritic cell neoplasms

Heavy chain disease-9762/3

Myeloid sarcoma-9930/3

Polymorphic post-transplant lymphoproliferative disorders (polymorphic only)-9971/3 (2010-2020, 2025+ only)

See Primary site coding tips for additional information on coding primary site

- Rule PH18: **Nodal** Lymphomas described as a "mass"
- Rule PH19: One lymph **node** chain/region involved
- Rule PH20: Multiple lymph **node** chains/same region
- Rule PH21: Multiple lymph **node** regions
- Rule PH23: Proof of extension from regional lymph **nodes** into an organ
- Rule PH24: **Organ** involvement only
- Rule PH25: **Organ** involvement with regional lymph **nodes**
- Rule PH26: ONLY bone marrow and/or peripheral blood involvement;
    1. Leukemias, Myelodysplastic Syndromes, Myeloproliferative neoplasms, and other bone marrow diseases, are ALWAYS coded to C421
    2. For **lymphomas**, **bone marrow is only assigned as primary site** when a neoplasm is present ONLY in the bone marrow and/or peripheral blood
        a. All available physical exams, scans, and other work-up must be negative for lymph node(s), tissue(s) and/or organ(s) involvement OR no other work-up was done OR **unknown** if other work-up was done.
        b. Excludes splenic involvement. See Primary site coding tips, #10
        c. Check registry database to see if patient had a previous lymphoma, if so, this is either progression or transformation.
- Rule PH27: Multiple **organs** involved WITHOUT lymph node involvement (C809)

LEUKEMIAS VS LYMPHOMAS

- CLL/SLL 9823/3

(B-cells Chronic Lymphocytic **LEUKEMIA**/Small Lymphocytic **LYMPHOMA)**

Version 3.3 Hematopoietic and Lymphoid Neoplasm Coding Manual 60

Rule PH5

Code to C**421** because it is a **Leukemia** (Peripheral BLOOD) and bone marrow involvement.

Blood cancer

Rule PH6

Code to C**779** for involved **lymph** nodes (Lymphoma). Or code primary site to the **organ** or **tissue** involved.

SOLID tumors

- T-ALL/LBL **9837/3**

(T cells Acute Lymphoblastic **LEUKEMIA**/ T-cell Lympho**b**lastic **LYMPHOMA)**

T-cells

Blood cancer

Rule PH7: ONLY Bone marrow or peripheral blood involved

1. For the histologies above, code the primary site to bone marrow (C421) when the only site involved is bone marrow and/or peripheral blood
   a. If lymph node(s), tissue(s), and/or organ(s) are involved, see **PH8**.

Rule PH8: Lymph node(s), organ(s), and/or tissue(s) involved (WITH OR WITHOUT bone marrow and/or peripheral blood).

1. For the histologies listed above, code the **primary site** to the site of origin when lymph node(s), tissue(s), and/or organ(s), are involved
2. Do not simply code the site of a biopsy; also use the information available from scans to determine the correct primary site.
3. See Primary site coding tips **for additional information on coding primary site.**
4. See Appendix C for help identifying lymph node names, chains, regions and codes.
5. See Module 7 and the Hematopoietic database to determine primary site.

Lymphoma: SOLID tumors

ICD-O-3 Morphology Effective 2001 and later

9837/3: Adult T-cell leukemia/lymphoma

Reportable

for cases diagnosed 1978 and later

Primary Site(s)

See Module 4: Rules PH7, PH8

Most common sites of involvement: lymph nodes, peripheral blood.

T-ALL(leukemia)/LBL(lymphoma) **9837/3**

"T-lymphoblastic leukaemia" (T-ALL) is used when the peripheral blood and bone marrow are the primary sites of involvement, and the term "T-lymphoblastic lymphoma" (T-LBL) is used when the primary sites of involvement are lymph node, mediastinum (thymus), or other extranodal sites including the skin, tonsils, liver, spleen, CNS, and testes.

Abstractor Notes

T-lymphoblastic leukemia/lymphoma (T-ALL/LBL) is part of the Precursor T-cell neoplasms lineage table in the WHO 5th edition of Hematolymphoid Tumors. (See Appendix B in the Hematopoietic Manual, Table B19).

"T-lymphoblastic leukaemia" (T-ALL) is used when the peripheral blood and bone marrow are the primary sites of involvement, and the term "T-lymphoblastic lymphoma" (T-LBL) is used when the primary sites of involvement are lymph node, mediastinum (thymus), or other extranodal sites including the skin, tonsils, liver, spleen, CNS, and testes.

T-ALL typically manifests with a high leukocyte count and often with a concurrent large mediastinal or other tissue mass. Lymphadenopathy and hepatosplenomegaly are common.

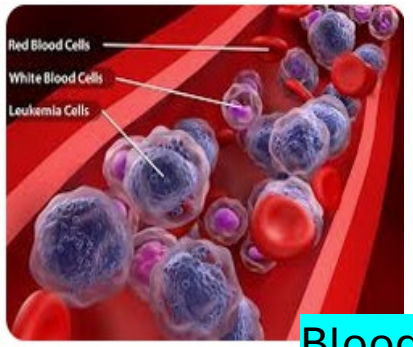
LEUKEMIA: Blood cancer. ⬆ WBC

T-LBL frequently present with a mass in the anterior mediastinum, often exhibiting rapid growth and respiratory emergency. Pleural and/or pericardial effusions are common.

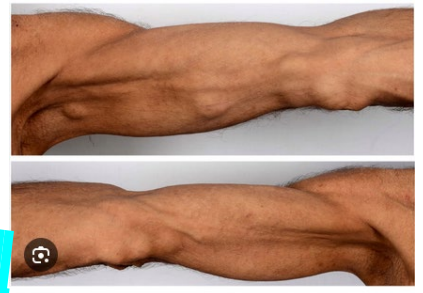
Lymphoma: SOLID tumors

SEER Hemato Database

Abstract with Mistakes



Blood cancer



SOLID tumors

A rare involvement of epitrochlear lymph nodes in mantle cell lympho... Visit ›

WebMD

Acute Myeloid Leukemia (AML): Sy...

Case DX

Date of DX: 2024-03-29

Primary Site C: 779 | Histology: 9823 | Behavior: 3 - Malignant

Discriminator1 | Discriminator2

Schema 00830 HemeRetic

Description:
SS 9th Edition Schema: 00830 - HemeRetic
Florida Required SSDIs:
No SSDI data required by FCDS

Laterality: 0 - None

Text-Primary Site: LYMPH NODES

Text-Histology: CHRONIC LYMPHOCYTIC LEUKEMIA

CLL/SLL 9823/3

Chronic Lymphocytic **LEUKEMIA**/Small Lymphocytic **LYMPHOMA**

Tumor Notes

Contractor: PRIMARY SITE FOR LEUKEMIA IS C42.1

Response: 10/20/2025 01:06PM (CSTONE): 10/20/2025-CS
Reply
PRIMARY SITE (IN TEXT) CHANGED TO C42.1 AND CHANGED IN TOPO CODE AS WELL

Leukemia: C421
Lymphoma: C779 (LN) or primary site organ

Quiz

63 YR OLD WHITE FEMALE NON-HISPANIC-DX AND TX OUTSIDE FAC , COMES TO MY FAC W CA PRESENT. NON-SMOKER. SKIN CLEAR WITHOUT RASHES. H&N LYMPHADENOPATHY ON PE. 01/04/2025 @ OUTSIDE FAC CT ABD/PELVIS: SPLENOMEGALY AND ABDOMINAL LYMPHADENOPATHY 04/05/2025 OUTSIDE FAC BONE MARROW BX: B CELL LYMPHOMA MARGINAL ZONE.

The correct codes are:

a) C421 and 9689/3 (Splenic marginal zone lymphoma)
b) C779 and 9689/3 (Splenic marginal zone lymphoma)
c) C778 and 9699/3 (Marginal zone lymphoma, NOS)
d) C779 and 9699/3 (Marginal zone B-cell lymphoma, NOS)
e) Primary site C422 (Spleen) and 9689/3 (Splenic marginal zone lymphoma)
f) Primary site C421 and 9699/3 (Marginal zone lymphoma, NOS)

c) Primary site C778 and 9699/3 (Marginal zone lymphoma, NOS)

Rule PH21: Multiple lymph node regions

1. Code the primary site to lymph nodes of multiple regions (C778) when multiple lymph node regions are involved.
   a. If a physician documents that the lymphoma originated in a specific lymph node region, code that as the primary site (this is very rare).
   b. If imaging, or the physician states "lymph nodes above and below the diaphragm," code to C778.
   Note: Multiple lymph nodes regions involved can be on the same side or both sides of the diaphragm

Nodal *marginal zone lymphoma* involves single or multiple lymph nodes, most frequently in the head and neck, often disseminates to the bone marrow.

SEER Database

Marginal Zone B-cell **Lymphoma** 9699/3

-AKA Extranodal marginal zone lymphoma of mucosa-associated lymphoid tissue (MALT Lymphoma)-

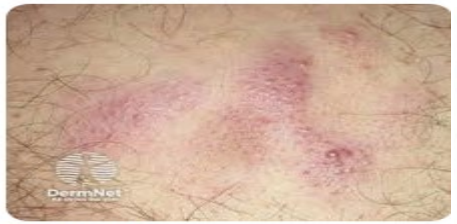
Spleen

Marginal zone B cell lymphoma is a different histology 9689/3

Primary Site(s)

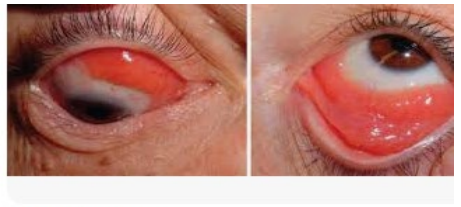
See Module 7

Note: Do not code primary site to spleen (C422).



DermNet

Cutaneous marginal zone lymp...



ScienceDirect.com

Ocular adnexal MALT lymphoma: an ...

Common sites are the stomach, ocular adnexa, salivary gland, skin, lung, breast, thyroid, and thymus. Others include the upper aerodigestive tract, small and large intestines, hepatobiliary system, pancreas, dura and brain, urogenital tract, female genital tract, and soft tissues.
Common metastatic sites: bone marrow

See abstractor notes

Extranodal marginal zone B-cell *lymphoma* can occur in almost any anatomical site. The disease is usually diagnosed when it is localized. Gastric EMZL is linked to chronic Helicobacter pylori infection.

Nodal *marginal* *zone* *lymphoma* involves single or multiple lymph nodes, most frequently in the head and neck, often disseminates to the bone marrow.

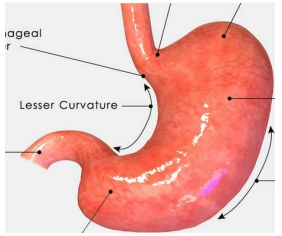
SEER Database

Transformations to

9680/3 Diffuse large B-cell lymphoma, NOS (DLBCL)

Transformations from

None



Alternate Names

Bronchus-associated lymphoid tissue (BALT) lymphoma
Extranodal marginal zone lymphoma
Marginal zone B-cell lymphoma, NOS
Marginal zone lymphoma, NOS
Monocytoid B-cell lymphoma
Mucosal-associated lymphoid tissue (MALT) lymphoma
Nodal marginal zone B-cell lymphoma (NMZL)
Pediatric nodal marginal zone lymphoma (PNMZL)
Primary choroidal lymphoma (C693)
Primary cutaneous marginal zone lymphoma
Primary cutaneous marginal zone lymphoma, heavy chain class switched form (IgG+, IgA+, or IgE+)
Primary cutaneous marginal zone lymphoma, heavy chain non-class switchede form (IgM+)
Primary cutaneous marginal zone lymphoproliferative disorder
Skin-associated lymphoid tissue (SALT) lymphoma

Lymphomas are **SOLID** tumors!

Beware that Marginal Zone B-cell lymphoma metastasize to the Bone Marrow!

Module 7: Coding primary site PH18 –PH27

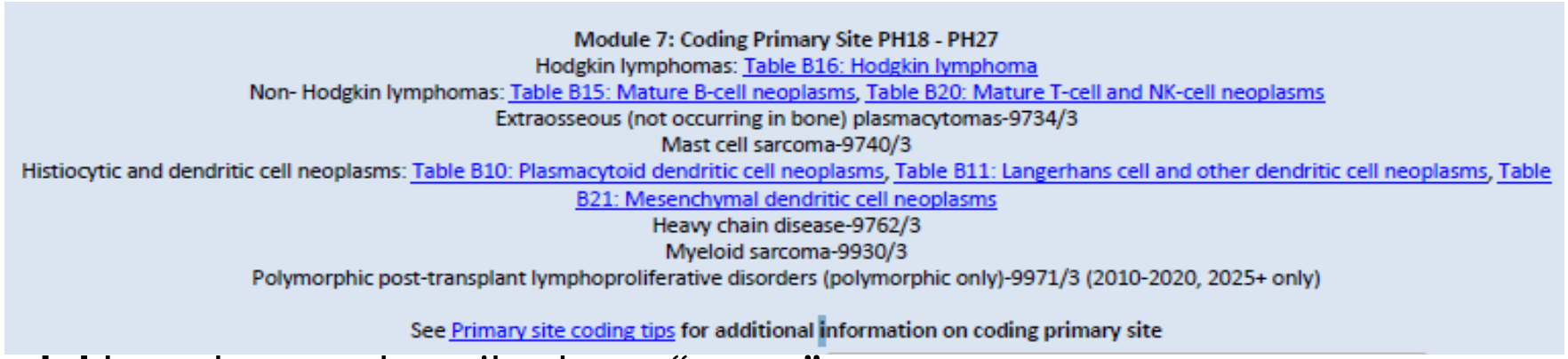
Follow the rules! In some rare cases, some lymphomas can be coded to Bone Marrow as the primary site.

Epidemiology and Mortality

Age: 61 years median age
Country: higher incidence in north-east Italy
Incidence: 7-8% of all B-cell *lymphoma* and up to 50% of primary gastric *lymphomas*
Sex: slight female predominance

Module 7: Coding primary site PH18 –PH27

Module 7 is used mostly for assigning primary site for Lymphomas,



Module 7: Coding Primary Site PH18 - PH27

Hodgkin lymphomas: Table B16: Hodgkin lymphoma

Non- Hodgkin lymphomas: Table B15: Mature B-cell neoplasms, Table B20: Mature T-cell and NK-cell neoplasms

Extraosseous (not occurring in bone) plasmacytomas-9734/3

Mast cell sarcoma-9740/3

Histiocytic and dendritic cell neoplasms: Table B10: Plasmacytoid dendritic cell neoplasms, Table B11: Langerhans cell and other dendritic cell neoplasms, Table B21: Mesenchymal dendritic cell neoplasms

Heavy chain disease-9762/3

Myeloid sarcoma-9930/3

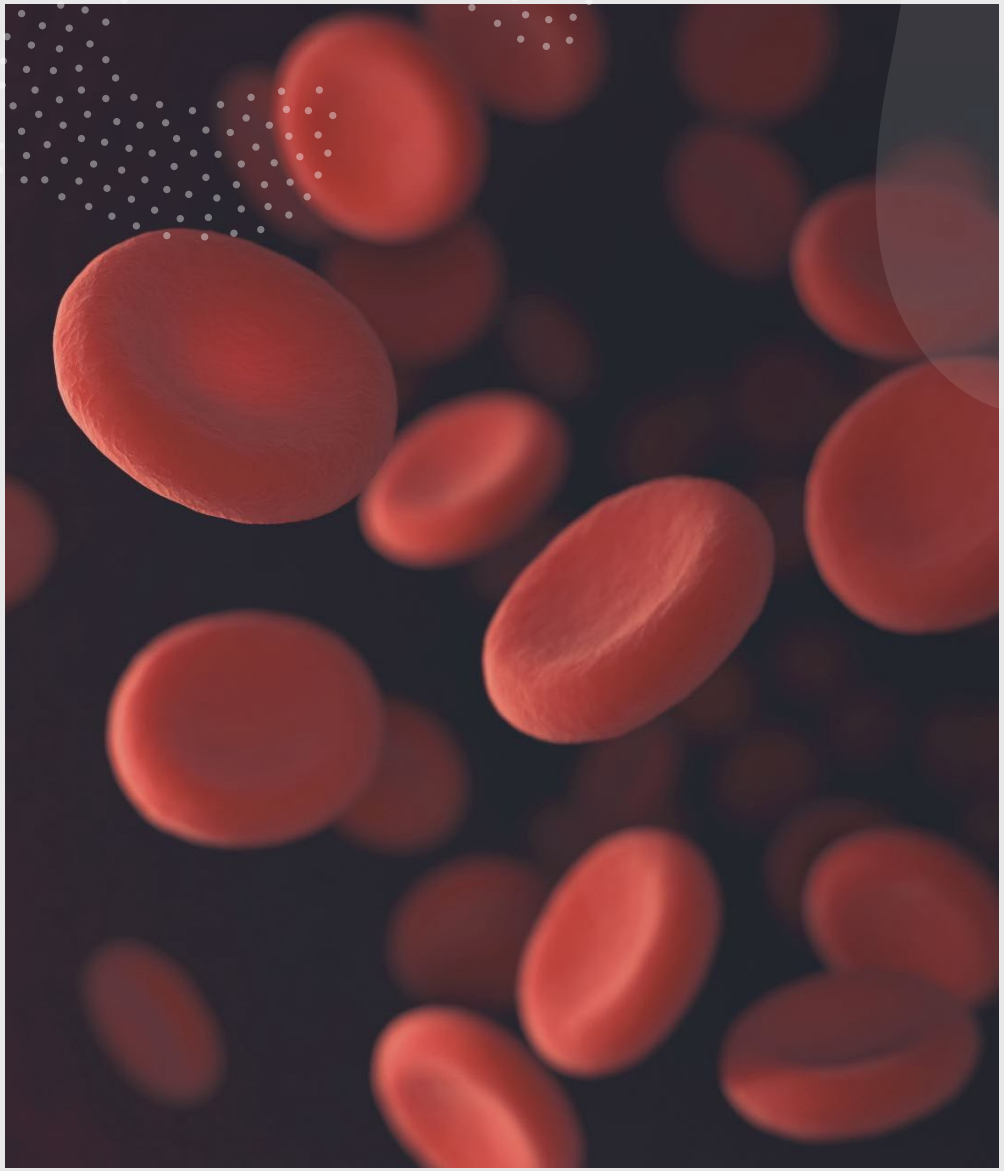
Polymorphic post-transplant lymphoproliferative disorders (polymorphic only)-9971/3 (2010-2020, 2025+ only)

See Primary site coding tips for additional information on coding primary site

- Rule PH18: **Nodal** Lymphomas described as a "mass"
- Rule PH19: One lymph **node** chain/region involved
- Rule PH20: Multiple lymph **node** chains/same region
- Rule PH21: Multiple lymph **node** regions
- Rule PH23: Proof of extension from regional lymph **nodes** into an organ
- Rule PH24: **Organ** involvement only
- Rule PH25: **Organ** involvement with regional lymph **nodes**
- Rule PH26: ONLY bone marrow and/or peripheral blood involvement;
    1. Leukemias, Myelodysplastic Syndromes, Myeloproliferative neoplasms, and other bone marrow diseases, are ALWAYS coded to C421
    2. For **lymphomas**, **bone marrow is only assigned as primary site** when a neoplasm is present ONLY in the bone marrow and/or peripheral blood
        a. All available physical exams, scans, and other work-up must be negative for lymph node(s), tissue(s) and/or organ(s) involvement OR no other work-up was done OR **unknown** if other work-up was done.
        b. Excludes splenic involvement. See Primary site coding tips, #10
        c. Check registry database to see if patient had a previous lymphoma, if so, this is either progression or transformation.
- Rule PH27: Multiple **organs** involved WITHOUT lymph node involvement (C809)

GRADE FOR HEMATOPOIETIC

Some exceptions



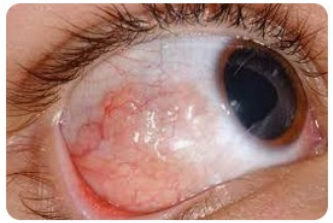
GRADE for Hematopoietic and Lymphoid

If no preferred grading (1-4) system, then code 9
Example: :LOW GRADE code 9

Cancer Registry Coding of the Cell Indicator or Grade for Hematopoietic and Lymphoid Neoplasms (9590-9992)

Historically the cell lineage indicator (B-cell, T-cell, Null cell, NK-cell) was collected in the Grade data item. Cell lineage indicator/grade for hematopoietic and lymphoid neoplasms will no longer be collected for cases diagnosed 1/1/2018 and forward.

Note: *The Lymphoma Ocular Adnexa system in the AJCC manual has a defined grading system for the follicular histologies. Grade is to be assigned to these according to the Lymphoma Ocular Adnexa system. The primary sites and follicular histologies included are as follows.*



Wills Eye Hospital
Conjunctival Lymphoma | Wills Eye H...

- *Applicable primary sites: C441, C690, C695, C696*
- *Applicable histologies: 9690/3, 9691/3, 9695/3, 9698/3*
- *Grade for all other histologies collected in the Lymphoma Ocular Adnexa system will be coded to 9*

For cases with histologies 9590/3-9992/3, the clinical and pathological must be coded to '8' and post therapy clin and path grades must be blank.

Lymphoma Ocular Adnexa system

Ocular Adnexal lymphomas originate in conjunctiva, eyelids, lacrimal gland, lacrimal drainage apparatus, and other orbital tissues surrounding the eye.

C441 Eyelid C690 Conjunctiva C695 Lacrimal gland
C696 Orbit,

9690/3 9691/3 9695/3 9698/3 ...**Follicular** lymphomas

All other Histologies collected in the Lymphoma Ocular Adnexa will be coded to 9

https://apps.naaccr.org/ssdi/schema/lymphoma_ocular_adnexa/?breadcrumbs=(~schema_list~)

Code	Description
1	G1: 0-5 centroblasts per 10 HPF
2	G2: 6-15 centroblasts per 10 HPF
3	G3: More than 15 centroblasts per 10 HPF but with admixed centrocytes
4	G4: More than 15 centroblasts per 10 HPF but without centrocytes
9	Grade cannot be assessed (GX); Unknown Not a follicular histology (9690/3, 9691/3, 9695/3, 9698/3)

GRADE

Lymphoma Ocular Adnexa system only!

9690/3	**Follicular** lymphoma
9691/3	**Follicular** lymphoma, GRADE 2
9695/3	**Follicular** lymphoma, GRADE 1
9698/3	**Follicular** lymphoma, GRADE 3

GRADE
Preferred grading
1-4

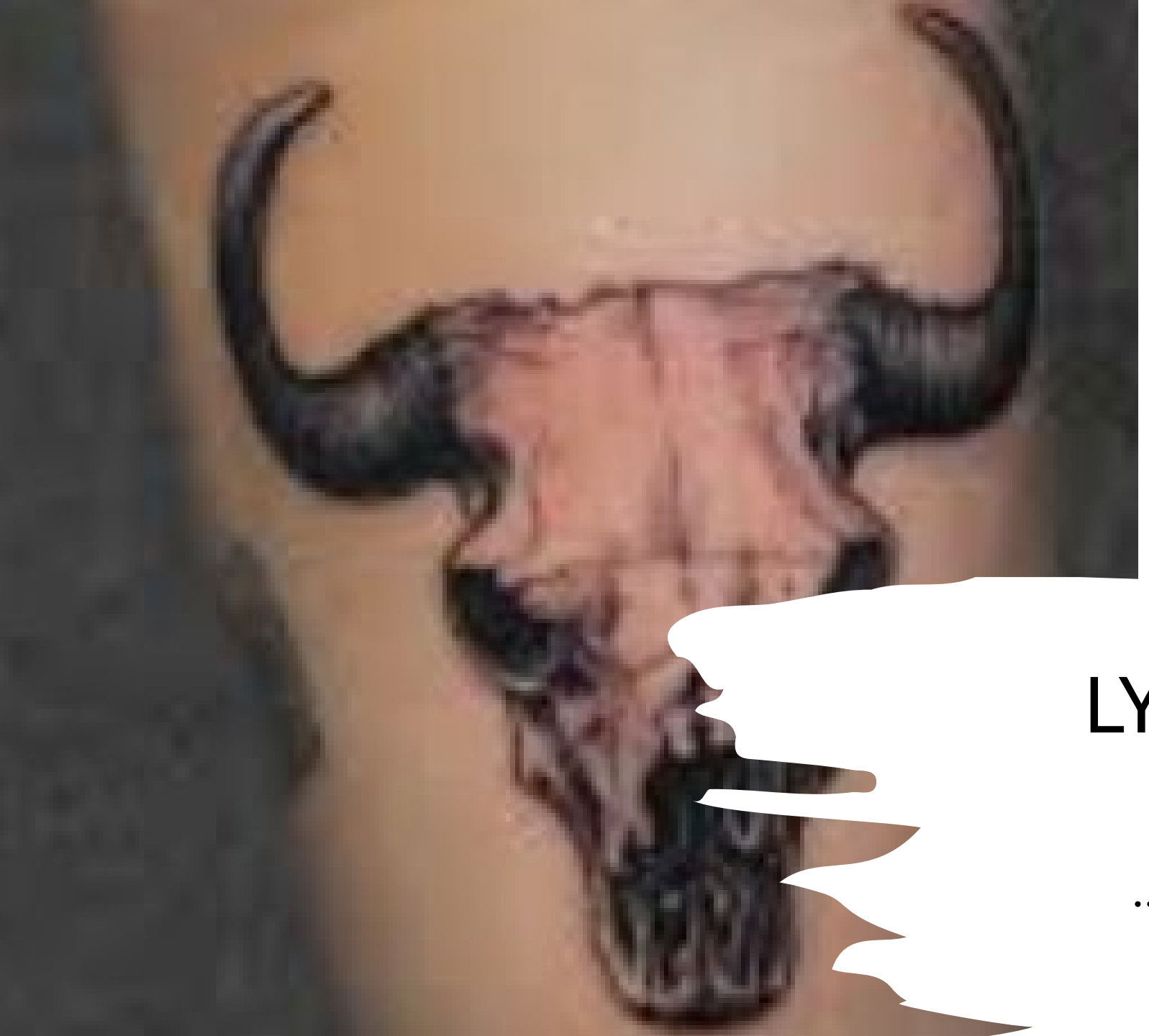
Not preferred grade system, then code to 9

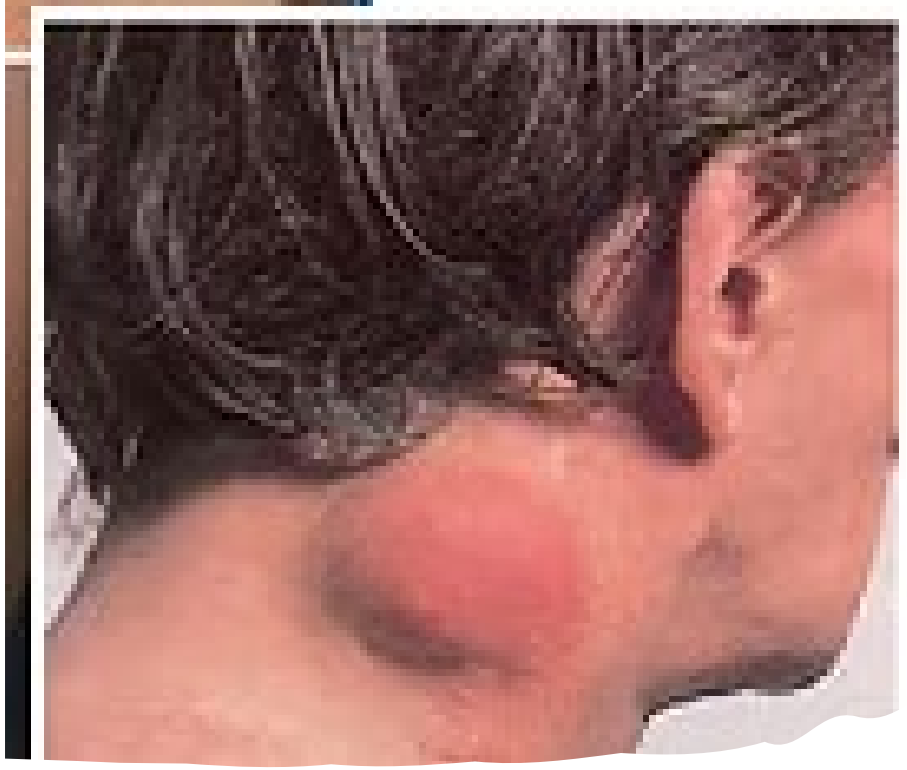
Ocular Adnexal lymphomas originate in:

- Conjunctiva (C690)
- Eyelids (C441)
- Lacrimal gland (C695)
- Orbital (C696) tissues surrounding the eye.

9	Grade cannot be assessed (GX); Unknown Not a follicular histology (9690/3, 9691/3, 9695/3, 9698/3)

Grade for all other histologies collected in the Lymphoma Ocular Adnexa system will be coded to 9

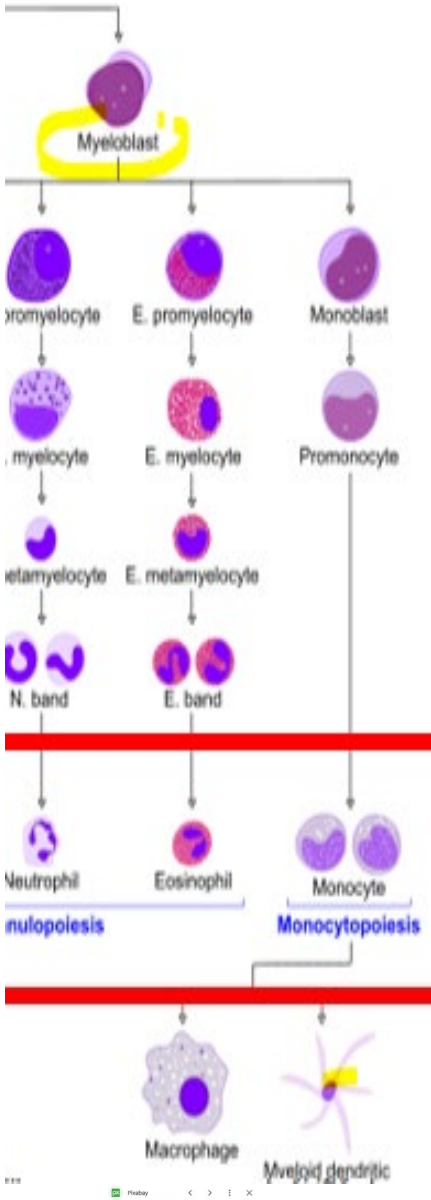




LYMPHOMA and Tattoos

...Is there a connection?

Correlation of tattoos and lymphoma



How Tattoo Ink Interacts with the Immune System

Pigment Migration: When ink is injected into the skin, the immune system treats it as a foreign threat. White blood cells called **macrophages** rush to the site and engulf the ink particles. They may enter the lymphatic vessels and enter lymph nodes. When macrophages die, they release the ink and it travels to the lymph vessels. Macrophages cannot digest ink!

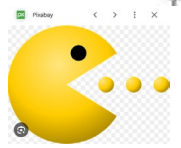
Permanent Node Deposition: This migrated ink is permanently deposited into **regional lymph nodes**, frequently staining the tissue the literal color of the tattoo pigment.

The Risk Factor: Inside the nodes, the ink causes **chronic, low-grade inflammation** and oxidative stress. This long-term cellular irritation in the immune organs is what scientists believe may increase the risk of lymphoma.

LASER BREAKDOWN. Laser removal treatment further elevate lymphoma correlation,, likely because thermal energy fractures stable pigments into toxic, systemic chemical compounds.

Certain inks may contain heavy metals, azo dyes and some carcinogens as Benzopyrene.

More regulation about tattoo ink in Europe than USA!



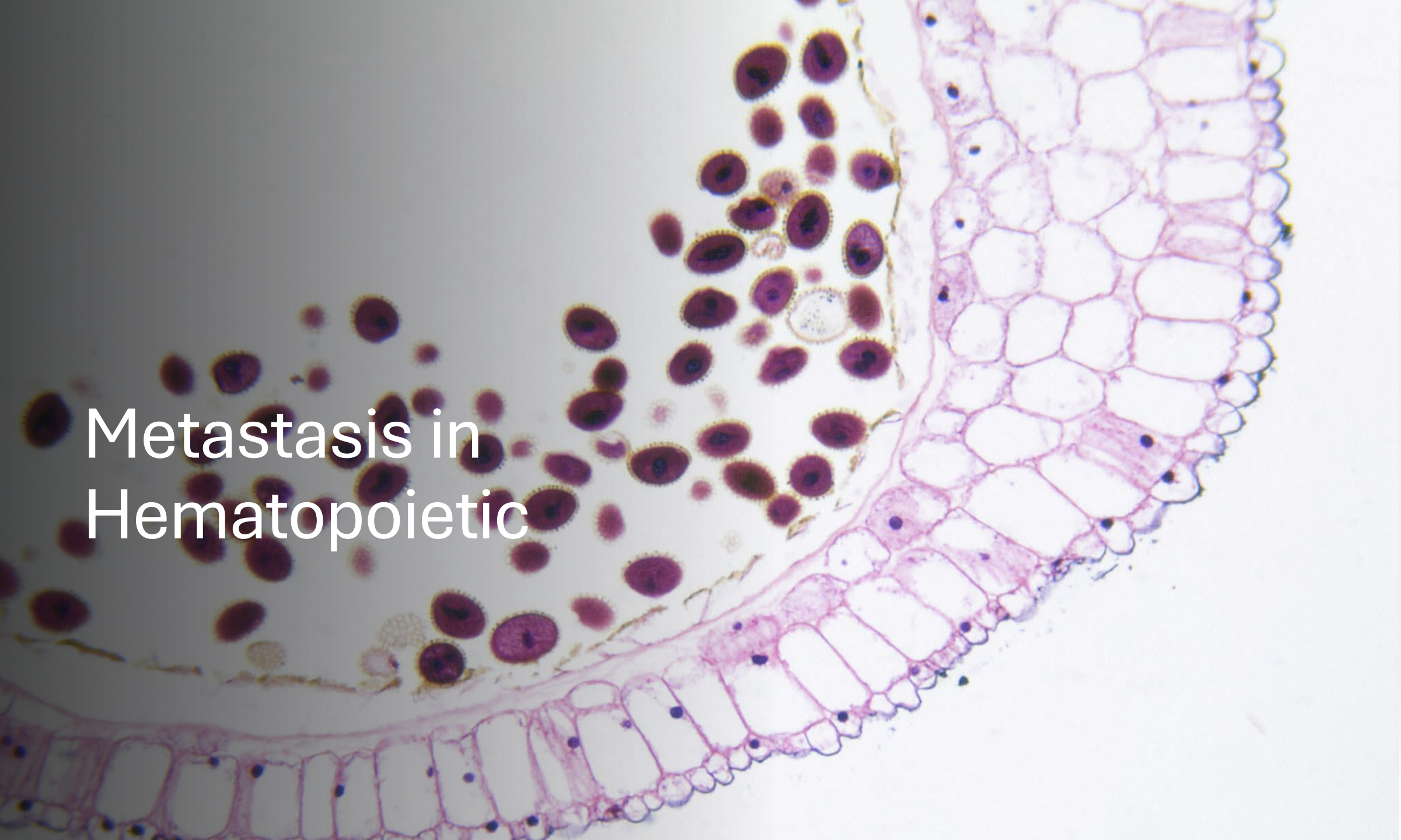
Step 1: Needle Injection → Step 2: Macrophages Engulf Ink → Step 3: Migration via Lymph Channels → Step 4: Permanent Storage in Lymph Nodes.

Correlation of Tattoos and lymphoma

Correlation is NOT CAUSATION!

- **The Swedish Cohort Finding:** A landmark 2024 population-based study identified a **21% higher overall risk** of malignant lymphoma in tattooed individuals compared to non-tattooed controls.
- **Vulnerable Subtypes:** The statistical correlation is strongest for specific immune malignancies, notably **diffuse large B-cell lymphoma** and **follicular lymphoma**.
- **The "Size Paradox":** Cohort data shows **no direct dose-response relationship** regarding total body surface area. Small, isolated tattoos carry a similar statistical correlation to extensive body suits.
- **The Risk Timeline:** Risk trajectories follow a distinct curve—spiking highest within the **first 2 years** post-tattoo, leveling off, and climbing again after 11 years.

Other studies are contradictory.
More studies are needed!



Metastasis in Hematopoietic

Coding Mets at Dx …Primary Site?

Lymphomas
Coding **Mets** at dx for Lymphomas follows the exact same concept as solid tumors.
Common metastatic sites for lymphomas include Bone, Brain/CNS, liver, lung. Even though in rare occasions they can be primary site, they are usually secondary and are recorded as mets.

When determining primary site, if bone, brain/CNS, liver, lung or bone marrow are involved, look for other areas/sites involvement first, such as lymph nodes and other sites.
First step is to determine what is probably metastatic!

CASE:

CT Abd/Pelvis: Large mass in **Ascending colon**, multiple **regional** lymph nodes involved.
Surgery R Hemicolectomy, DLBCL, non-germinal center lymphoma.
PET CT: nodal mets above and below the diaphragm. R FEMUR mets. Bone marrow positive for DLBCL.

Determine what is probably metastatic: bone mets, distant lymph nodes, and bone marrow.
That leaves us with the Ascending COLON, and **Regional** lymph nodes.

Rule PH25 applies which is code the primary site to the organ when an organ and its lymph nodes are involved. Primary site

Ascending colon

If it was an ORGAN and **DISTANT** LYMPH Nodes for that specific organ, probably you will have to code it to C779
Follow the Rules when in doubt! Each case is unique!

AUDIT to FCDS

HEMATOPOIETIC

LAST AUDIT TO FCDS HEMATOPOIETIC

RESULTS from partial audit.
MISTAKES:

-Diagnostic Confirmation (1,3...)	67
-Primary Site	32
-Rx Summ-Transplant/Endocrine	32
-Date Chemo	19
-Histology type	15
-Summary Stage	13
-Chemo coding 3 or 2 for multiple or single agents	
-Date Hormone	10
-Date Surgery	9
-Other treatment	8
-Treatment Status	6
-Race	2
-Grade Clinical and Grade Pathological	2
-Phase I Radiation Treatment	2
-Immunotherapy	2
-Date Radiation	1

QUIZ

Pt with B-cell Acute Lymphoblastic Leukemia BCR-ABL1 Presents to UF HEALTH for a transplant.
7-30-25 ALLOGENEIC STEM CELL TRANSPLANTATION (FROM SISTER).

Which code do you use:

11 Bone marrow transplant – autologous

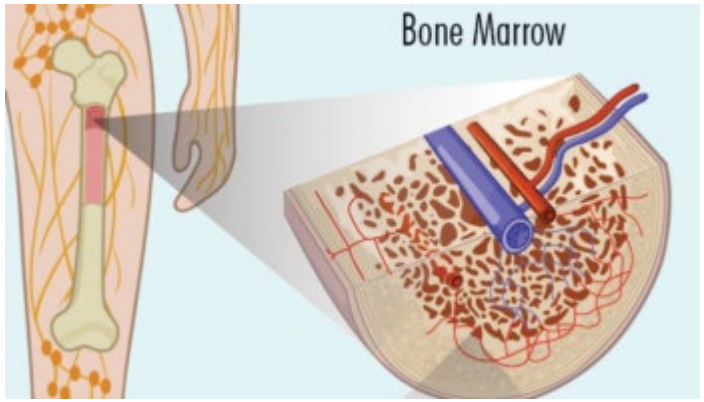
12 Bone marrow transplant – allogenic

20 Stem cell harvest

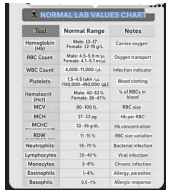
Answer:
20 Stem cell harvest

Because is NOT specifying it is from Bone Marrow.
Therefore, its source is PERIPHERAL BLOOD!

Where do we find STEM CELLS?



blood



SMALL Number of stem cells circulate in the bloodstream. MOBILIZATION: Physicians can artificially trigger the bone marrow to release a large number of stem cells into the bloodstream using medications called growth factors (like G-CSF: Granulocyte Colony-Stimulating Factor)

https://pmc.ncbi.nlm.nih.gov/articles/PMC6119634/

Bone marrow

Blood

Tissue

10 µm

Multipotential hematopoietic stem cell (Hemocytoblast)

BABY IMMATURE cells

Common myeloid progenitor

Common lymphoid progenitor

Megakaryoblast

Promegakaryocyte

Megakaryocyte

Proerythroblast (Pronormoblast)

Basophilic erythroblast

Polychromatic erythroblast

Orthochromatic erythroblast (Normoblast)

Polychromatic erythtocyte [1] (Reticulocyte)

Myeloblast

B. promyelocyte

B. myelocyte

B. metamyelocyte

B. band

N. promyelocyte

N. myelocyte

N. metamyelocyte

N. band

E. promyelocyte

E. myelocyte

E. metamyelocyte

E. band

Monoblast

Promonocyte

Lymphoblast

Prolymphocyte

Thrombocytes (Platelets)

Thrombopoiesis

Erythrocyte [2] (Red blood cell)

Erythropoiesis

Basophil

Neutrophil

Eosinophil

Granulopoiesis

Monocyte

Monocytopoiesis

Small lymphocyte [4]

Natural killer cell (Large granular lymphocyte)

Mast cell

Macrophage

Myeloid dendritic cell [3]

B lymphocyte

T lymphocyte

Lymphopoiesis

Plasma cell

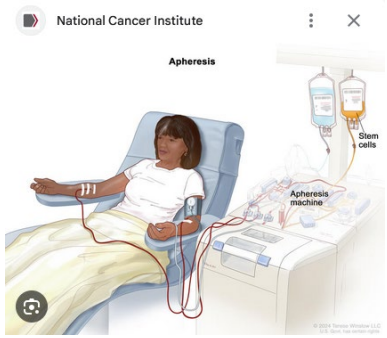
Lymphoid dendritic cell [3]

Stem cells

Committed progenitor cells

Mature cells

TRANSPLANTS in Hematopoietic



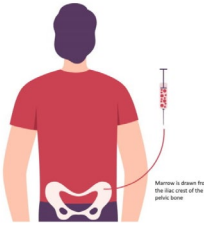
PBSCT can also be Allogenic or Autologous!

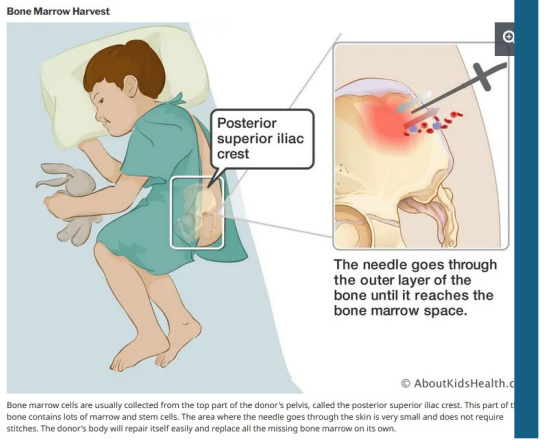
- **Peripheral** blood stem cell transplant (**P**BSCT)

  Harvest hematopoietic stem cells (AKA CD34+ progenitor cells) from the **circulating blood** through apheresis (similar to plasma donation).

- **Bone Marrow** transplant

  Outpatient surgery



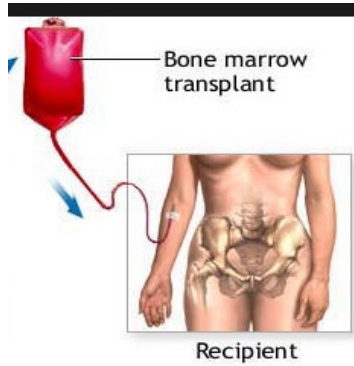


DONOR RECIPIENT

Preparation(Conditioning)

Destroying the diseased marrow with chemo and or/radiation.

Then receiving the BM transplant through IV



https://www.youtube.com/watch?v=l9Vage7ptel

TRANSPLANTS in hemato

Code	Description
00	None, transplant procedure or endocrine therapy was not part of the first course of therapy; not customary therapy for this cancer
10	Bone marrow transplant, NOS. A bone marrow transplant procedure was administered, but the type was not specified
11	Bone marrow transplant – autologous
12	Bone marrow transplant – allogeneic
20	Stem cell harvest Peripheral Blood (**PBSCT)**
30	Endocrine surgery and/or endocrine radiation therapy. Code only to be used for Primary Sites Breast and/or Prostate
40	Combination of endocrine surgery and/or radiation with a transplant procedure (combination of codes 30 and 10, 11, 12 or 20).
82	Hematologic transplant and/or endocrine surgery/radiation was not recommended/administered because it was contraindicated due to patient risk factors (i.e., comorbid conditions, advanced age). CONTRAINDICATED
85	Hematologic transplant and/or endocrine surgery/radiation was not administered because the patient died prior to planned or recommended therapy. DIED
86	Hematologic transplant and/or endocrine surgery/radiation was not administered. It was recommended by the patient's physician, but was not administered as part of first-course therapy. No reason was stated in the patient record.
87	Hematologic transplant and/or endocrine surgery/radiation was not administered. It was recommended by the patient's physician, but this treatment was refused by the patient, the patient's family member, or the patient's guardian. The refusal was noted in the patient record. REFUSED
88	Hematologic transplant and/or endocrine surgery/radiation was recommended, but it is unknown if it was administered If a bone marrow or stem cell harvest was undertaken, but was not followed by a rescue or re-infusion as part of first course treatment
99	It is unknown whether hematologic transplant and/or endocrine surgery/radiation was recommended or administered because it is not stated in patient record. Autopsy only cases. ONLY USE FOR DEATH CERTIFICATE CASES p.189

Contraindicated/Refused/Died CODES in **Chemo/ Radiation/Hormone/BRM** or **Surgery** are also a frequent omitted error in some abstracts.

FCDS Data Acquisition Manual 2025 Revised –2025

Classification:

- Allogenic (by a person other than the pt)
- Autologous (by the patient)
- Syngeneic (from an identical twin)

BMT Allogeneic: Receives bone marrow or stem cells from a donor.

BMT Autologous: Uses the patient's own bone marrow and/or stem cells. The tumor cells are filtered out, and the purified blood and stem cells are returned to the patient.

Peripheral Blood Stem Cell Transplantation (PBSCT): Rescue that replaces stem cells after conditioning.

p.188

Conditioning: High-dose chemotherapy with or without radiation administered prior to transplants such as BMT and stem cell to kill cancer cells. This conditioning also destroys normal bone marrow cells so the normal cells need to be replaced (rescue). The high dose chemotherapy is coded in the Chemotherapy field.

Rescue: Rescue is the actual BMT or stem cell transplant done after conditioning.

Allogenic transplant or Autologous transplant code it to 20 (STEM CELL HARVEST) ...Why?

Because is NOT specifying it is from Bone Marrow. Therefore, its source is PERIPHERAL BLOOD!

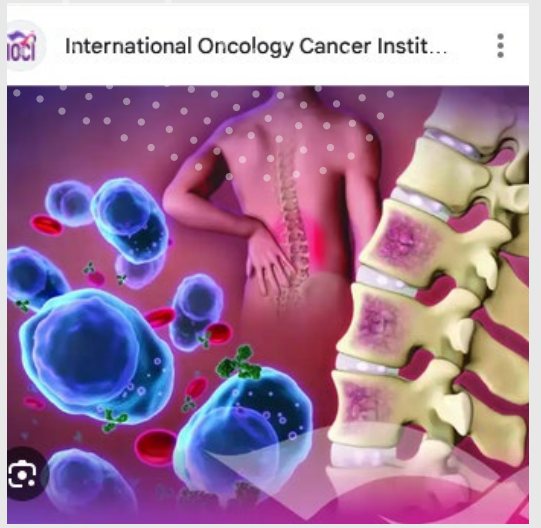
Multiple Myeloma

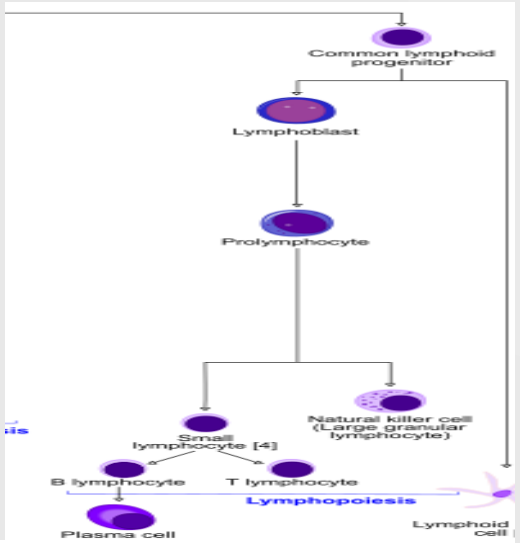
Kidney dysfunction as Bence Jones proteins overwhelm the kidney.

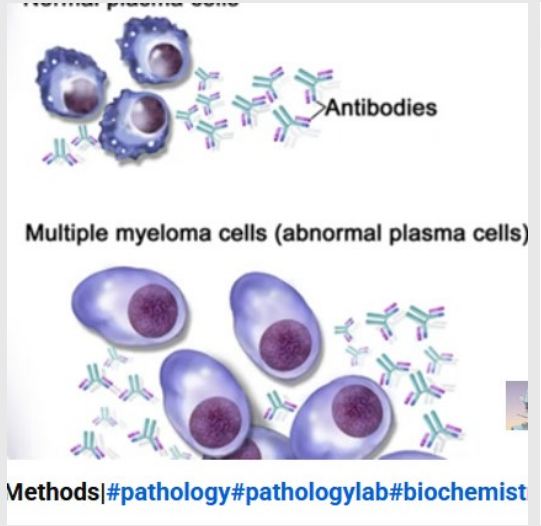
Bone destruction with release of calcium giving hypercalcemia, lytic lesions, pathological fractures, pain.

Anemia

STEM CELL TRANSPLANT can Help!







Multiple myeloma

Autologous Stem Cell Transplant (ASCT)

https://www.google.com/search?q=multiple+myeloma+autologous+transplant+procedure+youtube&client=firefox-b-1-d&sca_esv=3153b04427d9d7e5&ei=BC-raOCnN6qJwbkP3qSf0Ao&ved=0ahUKEwjgudLx4KOPAxWqRDABHV7SB6oQ4dUDCBA&uact=5&oq=multiple+myeloma+autologous+transplant+procedure+youtube&gs_lp=Egxnd3Mtd2l6LXNlcnAiOG11bHRpcGxlIG15ZWxvbWEgYXV0b2xvZ291cyB0cmFuc3BsYW50IHByb2NlZHVyZSB5b3V0dWJlIMggQIRigARjDBDIIECEYoAEYwwRI4TJQlRtY6jFwAXgAkAEAmAGFAaAB3QiqAQM1Lja4AQPIAQD4AQGYAgugAsUIwgIKEAAYsAMY1gQYR8ICChAhGKABGMMEGAqYAwCIBgGQBgiSBwM1LjagB-03sgcDNC42uAfACMIHBDAuMTHIBw8&sclient=gws-wiz-serp#fpstate=ive&vld=cid:c7a38251,vid:xh_3lTjK0BM,st:0

Conditioning: High-dose chemotherapy with or without radiation administered prior to transplants such as BMT and stem cell to kill cancer cells. This conditioning also destroys normal bone marrow cells so the normal cells need to be replaced (rescue). The high dose chemotherapy is coded in the Chemotherapy field.

Relevance	Name	Category	Primary Site
	Melphalan	Chemotherapy	Multiple myeloma, ovarian cancer, Polycythemia Vera

2/17/2022 AH ORL VARELA - APBSCT WITH MELPHALAN 200MG/M2

What is this coded to?

10	Bone marrow transplant, NOS. A bone marrow transplant procedure was administered, but the type was not specified
11	Bone marrow transplant - autologous
12	Bone marrow transplant - allogeneic
20	Stem cell harvest

20

IMMUNOTHERAPY

Donor **LEUKOCYTE INFUSIONS** (AKA **BUFFY COAT** FUSION)

Name

Donor lymphocyte infusion

This definition applies to

All SEER websites where this term appears

Definition

A type of therapy in which lymphocytes from the blood of a *donor* are given to a patient who has already received a stem cell transplant from the same *donor*. The *donor* lymphocytes may kill remaining cancer cells. *Donor* lymphocyte infusion is used to treat chronic myelogenous leukemia (CML) that has come back and myeloma. It is being studied in the treatment of other types of cancer.

Also known as a buffy coat fusion, *donor* lymphocyte infusion (DLI) is a form of adoptive immunotherapy used after hematopoietic stem cell transplantation. Formerly, the only treatment option that offered relapsed bone marrow transplant patients hope of a cure was another bone marrow transplant. However, the risk of serious, life-threatening complications after a second bone marrow transplant is great.

Donor lymphocyte infusion is used to treat chronic myelogenous leukemia (CML) that has come back and myeloma. It is being studied in the treatment of other types of cancer.

Resource

Title: National Cancer Institute
NCI Dictionary of Cancer Terms

Allogenic Transplant is primary treatment.

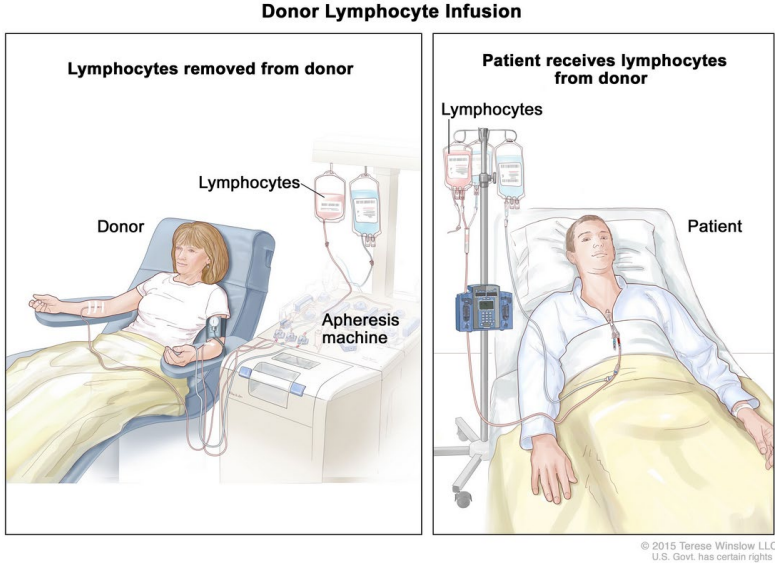
DLI (Donor Leukocyte Infusion) is secondary intervention with WBC from the same donor to treat RELAPSE.

DLI is used in **CML** and **Myeloma Multiple**

DLI -Donor Leukocyte Infusion (Buffy Coat Fusion) IMMUNOTHERAPY

Donor Leukocyte Infusions

The use of donor leukocyte infusions for treatment of hematopoietic neoplasms, specifically leukemias, is increasing. Abstract as immunotherapy when a reportable hematopoietic neoplasm is treated with donor leukocyte infusion, even if it is not listed in the treatment section of the Heme DB for the specific neoplasm. See the Glossary for Registrars for a definition of donor leukocyte infusions.



-DLI (Buffy Coat Fusion) It is not listed as treatment in the Heme Database

-Leukocytes (mainly lymphocytes T, NK cells...) from the blood of a donor are given to a patient who has already received a stem cell transplant **from the same donor**.

-DLI is delivered through a central catheter (central line). This allows the infused cells to dilute and circulate quickly, preventing vein irritation and ensuring the lymphocytes are not damaged(crushed) by slow, narrow peripheral veins.

Donor lymphocyte infusion. Lymphocytes (a type of white blood cell) from the blood of a donor are given to a patient. (Panel 1): Blood is taken from a vein in the donor's arm. The blood flows through an apheresis machine that removes the lymphocytes. The blood is then returned to the donor through a vein in the other arm. (Panel 2): The patient receives the lymphocytes through a catheter in the chest.

https://www.cancer.gov/publications/dictionaries/cancer-terms/def/donor-lymphocyte-infusion

Quiz

58 YOF PRESENTED TO BH WITH HISTORY OF ABN CBC W/ ANEMIA & THROMBOCYTOPENIA AND A LATER DIAGNOSIS OF AML PT PRESENTS FOR STEM CELL TRANSPLANT

Text - Dx Procedures - Pathology Report

4/2/22- DR. MENES, BH: BONE MARROW BX: AML. MYELOBLASTS COMPRISE 20-25% OF ALL BONE MARROW ELEMENTS. 5/5/21- DR. MENES, BH: BONE MARROW BX: AML, PERSISTENT. THE BONE MARROW EXHIBITS 60% NEOPLASTIC MYELOBLASTS.

8/17/21- DR. AL-ATRASH, HOUSTON, TX: PT HAD ALLOGENIEC BMT

How do you code the stem cell Transplant?

10 Bone marrow transplant, NOS

11 Bone marrow transplant –autologous

12 Bone marrow transplant -allogenic

20 Stem cell harvest

12 Bone marrow transplant -allogenic

Survival Statistics by Hematologic Malignancy

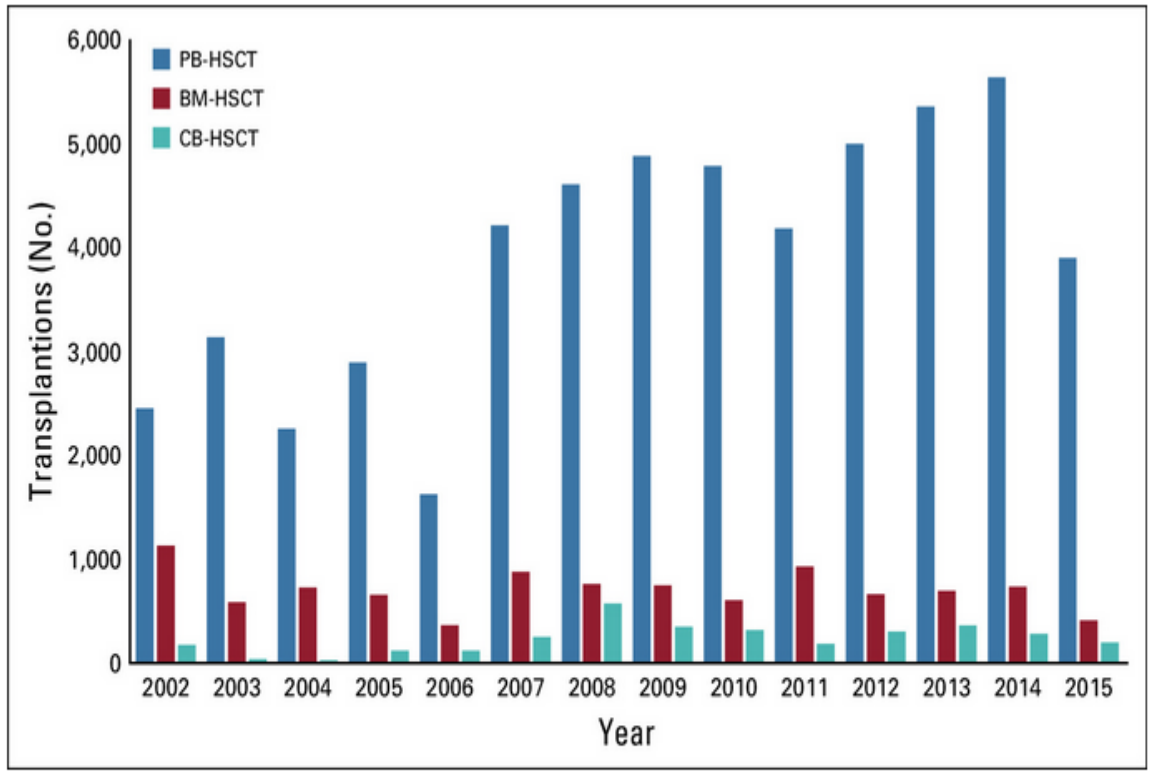
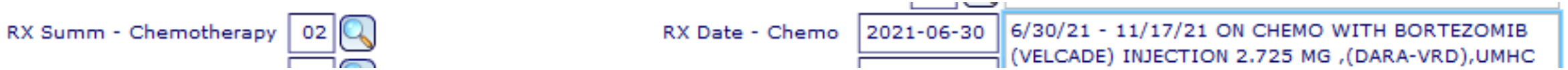


Fig A1. Stem-cell transplant hospitalizations by year and type. BM, bone marrow; CB, cord blood; HSCT, hematopoietic stem-cell transplantation; PB, peripheral blood.

- **Multiple Myeloma:** Autologous (patient's own cells) PBSC transplant is standard-of-care. The 5-year overall survival (OS) rate is roughly 75%.
- **Acute Myeloid Leukemia (AML):** The 5-year survival rate following an allogeneic stem cell transplant is approximately 65%.
- **Lymphomas:** Overall survival rates range from 70% to 75% post-transplant, largely depending on the disease stage and donor type.

Overall Long-term Survival: Approximately 80% of patients who survive past 5 years post-transplant live for another 15 to 20 years.

Overlooks while coding cancer agents



DARA-VRD Regimen for **Multiple Myeloma**:

DARA: Daratumumab

V: Velcade (Bortezomib)

R: Revlimid (Lenalidomide)

D: Dexamethasone

BRM/Immunotherapy

Chemotherapy

BRM/Immunotherapy

Hormone

Do not enter the ACRONYM only! Specify individual agents in corresponding text.

In this case, there was failure to code immunotherapy and Hormone. Only chemo was coded.

Survival/Mortality

TABLE 8

Survival Rates of the Most Common Subtypes of non-Hodgkin Lymphoma

Subtype	% Survival Rate*
Diffuse large B-cell lymphoma	66.5
Follicular lymphoma	90.5
Mantle cell lymphoma	72.9
Marginal zone lymphoma	91.3
T-cell lymphoma	72.1

* Indicated rates represent 2-year observed survival for those diagnosed with the shown subtype during 2015–2019.

Source: (662).

Annual Decline in Mortality in the United States (2014–2023)

HODGKIN LYMPHOMA	LEUKEMIA	MYELOMA	NON-HODGKIN LYMPHOMA
2.4% ↓	1.8% ↓	2.3% ↓	2.2% ↓

Source: (4).

Lymphomas
Surgery Primary Site in Lymphoma

Common Error

TO VERIFY THE SURGERY CODE, TEXT IS NEEDED
TO VERIFY THAT THE NECK LNS WERE THE **ONLY SITE** OF THE LYMPHOMA.

In MOST of the Lymphomas: SURGERY will NOT be coded.

Quiz

70 yr old white male presents to the ER with SOB with recent diagnosis of **Chronic Myeloid Leukemia** (9863/3).

BM bx on his records shows a CML diagnosis with Flow cytometry: CD13+, CD33+, CD117-

What is his Diagnostic Confirmation:

a) 1 Histology

b) 3 Histo + Genet + Immuno

a) 1 Histology

Do **not** code 3 for 9863/3

Genetics Data

None

Immunophenotyping

Histologies that are NEVER confirmation code 3

The following histologies should never be assigned diagnostic confirmation 3 since they are non-specific codes and neither genetic testing or immunophenotyping are listed as Definitive Diagnostic Methods for these histologies in the Hematopoietic database: 9590/3, 9655/3, 9800/3, 9820/3, 9860/3, 9863/3, 9975/3, 9980/3, 9982/3, 9989/3, 9991/3.

- If there is immunophenotyping or genetics available, then a more specific histology code may be able to be assigned

Quiz

58 yr old white female presents with his plastic surgeon for results of her removal of her breast implants which were given her symptoms, and it was time to change them after 10 years. She is given the news that she has lymphoma associated with her breast implants. She will get a referral with an oncologist for further treatment.

What is the most likely mutation to be found in her Biopsy:

a) JAK1 (+) mutation and STAT3 mutation
b) JAK2 (+) mutation
c) JAK3 (+) mutation

a) JAK1 (+)

9715/3: Anaplastic large cell lymphoma, ALK-negative / *Breast* implant-associated anaplastic large cell lymphoma

Genetics Data

DUSP22 locus at 6p25.3
JAK1 mutations
STAT3 mutations
TR genes are clonally rearranged

Quiz

11-year-old female with Trisomy 21 is brought by her mother to the oncologist for treatment with recent Acute Myeloid Leukemia diagnosis.

Bone marrow Bx: AML (No other information).

Histology code:

a) 9860/3 Myeloid leukemia, NOS

b) 9861/3 Acute Myeloid leukemia, NOS

c) 9898/3 Myeloid leukemia associated with Down Syndrome

c) 9898/3 Myeloid leukemia associated with Down Sx

Trisomy 21 = Down Syndrome

Quiz

50 yr old woman presents to the Dermatologist for results of a biopsy taken from her upper back. However, 90% of her body is covered by this rash. She receives the Diagnosis of **Sezary Syndrome** (9701/3).

Punch skin bx: Sections of the skin biopsy reveal a prominent, band-like lymphoid infiltrate tightly localized to the upper papillary dermis. There is focal, single-cell migration of atypical lymphocytes into the lower layers of the epidermis. The infiltrating cells consist of small-to-medium sized T-lymphocytes demonstrating clear malignant features: highly hyperchromatic nuclei with characteristic **cerebriform (convoluted, brain-like) nuclear folding** and scant cytoplasm. All this is consistent with Sezary Syndrome. It shows JAK2(-) JAK3 (+) .

Diagnostic Confirmation:

a) 1 Histology

b) 3 Histo + Genetics/Immunohisto

b) 3 Histo + Genetics/Immunohisto

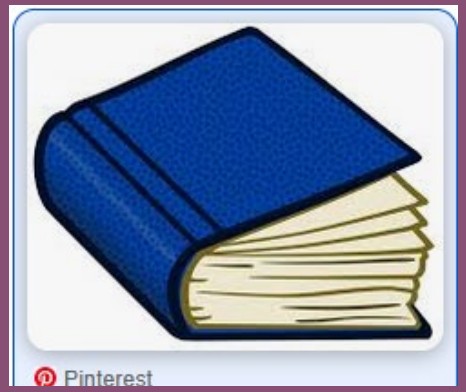
(JAK 3 (+) is a valid genetic test in Sezary Syndrome).

APPENDIX E
2020 CENSUS LIST OF SPANISH SURNAMES

Race?
Hispanic origin?

FCDS Data Acquisition Manual

DAM



Appendix D: Race Coding Instructions and Race and Nationality Descriptions

Race Coding Instructions
Race and Nationality Descriptions from the 2000 Census and Bureau of Vital Statistics
Other Race Descriptions
Race and Nationality Descriptions Alphabetic Index

i. A person of Spanish origin may be any race; however, for coding race when there is no further information other than "Hispanic" or "Latino(a)," assign race as White as a last resort instead of coding unknown.

. Code as **01** (White) when
a. The race is described as White or Caucasian regardless of place of birth
b. There is a statement that the patient is Hispanic or Latino(a) and no further information is available

D-2

Race 1	01-White	Hispanic Origin	6-Spanish/Hispanic/Latino NOS
Race 2	88-No Further Race Documented	Marital Status	1-Single

98 OTHER RACE, NOT ELSEWHERE CLASSIFIED
Do not use this code for Hispanic, Latino or Spanish, NOS.

Race 1	98-Some other race	Hispanic Origin	6-Spanish/Hispanic/Latino NOS

Code	Label
0	Non-Spanish; non-Hispanic (including Portuguese and Brazilian)
1	Mexican (includes Chicano)
2	Puerto Rican
3	Cuban
4	South or Central American (except Brazil)
5	Other specified Spanish/Hispanic origin (includes European; excludes Dominican Republic)
Code	Label
6	Spanish, NOS; Hispanic, NOS; Latino, NOS (There is evidence other than surname or r maiden name that the person is Hispanic, but he/she cannot be assigned to any category of 1-5.)
7	Spanish surname only (The only evidence of the person's Hispanic origin is surname or maiden name and there is no contrary evidence that the person is not Hispanic.)
8	Dominican Republic
9	Unknown whether Spanish or not

FCDS DAM 2025 -APPENDIX D-

Make a search

Haitian 1/2

RACE AND NATIONALITY DESCRIPTIONS FROM THE 2000 CENSUS AND BUREAU OF VITAL STATISTICS

Use these lists only when race is not stated but other information is provided in the medical record.

References:

1. *"Race and Ethnicity Code Set, Version 1.0," Centers for Disease Control and Prevention, Marc 2000.*
2. *"Instruction manual, part 4: Classification And Coding Instructions For Death Records, 199 2001," Division of Vital Statistics, National Center for Health Statistics, undated*

Key

† Use this code unless patient is stated to be Native American (Indian)
* Terms listed in reference 2, above.
‡ Description of religious affiliation rather than stated nationality or ethnicity; should be used wit caution when determining appropriate race code.

CODE 01 WHITE

Afghan, Afghanistani
Afrikaner
Albanian
Algerian*
Amish*
Anglo-Saxon*
Arab, Arabian
Argentinian*†
Armenian
Assyrian
Australian*
Austrian*
Azores*
Basque*
Bavarian*
Bolivian*†
Bozniak/Bosnian
Brava/Bravo*
Brazilian†
Bulgarian
Cajun
Californio
Canadian*
Caucasian*
Central American†
Chechnyan
Chicano*
Chilean†
Colombian*†
Costa Rican*†
Creole*
Croat/Croatian
Crucian*
Cuban (unless specified as Black)*
Cypriot
Czechoslovakian*
Eastern European
Ebian*
Ecuadorian*†
Egyptian
English
English-French*
English-Irish*
European*
Finnish*
French
French Canadian*
Georgian*
German
Greek*
Guatemalan†
Gypsy*
Hebrew*‡
Herzegovenian
Hispanic*
Honduran†
Hungarian*
Iranian, Iran
Iraqi
Irish
Islamic*‡
Israeli
Italian
Jordanian*
Kurd/Kurdish
Kuwaitian*
Ladina/Ladino*
Latin American*
Latino
Latvian*
Lebanese
Libyan*
Lithuanian*
Maltese*
Marshenese*
Mauritian*
Moroccan*
Mediterranean*
Mexican†
Middle Eastern
Moroccan*
Moslem*‡
Muslim*
Near Easterner
Nicaraguan†
Nordic*
North African
Norwegian*
Other Arab
Palestinian
Panamanian†
Paraguayan†
Parsi*
Persian*
Peruvian*†
Polish
Portuguese*
Puerto Rican (unless specified as Black)
Romanian*
Rumanian
Russian*
Salvadoran†
Saudi Arabian*
Scandanavian*
Scottish, Scotch
Semitic*‡
Serbian*
Servian*
Shi'ite‡
Sicilian*
Slavic, Slovakian*
South American†
Spanish*, Spaniard
Sunni*‡
Swedish*
Syrian
Tunisian*
Turkish, Turk*
Ukranian*
United Arab Emirati
Uruguayan†
Venezuelan*†
Welsh*
White
Yemenite*
Yugoslavian*
Zoroastrian*

CODE 02 BLACK OR AFRICAN AMERICAN

African
African American
Afro-American
Bahamian
Barbadian
Bilalian*
Black
Botswana
Cape Verdean*
Dominica Islander (unless specified as White)
Dominican/Dominican Republic (unless specified as White)
Eritrean*
Ethiopian
Ghanian*
Haitian
Hamitic*
Jamaican
Kenyan*
Liberian
Malawian*
Mugandan*
Namibian
Nassau*
Negro
Nigerian
Nigritian
Nubian*
Other African
Santo Domingo*
Seychelloise*
Sudanese*
Tanzanian*
Tobagoan
Togolese*
Trinidadian
West Indian
Zairean

CODE 03 AMERICAN INDIAN AND ALASKA NATIVE

(see separate list of tribes)
Alaska Native
Aleut
American Indian
Central American Indian
Eskimo
Meso American Indian
Mexican American Indian
South American Indian
Spanish American Indian

98 OTHER RACE, NOT ELSEWHERE CLASSIFIED
Do not use this code for Hispanic, Latino or Spanish, NOS.

98 Other Race

D-10

OTHER RACE DESCRIPTIONS

Note 1: The following descriptions of ethnic origin cannot be coded to a specific race code. Look for other descriptions of race in the medical record. If no further information is available, code as 99 Unknown.

Aruba Islander
Azerbaijani
Belizean
Bermudan
Cayenne
Cayman Islander
Guyanese
Indian (not specified as Native American, Eastern Indian, Northern, Central, or South American Indian)
Mestizo
Morena
South African
Surinam
Tejano

Note 2: The following terms self-reported in the 2000 Census cannot be coded to a specific race code. Look for other descriptions of race in the medical record. If no further information is available, code as 99 Unknown.

Biracial
Interracial
Mixed
Multiethnic
Multinational
Multiracial

03 INDIAN (Race)

Indian Tribes of the United States, Canada and Mexico (Race Code 03)
Source: National Center for Health Statistics: Appendix C, Instruction Manual, part 4: Coding Instructions For Death Records, 1999-2001.

Abnaki
Absentee-Shawnee
Acoma
Ak Chin
Alabama-Coushatt Tribes of Texas
Alsea
Apache
Arapaho
Arikara
Assiniboin
Atacapa
Athapaskan
Atsina
Aztec
Bear River

MIXTEC

For INDIANS the list is extensive!

What makes GOOD TEXT in an abstract?

What makes good text (Text section)

High-quality text in a Florida Cancer Data System (FCDS) abstract must validate, justify, and fully support all coded data elements while providing a clear chronological roadmap of the patient's oncology encounter. **FCDS Appendix L Text Documentation Requirements**, high-quality text must allow an auditor to completely reconstruct the clinical scenario and re-abstract the case based purely on the text fields.

- **Justify Every Code:** Text must defend every alphanumeric choice made in the fixed fields (e.g., site, histology, stage, treatment…) Many abstract missing Seer Summary Stage in Text
- **Maintain Chronology:** Always record specific calendar dates for every scan, lab test, and treatment modality to establish an accurate timeline.
- **Be Concise** and use **State Event Locations:** Explicitly clarify where external procedures or treatments occurred (e.g., "Moffitt," "Baptist Health," "at outside facility").
- **Document Non-Available Data:** Enter "N/A" or "not available" intentionally if information is missing instead of leaving sections blank.

What makes good text (Text section)

Pitfalls to Avoid

- **No Text Duplication:** Do not copy-paste the exact same narrative blocks across multiple distinct text fields.
- **Code/Text Mismatches:** Ensure the narrative details never contradict your numerical code choices.
- **Missing Dates:** Avoid omitting dates; if exact dates are missing, use an estimated date and label it as such.
- **Ensure** non-analytic texts are just as **descriptive** as analytic ones.

The End

Thanks for your attention!

- https://www.giftoflife.org/posts/post/how-is-bone-marrow-collected-and-is-the-spine-involved
- https://www.aboutkidshealth.ca/harvesting-donor-stem-cells-for-an-allogeneic-blood-and-marrow-transplant
- ResearchGate
- ASCO Publications
- Hematologica
- PubMed Central (PMC) (.gov)
- ashpublications.org
- National Cancer Institute (.gov)
- Anticancer research
- PubMed Central
- National Institutes of Health (.gov)
- Herbert Irving Comprehensive Ca
- https://www.cityofhope.org/clinical-program/bone-marrow-and-blood-stem-cell-transplants/success
- https://pmc.ncbi.nlm.nih.gov/articles/PMC12356753/
- https://pmc.ncbi.nlm.nih.gov/articles/PMC4511149/https://pmc.ncbi.nlm.nih.gov/articles/PMC2834427/
- https://news.med.miami.edu/offering-transplants-to-more-blood-cancer-patients/
- FCDS Data Acquisition Manual
- https://www.ezra.com/blog/what-does-the-stomach-do
- **The Lancet (eClinicalMedicine / Swedish Cohort Study):** Tattoos as a risk factor for malignant lymphoma: a population-based case-control study
- PubMed / BMC Public Health (Danish Twin Study): Tattoo ink exposure is associated with lymphoma and skin cancers—a Danish study of twins
- Harvard Health Publishing: Do tattoos cause lymphoma?
- Medscape Medical News: Tattooing Linked to Lymphoma and Skin Cancer Risk
- National Geographic: What to know about the link between tattoo ink and cancer risk
- University of Utah Health (Huntsman Cancer Institute): Study Finds Melanoma Less Common in Individuals with Several Tattoos