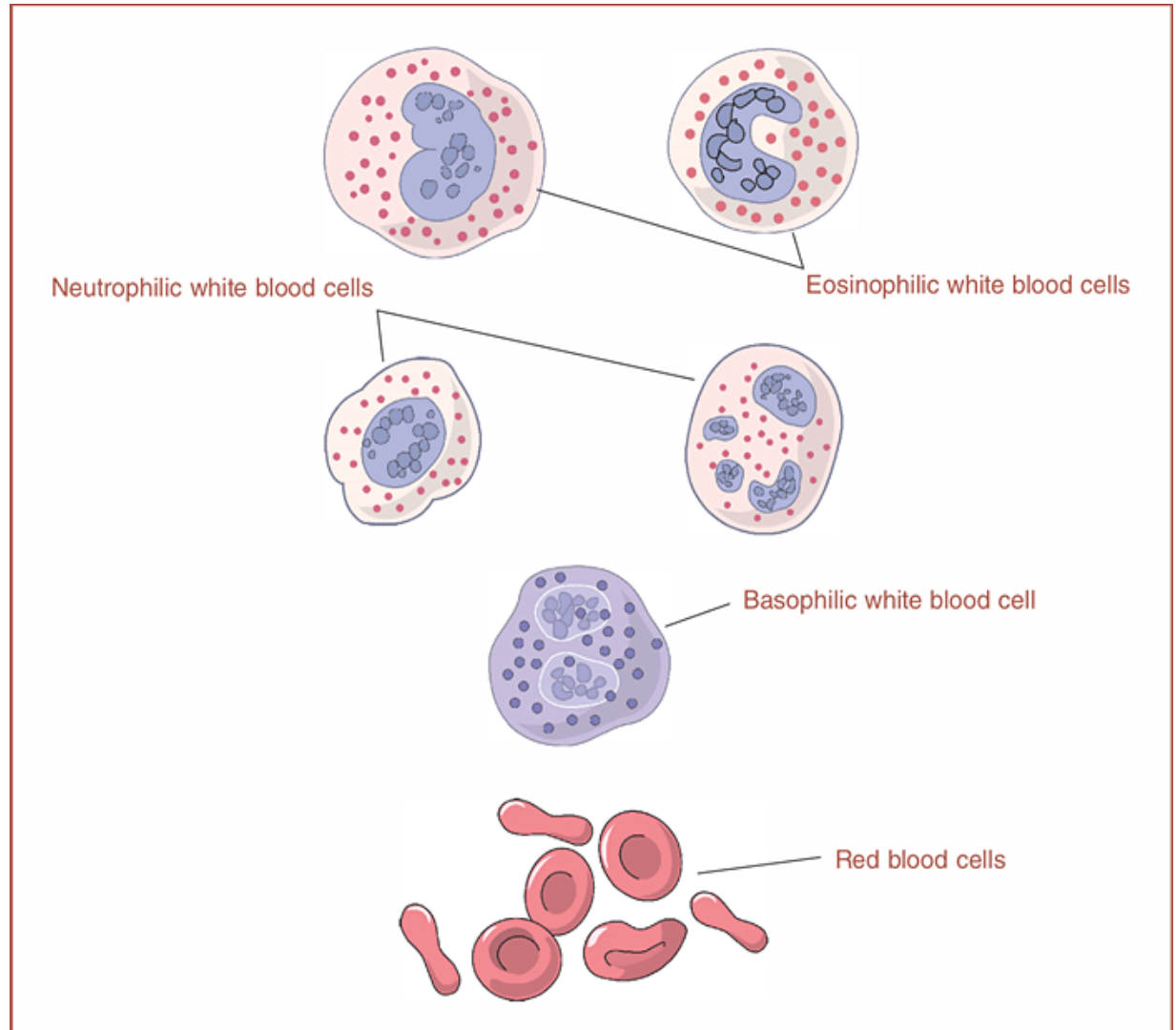


Chapter 3
Diseases of the Blood and Blood-
forming Organs and Certain
Disorders Involving the Immune
Mechanism
D50-D89

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FOUR MAJOR TYPES OF BLOOD CELLS

White blood cells (leukocytes) play an important role in the body's immune system by fighting off infection. Several different types of normal white blood cells (WBCs) including; neutrophils, lymphocytes, monocytes, eosinophils and basophils.



Anemia

- ❖ Anemia refers to either a reduction in the quantity of hemoglobin or a reduction in the volume of packed red cells - a condition that occurs whenever the equilibrium between red cell loss and red cell production is disturbed.

- ❖ A decrease in production can result from a variety of causes:
 - aging
 - bleeding
 - cell destruction

- ❖ The use of precise terminology is important in classifying anemias. When a diagnostic statement of anemia is not further specified in any way, the coder should review the medical record to determine whether more information can be located.

- ❖ Sources:
 - lab results
 - pathology reports
 - hematology consultation

Reminder: Code assignment should not be based on report findings alone; when it appears that a more specific type of anemia is present, the coder must verify with the physician before applying the code.

Deficiency Anemias

- ❖ This type of anemia may be due to a chronic blood loss from conditions such as menorrhagia, inadequate intake of dietary iron or chronic hemorrhagic gastrointestinal conditions.
- ❖ If the iron-deficiency anemia is specified as secondary to acute blood loss ,code **D62, Acute posthemorrhagic anemia** is used rather than a code from **D50**.

D50 Iron def	D51 Vitamin B12	D52 Folate	D53 other Nutritional
.0 Secondary to blood loss (chronic)	.0 Due to intrinsic factor deficiency	.0 Dietary	.0 Protein
.1 Sideropenic dysphagia	.1 Due to selective vitamin B12 malabsorption with proteinuria	.1 Drug-induced *requires a code from T36-T50 to identify drug	.1 Other megaloblastic
.8 Other	.2 Transcobalamin II	.8 Other	.2 Scorbutic
.9 Unspecified	.3 Other dietary	.9 Unspecified	.8 Other
	.8 Other		.9 Unspecified
	.9 Unspecified		

Anemia Due to Acute Blood Loss D62

- ❖ Acute blood-loss anemia results from a sudden, significant loss of blood over a brief period of time. It may occur due to:
 - Trauma, such as laceration
 - A rupture of the spleen or other injury of abdominal viscera, where no external blood loss is noted.

- ❖ Acute blood-loss anemia may occur following surgery, but it is not necessarily a complication of the procedure as many surgical procedures, such as hip replacement, routinely involve a considerable amount of bleeding as an expected part of the operation.
 - A complication of a surgical procedure or acute blood-loss anemia should not be coded unless the physician identifies it as such.
 - If a postoperative blood count is low enough to suggest anemia, it is appropriate to ask the physician whether a diagnosis of anemia should be added.
 - Remember, blood replacement is sometimes carried out as a preventative measure and does not indicate that anemia is present.

D64.9 Anemia, unspec	Default code when postoperative anemia is documented w/o specification of acute blood loss
D62 Acute posthemorrhagic anemia	When postoperative anemia is due to acute blood loss
D50.0 Iron deficiency anemia secondary to blood loss (chronic)	When neither the diagnostic statement nor review of the medical record indicates whether a blood-loss anemia is acute or chronic

Anemia of Chronic Disease D63

Patients with chronic illnesses are often seen with anemia, which may be the cause of the health care admission or encounter. Treatment is often directed at the anemia, not the underlying condition. Codes for this type of anemia are classified as follows:

- ❖ Anemia in chronic kidney disease:
 - code first the underlying chronic kidney disease (CKD) **N18-**
 - 4th character indicates the stage of CKD
 - **D63.1** anemia of CKD

- ❖ Anemia in neoplastic disease:
 - Code first the neoplasm responsible for the anemia (**C00-D49**)
 - **D63.0** anemia in, due to, or with the malignancy (not due to the antineoplastic chemotherapy drugs, which is an adverse effect)

- ❖ Anemia of other chronic disease:
 - Code first the underlying chronic disease
 - **D63.8** anemia in other chronic diseases

Exercise 3.1

1. Anemia due to dietary folate deficiency
2. Pernicious, vitamin B12 deficiency anemia

Extra credit

3. Anemia in stage 4 chronic kidney disease

Exercise 3.1

1. Anemia due to dietary folate deficiency

D52.0

2. Pernicious, vitamin B12 deficiency anemia

D51.0

3. Anemia in stage 4 chronic kidney disease

N18.4 + D63.1

Anemia Due To Chemotherapy

- ❖ Antineoplastic chemotherapy-induced changes are generally short term and do not usually reduce the marrow cellularity to a point of aplasia.
- ❖ **D64.81 - Anemia due to antineoplastic chemotherapy**
Antineoplastic chemotherapy-induced anemia is rarely a hemolytic process and is not truly an aplastic process.
- ❖ **D61.1 - Drug-induced aplastic anemia**
Anemia due to chemotherapy should not be confused with aplastic anemia due to antineoplastic chemotherapy.

D61.1 – Aplastic anemia due to drugs/antineoplastic chemotherapy
D64.81 – Anemia due to antineoplastic chemotherapy (not specified as aplastic)
- ❖ When the admission/encounter is for management of an anemia associated with an adverse effect of chemotherapy, and the only treatment is for anemia, the appropriate adverse effect code should be sequenced first, followed by the appropriate codes for the anemia and neoplasm.

Aplastic Anemia D61.-

- ❖ **Aplastic anemia (D61.0—D61.9)** is caused by a failure of the bone marrow to produce red blood cells. The condition may be congenital, but it is usually idiopathic or acquired. It may be due to an underlying disease such as a malignant neoplasm or an infection (for example, viral hepatitis). It may also be caused by exposure to ionizing radiation, chemicals, or drugs, and it often results from treatment for malignancy.

- ❖ **Pancytopenia (D61.81-)** is a deficiency of all three elements of the blood. When a patient has anemia (deficiency of red cells), neutropenia (deficiency of white cells), and thrombocytopenia (deficiency of platelets), only the code for pancytopenia should be assigned.
 - **D61.810** drug induced due to antineoplastic chemotherapy
 - **D61.811** drug induced due to other drug
 - **D61.818** other pancytopenia

- ❖ **D61.09, Other constitutional aplastic anemia**, is assigned if the pancytopenia is congenital rather than due to chronic disease.

Do not assign a code from subcategory **D61.81** if the pancytopenia is due to, or with, aplastic anemia, bone marrow infiltration, congenital (pure) red cell aplasia, hairy cell leukemia, HIV disease, leukoerythroblastic anemia, myelodysplastic syndromes or myeloproliferative disease.

Sickle-Cell Anemia D57

- ❖ Sickle-cell disease is a **hereditary disease of the red blood cells**, the disease is passed to a child when both parents carry the genetic trait. Sickle-cell trait occurs when a child receives the genetic trait from only one parent. Patients with sickle-cell trait do not generally develop sickle-cell disease; they are carriers of the trait. When a medical record contains both the terms "sickle-cell trait" and "sickle-cell disease," only the code for the sickle-cell disease is assigned.

D57.0 **Hb-SS** with **vasoocclusive pain**; Sickle cell disease **with crisis, NOS**

D57.00 with crisis, **unspecified**

D57.01 with **acute chest syndrome**

D57.02 with **splenic sequestration**

D57.1 **Hb-SS** Sickle cell disease **without crisis (sickle cell disease NOS)**

D57.2 **Hb-SC** Sickle cell disease

D57.20 **Hb-SC** Sickle cell disease **without crisis**

D57.21 **Hb-SC** Sickle cell disease **with crisis**

D57.3 Sickle cell **trait**

Sickle-Cell Thalassemia D56.-, D57.4-

- ❖ **Thalassemia** is a genetic blood disorder resulting from a defect in a gene that controls production of one of the hemoglobin proteins.
 - **Thalassemia major** - the defective gene is inherited from both parents
 - **Thalassemia minor** - the defective gene is inherited from one parent, also known as **thalassemia trait**; **D56.3**

D56.0 **Alpha** thalassemia

D56.1 **Beta** thalassemia

D56.2 **Delta-beta** thalassemia

D56.3 Thalassemia **minor**

D56.4 **Hereditary persistence of fetal hemoglobin** [HPFH]

D56.5 **Hemoglobin E-beta** thalassemia

D56.8 **Other** thalassemias

D56.9 Thalassemia, **unspecified**

D57.4 **Sickle-cell** thalassemia

D57.40 Sickle-cell thalassemia **without crisis**

D57.41 Sickle-cell thalassemia **with crisis**

D57.411 Sickle-cell thalassemia **with acute chest syndrome**

D57.412 Sickle-cell thalassemia **with splenic sequestration**

D57.419 Sickle-cell thalassemia **with crisis, unspecified**

Exercise 3.2

1. Acute blood loss anemia from chronic gastric ulcer hemorrhage
2. Initial encounter for anemia (adverse effect) due to chemotherapy treatment for prostate cancer.

Extra Credit

3. Sickle-cell crisis with acute chest syndrome

Exercise 3.2

1. Acute blood loss anemia from chronic gastric ulcer hemorrhage

D62 + K25.4

2. Initial encounter for anemia (adverse effect) due to chemotherapy treatment for prostate cancer.

T45.1x5A + D64.81 + C61

3. Sickle-cell crisis with acute chest syndrome

D57.01

COAGULATION DEFECTS D65-D68

Coagulation defects are characterized by prolonged clotting time. Some are congenital in origin; others are acquired.

D65	Disseminated intravascular coagulation [defibrination syndrome]
D66	Hereditary factor VIII deficiency
D67	Hereditary factor IX deficiency
D68.0	Von Willebrand's disease
D68.1	Hereditary factor XI deficiency
D68.2	Hereditary deficiency of other clotting factors

Hemorrhagic Disorder Due To Circulating Anticoagulants

D68.31- Hemorrhagic disorder due to intrinsic circulating anticoagulants, antibodies, or inhibitors

Is only assigned when the physician specifically documents a diagnosis of hemorrhagic disorder due to intrinsic circulating anticoagulants.

D68.311 Acquired hemophilia

D68.312 Antiphospholipid antibody with hemorrhagic disorder

D68.318 Other hemorrhagic disorder due to intrinsic circulating anticoagulants, antibodies, or inhibitors

Hemorrhagic Disorder Due To Circulating Anticoagulants

D68.32 Hemorrhagic disorder due to extrinsic circulating anticoagulants

Bleeding in a patient who is being treated with Coumadin, heparin, anticoagulants, are examples of extrinsic circulating anticoagulation.

In this situation, assign code:

T45.515-, Adverse effect of **anticoagulant**, or

T45.525-, Adverse effect of **antithrombotic drugs**, to indicate any adverse effect of an administered drug and code

D68.32, Hemorrhagic disorder due to extrinsic circulating anticoagulants.

HYPERCOAGULATION

- ❖ Hypercoagulable states refer to a group of acquired and inherited disorders caused by increased thrombin generation. There is an increased tendency for blood clotting. These disorders are divided into primary and secondary hypercoagulable states.

D68.5- Primary hypercoagulable states are inherited disorders of specific anticoagulant factors.

D68.6- Secondary hypercoagulable states are primarily acquired disorders that involve blood flow abnormalities or defects in blood composition and vessel walls such as: *malignancy, pregnancy, trauma, myeloproliferative disorders*

- ❖ **R79.1 Abnormal coagulation profile** - Prolonged prothrombin time or other abnormal coagulation profiles **should not be coded as a coagulation defect.**

*If the patient is receiving Coumadin therapy a prolonged bleeding time is an expected result, and therefore code **R79.1** is not assigned.

DISEASES OF PLATELETS D69-

- ❖ **D69.6 Thrombocytopenia** - a deficiency in the blood cells that help the blood to clot.
- ❖ **D69.51 Post-transfusion purpura** - the recipient's response to produce anti-HPA (human platelet antigen) antibodies that destroy the platelets following a transfusion of blood products from an HPA-positive donor.
- ❖ **D69.59 Other secondary thrombocytopenia**, is assigned for secondary thrombocytopenia that is due to dilutional causes, drugs, extracorporeal circulation of blood, massive blood transfusion, platelet alloimmunization, and other secondary thrombocytopenia.

Heparin therapy is widely used to prevent and treat clotting disorders. In some people, heparin triggers autoimmune conditions of severe platelet deficiency with severe thrombotic complications. When this condition occurs, code **D75.82 Heparin-induced thrombocytopenia** is applied.

DISEASES OF WHITE BLOOD CELLS D70-D72

- ❖ Diseases of the WBCs are primarily classified on the basis of whether the WBC count is **low** or **elevated**.
- ❖ Diseases that may **decrease** production of WBCs include drug toxicity, vitamin deficiencies, infections (viral diseases, tuberculosis, typhoid), or abnormalities of the bone marrow. Antibodies may attack WBCs as a result of a disease or because of medications stimulating the immune system. Pooling of WBCs occurs with some overwhelming infections, heart-lung bypass during heart surgery, and hemodialysis.
- ❖ Some diseases **increase** the production of WBCs. If all types of WBCs are affected, **leukocytosis** occurs. Leukocytosis can be caused by infection, inflammation, allergic reaction, malignancy, hereditary disorders, or other miscellaneous causes--for example, medications such as steroids and NSAIDs. Other illnesses target specific types of WBCs, such as **neutrophilia, lymphocytosis, and granulocytosis**.

NEUTROPENIA & ABNORMAL BLOOD CELL COUNTS

NEUTROPENIA	DECREASED WBC	ELEVATED WBC
D70.0 Congenital agranulocytosis	D72.810 Lymphocytopenia	D72.820 Lymphocytosis
D70.1 Agranulocytosis secondary to cancer chemotherapy	D72.818 Other decreased white blood cell count	D72.821 Monocytosis
D70.2 Other drug-induced agranulocytosis	D72.819 Decreased white blood cell count, unspecified	D72.822 Plasmacytosis
D70.3 Neutropenia due to infection		D72.823 Leukemoid reaction
D70.4 Cyclic neutropenia		D72.824 Basophilia
D70.8 Other neutropenia		D72.825 Bandemia
D70.9 Neutropenia, unspecified		D72.828 Other elevated white blood cell count
		D72.829 Elevated WBC count, unspecified

DISORDERS OF THE IMMUNE SYSTEM

D80.-D89.-

Categories **D80** through **D89** classify various disorders of the immune system, with the exception of conditions associated with or due to HIV, which are classified to code **B20**. The immune disorders discussed in this chapter include the following categories:

D80	Immunodeficiency with predominantly antibody defects
D81	Combined immunodeficiencies
D82	Immunodeficiency associated with other major defects
D83	Common variable immunodeficiency
D84	Other immunodeficiencies
D86	Sarcoidosis
D89	Other disorders involving the immune mechanism, NEC

Exercise 3.3

1. Cell-mediated immune deficiency with thrombocytopenia and eczema
2. Pancytopenia with myelodysplastic syndrome

Extra credit

3. Abnormal coagulation test (profile)

Exercise 3.3

1. Cell-mediated immune deficiency with thrombocytopenia and eczema

D82.0

2. Pancytopenia with myelodysplastic syndrome

D46.9

3. Abnormal coagulation test (profile)

R79.1