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

Presented by
Jennifer Kurkulonis
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.

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>D64.9</td>
<td>Anemia, unspec</td>
</tr>
<tr>
<td></td>
<td>Default code when postoperative anemia is documented w/o specification of acute blood loss</td>
</tr>
<tr>
<td>D62</td>
<td>Acute posthemorrhagic anemia</td>
</tr>
<tr>
<td></td>
<td>When postoperative anemia is due to acute blood loss</td>
</tr>
<tr>
<td>D50.0</td>
<td>Iron deficiency anemia secondary to blood loss (chronic)</td>
</tr>
<tr>
<td></td>
<td>When neither the diagnostic statement nor review of the medical record indicates whether a blood-loss anemia is acute or chronic</td>
</tr>
</tbody>
</table>
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**
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 are characterized by prolonged clotting time. Some are congenital in origin; others are acquired.

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
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<tbody>
<tr>
<td>D65</td>
<td>Disseminated intravascular coagulation [defibrination syndrome]</td>
</tr>
<tr>
<td>D66</td>
<td>Hereditary factor VIII deficiency</td>
</tr>
<tr>
<td>D67</td>
<td>Hereditary factor IX deficiency</td>
</tr>
<tr>
<td>D68.0</td>
<td>Von Willebrand's disease</td>
</tr>
<tr>
<td>D68.1</td>
<td>Hereditary factor XI deficiency</td>
</tr>
<tr>
<td>D68.2</td>
<td>Hereditary deficiency of other clotting factors</td>
</tr>
</tbody>
</table>
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.
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

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>D80</td>
<td>Immunodeficiency with predominantly antibody defects</td>
</tr>
<tr>
<td>D81</td>
<td>Combined immunodeficiencies</td>
</tr>
<tr>
<td>D82</td>
<td>Immunodeficiency associated with other major defects</td>
</tr>
<tr>
<td>D83</td>
<td>Common variable immunodeficiency</td>
</tr>
<tr>
<td>D84</td>
<td>Other immunodeficiencies</td>
</tr>
<tr>
<td>D86</td>
<td>Sarcoidosis</td>
</tr>
<tr>
<td>D89</td>
<td>Other disorders involving the immune mechanism, NEC</td>
</tr>
</tbody>
</table>
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