Coders’ Desk
Reference for Diagnoses

2017
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Chapter 1. Certain Infectious and Parasitic Diseases (A00-B99)

This chapter covers diseases caused by infectious and parasitic organisms, which include diseases generally recognized as communicable or transmissible. Only a small percentage of organisms in the environment cause disease. Most bacteria, viruses, fungi, and other microorganisms found in the external environment (e.g., air, water, and soil) or the internal environment (e.g., on or within our bodies) are harmless or even beneficial. Disease is caused almost exclusively by microorganisms that are human pathogens, also referred to as pathogenic microorganisms, except in persons or hosts whose immune systems are weakened, which allows normally harmless microorganisms to cause opportunistic infections.

This chapter is organized primarily by the type of infectious organism or parasite, such as infections caused by bacteria, viruses, and mycoses and parasitic diseases caused by protozoa and helminthes. There are also some code blocks organized by site of infection, such as intestinal infectious diseases, and other code blocks organized by mode of transmission, such as infections with a predominantly sexual mode of transmission, arthropod-borne viral fevers, and viral hemorrhagic fevers.

The chapter is broken down into the following code blocks:

- A00-A09 Intestinal infectious diseases
- A15-A19 Tuberculosis
- A20-A28 Certain zoonotic bacterial diseases
- A30-A49 Other bacterial diseases
- A50-A64 Infections with a predominantly sexual mode of transmission
- A65-A69 Other spirochetal diseases
- A70-A74 Other diseases caused by chlamydiae
- A75-A79 Rickettsioses
- A80-A89 Viral infections of the central nervous system
- A90-A99 Arthropod-borne viral fevers and viral hemorrhagic fevers
- B00-B09 Viral infections characterized by skin and mucous membrane lesions
- B10 Other human herpesviruses
- B15-B19 Viral hepatitis
- B20 Human immunodeficiency virus [HIV] disease
- B25-B34 Other viral diseases
- B35-B49 Mycoses
- B50-B64 Protozoal diseases
- B65-B83 Helminthiases
- B85-B89 Pediculosis, acarisis and other infestations
- B90-B94 Sequelae of infectious and parasitic diseases
- B95-B97 Bacterial and viral infectious agents
- B99 Other infectious diseases

There are a few infectious conditions that are excluded from this chapter, including certain localized infections that are classified in specific body-system chapters. For example:

- Suppurative otitis media is classified in Chapter 8 Diseases of the Ear and Mastoid Process
- Influenza and other acute respiratory infections are classified in Chapter 10 Diseases of the Respiratory System
- Pyogenic arthritis is classified in Chapter 13 Diseases of the Musculoskeletal System and Connective Tissue

Intestinal Infectious Diseases (A00-A09)

Intestinal infectious diseases are caused primarily by ingestion of contaminated food or water. Less common means of infection include handling contaminated food products or other contaminated items or coming in direct contact with infected animals.

The first symptoms of intestinal infectious diseases usually involve the gastrointestinal tract and may include abdominal pain or cramping, nausea, vomiting, and/or diarrhea, although some microorganisms may produce other initial symptoms. For example, *Clostridium botulinum* causes foodborne botulism poisoning and often initially produces neurological symptoms.
Intestinal infections usually remain localized to the intestinal tract and often resolve without medical treatment. In most cases, infections requiring treatment only need supportive care such as replacement of lost fluids and maintenance of electrolyte balance. In some cases, particularly the very young, the elderly, or individuals with immune system disorders or chronic health conditions, a localized intestinal infection becomes disseminated causing infection of other sites. Some manifestations of a disseminated infection include meningitis, pneumonia, endocarditis or myocarditis, arthritis, osteomyelitis, and pyelonephritis.

The categories in this code block are as follows:

A00 Cholera
A01 Typhoid and paratyphoid fevers
A02 Other salmonella infections
A03 Shigellosis
A04 Other bacterial intestinal infections
A05 Other bacterial foodborne intoxications, not elsewhere classified
A06 Amebiasis
A07 Other protozoal intestinal diseases
A08 Viral and other specified intestinal infections
A09 Infectious gastroenteritis and colitis, unspecified

A00.- Cholera
Cholera is an infection of the entire bowel due to *Vibrio cholerae*. Risk of mortality is related to severe dehydration, acidosis, and hypovolemic shock secondary to profuse diarrhea. *V. cholerae* contains pathogenic and non-pathogenic strains. Pathogenic strains of cholera are endemic to parts of Asia, Africa, the Middle East, and also portions of the Gulf Coast of the United States. In endemic areas, outbreaks are usually limited to warm seasons. If the infection is imported to other locales, an outbreak can occur in any season.

A00.0 Cholera due to *Vibrio cholerae* 01, biovar cholerae
A00.1 Cholera due to *Vibrio cholerae* 01, biovar eltor
Biovar cholerae and eltor are two specific biotypes of the *Vibrio cholerae* bacteria and are commonly associated with epidemic outbreaks.

A01.- Typhoid and paratyphoid fevers
Typhoid fever is a systemic bacterial disease caused by the unique human strain of salmonella, *Salmonella typhi*. Paratyphoid is similar in presentation to typhoid, though usually milder, and is caused by any of several organisms: *S. paratyphi* (paratyphoid A), *S. schottmuelleri* (paratyphoid B), or *S. hirschfeldii* (paratyphoid C). The means of infection, clinical course, pathology, and treatment are similar for typhoid and paratyphoid.

A01.0- Typhoid fever
*Salmonella typhi* is the responsible bacterial agent of typhoid fever and is generally transmitted by the ingestion of food or water that is contaminated with feces from an infected person. The microorganism moves through the gastrointestinal tract and enters the bloodstream through the lymphatic system.

A01.1- Paratyphoid fever
Paratyphoid fever is caused by *Salmonella paratyphi* (paratyphoid A), *S. schottmuelleri* (paratyphoid B), or *S. hirschfeldii* (paratyphoid C). The clinical and laboratory features of paratyphoid fever are similar to those of typhoid fever.

A02.- Other salmonella infections
This category classifies infections related to all salmonellas—more than 1,500 serotypes—except congenital, typhoid, and paratyphoid salmonella. *Salmonella* serotypes most often seen in humans include *S. enteritidis*, *S. Newport*, and *S. typhimurium*. Salmonella infections is a significant health problem and is the most common food-borne infectious disease diagnosed in the United States. Meat, poultry, raw milk, eggs, fruits, and vegetables are the most common sources of infection. Other reported sources include infected pet turtles or lizards, infected dyes, or contaminated marijuana. The bacteria pass through the stomach and colonize the intestines. The bacteria invade enterocytes, epithelial cells, and dendritic cells in the intestine resulting in an inflammatory response. Bacteria may cross the epithelial layer of the intestine and replicate in Peyer patches (bundles of lymphatic tissue in the small intestine), mesenteric lymph nodes, and the spleen. Salmonella infections can become disseminated causing sepsis or infections of the central nervous system, lungs, joints, bone, kidneys, and other sites. About 85 percent of salmonella infections present as gastroenteritis, with the other 15 percent as septicemia or with other manifestations. About one-third of all untreated infections result in complications.

A02.0 Salmonella enteritis
Salmonella enteritis, also known as salmonella gastroenteritis, is an infection of the gastrointestinal tract that is caused by the ingestion of contaminated foods, eggs and poultry being the most common sources. Symptoms typically occur within hours to two days and typically last no more than seven days even without the use of antibiotics.

Focus Point
Dehydration (E86.0) is a complication of Salmonella enteritis and should be reported additionally.
I44.5 Left posterior fascicular block
The left bundle branch of the electrical conduction system of the heart divides into anterior and posterior fascicles that transmit the electrical impulses throughout the left ventricle. When the posterior fascicle is blocked, the electrical impulses travel only along the left anterior fascicle, which inserts into the upper lateral wall of the left ventricle in the subendocardial tissue. Electrical impulses travel through the left ventricle but because of the block in the left posterior fascicle, the impulses are initially distributed in an upward and leftward direction followed by a downward and rightward direction. Because there is no transmission of electrical impulses through the posterior fascicles, it takes the impulses longer to travel to the lower right side of the ventricle and these changes are reflected on ECG. Left posterior fascicular block, also called left posterior hemiblock, is relatively rare because the fibers are arranged in a broad pattern making them more resistant to damage.

I45.- Other conduction disorders
Other cardiac conduction disorders include a group of conditions in which the transmission of cardiac electrical impulses controlling heart rhythm is abnormal, slowed, or interrupted.

I45.2 Bifascicular block
I45.3 Trifascicular block
Fascicles are specialized muscle fibers in the heart that conduct electrical impulses that cause the heart muscle to contract. There is a single fascicle in the right side of the heart and there are two fascicles in the left heart—an anterior fascicle and a posterior fascicle. A bifascicular block occurs when the right fascicle and the left anterior or left posterior fascicle are blocked with conduction to the ventricles running through the one remaining fascicle. Bifascicular block is usually asymptomatic. Trifascicular block indicates that electrical impulses in the right fascicle, left anterior fascicle, and left posterior fascicle are partially or completely blocked. Incomplete or partial trifascicular block is indicated by complete block of one or two fascicles with delayed conduction or intermittent blockage of the remaining fascicles as evidenced by changes on ECG. Trifascicular block is usually asymptomatic, but it is a risk factor for complete heart block and must be monitored.

I45.6 Pre-excitation syndrome
Pre-excitation syndrome, also known as Wolff-Parkinson-White syndrome (WPW), occurs when impulses from the atria circumvent the normal pathway and activate the ventricle via an accessory pathway. The normal delay that occurs at the AV node doesn’t take place, and the patient is prone to developing episodes of extremely rapid and irregular heart rhythm called tachyarrhythmias. Pre-excitation syndrome is classified as a congenital anomaly. Symptoms may occur in infancy or childhood or may not present until adulthood. Symptoms vary in severity from mild chest discomfort or occasional heart palpitations to life-threatening tachycardia or cardiac arrest. Pre-excitation syndrome may be treated medically with antiarrhythmia or atrioventricular node blocking drugs or surgically by ablation of the accessory conduction pathway.

I45.81 Long QT syndrome
Long QT syndrome is a serious and potentially fatal condition that can be precipitated by vigorous exertion, emotional upset, or startling moments. The QT interval is the time it takes for the duration of electrical activity that controls the pumping action of the heart’s ventricles, measured in fractions of a second. When the interval is longer than normal, it is identified as long QT syndrome. The condition may be genetic, due to specific medications, or due to low levels of potassium, magnesium, or calcium in the blood as seen in patients with anorexia nervosa. This imbalance in electrical timing makes the patient susceptible to recurrent episodes of syncope and rapid arrhythmias that can become malignant, leading to sudden death. However, in most cases, the patient has no signs or symptoms of the condition. Other names for long QT syndrome include Jervell-Lang-Nielsen syndrome and Romano-Ward syndrome.

I46.- Cardiac arrest
Cardiac arrest is an abrupt loss of heart function, breathing capacity, and consciousness. In cardiac arrest, the heart stops beating, causing an electrical impulse malfunction within the heart that halts the pumping of the blood to the rest of the body. Cardiac arrest may also be referred to as pulseless electrical activity (PEA). PEA indicates the presence of electrical cardiac activity, although too insufficient to coordinate myocardial contractions to produce a detectable pulse. Cardiorespiratory arrest is also included in this category. The fourth character in this code identifies whether or not the cause of the cardiac arrest was due to an underlying cardiac condition.

Focus Point
Sequence cardiac arrest first only when the underlying cause of the event is unknown or not established before the patient expires and only when it meets the definition of principal diagnosis. Cardiac arrest is a reportable secondary diagnosis when the cause is known (sequencing underlying cause first), regardless of the success of resuscitation attempts. Report also resuscitative and life support procedures.

I47.- Paroxysmal tachycardia
Typically the heart beats in a regular pattern coordinated within the atria and ventricles due to the electrical impulses originating in the sinoatrial node. These signals tell the heart when to contract. A malfunction in these electrical impulses causes the
Cardiac dysrhythmias are disturbances in cardiac rate and rhythm, including abnormalities in the rate, regularity, and sequence of atrial and/or ventricular contractions.

I47.1 Supraventricular tachycardia
Supraventricular tachycardia (SVT) is a very rapid heart rate (160 to 220 beats per minute) that does not originate in the ventricles. Also called paroxysmal supraventricular tachycardia (PSVT), this condition has several causes. It may be caused by two electrical conduction pathways in the atrioventricular node and this type of SVT may be referred to as atrioventricular nodal re-entrant supraventricular tachycardia. A second cause is an abnormal conduction pathway between the atria and the ventricles and this type is also called atrioventricular reciprocating supraventricular tachycardia. A third cause is abnormal rapid or circling impulses originating in the atria, which may be referred to as paroxysmal atrial tachycardia (PAT).

I47.2 Ventricular tachycardia
Paroxysmal ventricular tachycardia (PVT) is a rapid heart rate (more than 120 beats per minute) that originates in the ventricles. While less common than other types of paroxysmal tachycardia, PVT requires emergency care, including monitoring with cardioversion and/or drug therapy because prolonged PVT can be fatal.

I47.9 Paroxysmal tachycardia, unspecified
Unspecified paroxysmal tachycardia refers to a rapid heart rate that starts and ends abruptly, but for which the specific type is not specified or does not have a more specific code. Bouveret-Hoffmann syndrome is one type of paroxysmal tachycardia that is reported here. Bouveret-Hoffmann syndrome is a type of junctional tachycardia meaning that the rapid heart rate does not originate in the atria or the ventricles, but instead originates in the atrioventricular node. It is characterized by rapid heart rate and sudden onset of palpitations; it primarily affects children. In most instances, Bouveret-Hoffmann syndrome resolves on its own without treatment.

I48. Atrial fibrillation and flutter
Cardiac dysrhythmia is essentially a disturbance in heart rate and rhythm, including rate, regularity, and sequence of atrial and/or ventricular contractions. Atrial fibrillation and flutter are classified as cardiac dysrhythmias, where a rapid heart rate occurs due to the atria contracting in an uncoordinated pattern.

I48.0 Paroxysmal atrial fibrillation
I48.1 Persistent atrial fibrillation
I48.2 Chronic atrial fibrillation
Atrial fibrillation is the most common dysrhythmia. It occurs when the two upper chambers of the heart lose their normal rate and rhythm and beat chaotically. Paroxysmal atrial fibrillation refers to intermittent episodes of atrial fibrillation that resolve on their own. Episodes may last minutes, hours, or days. Persistent atrial fibrillation does not resolve on its own. It requires medical intervention to return to a normal rate and rhythm, which may include antiarrhythmic drugs and/or electrical cardioversion. Chronic atrial fibrillation is resistant to treatment and cannot be converted to a normal rate and rhythm even with medication and attempts at electrical cardioversion.

I48.3 Typical atrial flutter
I48.4 Atypical atrial flutter
Atrial flutter, another common dysrhythmia, occurs when one or both atria beat too fast. The rapid muscle contractions in the atria are not matched by the ventricles and so the upper and lower heart rhythms lose their synchronization. It is caused by disruption of the normal electrical pathways originating in the atria. The defining characteristic of atrial flutter is that the electrical impulses follow an electrical circuit around the tricuspid annulus moving in a clockwise or counterclockwise direction. Typical atrial flutter (Type I) affects the right atrium only and results in organized, although more rapid than normal, atrial contractions. In atypical atrial flutter (Type II), the electrical impulses do not travel around the tricuspid annulus but instead follow one of a number of atypical pathways that may originate in the right or left atrium or in pathways that follow surgical scars. Types of atypical atrial flutter that originate in the right atrium include lower loop re-entry, fossa ovalis flutter, superior vena cava flutter, and upper loop re-entry. Types that originate in the left atrium include peri-mitral flutter, peri-pulmonary vein flutter, and those that follow re-entry pathways in the septum, roof, or posterior wall of the left atrium. Atypical flutter may also occur when the electrical impulses follow surgical scars that result from correction of congenital heart defects referred to as incisional flutter. Both typical and atypical flutters are diagnosed based on characteristic ECG patterns.

I49. Other cardiac arrhythmias
Cardiac arrhythmias are disturbances in cardiac rate and rhythm, including abnormalities in the rate, regularity, and sequence of atrial and/or ventricular contractions. Cardiac dysrhythmias can take many forms, the clinical significance of each depends on the extent to which they lower blood pressure and reduce cardiac output with resulting hypoperfusion of vital organs such as the brain, kidneys, and the heart.