Postoperative Shock

Effective October 1, 2011, codes 998.00, Postoperative shock, unspecified; 998.01, Postoperative shock, cardiogenic; 998.02, Postoperative shock, septic; and 998.09, Postoperative shock, other, were created to describe specific types or mechanisms of postoperative shock.

Shock is a physiologic state characterized by a decrease in the volume of blood that flows through the tissues causing a reduction in the amount of oxygen throughout the body. This reduction in oxygen may be a result of impaired binding of oxygen molecules to hemoglobin or the decrease in circulation of oxygenated blood. The effects of the imbalance between oxygen delivery and demand are initially reversible but rapidly become irreversible: cell death, end-organ injury, multi-system organ failure and death. Manifestations of shock include low blood pressure (hypotension), tachycardia (in response to hypotension), pallor, cool and clammy skin, altered mental status, and decreased urine output.

Hypovolemic shock is the most common type of shock seen in the postoperative patient. It occurs when large amounts of fluids are lost from hemorrhage or severe dehydration.

Cardiogenic shock is attributable to a weakened heart not being able to pump enough blood to organs of the body. Causes include myocardial infarction, pericardial tamponade and heart failure. Vasodilatory shock is when the blood vessels expand too much with decreased distribution of blood. The most common types are septic shock, severe infection with end-stage systemic inflammatory response syndrome and anaphylactic shock due to severe allergic reaction.

Postoperative patients can experience any of these different types of shock. Internal bleeding from poor surgical technique or disseminated intravascular coagulation may lead to hemorrhagic shock, which is treated with blood products. Postoperative volume shifts, also known as third spacing, may lead to nonhemorrhagic hypovolemic shock, which is treated with intravenous fluids. Postoperative myocardial infarction may lead to cardiogenic shock, which is treated with inotropic agents to improve cardiac output.

Postoperative infections originating in the wound, lungs, or blood/vascular catheter may lead to septic shock, which is treated with antibiotics and supportive care. In some cases, the postoperative patient can experience different types of shock at one time. A patient with septic shock can have a hypovolemic component (due to vomiting and diarrhea), a cardiogenic component (due to myocardial dysfunction), and a distributive component (due to inflammation related changes in vascular resistance and permeability).

998 Other complications of procedures, NEC

998.0 Postoperative shock

Delete Collapse NOS during or resulting from a surgical procedure

Revise Shock (endotoxic)(hypovolemic)(septic), during or resulting from a surgical...
Excludes: shock:
anaphylactic due to serum
(999.41-999.49)

New code 998.00 Postoperative shock,
unspecified
Collapse, not otherwise
specified, during or resulting
from a surgical procedure
Failure of peripheral
circulation, postoperative

New code 998.01 Postoperative shock, cardiogenic

New code 998.02 Postoperative shock, septic
Postoperative endotoxic shock
Postoperative gram-negative
shock

Code first underlying infection
Use additional code, to identify severe sepsis
(995.92) and any associated acute organ
dysfunction, if applicable

New code 998.09 Postoperative shock, other
Postoperative hypovolemic
shock

Question:
The patient developed refractory cardiogenic shock that required temporary extracorporeal membrane oxygenation (ECMO) support after undergoing aortic valve replacement due to severe aortic stenosis. The provider documented that the patient developed postoperative shock due to valve replacement surgery. What are the code assignments?

Answer:
Assign code 424.1, Aortic valve disorders, as principal diagnosis. Assign code 998.01, Postoperative shock, cardiogenic, as an additional diagnosis. Assign codes 35.22, Other replacement of aortic valve, and 39.65, Extracorporeal membrane oxygenation [ECMO], for the procedures.

Question:
A 53-year-old male patient status post coronary artery bypass graft (CABG) was readmitted to the hospital after he developed redness and purulent drainage from the sternal wires. The patient quickly deteriorated after admission, became septic and went into shock two days after admission. With aggressive intravenous antibiotic management, the patient improved and was
later discharged. The physician also documented Methicillin resistant *Staphylococcus aureus* sepsis and postoperative septic shock. How should this case be coded?

**Answer:**
Assign code 998.59, Other postoperative infection, as the principal diagnosis for the infected sternal wires. Assign codes, 038.12, Methicillin resistant *Staphylococcus Aureus* septicemia; 995.92, Severe sepsis; 998.02, Postoperative shock, septic; and V45.81, Aortocoronary bypass status, as secondary diagnoses. Code assignment is supported by the *Official Guidelines for Coding and Reporting*, Section I.C.1.b.