



Coding for damage-control surgery

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The American College of Surgeons (ACS) General Surgery Coding and Reimbursement Committee (GSCRC) frequently receives questions regarding appropriate coding for “damage-control laparotomy” or “damage-control surgery.” Damage-control surgery typically involves a multistage approach and is performed with the intention to first avoid or correct the lethal triad of hypothermia, acidosis, and coagulopathy before definitive management of injuries. The general concept is the expedient control of life-threatening bleeding and contamination, usually terminated as soon as possible in order for the patient to undergo correction of physiologic abnormalities due to hemorrhagic shock or sepsis. Subsequent stages of surgery

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address definitive management when the patient is stable and able to undergo more prolonged procedures. Initially developed by the military and major trauma centers, the concept of damage-control surgery is now widely accepted and may be applied to the chest, abdomen, or extremities.

In the initial stage of damage control, hemorrhage is stopped, contamination is controlled, and temporary wound closure methods may be employed. Vascular control may include ligating bleeding vessels, oversewing mesentery or organ injury, packing of the abdomen or chest, and even placing vascular shunts without definitive repair of blood vessels. For gastrointestinal contamination, the bowel is resected or lacerations oversewn. Restoration of bowel continuity (anastomosis) or maturation of an ostomy is performed at a later stage. The resuscitation phase is characterized by correction of physiologic abnormalities

(metabolic acidosis, anemia, coagulopathy) and volume replacement, as well as provision of ventilation and vasopressor support. Massive tissue edema and concern for compartment syndrome may necessitate a temporary closure strategy.

During the subsequent phases of damage control, the surgeon completes definitive operative management in the stable patient, reestablishes gastrointestinal continuity, evaluates all areas for viability, and delineates any missed injuries. Vascular shunts are removed and long-term repairs of vascular injuries are constructed. Orthopaedic, plastic, head and neck, or other specialty-specific repairs are also performed in concert with the abdominal, chest, or vascular surgery, as necessary. With the advent of temporary abdominal closure technology, the concept of damage control also applies to the second-look laparotomy approach to ischemic bowel, severe necrotizing infections

seen in pancreatitis, and a host of other conditions.

Because of the complexity and range of injuries treated for purposes of damage control, no single Current Procedural Terminology (CPT)* code can adequately describe all of the potential combinations and permutations of the procedures that may be required. More importantly, because the Centers for Medicare & Medicaid Services (CMS) requires that any value assigned to a CPT code represent the typical patient, any attempt to arrive at one proper value for a single damage laparotomy code would likely devalue the complexity of work performed in many instances. For procedures such as damage-control surgery, where many combinations are possible, it is always best to use a series of discrete CPT codes to both describe and value the services performed rather than attempt to lump these myriad of procedures into a single damage-control surgery CPT code.

To help Fellows and their staff properly code for damage-control surgery, the ACS GSCRC has carefully reviewed the existing CPT codes and has determined that most variations of damage-control surgery can be adequately reported with existing CPT codes. This column explains how to correctly code for damage-control approaches using the current CPT manual, which could prove useful to surgeons and their coding staff.

CPT codes to avoid or to use

An exploratory laparotomy, whether for trauma or a medical condition, may be reported using CPT code 49000 (*exploratory laparotomy, exploratory celiotomy with or without biopsy(s) (separate procedure)*). The term “separate procedure” refers to a complete procedure that stands alone. Therefore, CPT code 49000 refers to a complete procedure that stands alone and normally is not billed with other procedure codes. Thus, CPT code 49000 describes a laparotomy where nothing is repaired, removed, or reconstructed, for example, a negative laparotomy. This scenario would be unlikely in the face of a damage-control situation in which other CPT codes would typically be required, such as bowel repair or splenectomy.

Typically during a trauma laparotomy, multiple extensive abdominal procedures are performed. The surgeon should first select a series of CPT codes that appropriately reports the specific repairs, excisions, anastomoses, or drainage procedures performed. From those procedures, one is then selected that represents the primary or most major surgical procedure, and is reported first, with the additional procedures performed being reported with the appropriate CPT codes and modifiers (typically modifier 51 is appended).

Temporary closure of abdomen, large extremity wounds

In many cases of damage-control surgery, the patient’s condition may require that closure of skin, subcutaneous tissue, muscle, or fascia be delayed, resulting in the abdominal wound left open and the abdominal contents protected by application of one of various mechanical techniques to maintain sterility, moisture, and heat in the abdominal cavity.

Temporary closure is typically used during the first operation but may also be used during subsequent re-explorations of the abdomen if abdominal fascia and skin closure cannot be achieved. For large contaminated extremity wounds, this temporary closure technique also may be applied. Although there is not a specific CPT code to describe a specific temporary closure technique, some codes may be used if a negative pressure wound dressing is used as part of the temporary wound closure technique. For example, use CPT 97606 (*negative pressure wound therapy (eg, vacuum-assisted drainage collection), including topical application(s), wound assessment, and instruction(s) for ongoing care, per session; total wound(s) surface area greater than 50 square centimeters*, for application of this type of device as an aid to close large wounds of the abdomen, trunk, or extremities.

Reopening of a recent laparotomy

As previously discussed, damage-control surgery involves a follow-up phase in which the abdomen is re-explored and definitive procedures may be performed, for example, bowel anastomosis, packing removed, and so on. Final abdominal fascial closure will likely be part of the final procedure in a damage-control scenario. For re-exploration that involves re-opening, completely exploring, and irrigating the abdomen, where no other major procedures (for example, bowel anastomosis or resections) are performed, report CPT code 49002 (*reopening of recent laparotomy*.) CPT code 49002 describes a procedure that may be used in instances of trauma, sepsis, or ischemic bowel surgery to examine the progress of healing, check on the integrity of an anastomosis, detect missed injuries or further ischemia, and irrigate the abdomen. In the case of damage-control surgery, the re-exploration falls within the 90-day global period of the initial procedure. Therefore, it is important to append modifier 58 (*staged or related procedure by the same physician*) if re-explorations of the abdomen are performed by the same surgeon (or a surgeon in the same billing group) in order to capture the correct value of this procedure. Remember, if a more extensive abdominal procedure is required in the same operative

session as the re-exploration of the laparotomy, such as CPT code 44120 (*enterectomy, resection of small intestine; single resection and anastomosis*), then re-exploration of the laparotomy (49002) should not be used, as it is considered inherent to the more extensive procedure and is not separately reportable.

Clinical scenarios

Case 1: A 40-year-old gunshot-wound patient is taken to the operating room for a planned reopening of a recent laparotomy to examine the progress of healing.

The surgeon completes an abdominal exploration; the small bowel is examined, revealing the site of the anastomosis to be completely intact with no evidence of a leak or vascular compromise. The surgeon irrigates the abdomen and then applies vacuum-assisted wound drainage before closing the wound again. Reportable procedures include:

- 49002-58, *Reopening of recent laparotomy*
- 97606, *Negative pressure wound therapy (eg, vacuum-assisted drainage collection), including topical application(s), wound assessment, and instruction(s) for ongoing care, per session; total wound(s) surface area greater than 50 square centimeters*

Case 2: A 38-year-old motor-vehicle crash patient with multiple injuries initially undergoes a damage-control laparotomy with direct repair of torn mesenteric blood vessels, small bowel resection without reconstruction, and temporary abdominal closure using a vacuum-assisted wound drainage device.

On hospital day three, following resuscitation in the intensive care unit (ICU), the patient undergoes re-exploration of the laparotomy, debridement/resection of the previously stapled ends of the bowel, and anastomosis of the small intestine, again with temporary abdominal closure. On the fifth day, the surgeon completes an abdominal exploration to confirm anastomotic integrity, irrigates the abdomen, and applies a vacuum-assisted wound drainage as part of the progression to fascial and skin closure when the timing is appropriate. The reportable procedures include:

Day 1:

- 44120-52, *Enterectomy, resection of small intestine; single resection and anastomosis*
- 35221, *Repair blood vessel, direct; intraabdominal*
- 97606, *Negative pressure wound therapy (eg, vacuum-assisted drainage collection), including topical application(s), wound assessment, and instruction(s) for ongoing care, per session; total wound(s)*

surface area greater than 50 square centimeters

Note that modifier 52 (*reduced services*), is applied to the enterectomy code because a resection, but not an anastomosis) was performed.

Day 3:

- 44120-58, *Enterectomy, resection of small intestine; single resection and anastomosis*

- 97606, *Negative pressure wound therapy (eg, vacuum-assisted drainage collection), including topical application(s), wound assessment, and instruction(s) for ongoing care, per session; total wound(s) surface area greater than 50 square centimeters*

Day 5:

- 49002-58, *Reopening of recent laparotomy*

- 97606, *Negative pressure wound therapy (eg, vacuum-assisted drainage collection), including topical application(s), wound assessment, and instruction(s) for ongoing care, per session; total wound(s) surface area greater than 50 square centimeters*

It is important to note that at some point the abdominal fascia is closed, leaving only a superficial abdominal wound. Thus, when the procedure involves only a negative pressure wound therapy device change and “active wound management” but

the fascia of the abdominal cavity remains closed, or the granulation tissue of the abdominal wall is not entered to gain access to the abdomen, the appropriate code to report is 97606 plus any applicable wound debridement codes (CPT 11042–11047). You should not report CPT 49002 if the abdominal cavity is not entered.

Case 3: A 32-year-old gunshot-wound patient undergoes an initial laparotomy for repair of stomach and liver, with debridement of the liver and packing, plus placement of negative pressure dressing for temporary closure.

The next day, the patient is re-explored and the liver packing is removed with no other injuries found, but the abdomen still cannot be closed. Over the next three days the patient is managed aggressively in the ICU, including diuresis, and on day six, the patient can be returned to the operating room for final inspection, wash-out, debridement, and closure of the abdominal fascia.

Day 1:

- 47361, *Management of liver hemorrhage; exploration of hepatic wound, extensive debridement, coagulation and/or suture, with or without packing of liver*

- 43840-51, *Gastrorrhaphy, suture of perforated duodenal or gastric ulcer, wound, or injury*

- 97606, *Negative pressure wound therapy (eg, vacuum-assisted drainage collection), including topical application(s), wound assessment, and instruction(s) for ongoing care, per session; total wound(s) surface area greater than 50 square centimeters*

Day 2:

- 47362-58, *Management of liver hemorrhage; re-exploration of hepatic wound for removal of packing*. Note that there is a specific code for re-exploration for liver wound, and 49002 is not appropriate here.)

- 97606, *Negative pressure wound therapy (eg, vacuum-assisted drainage collection), including topical application(s), wound assessment, and instruction(s) for ongoing care, per session; total wound(s) surface area greater than 50 square centimeters*

Day 6:

- 49002-58, *Reopening of recent laparotomy*

Definitive abdomen closure

To appropriately report the delayed definitive closure of the open abdomen, the condition of the abdomen, abdominal wall, and soft tissue around the open defect will help to determine the best combination of CPT codes to report. Many abdominal wounds need some form of debridement prior to, or at the time of, definitive closure.

CPT codes 11042–11047 are debridement codes arranged by depth and size of debridement.

For some patients with a recent open abdomen, the fascial edges, subcutaneous tissue, and skin can all be mobilized and then closed primarily. In this instance, the abdominal wall functions as one unit that can be re-approximated to itself, and there is not a fascial defect, per se. Where this type of closure can be accomplished, report CPT code 49900 (*suture, secondary, of abdominal wall for evisceration or dehiscence*).

If the entire abdominal wall cannot be closed primarily, then coverage of an open abdominal wound may be achieved with autograft skin, tissue cultured skin, or skin substitute grafts. If the area to be grafted requires incision or excisional procedures to properly prepare the site to accept a graft, use the skin preparation CPT codes 15002–15005 to appropriately report those services. Autografts are reported with CPT codes 15100–15111. Tissue cultured skin grafts are reported with CPT codes 15150–15152. Skin substitute grafts, regardless of the type (for example, nonautologous human skin, nonhuman skin substitutes, or biological), are reported with CPT codes 15271–15274. The appropriate codes for grafting are selected based upon location (body area) of the graft and size of the defect, thus it is important to include those details in the operative report.

In some instances in which a certain amount of time has passed between the initial surgery and definitive closure of the abdomen, a wide gap between the opposing fascial edges may develop in the abdominal wall. Under these circumstances, the resultant fascial defect creates a potential hernia. If this fascial defect can be closed primarily, report CPT code 49560 (*repair initial incisional or ventral hernia; reducible*) which would include any isolation and dissection of fascia or a hernia sac, reduction of intraperitoneal contents, fascial repair, and soft tissue closure. Additionally, if the fascia cannot be easily or safely approximated and mesh is needed to assist with closure, the implantation of mesh or other prosthesis is described with the use of an add-on CPT code 49568 (*implantation of mesh or other prosthesis for open incisional or ventral hernia repair or mesh for closure of debridement for necrotizing soft tissue infection. [List separately in addition to code for the incisional or ventral hernia repair.]*) This add-on code applies to any type of mesh or other prosthesis—whether synthetic, biologic, or otherwise.

Other patients with complicated conditions may have lost part of their abdominal wall or have contractures of the abdominal musculature over time so that more complex procedures are needed to properly close this fascial gap. Component separation, also known as the “separation of

parts operation,” to achieve closure of large fascial defects or ventral hernias is becoming more common in these complicated cases. The muscle flap code 15734 (*muscle, myocutaneous, or fasciocutaneous flap; trunk*) is the appropriate code to report; it is reported twice to represent the mobilization of the musculo-fascial flap on both sides and is paid at 150 percent of a unilateral separation. For a more detailed explanation on coding component separation, go to www.facs.org/ahp/pubs/tips/tips0911.pdf.

For additional information on billing critical care services for severely ill or injured patients, see the June *Bulletin* column, “Effectively using E/M codes for trauma care” (*Bull Am Coll Surg*, 98(6):56-65).

The coding for damage-control surgery involves many potential CPT codes, modifiers, and concurrent coding rules. If you have additional coding questions, contact the ACS Coding Hotline at 800-227-7911 between 7:00 am and 4:00 pm Mountain time, excluding holidays, or go to www.facs.org/ahp/pubs/tips/index.html. ♦

Editor’s note

Accurate coding is the responsibility of the provider. This summary is only intended as a resource to assist in the billing process.