

Classifications

Surgical wounds can be classified as the following:

CLEAN	Wound with normal tissue
CLEAN CONTAMINATED	Wound with normal tissue that is colonized
CONTAMINATED	Wound contains foreign/infected material
INFECTED	Wound with pus present

Factors that affect wound healing and the potential for infection:

- **Patient-related**
 - Age
 - Underlying illness or disease; consider anemia, diabetes, immunocompromised
 - Effect of the injury on healing, e.g. devascularization
- **Wound-related**
 - Specific organ or tissue injured
 - Extent of injury
 - Nature of injury, e.g. laceration is less complicated than crush injury
 - Contamination or infection
 - Time between injury and treatment; shorter interval is better
- **Local factors**
 - Hemostasis and debridement
 - Timing of closure

Primary Repair

Primary closure requires that clean tissue is approximated without tension.

Injudicious closure of a contaminated wound will promote infection and delay healing.

Essential suturing techniques:

- Interrupted simple
- Continuous simple
- Vertical mattress
- Horizontal mattress
- Intradermal

Staples are a rapid, but expensive, alternative to sutures for skin closure.

The aim with all techniques is to approximate the wound edges without gaps or tension.

The size of the suture “bite” and the interval between bites should be equal in length and proportional to the thickness of tissue being approximated.

As suture material is a foreign body, use the minimal size and amount of suture required to close the wound.

Leave skin sutures in place for 5 days. Leave the sutures in longer if healing is expected to be slow due to the blood supply of a particular location or the patient’s condition.

If appearance is important and suture marks unacceptable (i.e. the face), remove sutures as early as 3 days. Then, re-enforce the wound with skin tapes. Close deep wounds in layers, using absorbable sutures for the deep layers. Place a latex drain in deep oozing wound to prevent hematoma formation.

Close **CLEAN** wounds immediately to allow healing by **primary intention**.

Treat **CLEAN** and **CLEAN** **CONTAMINATED** wounds > 6 hours old by **delayed primary closure**: manage with surgical toilet, leave open, then close 48 hours later.

Do not close **CONTAMINATED** or **INFECTED** wounds. Leave them open to heal by **secondary intention**.

WOUND MANAGEMENT

Delayed Primary Closure

Irrigate clean contaminated wounds

Pack the wound(s) with damp saline gauze

Close the wound(s) with sutures at 2 days

Secondary Closure

To promote healing by secondary intention, perform

- (1) wound toilet and
- (2) surgical debridement

Wound Toilet

Clean skin with antiseptics

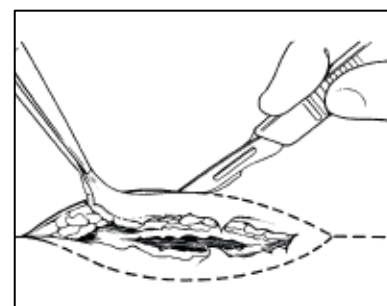
Irrigate wound(s) with saline

Surgically debride all dead tissue and foreign matter

Dead tissue does not bleed when cut

Surgical debridement involves:

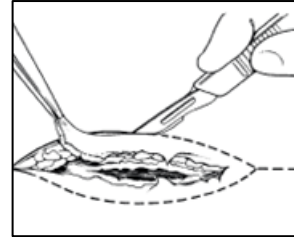
- Gentle handling of tissues to minimize bleeding
- Control of residual bleeding with compression, ligation or cautery
- Recognition of dead or devitalized muscle: dark in colour, soft, easily damaged and it does not contract when pinched
- Excising only a very thin margin of skin from the wound edge



WOUND MANAGEMENT

Surgical Debridement

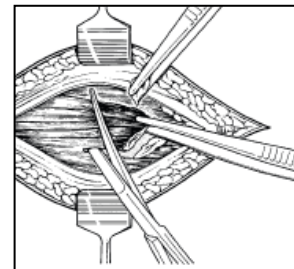
After performing the wound toilet and surgical debridement to superficial layers of tissues, continue on to deeper layers



Scrub the skin with soap and irrigate the wound with saline
Prep the skin with antiseptic **do not use antiseptics within the wound*

Debride the wound meticulously to remove any loose foreign material such as dirt, grass, wood, glass or clothing

Using a scalpel or dissecting scissors, remove all adherent foreign material, along with a thin margin of underlying tissue



Irrigate wound again

Continue the cycle of surgical debridement and saline irrigation until the wound is completely open

Leave the wound open after debridement to allow for healing by secondary intention

Pack it lightly with damp saline gauze and cover the packed wound with a dry dressing

Change the packing and dressing daily or more often if the outer dressing becomes damp with blood or other body fluids.

Large defects will require closure with flaps or skin grafts, but may be initially managed with saline packing.