

Burn Fluid Calculation

● SKILL SNAPSHOT

Purpose

- Estimates a starting crystalloid volume/rate for major burns, then guides titration to physiologic response.

When to use

- Formal resuscitation for significant partial/full-thickness TBSA according to burn protocol; thresholds differ by age and center.

Supplies needed

- Accurate kg weight; TBSA diagram/Lund-Browder; calculator; timer from burn injury; LR; pump; Foley/output monitoring.

● PREP + PATIENT SETUP

- Determine exact burn time, prehospital fluid, accurate weight in kg, age, comorbidities, and inhalation/electrical injury.
- Count partial- and full-thickness burns only; exclude superficial burns.

● VAULT TIP

- Calculate once, reassess hourly: urine output and perfusion—not the formula—drive ongoing titration.

● STEP-BY-STEP

- Estimate %TBSA using rule of nines, Lund-Browder, or patient palm method for scattered small burns.
- Verify weight in kilograms; convert pounds by dividing by 2.2.
- Use the burn center/protocol formula. Current adult ABA guidance commonly starts near $2 \text{ mL} \times \text{kg} \times \% \text{TBSA}$; some protocols/teaching use 4 mL Parkland.
- Calculate total estimated crystalloid for first 24 hours from time of burn—not time of arrival.
- Give half of the calculated 24-hour volume during the first 8 hours from injury and the remaining half over the next 16 hours.
- Subtract fluid already given from the amount due in the current time window.
- Calculate first-period hourly rate = remaining first-half volume divided by hours left until 8 hours after injury.
- Calculate second-period rate = second-half volume divided by 16 hours, then adjust as clinically directed.
- Use LR or protocol-specified crystalloid; children may need maintenance dextrose-containing fluid in addition to burn resuscitation.
- Insert urinary catheter when indicated and titrate fluid to urine output and perfusion targets—not formula alone.
- Common adult urine goal is about 0.5 mL/kg/hr; pediatric and electrical burn goals differ by protocol.
- Monitor MAP, HR, mentation, lactate/base deficit, edema, lungs, compartment pressures, and cumulative balance; avoid fluid creep.

● SAFETY REMINDERS

- Formula is a starting estimate, not a fixed prescription.
- Time begins at injury.
- Use kg and %TBSA as whole number.
- Over-resuscitation causes edema/compartment complications.

● COMMON MISTAKES

- Including superficial burns.
- Starting 8-hour clock at arrival.
- Using pounds.
- Failing to subtract prehospital fluid.

● DOCUMENTATION

- Burn time, weight, %TBSA/method.
- Formula and calculation.
- Prior fluid and hourly rates.
- Urine/perfusion response and titration.
- Cumulative fluid and complications.