

# Lidocaine

## Classification

Class IB antiarrhythmic

Local anesthetic

## Indications

- ACP: Control of ventricular arrhythmias (including ectopy, brief or sustained ventricular tachycardia, and ventricular fibrillation)
- ACP: Local anesthesia during intraosseous cannulation
- ACP: Local anesthesia during awake intubation

## Contraindications

Allergy or hypersensitivity to lidocaine

For systemic (IV/IO) administration, including rhythm control and IO anesthesia:

- Third-degree AV block
- Ventricular escape rhythms
- Wolff-Parkinson-White syndrome

Consider alternative agents in patients with congestive heart failure. Consultation with CliniCall is recommended in these cases.

NB: some sources report that lidocaine use is contraindicated in second-degree AV blocks. These rhythms are functionally supraventricular, and in the post-arrest context, the benefits of lidocaine would be likely to outweigh the theoretical risks.

## Adult dosages

- ACP: Ventricular rhythm control
  - 1.0-1.5 mg/kg IV bolus
  - May repeat at 0.5-1.0 mg/kg to a total maximum dose of 3 mg/kg
- ACP: Local anesthesia during intraosseous cannulation (in conscious patients)
  - Initial dose 40 mg, administered over 120 seconds
  - Allow the lidocaine to "dwell" in the marrow space for 1-2 minutes before flushing the cannula and infusing an additional dose of 1/2 the initial amount over 60 seconds, then flushing briskly with normal saline
  - Total amount for local anesthesia is 80 mg
  - See [PR12: Intraosseous Cannulation](#) for additional information
- ACP: Local anesthesia for awake intubation
  - Attach lidocaine preload to mucosal atomizer device and directly spray the surface of the tongue, soft palate, posterior pharynx, and tonsillar pillars.
  - Employ a "spray as you go" technique and assess for degree of anesthesia.
  - There is no consensus on a maximum permissible dose: avoid exceeding 5 mg/kg topically where possible.

## Pediatric Considerations And Dosing

[Follow weight-based dosing.](#)

**■ ACP: Ventricular rhythm control**

- 1.0-1.5 mg/kg IV bolus
- May repeat at 0.5-1.0 mg/kg to a total maximum dose of 3 mg/kg

**■ ACP: Local anesthesia during intraosseous cannulation (in conscious patients)**

- 0.5 mg/kg, to a maximum of 40 mg, slowly infused over 120 seconds.
- Allow the lidocaine to "dwell" in the marrow space for 1-2 minutes before flushing the cannula and infusing an additional dose of 1/2 the initial amount over 60 seconds, then flushing briskly with normal saline
- Total maximum amount for local anesthesia is 80 mg
- See [PR12: Intraosseous Cannulation](#) for additional information.

**■ ACP: Local anesthesia for awake intubation**

- Attach lidocaine preload to mucosal atomizer device and directly spray the surface of the tongue, soft palate, posterior pharynx, and tonsillar pillars.
- Employ a "spray as you go" technique and assess for degree of anesthesia.
- There is no consensus on a maximum permissible dose: avoid exceeding 5 mg/kg topically where possible.

## Mechanism Of Action

As a sodium channel blocker, lidocaine decreases the duration of the action potential by shortening the period of repolarization.

## Pharmacokinetics

Intravenous:

- Onset: 2 minutes
- Peak: uncertain
- Half-life: 1-2 hours
- Duration: 20 minutes

## Adverse Effects

- Dizziness, lightheadedness, drowsiness, slurred speech
- Hypotension
- Muscle twitching
- Paresthesia (particularly in fingers or lips)
- Tinnitus
- Nausea or vomiting
- Cardiac arrhythmias

## Overdose

Care for lidocaine overdoses is primarily supportive, although some in-hospital therapies are available.

## Drug Interactions

The risk of lidocaine toxicity is increased in patients taking cimetidine, ranitidine, or beta blockers. Lidocaine use in patients taking disopyramide may precipitate bradycardia that can progress to cardiac arrest.

