

Faster absorption from deltoid than from gluteal sites

Shorter duration and more expensive than oral drugs

Time consuming for staff and unnecessary delay for child

Intranasal

Available commercially as butorphanol (Stadol NS); approved for those older than 18 years old

Should not be used in patient receiving morphine-like drugs because butorphanol is partial antagonist that will reduce analgesia and may cause withdrawal

Intradermal

Used primarily for skin anesthesia (e.g., before lumbar puncture, bone marrow aspiration, arterial puncture, skin biopsy)

Local anesthetics (e.g., lidocaine) cause stinging, burning sensation

Duration of stinging dependent on type of “caine” used

To avoid stinging sensation associated with lidocaine:

- Buffer the solution by adding 1 part sodium bicarbonate (1 mEq/ml) to 9 to 10 parts 1% or 2% lidocaine with or without epinephrine

Normal saline with preservative, benzyl alcohol, anesthetizes venipuncture site

Same dose used as for buffered lidocaine

Topical or Transdermal

EMLA (eutectic mixture of local anesthetics [lidocaine and prilocaine]) cream and anesthetic disk or LMX4 (4% liposomal lidocaine cream)