- **Soluble morphine sulfate tablets are no longer available.** Manufacture was discontinued on 12/31/07. These tablets were used for sublingual (SL) administration of morphine. SL morphine is often used to treat breakthrough pain in an attempt to hasten the analgesic onset and peak; however, there are no data to support more rapid absorption of morphine by the sublingual than the oral route\(^1\)-\(^3\). In fact, a number of clinical studies have found that SL morphine has no significant advantage over oral (PO) morphine.\(^4\)-\(^6\) The oral route of administration is preferred for most patients in pain.

  - Mean time to maximum blood level has been shown to be shorter following PO morphine (0.8 + 0.35hr) than after SL (1.75 + 1.30 hr) administration, which suggests that SL morphine is swallowed and absorbed in the gut rather than through the oral mucosa\(^3\).
  
  - The bioavailability (percentage of a dose that reaches the systemic circulation) of SL morphine has been shown to be only 9% compared with 23.8% for an oral solution, (the PO and SL doses are equianalgesic).
  
  - Agents are most readily absorbed through the oral mucosa when they are potent, unionized at physiological pH, and highly lipid soluble (see Fast Facts-transmucosal and buccal fentanyl). Morphine has a relatively low potency, is 90% ionized at the pH of the mouth, and is the least lipid soluble opioid which makes it a poor choice for SL or buccal administration.

There are several forms of short-acting enteral morphine are available:

- **Short-acting oral morphine tablets** are available in 15 mg and 30 mg dosages. They are not soluble and will not dissolve quickly under the tongue

  - **A morphine solution is available** at a concentration of 10mg/5mL. This is not suitable for SL administration as the large volume required may lead to choking or aspiration. **Solution should be swallowed.** Solution is useful to titrate in small incremental doses or when the desired starting dose is less than the available 15mg tablets. A concentrated 20mg/ml solution is also available. Use extreme caution with this more potent solution.

  - **Morphine suppositories** are available for rectal administration in patients who cannot swallow in doses of 20 and 30 mg.

A usual starting dose for an opioid naïve patient is 5-20mg PO every 3 hours. Oral, sublingual and rectal doses are considered approximately equianalgesic. The equianalgesic ratio of IV to PO morphine is 1:3 (10mg of IV morphine is approximately equianalgesic to 30mg PO/SL/rectal morphine).

**References:**

- Osborne R, Joel S, Trew D, Slevin M. Morphine and metabolite behavior after different routes of morphine administration: demonstration of the importance of the active metabolite morphine-6-glucuronide. Clinical Pharmacology Therapy 1990;47:12-19.


Pain Fast Fact: Sublingual Morphine continued