

induced respiratory depression. Assessment of pain and the skin condition around the catheter site are important aspects of nursing care.

## **Transmucosal and Transdermal Analgesia**

Oral transmucosal fentanyl (Oralet) and intranasal fentanyl ([Mudd, 2011](#)) provides nontraumatic preoperative and preprocedural analgesia and sedation. Fentanyl is also available as a transdermal patch (Duragesic). Duragesic is contraindicated for acute pain management, but it may be used for older children and adolescents who have cancer pain or sickle cell pain or for patients who are opioid tolerant.

One of the most significant improvements in the ability to provide atraumatic care to children undergoing procedures is the anesthetic cream ([Zempsky, 2014](#); [Oakes, 2011](#)). LMX4 (a 4% liposomal lidocaine cream) or EMLA (a eutectic mixture of local anesthetics) are the most well-studied topical anesthetics found to be effective in children. The EMLA (lidocaine 2.5% and prilocaine 2.5%), whose melting point is lower than that of the two anesthetics alone, permits effective concentrations of the drug to penetrate intact skin ([Fig. 5-8](#)). Transdermal patches, such as Synera (lidocaine and tetracaine), are effective methods to administer topical analgesia before painful procedures.