



Figure 3-4. Types of inhalers: dry-powder inhaler (DPI) (A) and metered dose inhaler (MDI) (B).



Figure 3-5. Plastic spacer used to improve medication delivery from an inhaler.

onset of action, and are therefore used for managing an acute asthma attack. Because of their role in treating acute attacks, these short-acting bronchodilators are also commonly referred to as “rescue” inhalers. Table 3-13 provides a listing of common SABAs. Long-acting β_2 -agonists (LABAs) are often used in combination with inhaled corticosteroids for the long-term management of chronic asthma. Because of their delayed onset of action, LABAs are not effective for treating acute bronchial spasms and should never be confused with the rescue inhalers.

There are 3 main types of inhalers commonly used by people who have asthma: MDI, dry-powder inhalers (DPI), and breath-actuated MDIs (Figure 3-4). The standard MDI is the most common type of inhaler used and delivers a metered dose of medication in the form of an aerosol mist. This type of delivery, however, requires good technique in timing the inhalation to coincide with the propelled mist. Poor technique results in a decreased amount of medication actually reaching the lungs. Plastic spacers can be used to extend the distance between the inhaler and the mouth and help reduce the effects of poor technique on medication delivery (Figure 3-5). For optimum dosing, patients should be instructed in the proper techniques for using their inhalers. Step-by-step instructions for using a standard MDI are provided in Table 7-5 in Chapter 7.

Nebulizers are another device that can be used to deliver bronchodilators and corticosteroids for treating asthma and other respiratory diseases (Figure 3-6). There are multiple types of nebulizers ranging in size from large, tabletop models that must be plugged into an electrical outlet to small, hand-held, battery-operated units. Each type of nebulizer converts a small dose of liquid medication into a fine aerosol mist that the patient breathes in through a mouthpiece. Nebulizer treatments are often referred to as “breathing treatments” and typically last 10 to 15 minutes. Table 7-6 in Chapter 7 describes the steps to follow when administering a nebulizer treatment.

General side effects associated with bronchodilators include tachycardia, increased blood pressure, increased blood sugar, nausea, vomiting, nervousness, restlessness, and sleeplessness. Bronchodilators can be administered both through oral and inhalation routes; however, the inhaled drugs are able to act more quickly and are generally associated with fewer systemic side effects.