### BOX 2. KEY POINTS FOR SPACER TECHNIQUE

- Too long a delay in inhalation after pMDI actuation may lead to excessive loss of the respirable dose within the spacer device (Lavorini et al, 2006; O’Callaghan and Barry, 2000b).
- If a health professional is actuating the inhaler for a child, this should be done when the child is ready and the spacer in place, as a time delay between actuation and inhalation can result in a reduced intake of medication (O’Callaghan and Barry, 1997).
- Discharging of multiple doses into the spacer at the same time can result in a lower inhalation of medication due to the turbulence in the spacer, leading to a coalescence of small particles into larger particles and excessive deposition on to the spacer walls, often reducing the respirable dose per actuation (Lavorini et al, 2006; Hindle and Chrystyn, 1994).

### Conclusions

It has long been recognised that a pMDI with a spacer device is the best way to deliver bronchodilator therapy for the treatment of asthma (O’Callaghan and Barry, 2000a; Dewar et al, 1999; Zar et al, 1999).

Many studies demonstrate that, when correctly used, spacers are as good as, if not better than, nebulisers at treating asthma (Delgado et al, 2007; Dewar et al, 1999; Zar et al, 1999; Parkin et al, 1995), and pMDIs with spacers may be as efficacious as nebulisers for the emergency treatment of asthma symptoms in children.

The use of a pMDI on its own will rarely deliver the optimal treatment to a child. Studies have shown that a spacer will reduce the amount of drug deposited in the oropharynx, while improving the lung deposition of the inhaled drug. The correct use of a portable spacer could reduce emergency admissions to hospitals, potentially saving the NHS up to £1.5m per year (Health Enterprise East, 2009).

Next week, in part 2 of this series, Paul Watson describes the development of a new type of spacer.

### References

- **Asthma UK** (2014). Spacey vs pMDI. In: pMDI actuation may lead to excessive loss of the respirable dose within the spacer device (O’Callaghan and Barry, 2000b).
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- **Dewar AL et al (1999)** A randomised controlled trial to assess the relative benefits of large volume spacers and nebulisers to treat acute asthma in hospital. *Archives of Disease in Childhood*; 80: 421-423.
- **Health Enterprise East (2009)** Pocketflow Asthma Spacer. tinyurl.com/pocketflow