Part two of this four-part series discusses drug administration using alternatives to the oral route.

**Administration of drugs 2: non-oral**

While the oral route is most frequently used for drug administration, it is not always appropriate. In such situations a range of alternatives is available to treat the patient effectively.

**Sublingual route**
The sublingual mucosa offers a rich supply of blood vessels through which drugs can be absorbed. This is not a common route of administration but it offers rapid absorption into the systemic circulation. The most common example of sublingual administration is glyceryl trinitrate in the treatment of acute angina.

The pharmaceutical industry has formulated “wafer-based” versions of tablets that dissolve rapidly under the tongue. These are aimed at particular groups of patients who have difficulty taking tablets, such as rizatriptan for people with migraines that are sometimes accompanied by symptoms of nausea, which may prevent them from taking oral treatments. Wafers are also used to treat conditions in which concordance is an issue; for example, olanzapine can be administered by the sublingual route when used to treat schizophrenia.

**Rectal administration**
The rectal route has considerable disadvantages in terms of patient acceptability (in the UK at least) and unpredictable drug absorption, but it does offer a number of benefits. Drug delivery can be localised into the large bowel – for example, the use of rectal steroids in the form of enemas or pessaries containing clotrimazole to treat vaginal candidiasis.

Topical administration has also become a popular way of introducing drugs into the systemic circulation through the skin. The development of transdermal patches that contain drugs began with the introduction of a hyoscine-based product for the treatment of nausea in the early 1980s. The market for such products has since grown to include a wide range of therapy areas including smoking cessation (nicotine replacement), chronic pain (fentanyl) and hormone replacement (oestrogens).

Transdermal drug administration is not without its problems – for example, some preparations can cause local skin reactions – but many patients find it a welcome alternative to taking tablets.

**Administration via enteral feeding tubes**
Medicines should only be administered via fine-bore enteral feeding tubes as a last resort and other routes should be considered first.

**5 key points**

1. The sublingual route provides rapid drug absorption into the systemic circulation.
2. The rectal route can be used to administer antiemetics to treat nausea and vomiting.
3. Topical application allows medicines to be delivered to the intended site of action and reduces the risk of systemic side-effects.
4. Topical administration can also be used to administer drugs into the systemic circulation, for example, nicotine replacement patches.
5. Medicines should only be administered via fine-bore enteral feeding tubes as a last resort and other routes should be considered first.

White and Bradnam (2010) give a good overview of this route, while the British Association for Parenteral and Enteral Nutrition has produced a step-by-step guide for administration of drugs via enteral feeding tubes as well as information leaflets for GPs and patients (www.bapen.org.uk/res_drugs.html).