

Full value

A medicine's packaging is much more than just a container. Packaging is a key determinant of a medicinal product's quality, and its safety is a deciding factor when choosing between treatment options. Poorly designed drug packaging increases the risk of various types of medication errors, which in turn can lead to adverse effects or reduced efficacy.

The oral *rotavirus vaccine* Rotarix[®] (GlaxoSmithKline) was first marketed in France in 2006 in a syringe. As a result, the vaccine was in some cases mistakenly administered by intramuscular or subcutaneous injection, provoking adverse effects in children (see "Rotarix[®] oral liquid vaccine: in a squeezable tube" p. 307). It took about 15 years for the syringe to be replaced by a squeezable tube in order to prevent these errors, which had continued to occur despite warnings to healthcare professionals issued by drug regulatory agencies and the pharmaceutical company concerned.

Teriparatide (Forsteo[®] and other brands) is marketed as a solution for subcutaneous injection in prefilled pens or cartridges for insertion into a pen. The incomplete and insufficiently informative packaging of these multidose products has led to their incorrect use and resulted in overdoses. The French Health Products Agency has therefore been issuing warnings about these risks for more than 15 years (see "Teriparatide in pen injectors or cartridges: multidose formulations which must not be drawn into a syringe" p. 297).

The indications for *lacosamide* (Vimpat[®]) were extended to include children, but the drug's packaging still is likely to be a source of error, making warnings necessary whenever it is prescribed and dispensed (see "Lacosamide (Vimpat[®]) in the prevention of generalised epileptic seizures from 4 years of age" p. 288).

Yet experience has shown that sending warnings to healthcare professionals to compensate packaging flaws is insufficient to prevent errors. It is high time that pharmaceutical companies and drug regulatory agencies appreciated the full value of high-quality drug packaging: companies would then package their drugs safely from the outset, and regulators would be determined and intransigent on this point. Because high-quality drug packaging is in fact possible! Nasal *glucagon* is a good example, due in particular to its labelling and clear instructions for use (see "Nasal glucagon (Baqsimi[®]) in hypoglycaemia with loss of consciousness" p. 289).

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