Cover Story

A lesson for our times

In England in 1857 a Bill was introduced into Parliament to regulate the sale of poisons. One of the clauses in this proposed Bill ordered that:

"... all medicines containing any poison should be supplied in quadrangular blue glass bottles, labelled in conspicuous capitals, white on black ground, POISON, the word POISON being also embossed in raised letters on the four sides of the bottle".¹

The design was clearly the result of analysis and thought applied to the problem of reducing what we now call "medication errors". It is well human engineered:

(1) The black ground of the printed word POISON serves by its blackness as a warning. It has frequently been recommended in recent times that potassium chloride containers should have a black cap.

(2) The contrast between the word POISON and the ground is maximum. The modern use of various colours on labels actually reduces the contrast and therefore the readability of the identifying label.

(3) The word POISON is embossed on the glass on all four sides. This would markedly reduce the probability of the word being overlooked by being covered by the hand that grasps the bottle. It also guards against the possibility of loss of the printed label.

(4) The bottle is to be rectangular in cross section and made of blue glass. The former provides tactual and the latter visual identifiability, especially if they were reserved for poisons.

It is important to note that the error of picking up the wrong container can still occur. The effect of the redesign and repackaging would have been to raise to a high level the probability that the error would be detected by the person making

Figure 1 Spins and protrusions on cap and body of bottle.

it. People still make errors. The goal of the safety analysis is to make sure that the errors do not lead to patient injury.

Stimulated by the nature of the Bill, inventors designed and applied for patents on a host of methods aimed at ensuring that poisons were not inadvertently used. Many of these had quite modern flavours. Thus, we see the use of "spines" on the cap of a poison bottle in one application and protrusions on the body of the bottle itself on at least two (fig 1). Such devices would then—and would now—provide instant tactual identification of poisons or, more appropriately today, of materials which presented a hazard if injected via the wrong route.

Another application was for a "puzzle cap" which required a series of rotations and liftings in correct order to be opened (fig 2). It could be used today. In general, the inventors did what we might do: they proposed shape, colour, texture, upside

Figure 2 Puzzle cap.

down labelling, luminous glass, sounding alarms, and puzzle locks. All they lacked was the sophistication of modern experimental design for assessment of the effectiveness of their inventions. But then, many manufacturers do not use that tool today.

If Parliament could use its powers to protect the public 140 years ago, it seems unreasonable for anyone to argue that the Food & Drug Administration, with all its scientific resources, is unable to do as well.

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- 1 Bell J, Redwood T. *Historical sketch of the progress of pharmacy in Great Britain*. London: London Pharmaceutical Society, 1880: 248.