



A Regulatory Framework for Better Protection: Preventing the Counterfeiting of Medicinal Products in the EU

InfraTrac Submission to DG Enterprise Consultation

May 2008

InfraTrac welcomes the opportunity to contribute to the DG Enterprise consultation on key ideas for better protection of patients against the risk of counterfeit medicines, a major challenge.

InfraTrac supports the European Commission's analysis of these important issues, and, in particular, shares its view that regulatory measures can greatly increase patient safety in the face of this growing public health threat. InfraTrac's submission to the DG Enterprise consultation will therefore focus explicitly on the challenge of combating counterfeit medicines, and will seek to outline potential solutions to the problem from a regulatory standpoint, along with tangible EU policy recommendations in support of patient safety.

The Scope of the Counterfeiting Problem

Huge increases in the volume of seized counterfeit medicines point to a growing problem. Counterfeiting is increasingly dangerous, targeting life-saving medicines. Counterfeiting of ingredients is contributing to the proliferation of substandard products, an additional danger.

Counterfeit medicines are infiltrating and compromising the entire supply chain.

Increasingly, there are manufacturing and purity concerns involving ingredients as well, both for the active substance and for excipients.

The problem, then, is not simply to verify each link in the supply chain, but also to ensure that the drug delivered to the patient is safe and effective: no counterfeit product, no counterfeit or substandard ingredients, and compliance with GMP standards and GDP standards to ensure the integrity of the product up until the moment it serves the patient's needs. As the Commission notes, Member States have an interest in uniform standards so that counterfeiters cannot target weaker links in the legal distribution chain.

Regulation of Medicinal Products

Package tracking is difficult, especially since there are powerful incentives to repackage. Language issues lead to repackaging, and increasingly aging populations require daily-dose packaging. It is InfraTrac's considered view that there are product-level technological protections available that provide sufficient safeguards, so that repackaging need not be banned entirely. Safety seals of many types are already being compromised, sometimes within weeks. A seal-based approach may have points of vulnerability that further weaken a repackaging ban. Imposing an obligatory product pedigree requires considerable infrastructure investment, but nonetheless leaves potential vulnerabilities during repackaging. It is also possible that such a system could weaken in the face of shortages, e.g. of avian flu measures during an epidemic.



Third country issues suggest it is desirable to incorporate measures to test and protect medicines close to the point of patient delivery, including at the retail level. These measures can provide a layer of protection that is effective even if some points in the transit chain have been less vigilant.

Appropriate enforcement might include measures for testing product integrity, such as by near-infrared spectroscopy. These measures could also incorporate checking for a fingerprint, such as a nanotag or the excipient-based tagging provided by InfraTrac, that would allow identification at the batch level. InfraTrac's fingerprinting uses excipients as a taggant: slight alterations, in the range of 0.5 to 5%, in excipient percentages, are detectable with Near Infrared Spectroscopy, and can be varied by site or even by batch, to produce a "lot number in the pill." (These are Type I, i.e. minimal, variations, as defined in Regulation (EC) No 1084/2003.) This could be a supplementary approach to traceability, and help deal with other issues, including:

Difficulties in conducting targeted recalls, in particular in the case of counterfeit products

Such fingerprinting would occur at the point of approved manufacture, with verification against the established fingerprint database at any point forward right up to and including the point of sale. Fingerprinting permits interested parties to verify product at all stages in the manufacture and distribution process. Access to the fingerprint database does not permit reverse engineering: a counterfeiter who sees a chemical spectrum cannot create a drug copy from it.

The Commission has identified three areas of regulation of medicinal products where improvements to the regulatory framework could be helpful:

- Medicinal products placed on the market, especially with respect to traceability, product integrity, and the distribution chain
- Medicinal products brought into the Community, i.e. import/export and transit
- Active ingredients

Optimally, the regulatory framework would incorporate product-based traceability in addition to supply chain tracking. It is now technologically possible to include a lot-specific identifier in the product (pill, liquid, powder, and so on). Such an identifier could serve as a traceability fallback in the case of a disrupted supply chain. For example, near-infrared spectroscopy can identify a product even if it has been repackaged or diverted.

Counterfeiters may attempt to pass an audit with forged paperwork or altered e-tracking. Substance-level verification cannot be faked: if the drug fails a chemical test, it is non-compliant, no matter how good the tracking may look. With a fast, non-destructive test, it would be possible to supplement tracking with chemical verification. This could serve as an important safeguard, particularly as products cross borders and are repackaged or relabeled.



It is even possible to track a particular counterfeit, so that, for example, it would be possible to identify whether a new counterfeit sample represented a new counterfeiter, or an expansion in scope by an existing counterfeiter.

Authentication at the point of sale or delivery has two advantages: 1) drugs can be verified at the customer end of the supply chain, regardless of repackaging, and 2) faster results make it more likely the counterfeiters can be traced and caught. From an infrastructure standpoint, reliable verification at a single point makes it possible to protect patients quickly, without having to equip and police every participant in the chain.

Ingredients, especially in view of the recent heparin and glycerin problems, must be monitored as well. The advent of handheld spectrometers makes it possible to check incoming bulk raw ingredients, both actives and excipients, without having to open the drum in a clean room. Instead, testing can be performed through the plastic bin liner, cutting testing time from days to minutes. The advent of new, cost-effective testing measures makes it reasonable for the EU to consider mandating more thorough ingredient testing. Such testing could also detect substandard product, toxic residues, and contaminated product.

Key considerations

A European solution to the problem of drug counterfeiting should be assessed according to the following key criteria:

Increases patient safety, in the product as delivered to the patient.

Flexible technology makes adoption and upkeep easier, protecting more patients.

Non-destructive methods enable multiple players to test and retest, including in court.

Identifies substandard, diverted, and contaminated product, and not just blatant counterfeits.

Cost-effective: Low cost solutions with minimal infrastructure requirements will be more likely to be implemented widely, including on generics, protecting more people.

Fast and easy: Testing should be speedy, requiring minimal training.

InfraTrac is a small US-based anti-counterfeiting company that tags and tracks the product itself. InfraTrac uses a lightweight formulation-based fingerprint as a tag, and a handheld near-infrared spectrometer as a detector. InfraTrac's formulation-as-tag approach enables one-second verification for counterfeit and diverted substances, at any point in the distribution chain.

We will be very happy to answer any questions this comment might raise.
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