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CORRESPONDENCE

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Counterfeit artesunate antimalarials in southeast Asia

Sir—Artesunate is the key antimalarial drug in the treatment of multidrug-resistant *Plasmodium falciparum* malaria in mainland southeast Asia. In China, Burma (Myanmar), Laos, Cambodia, and Vietnam it is widely available through the private sector. Widespread criminal production and distribution of counterfeit artesunate tablets in this region has resulted in the deaths of many people who would otherwise have survived their malaria infection. The spurious artesunate tablets contain no active drug. They are labelled to resemble a product, manufactured by Guilin Pharmaceutical Company, Guilin, People's Republic of China, that is the most commonly available brand of artesunate.[1,2]

In 2000–01, 38% of shop-bought oral artesunate sampled in Vietnam, Cambodia, Laos, and Burma, did not contain the active drug. However, the appearance of the packaging allowed detection of counterfeit tablets, which could be confirmed by the Fast-Red dye test.[3] Some blisterpacks containing the fake tablets bore a poor, easily recognisable, copy of the genuine hologram.

During a more recent larger survey of fake antimalarials in this region, we noticed two new sophisticated fake hologram styles on artesunate blisterpacks in southern Laos and northern Cambodia (see www.shoklo-unit.com/fakeas2.pdf for photographs). High-performance liquid chromatography confirmed the absence of artesunate. The main distinguishing features of the first new counterfeit, from the genuine product are a different mountain silhouette and the absence of the legend Guilin Pharma written on the hologram. This can just be seen with the naked eye as a pale strip. The printing on the counterfeit blisterpack is less clear than that on the genuine product and all four samples collected were printed with the code 00902 and manufacture and expiry dates of 09/00 and 09/03.

Blisterpacks with a second fake hologram style, bought in southern Laos in 2003, are indistinguishable from the genuine hologram, apart from the absence of the microscopic legend Guilin Pharma. The samples collected have the code 010901 with manufacture and expiry dates of 09/01 and 09/04. Artesunate was collected from 22 pharmacies in southern Laos, of which 19 offered only counterfeit drug, all of which were labelled as made by Guilin Pharma.

Since these new counterfeits are so convincing, they are probably escaping detection elsewhere in Asia and could be disseminated to other continents. In Cambodia, a poster and television campaign warning the public of the existence of fake artesunate and informing them how to identify such tablets seems to have driven the trade in counterfeit artesunate underground.[1] Health personnel will find the latest counterfeits much more difficult to identify, because they differ from the genuine product only in subtle characteristics.

Earlier reports[1,2] of the scale of the problem seem to have had little effect and research on fake drugs seems to be an example of applied health research with minimum effect on health policy. International organisations, including WHO, have done little to counter this lethal trade. This inaction is partly because of the lack of resources available for the regulation and policing of the drug supply in tropical countries, the secrecy of the pharmaceutical industry, possible links between the counterfeiters and officials in the producing countries, and because the effects of fake antimalarials are disguised in the unrecognised deaths of the rural poor.[4,5] Such failure to act contrasts with the recent rapid mobilisation of public-health resources to counter severe acute respiratory syndrome in the same region. We believe that urgent action is needed to find, prosecute, and close down the factories, collect and incinerate all suspect artesunate, prosecute the shops selling it, warn the public, and ensure that inexpensive quality-assured antimalarial drugs are made readily available.

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Implications of use of contaminated drugs: a developing world scenario

Infections after use of inadequately sterilised therapeutic products have been reported worldwide.[1–3] We believe that, in the absence of well established surveillance and notification procedures (as is often the case in developing countries), such instances are frequently not detected, and contaminated drugs continue to be marketed.

In April, 2002, we noted a rise in *Candida tropicalis* isolates in blood cultures and in indwelling central venous catheter tips removed from patients with solid organ tumours in a tertiary care hospital in Karachi, Pakistan (figure). All isolates had similar biochemical profiles.

Our investigations excluded health-care workers and environmental sources—eg, disinfectants, pyodine, surgical spirit, liquid soap—as possible sources of infection. Of the therapeutic