

# Prevalence of counterfeit anthelmintic medicines: a cross-sectional survey in Cambodia

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## Summary

**OBJECTIVES** To assess the prevalence of counterfeit anthelmintic medicines in Cambodia, and to determine influential factors.

**METHODS** Commonly used anthelmintic medicines were collected from private drug outlets. Medicines were carefully observed including their registration labelling, and their authenticity was investigated with the manufacturers and the Medicines Regulatory Authorities. Samples were analysed by High-Performance Liquid Chromatography at the National Health Product Quality Control Centre, Cambodia.

**RESULTS** Two hundred and three samples of anthelmintics were collected from 137 drug stores. Domestic products constituted 36.9%. Of 196 samples which were verified for registration, 15.8% were not registered. Of 165 samples successfully investigated for their authenticity, 7 (4.2%) were identified as counterfeit. All of these medicines were purchased in open packs or containers, and most of them were foreign manufactured and/or without registration.

**CONCLUSION** The results of our survey urge strict implementation of drug registration and vigilance on the availability of unregistered medicines to combat counterfeit medicines in Cambodia.

**keywords** counterfeit drugs, Cambodia, anthelmintics, cross-sectional survey

## Introduction

Currently, it is not uncommon for patients to take medicines prescribed by their physician without an improvement of the condition. There could be many reasons for such a situation. In a developing country, one might wonder whether the medicines are genuine or of good quality. In severe cases, patients may die as a consequence of poor-quality or counterfeit drugs (Hanif *et al.* 1995; White 1999; Aldous 2005).

'A counterfeit medicine is one which is deliberately and fraudulently mislabelled with respect to identity and/or source' (WHO 1999, 2009a; IMPACT 2007). Simply put, counterfeit medicines are imitations of legitimate medicines that bear the authorization of appropriate authorities. Substandard drugs, on the other hand, are legitimate drugs that do not meet the quality specifications claimed by their manufacturers (WHO 2009b). Chemical instability, inappropriate storage and transport, and poor quality control

during manufacturing may deteriorate drug quality in less developed countries (Khan & Ghilzai 2007).

The severity of drug counterfeiting has been documented in a number of reports from different countries. WHO found that 20–90% of drugs were counterfeited in some African countries (Surendran 2004; Kelesidis *et al.* 2007). In 2005, 12.2% of antimalarials in Tanzania were identified as substandard by content analysis (Kaur *et al.* 2008). In southeast Nigeria, 37% of samples did not comply with standards (Onwujekwe *et al.* 2009), and similar scenarios exist in Asia (Newton *et al.* 2006; Khan & Ghilzai 2007).

Survey findings from the Ministry of Health (MoH), Cambodia suggest that 10.43% of the drugs in the country were being counterfeited in 2001 (MOH 2001). In 2004, the second survey of the MoH, Cambodia, in cooperation with WHO, reported the prevalence of 21.13% counterfeit medicines (MOH 2004). In 2006, Lon *et al.* (2006) found 58% counterfeit and substandard antimalarials in licensed outlets and 75% in non-licensed outlets.