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Swiss combat conterfeit drugs in Mali

Fake medicines Photo: Brahima Ouedraogo/IRIN

3 January 10 - **Swiss researchers are introducing in Mali a technology to analyse medicines for substandard ingredients more rapidly and cheaply than current methods allow.**

IRIN News - Swiss researchers are introducing in Mali a technology to analyse medicines for substandard ingredients more rapidly and cheaply than current methods allow.

"We wanted to know how we could bring down the cost of this technology and produce a lower-cost prototype," Serge Rudaz from University of Geneva's School of Pharmaceutical Sciences told IRIN.

The technology, using thin wires hooked to electrodes to analyse a medicine's chemical properties – known as capillary electrophoresis – has typically cost some US$80,000.

Swiss engineers and pharmacologists in November delivered a prototype to Mali's national health laboratory that costs less than $7,000.

While the technology has been used in Switzerland, the United States and Japan, this is the first time it has been introduced in Africa.

"Labour and research costs were covered by our universities," Rudaz told IRIN. "Only by stripping away those costs can we make this technology available in countries struggling with quality control and counterfeit medicines."

The World Health Organization (WHO) in April 2009 said the presence of counterfeit medicines, "with their serious health repercussions, especially for the poor", is growing worldwide. The most disturbing phenomenon in developing countries, WHO says, is the common availability of fake medicines for frequent and life-threatening diseases like malaria, tuberculosis and HIV/AIDS.

The US-based Center for Medicines in the Public Interest estimates that counterfeit drug sales worldwide will reach $75 billion in 2010, an increase of more than 90 percent from 1995.

Eighty-percent of medicines sold in African countries are imported, according to WHO; this volume makes quality control tricky, said Rudaz. "It is not so much falsification of ingredients this technology studies, rather the chemical analysis picks up any substandard or toxic qualities."

An insufficient quantity of an active ingredient in medication can be as deadly as a wrong chemical mix, said Rudaz. "If there is not the right concentration of an active principle in an antibiotic, this can cause resistance."

Heat and improper storage can lead to the degradation of drug chemicals, he added.

Mali's lab will use the machine to analyse antibiotics amoxicillin and cotrimazol, prescribed for diarrhoea and ear infections; the diuretic furosemide, used to treat congestive heart failure; the combination HIV therapy of lamivudine, zidovudine and nevirapine; the antimalarial quinidine; and the antibiotic rifampicin, used in combination with other drugs to treat tuberculosis and leprosy.

Operation

Mali's national laboratory currently uses chemical analyses – chromatography and spectrophometry – that are more cumbersome and costly, said its director Benoît Yaranga Koumaré. Results can take a day versus 10 minutes with capillary electrophoresis.

Swiss pharmacologist Rudaz told IRIN the new machine uses fewer solvents and requires a smaller sample, which is critical when analysing costly compounds. "Medicine used for analysis is medicine not going to a patient. With this machine, we need only nano-litres."

In less than one week Malian lab technicians were able to use the machine, lab director Koumaré told IRIN.

The problem is not mastering capillary eletrophoresis, but rather having basic laboratory skills to operate the machine, said Rudaz. "In our testing in Switzerland, the challenge was [when] the person did not know how to mix solutions."

In 2004 there were 264 trained lab technicians to cover Mali's population of 11 million, based on the most recent government data.

Rudaz said while tests for the machine's "robustness" were carried out in Switzerland, his team does not know how the machine will perform in the field. "We are adapting a European technique to a completely different context. We have to see how this technique will be applied. We do not yet know how technicians will handle problems."

Head of equipment maintenance at Mali's national laboratory, Mamadou Traoré, told IRIN he feels confident he can take apart the machine for repairs. And if a new part is needed? "We can just pick up the phone and call our Swiss friends."

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