Abacus

THE ABACUS II PROJECT

IMPROVING THE IDENTIFICATION OF ANTIBIOTICS TO SUPPORT APPROPRIATE USE

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We've all taken antibiotics, but how did you know exactly what you were taking at the time?

It's likely that you received information from your doctor, read the prescription that was written, received your medicine in its original, labelled packaging, with instructions on the insert, and received guidance from the pharmacist. But what if the capsule wasn't sold to you in its original packaging? What if the vendor was not a registered pharmacist who could give accurate information and advice? How would you know then?

This is an issue in many low and middle-income countries (LMICs), where antibiotics can be obtained over the counter, from unlicensed vendors in the absence of a prescription. In these settings, drugs are often removed from the original packaging, for individual sale, or offered in unofficial, self-made "syndrome relief packages" – combined with other medicines to help treat specific complaints.

INFORMAL SUPPLY OF ANTIBIOTICS INCREASES INAPPROPRIATE USE BY PATIENTS

The sale of antibiotics from informal suppliers fuels their inappropriate use in multiple ways:

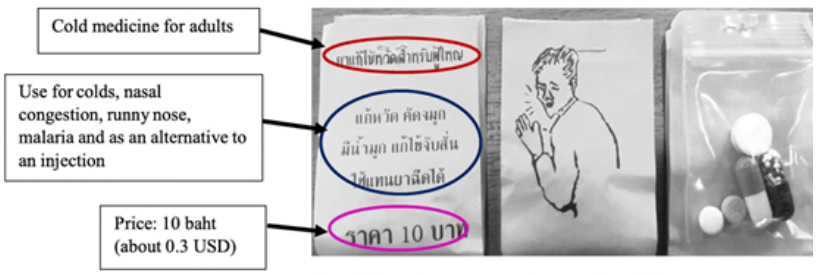
- Patients receive antibiotics without the confirmed diagnosis of bacterial infection
- Due to repackaging, patients can receive pharmaceuticals of unknown identity, which may be unsuitable or contraindicated for their complaint
- Patients are provided with limited and inaccurate usage information and support
- Removal from original blister packs and poor storage conditions reduce their potency
- Availability of medicines through informal and unregulated suppliers provides market opportunities for the sale of substandard and falsified antibiotics.

These factors in turn drive the development of antimicrobial resistance (AMR) which has become a huge global health challenge and has a disproportionately high burden in LMICs.

This month sees the start of a new Wellcome funded project ABACUS II (AntiBiotic ACcess and USe) which aims to investigate the feasibility, benefits, disadvantages and potential design of an international, standardised appearance system for oral antibiotics. A clear and consistent way for both consumers and dispensers to identify commonly used antibiotics may help to reduce their inappropriate use in all sectors.

KEY FEATURES OF ANTIBIOTIC IDENTIFICATION

The role that the physical appearance of drugs plays in their identification by both patients and dispensers has been well documented. The first iteration of the ABACUS project (also funded by Wellcome) highlighted this in connection with antibiotics. The study assessed community antibiotic use in LMICs in Africa and Asia identifying widespread confusion and varying perceptions around what constitutes an antibiotic, what antibiotics look like and when they should be taken, as key influencers of their inappropriate use.



Example of a multi pharmaceutical “syndrome relief package” available in Thailand. The medicines in the package are unidentifiable, not stored appropriately and no information on their recommended usage is provided. [Sunpuwan, M. et al. BMC Public Health 19, 971 (2019)]

The wide variability in the appearance of antibiotics can lead to their misidentification by patients, with three key characteristics influencing perceptions.

SHAPE

Although antibiotics can be sold in tablet, capsule and liquid form, ABACUS I reported that in some regions, any medication dispensed in a capsule is often considered to be an antibiotic. Many local, colloquial names for antibiotics in study countries referred to them beingmedicines in the shape of a capsule. For instance, in Vietnam, the term ‘con nhộng’ (‘capsule’) is widely used to refer to antibiotics and in some areas of Ghana the terms ‘tupaye’ (‘bullet medicine’) and ‘bomb belt’ (referring to rows of capsules on a blister pack) are colloquially used. This can be a problem as not all antibiotics are capsules and indeed many other classes of common pharmaceuticals are sold in the same capsule shape.

COLOUR

Colouridely used to identify them. This is also reflected in local colloquial terminology, for example in some regions of Mozambique, ‘coloured medicine’ and in Ghana ‘red and yellow pills’ are commonly used as a general term for antibiotics. Different types of antibiotics can be sold in capsules of the same colour, for example in one site, both tetracycline and amoxicillin were available in red and yellow capsules. In addition, other classes of pharmaceuticals are sold in bi-coloured capsules, and during one site visit, a vendor referred to a yellow and green capsule as an antibiotic, when in fact it was a capsule containing thepainkiller, tramadol.

SIZE

Capsule and tablet sizes can vary widely, and patients often relate size to dose. However, as generic products have a different appearance from original brands, the same medication subsequently has a different appearance depending on the manufacturer. Often the same doses of branded and non-branded medications are sold as different size capsules and tablets..

People across many different settings relate physical characteristics to pharmaceutical class and dose, causing patients to take incorrect medications. This leads to inefficient treatment, prolonged illness, adverse drug reactions, and in the case of inappropriately used antibiotics, increased burden of AMR.

AIMS OF ABACUS II

There is currently no specific, consistent feature of a tablet or capsule that relates to its identity and dose.
ABACUS II aims to build the case for, design and assess the health economic impact of the standardised appearance for antibiotics.

The project will involve collaborations between researchers, pharmaceutical companies, social scientists, suppliers, distributors, consumers, regulators and policy makers. Their views on the key appearance factors will be combined to co-create a system that can be used widely to facilitate the recognition of antibiotics. In the process, community engagement, testing of consumer experience and assessment of medicine quality will be conducted in six countries across Africa and Asia (Bangladesh, Ghana, Mozambique, South Africa, Thailand and Vietnam).

The system that will be developed will be tested in a subsequent interventional study to determine the real-world impact on reducing inappropriate antibiotic use.

POTENTIAL CHALLENGES

Developing a universal identification system will not be an easy task. For it to be widely and successfully implemented, a range of cultural and social aspects, as well as local nuances and their translation into everyday life, will need to be considered. The cultural connotations around the use and perception of particular colours is an important example of this.

To mitigate these issues, multiple stakeholder meetings will be convened across an extensive geographic range to provide a suitably wide variety of insights. The team will also be informed by extensive focus group discussions and in-depth interviews with communities across the selected countries.

In addition, there is the need to consider correlation with the identity of other medicines to allow suppliers and consumers to distinguish an antibiotic from other common pharmaceuticals, especially painkillers which are often sold in combination with antibiotics.

ULTIMATE GOAL

THE LONG-TERM GOAL OF THIS WORK IS TO BRING INTO USE A UNIVERSAL SYSTEM TO IMPROVE THE IDENTIFICATION OF ANTIBIOTICS FOR BOTH CONSUMERS AND DISPENSERS IN ALL SECTORS.

THIS WILL FACILITATE KNOWLEDGE OF WHAT MEDICATION IS BEING SOLD, ITS DOSE AND PURPOSE, WHICH WILL HELP TO REDUCE THE INAPPROPRIATE USE OF ANTIBIOTICS AND ITS CONTRIBUTION TO AMR.

MAKING THE IDENTIFICATION OF ALL PHARMACEUTICALS EASIER WILL EMPOWER PATIENTS IN LMICS TO HAVE GREATER KNOWLEDGE OF AND CONFIDENCE IN THE MEDICINES THEY PURCHASE FROM UNOFFICIAL SUPPLIERS.

FOR MORE INFORMATION ON THE PROJECT TEAM AND TO FOLLOW UPDATES, VISIT: WWW.ABACUS-PROJECT.ORG

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