**Quality of Medicines**

Whereas a great share of the global population lack access to life saver medicines, everyday falsified or poor quality medicines are sold to patients around the world. Internet has provided a new entry point for low standard medicines in the supply chain, which is very difficult to track and prevent in such a globalized world. The WHO published in 2017 Global Surveillance and Monitoring System for substandard and falsified medical products, its first report on the subject. The study estimates that approximately 10% of medicines traded in low and middle income countries are either substandard or falsified, resulting in an economic impact of US$ 30 billion.

Among the most reported products are antibiotics and antimalarials, that together account for 36.5% of all reported products. The consequences are alarming: in one hand, these medicines will not promote the therapeutic effect that is expected, resulting in treatment failure. This leads to a great burden of preventable morbidity and mortality due to infections and other diseases. Lack of efficacy due to use of falsified medicines without the therapeutic component can promote the wrong idea that antimicrobial resistance is emerging, misleading public health actions. On the other hand, if antibiotics are sold containing only a fraction of the specified dose, they will only kill the most susceptible microrganisms. As a result, the most resistant will be selected, contributing to the current global problem of antimicrobial resistance.

Falsified or poor quality medicines also have a tremendous degrading impact on public health perception. Patients might lose trust in the health systems and abandon treatments and vaccination programmes. A clear example of this danger was reported in July 2018, when Chinese authorities found out that two local vaccine manufacturers had produced and sold more than 600,000 doses of substandard diphtheria, tetanus and pertussis vaccines to be administered to children. This episode resulted in a great damage to the public trust in the national immunization programme.

Although the results from the recent 2017 WHO report provides an insight about the importance of allocating resources on this subject, there are many barriers for assessing the true level of low quality and falsified medicines being traded around the world. The costs and human resources required to sample a representative amount of outlets worldwide makes this a nearly impossible effort. In addition, low income countries, which comprise the most susceptible market for such products, are more likely to lack infrastructure, qualified personnel and available resources to implement and carry a robust monitoring system.

In this context, data integration can be a useful tool in aggregating the limited and sparse data on the subject available in different platforms in order to support answering the question: “What is the global burden of poor-quality medicines?” More specifically, how can global data be used to trace and quell the supply of falsified and substandard medicines?

A variety of datasets can be used in order to approach this topic, including the United States Pharmacopeia’s Medicines Quality Database, the Worldwide antimalarial resistance network’s Antimalarial Medicine Literature Surveyor, the ProMED-mail reports, the Healthmap database and the WHO Global Surveillance and Monitoring System for substandard and falsified medical products.

These databases have been characterized according to their identification, ownership, accessibility, presence of variable definitions and metadata information, among others.