

## **ANALYSIS OF THE DISTRIBUTION OF COUNTERFEIT DRUGS IN THE COUNTRIES**

**Nemchenko A.S., Kurylenko Yu.Ye., Abbad Issam**  
**National University of Pharmacy, Ukraine, Morocco**  
[economica@ukr.net](mailto:economica@ukr.net)

Tackling substandard and counterfeit medicines falls under the United Nations Sustainable Development Goals, which aim to ensure access to safe, effective, quality and affordable essential medicines. The range of counterfeit products entering the markets has also expanded with the increasing commercial use of the Internet, which provides a huge and extensive network for the sale of both branded drugs and generics. According to the WHO, in more than 39% of cases, drugs purchased over the Internet from illegal sites that hide their physical addresses are fake. Counterfeiting of medicines is an international problem and requires systematic monitoring.

The purpose of our research is to analyze the spread of counterfeits to the pharmaceutical market in the countries of the world.

Methods - analytical and generalization of information.

Developing countries are an easy target for counterfeiters, as the cost of licit drugs may not be affordable for most of the population and regulation is often weak. According to data from the Pharmaceutical Safety Institute (PSI), the number of counterfeit drugs on the market has increased from 66% to 122% over the past 10 years, i.e. doubled. As of 2020, PSI has 28 major pharmaceutical companies: Abbott Laboratories, AbbVie, Amgen, Astellas Pharma, AstraZeneca PLC, Biogen Idec, Boehringer Ingelheim, Bristol-Myers Squibb, Celgene, Eisai Co., Eli Lilly and Co., Forest Laboratories, Genentech, Gilead Sciences, GlaxoSmithKline PLC, Hoffmann-La Roche Ltd., Johnson and Johnson, H. Lundbeck A / S, Merck and Co., Inc., Merck KGaA, Novartis International AG, Novo Nordisk, Otsuka Pharmaceutical, Pfizer, Inc., Purdue Pharma LLC, Sanofi-Aventis, Laboratories Servier, Takeda Pharmaceutical Co. Also, some of them use the principles of the United States Pharmacopoeia Convention (USPC) in their activities, which establish drug quality standards. Employees USPC are helping to set up national laboratories to protect the population from counterfeit medicines. This activity is funded by the United States Agency for International Development under the Global Drug Quality Initiative.

Despite the widespread awareness in the media, the problem of drug counterfeiting remains relevant, and the level of counterfeiting is not decreasing. The table shows the results of the analysis of counterfeit drugs in the countries of the world by therapeutic group. When analyzing the penetration reports of counterfeit shipments, Asia accounts for most of the counterfeit incident data, followed by America, Africa, Europe and Oceania.

Table

Penetration of counterfeit products in the supply chain by therapeutic category  
in the world

Therapeutic Class	Frequency	Frequency Percentage (%)	Cumulative percent (%)
Anti-infective drugs	380	21.1	21.1
Diuretic drugs	260	14.5	35.6
Cardiovascular drugs	208	11.6	47.1
CNS	197	11.0	58.1
Gastrointestinal tract	164	9.1	67.2
Drugs for joints	146	8.1	75.3
Drugs for metabolism	138	7.7	83.0
Respiratory drugs	68	3.8	86.8
Other drugs	61	3.4	90.2
Immunosuppressants	58	3.2	93.4
Hormonal drugs	38	2.1	95.5
Dermatological drugs	36	2.0	97.5
Blood agents	34	1.9	99.4
Drugs affecting the senses	5	0.3	99.7
Drugs affecting parasitology	3	0.2	99.8
Not reported	2	0.1	99.9
Medicines purchased for hospitals	1	0.1	100.0
Total	1,799	100.0	—

According to the table, anti-infectious drugs (21.1%) have the highest percentage of counterfeits, cardiovascular drugs are in second place (11.6%), and drugs for the treatment of the central nervous system are in third place (11.0%) and gastrointestinal drugs (9.1 %). These groups of drugs make up the majority (52.8%) of all detected counterfeit drugs that enter the countries of the world. The smallest specific gravity - 0.3% and 0.2% - have drugs from the group of sensory organs and parasitology.

Thus, it was revealed that most of all counterfeit drugs for the treatment of the most common diseases, namely anti-infectious and cardiovascular drugs.