

STUDY BY GROUP-IB: CYBERSECURITY CHALLENGES TO PHARMACEUTICAL BRANDS IN 2019

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01

STUDY BACKGROUND

STUDY OBJECTIVES:



examine the methods used by criminals to abuse pharmaceutical brands and popular drugs



assess the risk levels for various medicine distribution channels



estimate the volume of counterfeit drugs sold

Counterfeit products put manufacturers' brands at risk of their luxury status being diluted and lost, which ultimately leads to buyers losing interest in the brand. Low-quality counterfeit medicines can both harm the health of consumers and negatively affect a brand's reputation.

Mass migration of sellers of all product types to the online sector takes the issue of ensuring information security to a new level. Cyberthreats and increasingly frequent cases of digital fraud are key challenges in the transition to e-commerce. In the pharmaceutical industry, the distribution of poor-quality products under official brand names can damage not only customer loyalty, but also people's health.

Given the severity of the situation, Group-IB's Brand Protection team decided to analyze promotion channels and volumes of counterfeit pharmaceutical products distributed online. Throughout the study, Brand Protection experts tested hundreds of thousands of resources, including:

- domain names;
- mobile apps;
- social media pages and accounts;
- resources selling products by abusing famous brands.

Following in-depth data collection, Group-IB specialists focused exclusively on resources that were thought to sell counterfeit goods.

This report outlines the results of Group-IB's study into the counterfeit drug and online fraud market with regard to well-known pharmaceutical brands. Recommendations on how to combat current counterfeit distribution patterns can be found at the end of the report.

02

OBJECTS
OF OUR
ANALYSIS

Seven drugs made by the top five pharmaceutical companies, i.e. which generate the most revenue or are in the greatest demand

STUDY METHODOLOGY

Study data was collected from public and underground online resources.

The study was conducted in the summer of 2019.

Pharmaceutical industry giants in the following categories were selected for the study: **antipyretics and painkillers, drugs to treat nicotine addiction, potency enhancement drugs, and diabetes medication.**

The target audience was the entire international market.

Group-IB experts analyzed the counterfeit pharmaceutical goods market according to the following criteria:

- Methods of distributing and increasing traffic;
- Types of drugs involved in the most common counterfeiting cases;
- Counterfeit distribution platforms.

Group-IB Brand Protection specialists identified links between registration and contact information, IP addresses and domain names, and the affiliation of the resources in question.

Moreover, the Brand Protection team analyzed mentions and advertisements for the sale of drugs posted on the following resources in Russian- and English-language Internet segments:

- Yandex and Google;
- social media;
- online stores;
- thematic forums;
- message boards;
- Dark web.

Limitations

It is important to note that ad reliability has a number of limitations that affect the study's final results. It is impossible to verify:

- the actual existence of goods and how they compare against what is indicated in the ad;
- the origin of the medicine for sale;
- the availability of documents confirming that the drug is a genuine product and that its sale is legitimate.

Quantitative estimates of the actual online sales turnover for counterfeit medicines are approximate. The lack of accurate information prevents us from obtaining a full picture of the processes and volumes on the grey market.

03

SITUATION ON THE PHARMACEUTICAL MARKET

10%

of the world market are counterfeit medicines²

9 OUT OF 10

Russian online pharmacies sell counterfeit products

Counterfeit products sold in online pharmacies are harmful to customer health. Taking such medicines not only fails to guarantee effective treatment, but can actually worsen the patient's health. Moreover, a negative reputation caused by ineffective drugs will negatively affect demand for the original product.

Fraudsters actively use various resources to distribute fake medicines and attract traffic. While manufacturers compete by developing new drugs and taking responsibility for product quality, scammers parasitize and profit off of the brand and popularity of others.

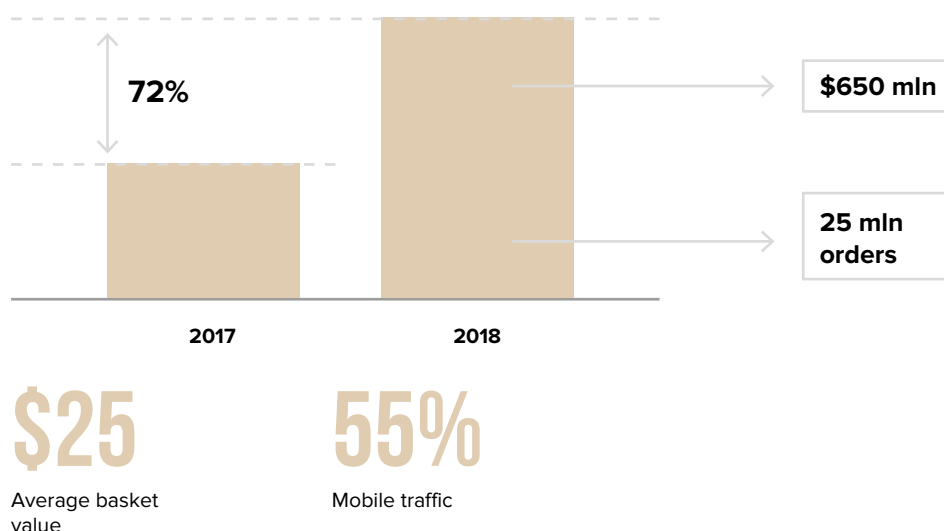


Fig. 1 Characteristics of orders placed in online pharmacies¹

¹ Source: Data Insight analytical report: The online pharmacy market 2018

² Source: Survey of 5 European countries shows low awareness of fake medicines

04

CATEGORIES OF FRAUDULENT RESOURCES

Fraudulent websites appear and disappear every day. In most cases, they are part of networks and use a design and features that are identical to those of the brand they are copying.

Group-IB's Brand Protection team divided resources that pose the greatest threat to brands into four categories:



1. Specific brand websites

Specific brand websites: entirely or partially copied from official websites, with prices and contact details changed.



2. Product category websites

Aggregators of resources with different products of the same type. The product range of these websites tends to be made up of the most popular models within one product segment.



3. Websites designed for stealing personal data

The similarities between fake and official websites mislead inexperienced shoppers.



4. Multi-brand aggregator online shops selling various categories of goods

Fraudulent resources can masquerade as normal online pharmacies to create the illusion of mass sales and thereby gain the trust of unsuspecting customers.

Fraudulent resources not only spread potentially harmful counterfeit medicines, but also pose serious reputational risks and cause significant profit losses.

05

RISK ASSESSMENT

HIGH

treat level

Domain names

Group-IB's Brand Protection experts detected numerous fake domain names that could be used for fraudulent purposes.

That said, not all of them contained illegal content. For example, 60 domains using the name of a single pharmaceutical company turned out to be "clean," i.e. they had no content. However, Group-IB specialists believe that illegal content could appear on such websites at any moment.

While conducting the study, analysts also detected resources that prompted users to click on suspicious links to receive "rewards" or download third-party software.

How criminals use fake domain names:



Advertise their own services

Fraudsters mimic well-known brands to promote their websites and attract traffic.



Pose as partners of famous brands

Fraudsters use third-party logos or company names to "prove" that they have partnerships with trustworthy companies. As a result, consumers begin to associate services provided poorly or not at all with well-known companies, which in turn can lead to complaints, appeals, and reputation damages.



Indicate false information

False information can mislead potential customers or company employees.

MEDIUM

treat level

Detected:

1,000+

messages about the sale of
potency-enhancing drugs

Underground forums

Sales of products under the name of the brands studied and advertisements of fraudulent resources (mainly in comments) were detected on underground forums.

In total, more than 1,000 messages about the sale of potency-enhancing drugs were discovered in a month. Some sellers sold goods on several forums at the same time.

Moreover, there were wholesale offers that contained mentions of several brands at once.

HIGH

treat level

Detected:

> 380

dedicated groups and accounts
abusing names of drugs or brands
to sell counterfeit products

65,000+

users are subscribers of these
groups and accounts

Social media

Group-IB's Brand Protection experts analyzed various social media groups and accounts that used a design and features that were identical to those of pharmaceutical companies and popular drugs.

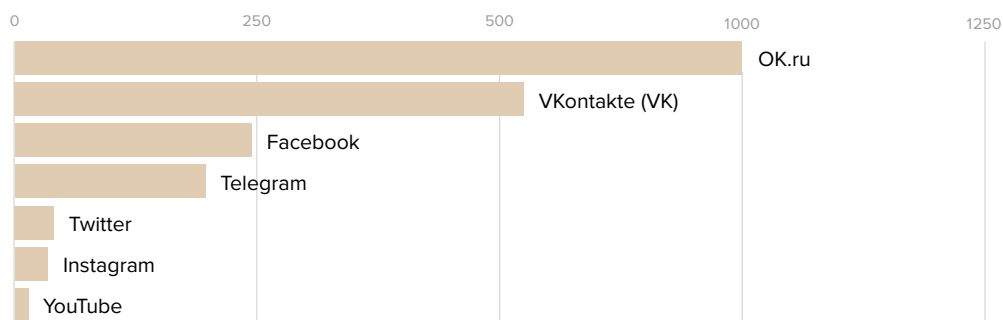
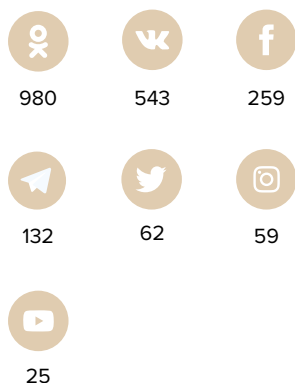


Fig.2 Share of brand mentions on social media

Number of groups and accounts that have mentioned the brands

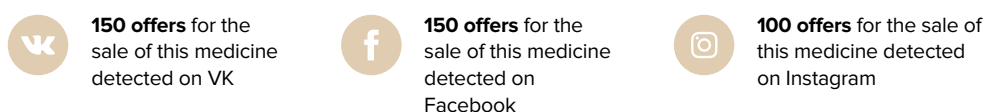


Only 40% of the groups and accounts discovered by Group-IB's Brand Protection team were linked to international social media; the remaining 60% were found on Russian social media. Some groups focus on distributing one particular drug.

Most VK groups and accounts discovered (98%) distributed illegal sexual enhancement drugs.

Promoting and advertising online stores and Telegram channels play an important role in the illicit pharmaceutical business. An analysis revealed 23 interrelated VK accounts that were connected to a Telegram channel specializing in the sale of sexual enhancement drugs.

Example: Illegal use of analgesic and antipyretic drug brands:



HIGH

treat level

Detected:

80 - 100,000

ads can be used to sell products
imitating a single brand

Online stores

Ad analysis showed that most counterfeit drugs are sold on aggregator websites. Fraudsters actively use multi-brand websites because of their availability. The popularity of medicines benefits them.

More than 20,000 offers using a single brand name of a sexual enhancement drug were found in online stores.

Potency enhancers represent the biggest share of ads (about 70%). The second most common ads offer antiviral drugs (30%).

As regards the sale of diabetes drugs, most are not offered in the Russian-speaking segment of the Internet. All messages to sellers on Russian-speaking websites are enquiries about the availability of drugs in a particular pharmacy.

HIGH

treat level

Detected:

2,500+

offers selling drugs to treat
nicotine addiction

Message boards

During the study, Group-IB experts analyzed both Russian and international message boards:

- Avito.ru,
- Tiu,
- Youla.ru,
- Aliexpress,
- Amazon,
- eBay,
- DHGate, etc.

The most widespread counterfeit products were drugs to treat nicotine addiction. Sexual enhancement drugs (which are usually removed by moderators) came second. Antipyretic analgesics came third.

Most ads are deleted by moderators. For example, Group-IB specialists discovered that out of four ads for potency enhancement drugs detected on eBay, all four messages were removed within a week.

Some messages offering counterfeit potency enhancers are masked, for example as ads selling office supplies or MP3 albums. On eBay, there are also souvenirs with the logo of the potency enhancement drug and instructions for use.

HIGH

treat level

Detected:**400+**mobile applications for 7 drugs
and 5 brands belonging to
pharmaceutical companies**Mobile apps**

There are many various mobile applications that either are limited to a specific brand or carry out sales as a multi-brand online pharmacy.

Some apps are legitimate, while others are registered under unknown individuals and sell fake goods.

What risks do unofficial mobile apps pose?**1. Infection with malware.**

Infecting users with malware helps attackers gain control of the device and steal the user's personal data.

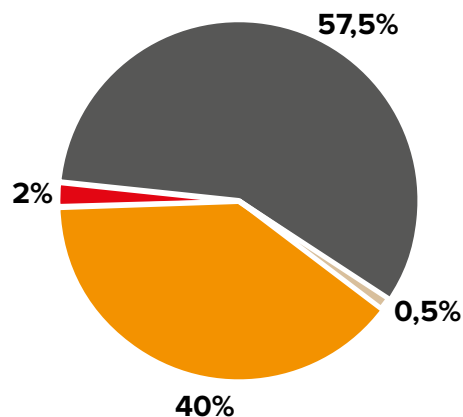
2. Misleading the consumer.

Such applications may not be updated for a long time or contain inaccurate and irrelevant information about the drug, thereby posing a danger to the user's health.

06**MOST COMMON COUNTERFEIT DRUGS**

Fraudsters prefer to counterfeit the most popular drug brands and keep up to date using legitimate market analysis tools.

Our study revealed three categories of drugs whose brands were most often abused by scammers. The most popular category of drugs that are counterfeited is potency-enhancing products. Their share in e-commerce amounted to 57.5% of all offers. Analgesics and antipyretic drugs came second at 40%. Drugs to treat nicotine addiction were third at 2%. The smallest share of counterfeit products is represented by diabetes medications (0.5%).

**Fig.3** Categories of medicines targeted by online scammers

- Drugs to treat nicotine addiction
- Analgesics and antipyretic drugs
- Potency-enhancing products
- Diabetes medications

07

METHODS OF ATTRACTING TRAFFIC AND DISTRIBUTING DRUGS

Search engine results

A pre-purchase search is an ideal moment for scammers — this is when it is easiest to attract potential buyers with profitable offers. The costs borne by fraudsters at this stage are minimal — regardless of the method they choose to promote their resources, it will bring results and profits.

Analysis of search engine results revealed that there are tens of thousands of websites used for selling counterfeit medicines, including message boards and social media accounts. In addition to search results, search engines show users contextual ads for fraudulent websites, which can mislead inexperienced shoppers.

Advertising

To attract visitors to their websites, fraudsters use contextual advertising, targeted text message campaigns, and mass messaging in messaging apps. Such actions have a significant impact on a target audience's attitude towards brands and causes reputational damage.

Promoting and advertising online stores on forums and social media also play an important role in the illicit medicine business.

¹ <https://e-pepper.ru/news/onlayn-rynok-aptek-2018-analitika-data-insight.html>

08

POTENTIAL DAMAGE

Among the resources analyzed, resales of original drugs amounted to 12% according to our estimates, which means that approximately 88% of the products sold are counterfeit medicines that pose a major threat to public health.

Group-IB's Brand Protection team calculated the potential damage to pharmaceutical companies from the sale of counterfeit goods. It is presented below.

	Analgesics and antipyretics	Potency-enhancing drugs
Average basket value	330	1 150
Amount of online stores	50,000	20,000
Turnover, month	\$790,000	\$16 million

According to Data Insight, the conversion of online pharmacies (calculated as the ratio of the number of orders to the number of visitors per month) is 8%.

DAMAGE = (average basket value × conversion × number of resources selling a single brand × average number of visitors + average basket value × conversion × number of multi-brand resources × average number of visitors × average number of users who came for this drug) × percentage of counterfeit drugs.

Based on our estimations, the amount of money generated by selling counterfeit goods imitating products belonging to one of the top-5 large-scale brands (a potency enhancement drug) exceeds 288 million US dollars per year. This comes at almost no cost to the fraudsters, seeing as counterfeit distribution through such channels is free and easy to use.

As such, according to the most conservative estimates, the turnover of the online retail and wholesale market of the seven counterfeit pharmaceuticals examined by Group-IB is 41 million US dollars per month, or 497 million US dollars per year.

09

RECOMMENDATIONS FOR PHARMACEUTICAL COMPANIES FROM GROUP-IB'S BRAND PROTECTION TEAM

How to respond to violations that pose risks to buyers and brands



Conduct primary monitoring of your brand's information field

The main goal is to assess the scale of the problem (number of violations) and determine their sources. Primary monitoring will also help you decide whether you need to take response measures.

Remember that even if there are no violations currently, it does not guarantee that they will not happen in the future. Some violations are temporary, while others can be detected only through an in-depth analysis of information obtained during primary monitoring.



Implement a relevant monitoring system

To be aware of the situation at the points of sale of counterfeit products, a systematic approach to monitoring the Internet is necessary. The main goal is to detect violations of your brand and respond to them as promptly as possible.

It is important that your monitoring system is set up in a way that takes the interests of your customers into account and improves its monitoring algorithm based on the results of previous monitoring. To do so, it is crucial to use relevant user queries and look within the most popular sources among buyers.



Raise buyer awareness

Buyers are not always well-informed about the manufacturing processes used by brands and the differences between genuine and fake products. Most buyers are easy to mislead. As such, it is crucial to organize awareness campaigns and educate potential customers about original product characteristics to which they should pay particular attention.

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Group-IB is an international company that specializes in preventing and investigating cybercrime and online fraud using high technology.

Unique cyber intelligence data and proprietary solutions for tackling cybercrime are at the core of the company's Brand Protection service. The continuous development of Group-IB's crime detection mechanisms has helped protect more than 300 Russian and international brands.

Moderator accounts on social media and close relationships with large platforms ensure that administrators promptly process the Brand Protection team's requests to remedy breaches.



Threat Intelligence, which is at the core of the Brand Protection system, has been recognized as one of the best in its class by Gartner (2015), IDC (2016), and Forrester (2017)



CERT-GIB is an accredited member of international communities of security response teams such as FIRST and Trusted Introducer. This means that Group-IB is able to quickly block dangerous online resources worldwide.



Group-IB is recognized as a Competent Security Organization by the Coordination Centre for TLD RU and is a partner of the Foundation for Internet Development and part of the International AntiCounterfeiting Coalition (IACC).

16 YEARS

of experience in cybercrime investigation and analysis

1000+

successful investigations worldwide

Learn more about
Group-IB Brand Protection

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