

# The Internet Pharmacy Market in 2016

Trends, Challenges, and Opportunities



January 2016

Prepared by LegitScript.com  
for The Center for Safe Internet Pharmacies

## Introduction

This report asks and answers a series of questions about the online marketplace for prescription medicines: How is the marketplace evolving or changing? How is the illicit segment of that marketplace adapting to countermeasures put in place by regulatory authorities and private entities, including many of the leading e-commerce, online advertising, domain name, hosting, payment, and shipping intermediaries? And, for intermediaries, what are possible areas of regulatory risk going forward?

In seeking to answer these questions, this analysis relies on industry data where it is available. The primary source of this data is LegitScript's own database, which is regularly updated with newly created or discovered Internet pharmacies classified by legality, types of drugs sold, and, where applicable, the criminal network or other grouping of which the Internet pharmacy is a part. Each Internet pharmacy website is correlated with a variety of data — registrar, advertising platform, merchant account, Whois record, and more — that facilitate ongoing analysis.

### Report Structure

This report is structured in three primary sections. First, it provides top-line data on the Internet pharmacy marketplace.

Next, this analysis focuses on industry practices in five sectors: online advertising, domain name registration, content hosting, payments, and shipping. Specifically, the sector analysis seeks to understand the degree to which illegal online pharmacies are able to use the sector's services, and the extent to which voluntary practices by companies in each sector have disrupted the illicit marketplace.

Finally, the report closes with LegitScript's sense of the future of the online pharmacy marketplace.

### A Preview of Our Conclusions

With respect to top-line marketplace data, this analysis finds that there are slightly fewer illicit online pharmacies now — an estimated 30,000 to 35,000 — than there were three years ago. Of these, 96% globally — as well as in the US — fail to adhere to applicable legal requirements, and 92% of those operating illegally are doing so in a blatantly illicit manner — e.g., as the sale of prescription drugs without a valid prescription. Among the latter group of 92% of “blatantly illicit” online pharmacies, about 9% are selling controlled-substance (addictive) prescription drugs, although this may be due to a meaningful increase in the number of websites selling psychoactive non-prescription products (dubbed “legal highs”) instead. Additionally, the United States is far and away the primary focus of the illegal online prescription drug industry, with 82% of Internet pharmacies in English and roughly an equal percentage, 85%, offering to ship drugs to the United States.

This report finds that in each of the five sectors, voluntary practices have led to a disruption in the illicit marketplace, and made it harder for illegal online pharmacies to conduct business. This is, of course, manifested differently in each sector: It is most unambiguously visible in the online advertising and shipping platforms, while by contrast, the impossibility

of immediately identifying a merchant simply by looking at a commercial website means that payment sector disruption efforts are less obvious. And in the domain name space, the large number of accredited registrars and registries results in the clustering of rogue Internet pharmacies at those registrars without effective voluntary policies and procedures, while the illegal online pharmacy operators mostly avoid those known to have, and to implement, anti-abuse policies in this sector.

As to future trends, over the coming years, illegal online pharmacies will continue to exist — nobody should realistically expect the problem of illicit online sales to disappear — and to pose a risk to Internet users seeking to obtain a prescription drug online. But this report anticipates some continuing trends and shifts in the marketplace. Three major ones are:

1. The last several years have been marked by two major trends in the illicit online pharmacy sector: an inability to participate in any significantly useful online advertising program (and thus to “buy visibility”), which has driven some Internet pharmacies toward social media as an alternative; and the “clustering” in other sectors at marketplace participants, such as the US Postal Service in the shipping sector or a small number of registrars in the domain name registration space, that do not proactively or reactively prevent the use of their services by illegal online pharmacies. All signs indicate that these trends will continue.
2. There has been a shift from the illicit sale of controlled substances online to the sale of “psychoactive highs” such as synthetic cannabinoids, and many such products have been tied to significant user harm in news reports. We expect this trend to continue for the time being, and expect that eventually (probably sooner rather than later), regulators and law enforcement will step up their scrutiny in this sector over the suppliers as well as intermediaries.
3. A marked trend in the industry over the last five years has been a shift away from the use of traditional affiliate marketing networks to recruit webmasters who are otherwise unconnected to the prescription drug suppliers (aside from serving as the domain name registrant and/or webmaster), and toward harmonizing the operation of the entire business with control of the websites used as Internet pharmacies. Although affiliate marketing campaigns still represent a significant portion of the marketplace, these networks are now mostly open only to known and trusted affiliates, unlike five years ago, when the programs actively recruited new participants.

Additionally, although difficult to quantify based on empirical data, it is also important to note a common thread implicit in many of this report’s findings: rogue Internet pharmacies need customers who believe that the merchant is legitimate, or, at least not a health risk, in order to remain profitable and survive. In that regard, this report recognizes public education and demand reduction as an indispensable counterpart to the policies and procedures implemented by intermediaries such as CSIP members, and a critical long-term strategy to disrupt the illicit online pharmacy marketplace.

LegitScript appreciates the opportunity to present these data and analyses to the Center for Safe Internet Pharmacies and its members. We welcome any opportunity to discuss this report and its conclusions.

## Top-Line Market Data

Key Characteristics of the Internet Pharmacy Marketplace in 2016

## Top-Line Market Data

This section provides a snapshot of the Internet pharmacy marketplace based on available data.

### A. Size of Marketplace: 30,000 to 35,000 websites | 2,000 to 3,500 merchants

There are about 32,500 Internet pharmacies online at any one time, a slight decline from recent years.

LegitScript estimates that there are 30,000 to 35,000 websites selling prescription drugs at any one time, based on the total number of Internet pharmacies in our database throughout 2015, averaged by month, multiplied by 3% to account for Internet pharmacies that exist but, at any time, are not yet in our database.

This estimate:

- Includes any website for which the primary or sole purpose is to sell or facilitate the sale of one or more prescription drugs, whether the payment occurs within that website's URL (such as with [pharmacyglobalrx.com](http://pharmacyglobalrx.com)) or directs to another URL for the transaction (such as [pharmshop-online.com](http://pharmshop-online.com), which directs to a URL dedicated to illicit drug payments, [safecheckout.com](http://safecheckout.com) for the transaction).
- Does not include third-party websites, such as [amazon.com](http://amazon.com) or [alibaba.com](http://alibaba.com), that do not exist primarily for the purpose of selling prescription drugs, even if prescription medicines are periodically found on those platforms.
- Does not, for the most part, count separate subdomains using the same domain name absent a compelling reason to do so (e.g., if [example.com](http://example.com) operates as a separate merchant from [shop.example.com](http://shop.example.com)). However, a single Internet pharmacy operator may deploy multiple, even hundreds or thousands of, URLs, so this estimate reflects unique websites, not commercial entities engaged in prescription drug sales online.

This represents a small, statistically insignificant decline compared to recent years.

Of note, this number has not meaningfully changed since LegitScript first began estimating the size of the Internet pharmacy marketplace in 2008, since when it has ranged from 25,000 to 45,000 on average.<sup>1</sup>

The payments and shipping sector should note that these numbers reflect websites, not commercial actors, many of whom operate multiple websites. LegitScript estimates that these websites are operated by somewhere between 2,000 and 3,500 primary actors (excluding webmaster and affiliate marketers).

---

<sup>1</sup> It is important to note that, on occasion, there have been significant "surges" in the online pharmacy marketplace due to spam or affiliate marketing campaigns; although unverified by LegitScript, in 2010 there was reportedly a surge of 200,000 domain names used in a spam campaign. Even when these surges have occurred, they tend to be websites that are used for spamming and then quickly disposed, and are thus transitory in nature.

## B. Legitimacy Ratio: 3.5%–5% by website | 25%–33% by merchant

As in years past, roughly 4% of Internet pharmacies operate legitimately, while 96% do not.

Broken down further, 92% are engaged in serious criminality tied to patient harm; another 4% have comparatively minor, fixable problems.

For the last several years, a consistent talking point for CSIP and its members has been that 97% of Internet pharmacies operate illegally. LegitScript's data indicates that the legitimacy ratio is fundamentally unchanged: 96% fail to adhere to legal and safety requirements, and on average, roughly 4% of Internet pharmacies operate lawfully.

To fully understand these numbers requires additional context.

First, the payments and shipping industry should again note that these figures measure websites — not merchants, and not shipping entities. As such, the legitimacy ratio is probably most relevant to intermediaries that deal with URLs on an ongoing basis, such as domain name registrars, content hosting providers, online advertising programs, and, to some degree, social media. When measuring by merchant, we think that the legitimacy ratio is much higher — that roughly one fourth to one third of pharmacy merchants engaged in mail order or Internet sales are legitimate. This may actually be slightly on the conservative side.

Second, in assessing legality, LegitScript evaluates whether the pharmacy is operating legally where it dispenses drugs *from*, and is also operating legally in jurisdictions where it offers to ship drugs *to*. Overall, on a global scale — and coincidentally, within the US — we found that 4%–5% of online pharmacies appear to be operating in full compliance with applicable laws and regulations. When analyzing this, LegitScript principally evaluated three factors: whether the online pharmacy is licensed where it dispenses drugs to; whether it requires a valid prescription as defined by that jurisdiction's laws; and whether the drugs are approved for sale — FDA-approved or the equivalent — in those jurisdictions. As a general matter, if an online pharmacy is doing those three things right, any other regulatory problems are less consequential and usually do not denote intentional criminal behavior.

Third, the notion of “illegality” necessarily has gradations, with some types of non-compliance being more serious and risky than others. According to our data:

- Among the 96% of Internet pharmacies that do not operate legally, roughly 4% of these are engaged in comparatively minor violations. These include failure to fully comply with privacy policy requirements (e.g., HIPAA in the United States) and being licensed in most, but not all, jurisdictions where a pharmacy license is required. These are typically fixable problems and usually do not denote intentional criminal activity.
- The remaining 92% of online pharmacies meet LegitScript's definition for being “rogue” by doing one or more of three things: selling prescription drugs without a prescription, selling unapproved and unregulated drugs, and a failure to obtain legally required pharmacy licenses.

### C. Networks or Other Groupings: 125–150

A central insight about the illicit Internet pharmacy marketplace is that only 3% or so of all websites are “independent” in that they are the sole or primary Internet presence for a particular prescription drug seller. The other 97% of Internet pharmacies are part of an affiliate marketing network or some other grouping that indicate common control or central affiliation.

In examining the Internet pharmacy marketplace, LegitScript found that:

- There are approximately 125–150 networks, or groupings, of Internet pharmacies that represent 96% of the illicit online pharmacy marketplace.
- Of these, only about 10%–20%, at most, are traditional affiliate marketing networks, and even these have shifted to a “closed control” model where only known and trusted affiliates are accepted into the program.

Additional information on the top networks, or groupings, of illicit Internet pharmacies is provided later in this report, along with the intelligence illustrating the shift of the industry away from an “open affiliate marketing network” model to one of “closed group control.”

### D. Controlled Substances and Steroids: About 10% of the Marketplace

One of the most surprising shifts LegitScript observed in the course of analyzing our data was the low ratio of illicit Internet pharmacies selling controlled substances — addictive drugs such as Oxycontin (oxycodone), Xanax (alprazolam) or Vicodin (hydrocodone). According to LegitScript’s data:

- Somewhere between 8% and 13% of online pharmacies sell one or more controlled substances on the website.
- Measured by website, we found about 3,000–4,000 websites that are actively selling controlled substances.
- Of these, slightly over half — between 1,600 and 2,100 — are focused on selling anabolic steroids used by bodybuilders.

This appears to constitute a meaningful reduction from years past: in 2011, LegitScript published a report estimating that there were 7,500 to 15,000 websites offering controlled substances illegally; at the time, this represented between 20% and 40% of the marketplace.<sup>2</sup> While the reasons for this are difficult to identify based on empirical evidence, a central observation is that almost none of the online pharmacies selling controlled substances are sourcing the products from a licensed pharmacy in the United States, and usually appear to be sourcing these products from outside of the US. It is not unreasonable to infer that one reason for this is the success of the Ryan

About 97% of online pharmacies are part of one of 125–150 affiliate marketing networks or other groupings that indicate common control.

Among all Internet pharmacies, we estimate that just 10% are selling controlled substances. Of these, a little over half focus on anabolic steroids.

<sup>2</sup> See <http://www.legitscript.com/download/LegitScript-DEA-Rogue-Internet-Pharmacy-Analysis.pdf>.



Over 80% of Internet pharmacies are exclusively or primarily in English and target the US first, along with the UK and other English-speaking populations.

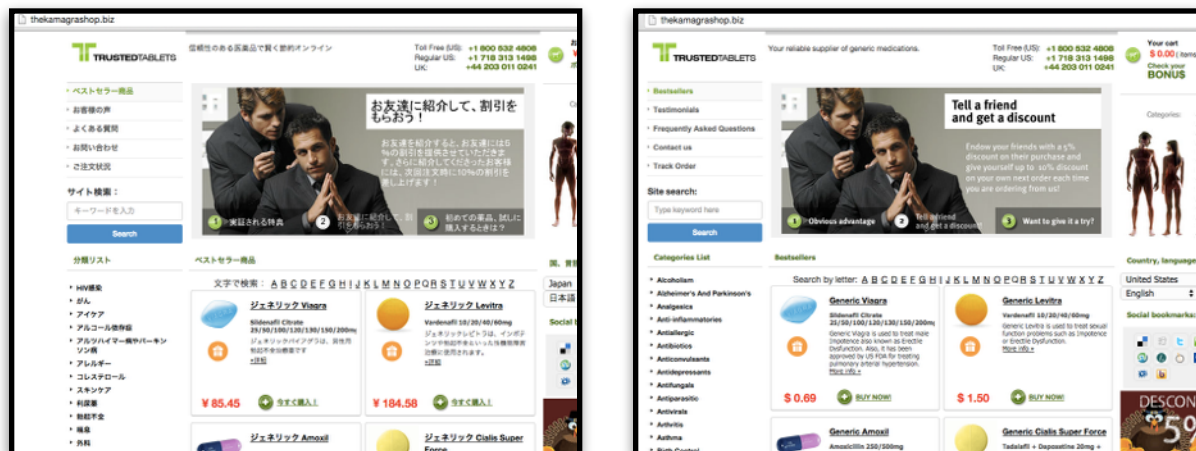
Haight Act, which codified a single federal standard in the US for what constitutes a “valid prescription” for controlled substances.<sup>3</sup>

### E. Target Geographical Markets and Languages

By definition, legitimate Internet pharmacies usually only target sales in the national or regional jurisdiction where they are domiciled and/or licensed. (This is for the simple reason that it reflects existing regulatory requirements: namely, that aside from some limited instances where regulatory reciprocity exists, a legitimate pharmacy usually must be domiciled in the country where it ships prescription drugs to, and also usually must be licensed or registered in the country and/or the specific region.)

By contrast, a hallmark of illicit online pharmacies is that they are willing to ship to jurisdictions where they are unlicensed and not allowed to dispense prescription drugs. In light of this, LegitScript sought to evaluate what jurisdictions are the primary targets of the illicit online pharmacy networks.

In analyzing this, LegitScript assumes a correlation between the language of the online pharmacy and the jurisdiction it is *primarily* marketing. For example, [apothekerezeptfrei.hk](http://apothekerezeptfrei.hk) may be willing to ship to the United States, but being written in German, we infer that the website’s *primary* target market is Germany. Where the website is in English, we assume that the US, United Kingdom, Canada, Australia, or New Zealand are the primary target countries unless the context indicates otherwise. However, we also note that several thousand websites modify the website’s language based upon the geolocation of a visitor (e.g., [thekamagrashop.biz](http://thekamagrashop.biz), which will display in



[thekamagrashop.biz](http://thekamagrashop.biz), on the left viewed from a Japanese IP address, and on the right from an IP address assigned to the United States. The website is an affiliate of the Russia-based Rx-Partners rogue Internet pharmacy network.

<sup>3</sup> As a practical matter, the same definition of “valid prescription” also applies to non-controlled substance prescription drugs such as Viagra or Lipitor; however, instead of being based on a single national standard enforceable under the Controlled Substances Act, it is based on a hodgepodge of federal law — including the Food, Drug and Cosmetic Act — and all 50 state laws, and includes some important exceptions.



Japanese when accessed from Japan, German when accessed from Germany, et cetera).

Broken down by language, LegitScript observed that over 80% of all Internet pharmacies are by default in English; of these, over 90% target the United States, but roughly 10%–15% will change their language based on the visitor's geolocation.

Language	Exclusive language	With geolocation variable
English	81.72%	n/a
Japanese	9.18%	~20%
Chinese	3.02%	~15%
Russian	2.4%	~15%
German	0.72%	~12.5%
Korean	0.71%	~12.5%
Dutch	0.54%	~12.5%
Turkish	0.5%	~12.5%
Spanish	0.35%	~12.5%
French	0.32%	~12.5%
Indonesian	0.16%	~12.5%
Italian	0.15%	~12.5%
Portuguese	0.13%	~12.5%
Thai	0.08%	~5%
Hebrew	0.03%	~5%

## F. Top-Level Domains

According to LegitScript's data, a total of 160 top-level domains (TLDs) are currently being used by rogue/unapproved Internet pharmacies, and the most commonly used top-level domains are .com at 59%, followed by .net (11%) and .ru (9%).

TLD	% of Illicit Marketplace	TLD	% of Illicit Marketplace
com	59	si	(under 10 total)
net	11	uk.com	(under 10 total)
ru	9	gd	(under 10 total)
org	4	in.ua	(under 10 total)
biz	2	kiev.ua	(under 10 total)
info	1.4	kz	(under 10 total)
xyz	1.4	net.au	(under 10 total)

As one might expect, well over half of all illicit online pharmacies end in .com.

TLD	% of Illicit Marketplace	TLD	% of Illicit Marketplace
cn	1.2	no	(under 10 total)
pw	1.2	org.cn	(under 10 total)
co	0.9	re.kr	(under 10 total)
de	0.8	ru.com	(under 10 total)
co.uk	0.7	sk	(under 10 total)
nl	0.6	tw	(under 10 total)
eu	0.6	am	(under 10 total)
ca	0.5	blue	(under 10 total)
jp	0.4	club	(under 10 total)
us	0.3	com.hk	(under 10 total)
pics	0.3	eu.com	(under 10 total)
in	0.2	ind.in	(under 10 total)
cf	0.2	la	(under 10 total)
ws	0.2	lu	(under 10 total)
se	0.2	ne.jp	(under 10 total)
tk	0.2	ne.kr	(under 10 total)
com.tw	0.2	nf	(under 10 total)
com.au	0.2	ninja	(under 10 total)
fr	0.1	org.il	(under 10 total)
nu	0.1	org.in	(under 10 total)
ml	0.1	party	(under 10 total)
su	0.1	tips	(under 10 total)
pdp	0.1	tw.cn	(under 10 total)
com.ua	0.1	ua	(under 10 total)
be	0.1	ag	(under 10 total)
com.mx	0.1	bg	(under 10 total)
it	0.1	buzz	(under 10 total)
cc	0.1	center	(under 10 total)
pl	0.1	cl	(under 10 total)
gq	0.1	click	(under 10 total)
at	0.1	cm	(under 10 total)
me	0.1	co.th	(under 10 total)
asia	0.1	com.co	(under 10 total)
kr	0.1	com.sg	(under 10 total)
name	0.1	cx	(under 10 total)
com.br	0.1	direct	(under 10 total)
hu	0.1	directory	(under 10 total)
bz	0.1	express	(under 10 total)
tv	0.1	gen.in	(under 10 total)
md	0.1	gr.jp	(under 10 total)
mx	0.1	hk.cn	(under 10 total)
lt	0.04	in.rs	(under 10 total)
mobi	0.04	land	(under 10 total)
ch	0.04	li	(under 10 total)
com.pl	0.04	link	(under 10 total)
top	0.04	net.in	(under 10 total)
co.za	0.04	net.pl	(under 10 total)

TLD	% of Illicit Marketplace	TLD	% of Illicit Marketplace
hk	0.04	net.ua	(under 10 total)
to	0.04	odessa.ua	(under 10 total)
dk	0.03	org.au	(under 10 total)
ro	0.03	org.mx	(under 10 total)
co.kr	(under 10 total)	org.tw	(under 10 total)
science	(under 10 total)	pe	(under 10 total)
jpn.com	(under 10 total)	plus	(under 10 total)
co.jp	(under 10 total)	pro	(under 10 total)
cz	(under 10 total)	reviews	(under 10 total)
is	(under 10 total)	ryukyu	(under 10 total)
uk	(under 10 total)	schule	(under 10 total)
co.il	(under 10 total)	so	(under 10 total)
com.pt	(under 10 total)	support	(under 10 total)
gen.tr	(under 10 total)	sx	(under 10 total)
pt	(under 10 total)	tel	(under 10 total)
vu	(under 10 total)	today	(under 10 total)
cheap	(under 10 total)	tokyo	(under 10 total)
co.in	(under 10 total)	uno	(under 10 total)
com.cn	(under 10 total)	us.com	(under 10 total)
com.tr	(under 10 total)	vg	(under 10 total)
org.ua	(under 10 total)	wang	(under 10 total)
faith	(under 10 total)	web.id	(under 10 total)
or.kr	(under 10 total)	web.tr	(under 10 total)
pe.kr	(under 10 total)	webcam	(under 10 total)
sc	(under 10 total)	website	(under 10 total)
si	(under 10 total)	yokohama	(under 10 total)

## G. GeoLocation

Next, LegitScript looked at the IP address for each website — that is, where the servers hosting the content for each illicit Internet pharmacy is physically located. Somewhat surprisingly, we found that most rogue Internet pharmacies hosted content on a server in the United States. In some cases, it is possible that the server location is physically outside of the US, but the company operating the servers is in the US and subject to US jurisdiction.

Server Location	Count	%	Server Location	Count	%
US	17483	51.70	MD	29	0.09
NL	1970	5.83	LV	26	0.08
DE	1636	4.84	BS	25	0.07
RU	1553	4.59	BZ	22	0.07
CA	1509	4.46	ID	21	0.06
GB	1199	3.55	BR	20	0.06
JP	995	2.94	DO	20	0.06

RO	837	2.47	IE	18	0.05
UA	418	1.24	TH	18	0.05
FR	410	1.21	KZ	15	0.04
CH	324	0.96	CR	14	0.04
PA	309	0.91	IS	14	0.04
CN	297	0.88	AT	12	0.04
IL	270	0.80	NZ	9	0.03
SE	270	0.80	ZA	9	0.03
LT	229	0.68	TW	8	0.02
HK	196	0.58	FI	6	0.02
PL	175	0.52	PT	6	0.02
CZ	162	0.48	SI	6	0.02
VG	147	0.43	HU	5	0.01
TR	139	0.41	KY	5	0.01
IN	138	0.41	MX	5	0.01
SG	131	0.39	NO	4	0.01
BG	121	0.36	BD	3	0.01
LU	120	0.35	CL	3	0.01
KR	107	0.32	EC	3	0.01
EE	95	0.28	VN	3	0.01
AU	79	0.23	AL	2	0.01
MY	73	0.22	DE/AT/IT	2	0.01
UK	64	0.19	AD	1	0.003
AR	56	0.17	CW	1	0.003
DK	54	0.16	GG	1	0.003
PK	48	0.14	HR	1	0.003
BE	44	0.13	IR	1	0.003
CY	43	0.13	LK	1	0.003
ES	36	0.11	MA	1	0.003
EU	36	0.11	PH	1	0.003
IT	35	0.10	PS	1	0.003
SK	34	0.10	RS	1	0.003
		0.00	SC	1	0.003

Perhaps surprisingly, over half of all illicit online pharmacies use servers in, or with a corporate nexus to, the United States.

Roughly one-third of illicit online pharmacy domain names are registered with privacy-protected Whois records.

## H. Public vs. Private Whois

LegitScript subsequently attempted to estimate the percentage of illicit Internet pharmacies using privacy/proxy Whois services directly affiliated with a domain name registrar. By this, we mean a known, registrar-sponsored Whois privacy service such as DomainsByProxy (GoDaddy) or Privacy Hero (Momentous), in contrast to an unaffiliated privacy Whois service such as Katz Global Domain Name Trust, a third-party Whois privacy service that primarily caters to illegal or grey-market businesses.

LegitScript's methodology for conducting this analysis was to query our Internet pharmacy Whois records for the unique identifiers, to the extent those are known to LegitScript, associated solely with a particular privacy/proxy service. For example, we assume that if a Whois record's email uses @domainsbyproxy.com, it is a privacy/proxy Whois record associated with GoDaddy.

LegitScript's analysis indicated that among 33,819 Whois records analyzed, about 10,150 were using Whois privacy/proxy services readily identifiable as such by LegitScript. We assume some small margin of error here — that is, that there are some privacy/proxy Whois services we were not able to automatically identify, especially those with smaller registrars. (This also did not take into account third-party Whois services.) Accordingly, we estimate that roughly one-third of illicit Internet pharmacies use Whois privacy/proxy services, give or take a few percentage points.

## I. Google Analytics Codes

LegitScript analyzed the HTML from the home pages of all illicit Internet pharmacies to identify the presence of text beginning in “-UA,” which is a unique identifier used by Google's *Google Analytics* program. We found that 2,732 of 33,500 websites reviewed, or about 8%, use Google Analytics.

## J. Daily Registrations

Next, LegitScript asked the basic question: about how many rogue Internet pharmacy domain names are registered each day, on average? To find out, we looked at all of the illicit online pharmacies in LegitScript's database that, according to the registry Whois “creation date,” were registered between October 1, 2014, and October 1, 2015.

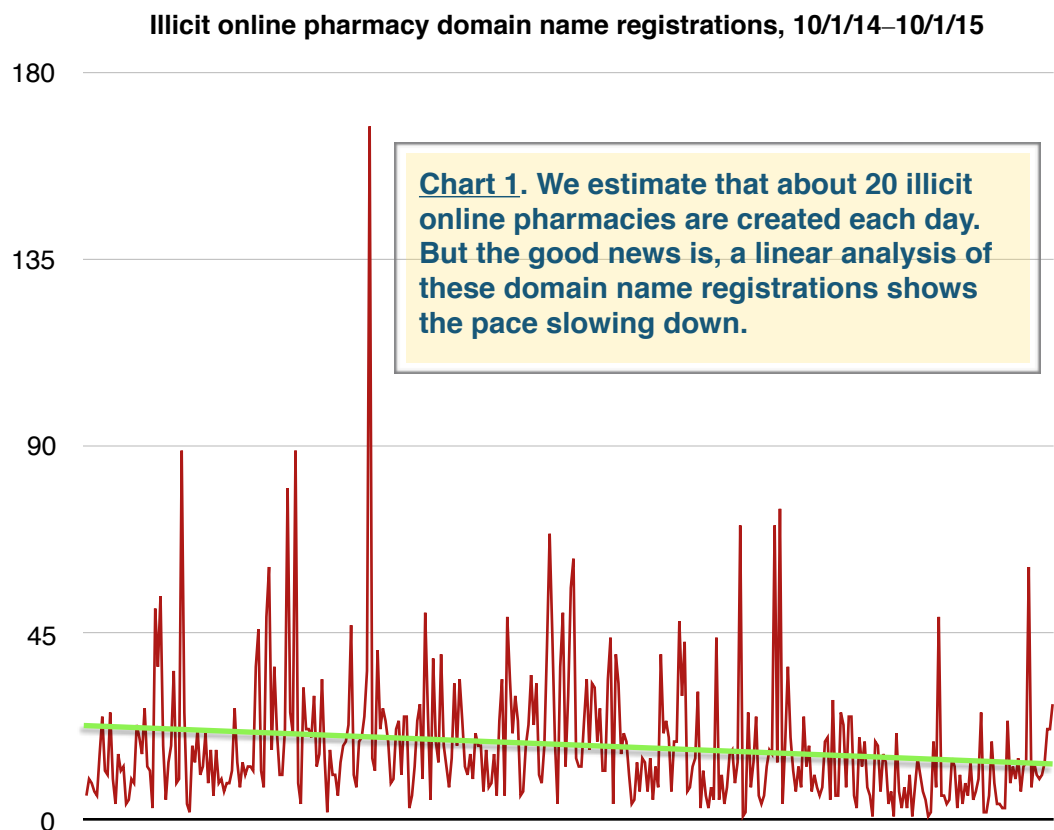
Here, a couple of caveats are important. First, presumably, LegitScript is always missing a few online pharmacies, so the numbers, by definition, are probably slightly higher than what we arrived at. Second, by looking only at the registry Whois domain name creation date, we ignore transfers or the re-registration of a previously expired domain name by the same registrant. Still, this analysis provides a pretty good ballpark

figure about the rate at which the rogue Internet pharmacy marketplace refreshes itself.

On average, we found that 18.28 new illicit online pharmacy websites are created each day. Assuming that we're a bit low, then, the real number is probably about 20, give or take a couple. As indicated in the table below, this number varies significantly, from just one (1) on two separate occasions in August 2015 — apparently rogue Internet pharmacy operators take summer vacations, too — to 167 on January 16, 2015. (This was an outlier, however, and mostly represented a single registrant.)

Every day, illicit online pharmacy operators create about 20 new websites worldwide.

But, the good news is, the pace appears to be slowing down.



What is additionally interesting about these data, however, is the linear decline — represented by the green line above — of illicit online pharmacy domain names generally. Slowly but surely, the pace of illicit online pharmacy domain name registrations appears to be slowing, which is consistent with the decline in sheer online pharmacy domain names discussed earlier in this analysis.

#### K. Organic Search Results: Legitimate vs. Illicit

LegitScript also attempted to measure the organic search environment for prescription drugs and online pharmacies — that is, when an Internet user queries information about pharmacies or prescription drugs, what percentage of the search results lead to legitimate online pharmacies,

On average, about 33% of organic search results for prescription drugs lead to illicit online pharmacies, with another 10% comprised of dead webspam links.

informational websites or other results that are unproblematic, and what percentage of results lead to illicit online pharmacies.

To assess this, we ran 10 queries each for 20 drugs on both google.com and bing.com over a three-month period. (The drugs included a range of medicines: Velcade, Bortezomib, Adcetris, Contrave, Amias, Bupropion, Colcrys, Dexilant, Instanyl, Matrifen, Prevacid, Enantone, Prostaglandin, Protium, Protonix, Actos, Viagra, Spiriva, Pradaxa, Combivent, Tradjenta, Giletrif, and Ofev.).

This resulted in 29,152 search results, which were matched up against LegitScript's database and reviewed by analysts. Our findings were:

- An average of 57% of search results led to legitimate online pharmacies, informational websites, or other “neutral” search results that we did not consider to be problematic.
- One-third, or 33%, of search results led to illicit online pharmacies. This included “web spam” or “hacked” websites — that is, otherwise legitimate websites such as an .edu domain name registered to a university — that linked in search results to illicit online pharmacies.
- The remaining 10% were defunct webspam or hacked websites that did not lead to any illicit online pharmacies, either because the link was no longer operable or the destination content had been removed.

The difference in results was not statistically significant as compared between Google and Bing.



## Sector Analyses

Shipping Services, Online Advertising, Domain Name Registration,  
Content Hosting, and Payment Processing

## Shipping Services | Origin of Drugs

### Highlights

- LegitScript conducted 29 test buys from illegal online pharmacies. Because these each represented a major online pharmacy network, we estimate that these 29 online pharmacies represent 5%–10% of the illicit Internet pharmacy marketplace.
- Our objective was to find out where the drugs were coming from, and how they were being shipped to US residents.
- Private carriers, such as UPS, FedEx, and DHL, were not used for any of the shipments.
- The US Postal Service was used for 100% of shipments; if foreign in origin, that country's government-run postal service provided the shipping until the USPS picked it up.
- In the majority of cases, drugs came from India. (In no case was the sender a licensed pharmacy even in India, insofar as we could tell.) Other countries represented were Germany, Singapore, the US, Canada, and the UK (although these were not always the original sources of the drugs).

### A. Methodology

Our shipping analysis asked a simple question: when a customer orders drugs from illegal online pharmacies, how are the drugs sent to the customer — and where from?

In order to assess this, LegitScript conducted 29 “test buys” from rogue Internet pharmacies. The drugs were shipped to LegitScript undercover purchasers. In all 29 cases, we either were able to view extensive tracking information about the shipments, or were able to review sufficient information to identify the origin and shipping method.

Our selection of targets for testing was generally random from LegitScript's database, with the following exceptions.

1. Internet pharmacies were selected and de-conflicted by network. That is, LegitScript in most cases chose a network of multiple online pharmacies, and selected only one website from that network for testing (because selecting multiple websites from the same network would potentially lead to duplicated results).
2. Collectively, these 29 websites represent by our estimate 5%–10% of the Internet pharmacy marketplace. For example, three of the 29 test buys were from the Rx-Partners, EVApharmacy and Complete Online Pharmacy networks, which each have, on average, 3,000, 2,000, and 400 active websites online at any one time. Although the networks represented by the 29 websites account for 15%–20% of the online pharmacy marketplace, we recognize that networks sometimes use multiple

We engaged in mystery shopping from 29 websites that, by our estimate, represent 15%–20% of Internet pharmacy websites and probably 5%–10% of the marketplace as a whole.

India was the most common point of origin for the drug shipments, although we were unable to verify whether India was the true source of the drugs.

suppliers and thus shipping routes. Accordingly, we reduced our estimate to the 5%–10% range.

3. Only illegal online pharmacies were tested. In all 29 cases, the drugs were sold by entities without legally required pharmacy licensure. In 24 cases, the websites also sold drugs without a prescription, and the drugs were unapproved for sale. In the remaining five (5) instances, the Internet pharmacies lacked legally required pharmacy licensure, and either a) did not require a prescription, or b) sold drugs that are not FDA-approved.

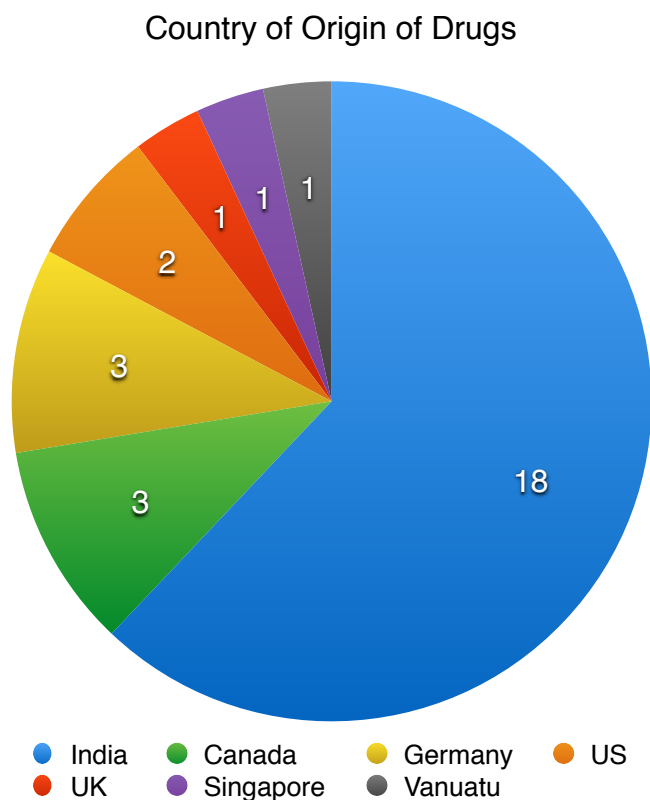
With one exception, our test transactions were conducted between mid-January 2015 and late May 2015 (one was November 22, 2014).

## B. Findings

This section presents three aspects of our findings: 1) the shipping origin; 2) the shipping method from the country of origin, and 3) the shipping methodology domestically.

### 1. Origin of Drugs

India was represented as the most common point of origin for the drugs that we received, with 18 out of the 29 online pharmacies sending us drugs from India.



Tied for second place were Canada and Germany, each serving as the country of origin for three of the drug shipments. In both cases, however, these countries are properly understood as transshipment points for the drugs (as opposed to reflecting their true origin), however. A common strategy of some illegal online pharmacy networks is to unlawfully import drugs in bulk to a pharmacy in a country more likely to be perceived as a “safe” country for drugs; however, these drugs, even if labeled as having been dispensed by a pharmacy in Canada or Germany, are not necessarily the same drugs that a resident of those countries would receive were they to walk into the pharmacy’s brick-and-mortar location.

Bringing up the rear was the United States, which was the point of origin for two of our orders, and the UK, Singapore, and Vanuatu, each serving as the point of origin for one of our test buys.

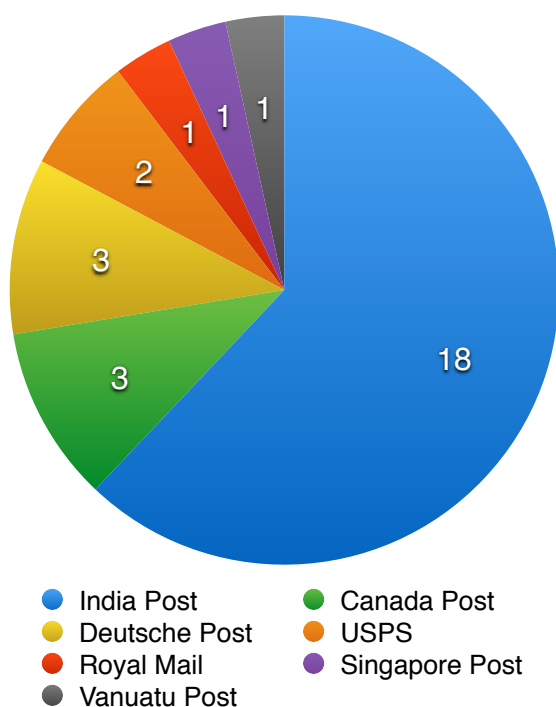
None of the prescription drug shipments was sent with private carriers. All used the US Postal Service and/or their foreign counterparts.

## 2. Shipping Methodology — Point of Origin

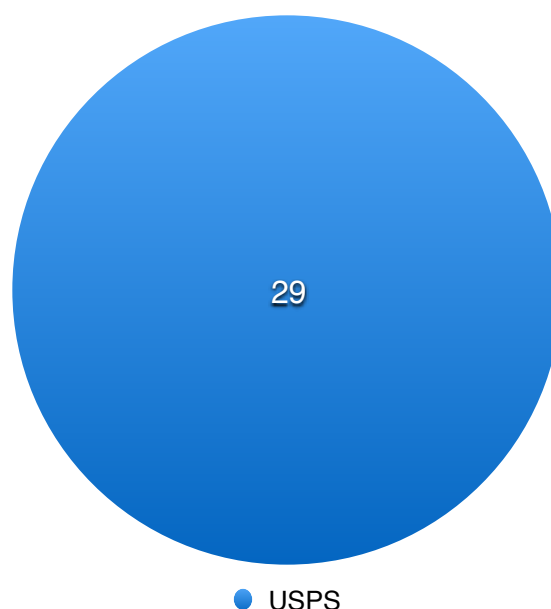
For our test buys, without exception, the drugs were shipped from the country of origin using public (government-run) postal services. For example, every instance of drugs being shipped from India involved use of India Post. Similarly, drugs shipped from the UK used Royal Mail.

Accordingly, India Post accounted for 18 of the 29 test purchases, followed by three instances of purchases shipped via Deutsche Post and Canada Post, respectively. Two of the shipments were from licensed pharmacies in the US — Urban Chemists (New York) and Troy Pharmacy (Pennsylvania), both of which sold us prescription drugs without requiring a valid prescription. In both cases, USPS Priority Mail was used.

Shipping Method From Origin



Shipping Method Within US



## 3. Shipping Methodology — Within United States

Services such as India Post, Vanuatu Post, and Canada Post only exist within their own jurisdictions, of course; any packages must be handed off to a different delivery service once the drugs reach the United States. How did the drugs get transported once they entered the US?

For 100% of our 29 test purchases, the US Postal Service was the delivery mechanism to the end customer. In no instance did we identify a third-party such as DHL, EMS, FedEx, or UPS used.

## Data in Tabular Form

The following table shows each Internet pharmacy, the reasons why it operates unlawfully, and the shipping methodology to and within the United States.

### Key (Column C, Nature of Illegality)

**A: Absence of Legally Required Pharmacy Licenses**

**B: Sale of Prescription Drugs Without Requirement of Valid Prescription**

**C: Sale of Unapproved Drugs**

Illegal Internet Pharmacy	Network	Nature of Illegality	Shipping Method	Delivery
<a href="#">adpharmacy.com</a>	Rx-Partners	A, B, and C	Deutsche Post	US post
<a href="#">365-pills.com</a>	EVPharmacy.ru	A, B, and C	Indian Post	US post
<a href="#">3gchemist.com</a>	Complete Online Pharmacy	A, B, and C	Indian Post	US post
<a href="#">aclepsa-pharmacy.com</a>	MyRxAffiliateProgram	A, B, and C	Indian Post	US post
<a href="#">alliantpharma.com</a>	MedsIndiaLtd.	A, B, and C	Indian Post	US post
<a href="#">buy-pharma.com</a>	generics.ws	A, B, and C	Deutsche Post	US Post
<a href="#">buy-rx247.com</a>	GlavMed	A, B, and C	Indian Post	US post
<a href="#">canada-pharmacy-24h.com</a>	Worldwide Drug Store	A, B, and C	Indian Post	US post
<a href="#">canadadrugsonline.com</a>	Solaris	A and C	Canada Post	US Post
<a href="#">cheap-viagra-24.com</a>	Everest Network	A, B, and C	Indian Post	US post
<a href="#">clearskypharmacy.cc</a>	Alpha-Pharma	A, B, and C	Indian Post	US post
<a href="#">drmusclepharmaceuticals.com</a>	n/a	A, B, and C	Royal Mail	US Post
<a href="#">drugstoresale24h.com</a>	Store Pills Network	A, B, and C	Indian Post	US post
<a href="#">Genericpharmacydropship.com</a>	n/a	A, B, and C	Singapore Post	US Post
<a href="#">genericpharmastore.com</a>	n/a	A, B, and C	Indian Post	US post
<a href="#">goldendrugshops.com</a>	n/a	A, B, and C	Indian Post	US post
<a href="#">greatlakespharmacy.net</a>	Brick and Click	A and B	USPS Priority	US post
<a href="#">inhousedrugstore.vu</a>	Pacific Health Ltd	A, B, and C	Vanuatu Post	US Post
<a href="#">myhealthonline24.net</a>	IceRx	A, B, and C	Indian Post	US post
<a href="#">northwestpharmacy.com</a>	Pharmawest Pharmacy	A and C	Canada Post	US Post
<a href="#">onlinehealthpharmacies.com</a>	Rx-Partners	A, B, and C	Indian Post	US post
<a href="#">prescribe4u.com</a>	n/a	A, B, and C	Indian Post	US post
<a href="#">reliablerxpharmacy.com</a>	AllDayChemist	A, B, and C	Indian Post	US post
<a href="#">rx-medsonline.com</a>	RxCash.biz	A, B, and C	Deutsche Post	US post
<a href="#">rxpharmacy.md</a>	Best Products Solution Limited	A, B, and C	Indian Post	US post
<a href="#">securerxorder.com</a>	Rx-Profits	A, B, and C	Indian Post	US post
<a href="#">sundrugstore.com</a>	SunDrugstore/SunRxMeds	A, B, and C	Indian Post	US post
<a href="#">ultrapayrx.com</a>	TopPayRx	A and B	USPS Priority	US Post
<a href="#">universaldrugstore.com</a>	Universal Drug Services (UDS)	A and C	Canada Post	US Post

None of LegitScript's test buys was intercepted by US Customs, despite meeting their criteria for interception.

It should be noted that LegitScript is aware that there are some instances in which private carriers are in fact used to ship prescription drugs sold by online pharmacies that are not fully compliant with applicable laws and regulations, such as those in the Secure Medical network (see, e.g., [accessrx.com/shipping-medications/#](http://accessrx.com/shipping-medications/#)). Though it's clear that illicit pharmacies utilize private carriers, LegitScript's test buys from 29 different websites reflect what we deem to be a reasonable cross section of the online pharmacy marketplace.

Of particular note, not a single one of our test buys was stopped or seized by US Customs. LegitScript recognizes, of course, that no shipping service can possibly open every package or scrutinize every sender. However, over the past several years, LegitScript has identified known patterns and shippers, such as Ghevarsha International, a drug drop-shipper in India, and Euphoria Healthcare (also in India). The US Postal Service and its foreign counterparts may wish to consider a more intelligence-driven approach that would identify shippers known to be engaging in illegal activities; to the extent that foreign postal services are unable or unwilling to refuse shipments from these senders, the information may be useful to US Customs in developing a more targeted approach.

## Online Advertising | Paid Visibility

### Highlights

- LegitScript reviewed nearly 650,000 sponsored search results that appeared on Google and Bing in the US search space in July 2015 in response to roughly 10,000 prescription drug- and pharmacy-related keywords.
- Of all prescription drug- and pharmacy-related search results, 0.18%, or one-sixth of one percent (or about one in 600), led to an illicit online pharmacy or prescription drug seller.
- Throughout July 2015, all illicit online pharmacy search results appear to have been removed within 24-48 hours on average and did not, insofar as we could ascertain, re-appear in sponsored search results.

### A. Methodology

For our online advertising sector analysis, LegitScript reviewed 646,587 sponsored (paid) search results appearing on Google and Bing in the United States during July 2015.

Sponsored search results appeared in response to approximately 10,000 keywords (search terms) deployed by LegitScript. These unique search terms include, but are not limited to, brand-name drugs (e.g., Viagra, Prozac), active pharmaceutical ingredient (e.g., sildenafil, sibutramine), and other consumer-oriented search terms, as well as terms such as "no prescription required" and "buy cheap drugs online," for example.

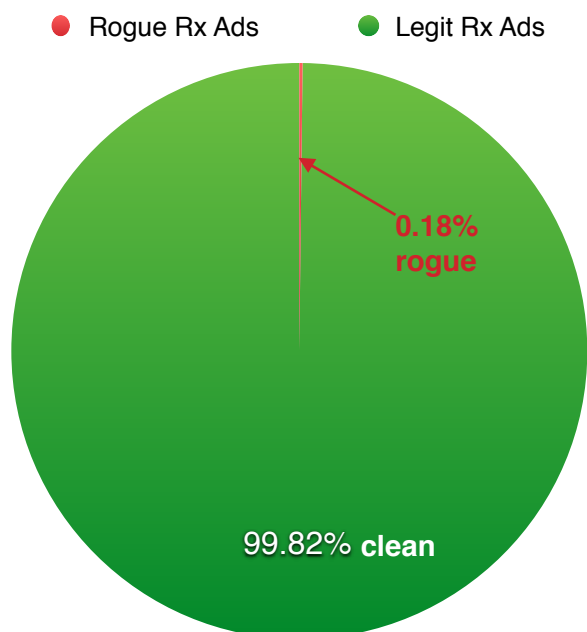
The selection of search terms reflected all FDA-approved prescription drugs, their active ingredients, and other pharmacy-related search terms. Results were captured daily on every day throughout July, and then reviewed by LegitScript analysts for legality.

### B. Findings

As noted above, our analysis of July 2015 sponsored search results on Google and Bing returned 646,587 advertisements. Of these, 1,197, or 0.18% were advertisements for unapproved or rogue Internet pharmacies.

The disparity between Bing and Google was not statistically significant: 940 out of Google's 375,265 ads, and 257 out of Google 271,322 ads were for illicit online pharmacies. Collectively, these represented 38 unique websites (and, we presume, 38 distinct advertisers) that were able to break through the search engines' filters.

Google and Bing ads for prescription drugs and pharmacies are 99.82% clean.





Additionally, LegitScript notes that all of these illegal online pharmacies appear to have been detected within a day of advertising, and disabled and removed from Google's and Bing's platforms within a day as well.

## Content Hosting Services | Servers

### Highlights

- LegitScript reviewed more than 27,000 illegal online pharmacies in July 2015 and correlated each website's IP address with the website's hosting provider.
- Amazon provided the hosting services for 16.5% of all illegal online pharmacies we reviewed, followed by SoftLayer, CloudFlare, GoDaddy, and LeaseWeb.
- Together, these five companies hosted the content for approximately one quarter of the illicit online pharmacy marketplace.
- Collectively, half of illicit online pharmacies host content on servers in the United States, or that are controlled by a US-based company. The Netherlands is in second place (chiefly due to LeaseWeb).

#### A. Relevance of Content Hosting Providers

Any Internet-based seller of goods and services, by definition, must have a website or web page on which to display text, images, and other functionality facilitating the sale of a product. Companies that provide these services — some of which are also accredited as domain name registrars, but many of which are not — are commonly referred to as “hosting providers” or “server companies.”

In general, there are two possible models for online pharmacies to rely on when seeking to display content on the Internet: the first is to acquire a domain name and point the domain name to content on one or more IP addresses; the second is to use a third-party website, such as [amazon.com](http://amazon.com), [blogspot.com](http://blogspot.com), or [shopify.com](http://shopify.com) to display content.

LegitScript's analysis of illegal online pharmacy utilization of hosting services only considers the first model for three reasons. First, LegitScript data indicate that the overwhelming choice of Internet pharmacies is to utilize a domain name such as [canadadrugs.com](http://canadadrugs.com), [supertramadol.com](http://supertramadol.com) or [911pharm.com](http://911pharm.com) to point to content on an IP address. LegitScript's database indicates that well over 95% of all illegal online pharmacies operate their own website; they likely view reliance on third-party websites, where their page may be quickly removed, as unstable. Second, even when an illegal online pharmacy posts content on a third-party website like [blogspot.com](http://blogspot.com), it typically directs the visitor to a website, and the [blogspot.com](http://blogspot.com) content serves a referral function, as opposed to listing the drugs for sale or processing payment. Third, this portion of the analysis attempts to measure the utilization of hosting services by illegal online pharmacies. A website such as [blogspot.com](http://blogspot.com) or [amazon.com](http://amazon.com) cannot be said to exist for the purpose of hosting illegal online pharmacy content; rather, such misuse is incidental and constitutes a small portion of each domain name's use.

## B. Methodology

To conduct this analysis, LegitScript reviewed the IP addresses of 27,294 illegal Internet pharmacies that were online and active in July 2015.

LegitScript's database regularly performs lookups of a variety of technical information related to an Internet pharmacy, including the domain name registrar, name servers, and IP address(es) associated with each website. These data are refreshed, on average, every two to three weeks.

The IP addresses are then correlated with information obtained from each Regional Internet Registry (RIR), such as the American Registry for Internet Numbers (ARIN) about the server host to which the IP address in question is assigned.

The result of this process is a list that contains not only the 27,000-plus illegal online pharmacies actively tracked and monitored by LegitScript in July 2015, but also the IP address in question, the IP address range that contained the IP address, and the server host to which the range is assigned.

## C. Findings

LegitScript's analysis found that out of the 27,000-plus illegal online pharmacies reviewed in July 2015:

- 4,507, or about 16.5%, used Amazon Technologies to host content.
- Another 782 illegal online pharmacies were hosted with SoftLayer Technologies of Texas.
- Close in third place is CloudFlare of California, with 658 illegal online pharmacies.
- In fourth place is GoDaddy with 572 illegal online pharmacies. (Note: most of these are online pharmacies that use GoDaddy as a server host, but not as domain name registrar.)
- Another 546 illegal online pharmacies use LeaseWeb B.V. in the Netherlands.

Unlike domain name registrar data, for which approximate market share information exists, LegitScript is not aware of any reliable publicly accessible data regarding content hosting market share. Still, it is important to put the data above into context: as leaders in the content hosting community, it is inevitable that companies like Amazon, CloudFlare and GoDaddy will inevitably have some number of illicit online pharmacies using their servers.

LegitScript analyzed over 27,000 illegal online pharmacies' hosting providers in July 2015.

Amazon had the biggest chunk, with about half of all illicit online pharmacies hosted on servers in the US or controlled by US corporations.

## Domain Name Registration | Registrars

- Among roughly 1,000 companies with domain name registrar accreditations, the majority have and enforce anti-abuse policies prohibiting illegal online pharmacies.
- Roughly 45%–52% of illicit online pharmacies are with 10 domain name registrars that either do not have, or do not adequately enforce, policies prohibiting illegal prescription drug sales.
- The data indicate that illicit Internet pharmacy operators tend to choose a registrar carefully, and will shy away from registrars, even larger ones, known or believed to implement anti-rogue Internet pharmacy policies.

### A. Methodology

As with our analysis of illicit online pharmacies' hosting providers, LegitScript ran DNS-related queries to identify the domain name registrar for Internet pharmacies identified as operating illicitly. Excluding the few registries, such as JPNIC (for .JP) that do not identify the registrar in the Whois record, LegitScript reviewed the registrar of record as of July 2015 for approximately 30,000 illicit online pharmacies.

LegitScript's database regularly performs lookups of a variety of technical information related to an Internet pharmacy, including the domain name registrar, name servers, and IP address(es) associated with each website. These data are refreshed, on average, every two to three weeks.

Where known to LegitScript, we consolidated registrars under common ownership or common control (such as GoDaddy and Wild West Domains, or the various registrars that constitute the Endurance Group of registrars, such as Directi and Domain.com).

### B. Findings

As LegitScript has noted on several previous occasions, one of the most compelling narratives that illustrates rogue Internet pharmacy operators' rational decision-making pertains to their careful choice of domain name registrars. This is aptly illustrated by the degree to which registrars that otherwise have large market shares maintain a much smaller portion of the illicit online pharmacy marketplace, and in several cases, registrars with a small portion of the domain name marketplace, who resist taking action against illicit online pharmacies, are a magnet for illegal online pharmacy domain name registrants.

By way of illustration, consider five of the six largest domain name registrars (GoDaddy, Endurance Group, Rightside, Web.com, and 1&1), each of which have effective policies regarding illegal online pharmacies. While each of these registrars has anywhere from 4% to 35% of the domain name marketplace as a whole, none of these registrars' market share of the illicit

Registrars who resist taking action against illicit online pharmacies are a magnet for illegal online pharmacy domain name registrants.

online pharmacy marketplace exceeds 0.3%. (Note that due to these registrars' size, it is unrealistic to expect a real market share of zero.)

Registrar	~total domains	~market share	Rogue Rx domains	~market share
GoDaddy	57,500,000	35%	~100	0.2%
Endurance Group	17,000,000	11%	~150	0.3%
eNom/Rightside	16,000,000	10%	~50	0.1%
Web.com	8,500,000	5%	~50	0.1%
1&1 (Schlund)	6,000,000	4%	~50	0.1%

Roughly 50% of all illicit online pharmacy domain names are at 10-12 registrars.

By contrast, the five top registrars used by illicit online pharmacies include two of the comparatively larger registrars, Tucows and GMO Internet (dba onamae.com), along with three smaller registrars. While Tucows' overall market share exceeds LegitScript's estimate of its share of the illicit online pharmacy marketplace, GMO Internet's share of the illicit online pharmacy marketplace is roughly twice its overall domain name market share. More stark are the disparities between the other three registrars' overall market share, which ranges from 0.01% to 0.1%, and their percentages of the illicit online pharmacy marketplace, which range from 4% to an estimated 14%.

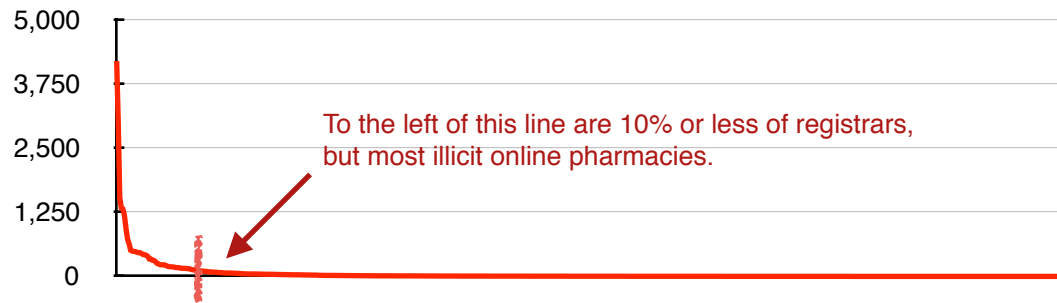
Registrar	~total domains	~market share	Rogue Rx domains	~market share
Momentous Group	165,000	0.1%	4,890	14%
GMO Internet	4,500,000	3%	2,000	6%
Nanjing Imperiosus	20,000	0.01%	1,750	5%
TodayNIC/Eranet	135,000	0.08%	1,350	4%
Tucows, Inc.	8,500,000	5%	1,000	3%

A key indicator of a successful Internet pharmacy policy is when the registrar's market share of the illicit online pharmacy marketplace is a fraction of their overall domain name market share.

While compliance problems and appropriate remedies are often debated in the registrar and registry communities — and those debates are outside of the scope of this analysis — the central observation offered in this analysis is that the phenomenon of “clustering” by illicit online pharmacies at registrars that are known or believed to be comparatively tolerant of non-compliant prescription drug sales is an objectively verifiable phenomenon.

To illustrate that phenomenon in graphical terms, in the chart below, the red line represents the 1,000 or so domain name registrars operating today, the vast majority of which have only a few illicit online pharmacy domain names. Those at the left represent the 25 - 50 registrars with 75% to 85% of all illicit online pharmacy domain names.

Graphic showing the clustering of domain name registrations at a small number of registrars in the illicit online pharmacy marketplace.



## Payment Processing

- **All five of the major payment networks — Visa, MasterCard, American Express, DiscoverCard and PayPal — operate rigorous programs designed to prevent utilization by illicit online pharmacies.**
- **Unlike other sectors, in which intermediary utilization can usually be immediately ascertained, the inherent inability to quickly correlate a merchant and acquiring bank with an illicit online pharmacy makes enforcement more difficult.**
- **Extremely few Internet pharmacies identify themselves as selling prescription drugs to acquiring banks, and are usually coded as selling other types of products.**

### A. Methodology and Overview

As compared to other sectors such as online advertising and domain name registration, analyzing illicit online pharmacies' use of payment processing schemes is fraught with difficulty. The reason for this is straightforward: simply by looking at a URL, it may be possible to quickly verify that the website is illicitly selling prescription drugs, and it is often possible to tell who is behind the website. However, it is often impossible to reliably identify the identity of the merchant or the associated bank without actually completing a transaction. Accordingly, identifying and removing bad merchants from payment processing systems is a more opaque, more expensive, and more time-consuming endeavor as compared to other sectors. Assessing the degree to which a particular payment scheme is actually utilized is equally challenging. As such, when analyzing the utilization of major payment processing schemes by rogue Internet pharmacies, it is important to look not only to the apparent utilization of those payment schemes, but also to the payment schemes' policies and enforcement thereof.

In order to assess the degree to which each major payment scheme is utilized in the rogue Internet pharmacy marketplace, LegitScript reviewed the operations of the top 25 illegal online pharmacy networks. In addition, we looked to 50 rogue Internet pharmacy websites that are "independent" in that they have no known correlation to an established network or grouping. From there, we evaluated the payment options, not merely verifying the presence of a logo on the website, but actually checking the dropdown menu on the checkout page for specific payment options.

### B. Caveats

Prior to discussing our findings, a few caveats are in order. First, all of the payment networks have rigorous programs designed to identify and disable the misuse of their services by rogue Internet pharmacies.

Second, the misuse of these payment networks by rogue Internet pharmacies should not be construed as a lack of policy enforcement by the payment networks, but rather as misuse of the payment networks' services (as verified

Identifying problematic merchants in the payment space is significantly more complex than in the domain name, online advertising, or shipping sectors.



by the fact that, as far as LegitScript could ascertain, none of the online pharmacy merchants were actually coded as pharmacies by the payment networks).

Lastly, in several cases we verified that the online pharmacy network was, in fact, providing the payment method as an option for customers. In other words, we verified that it was possible to input the card numbers purportedly associated with the payment method in each case, but only in some instances did we actually conduct a transaction.

### C. Findings

As noted above, we reviewed the payment methods available for 25 illicit online pharmacy networks and 50 “independent” (unaffiliated) online pharmacy websites. Our findings were for June to July 2015.

For the 25 online pharmacy networks reviewed, we found that:

- 20 were offering Visa as a payment method.
- 16 were offering MasterCard as a payment method.
- 14 offered American Express as a payment method.
- Six (6) offered JCB as a payment method.
- Four (4) offered BitCoin as a payment method.
- Three (3) offered Cash on Delivery only.
- Two (2) offered Diners Club cards.
- Nine (9) offered some other payment method, such as wire transfer, direct deposit, or money order.

For the 50 online pharmacy websites not known to be affiliated with any network, we found that:

- 29 were offering Visa as a payment method.
- 24 offered MasterCard as a payment method.
- 18 offered Western Union as a payment method, in most cases to the exclusion of all other payment methods.
- 12 offered American Express.
- 12 offered DiscoverCard.
- 10 offered MoneyGram.
- Eight (8) offered PayPal.
- Three (3) offered SOLO, although it is unclear whether this was an active payment option.

In general, the utilization of payment processing options by rogue Internet pharmacies tracked payment networks' market shares measured by cardholders.

- Two (2) offered Diners Club.
- Two (2) offered Delta.
- Two (2) offered Switch, although it is unclear whether this was an active payment option.
- 12 offered some other service, such as wire transfer, direct bank deposit or money order.

In reviewing these networks and websites, LegitScript observed that in some cases, which payment option was available depended on the cardholder's IP address — that is, the location from which they were visiting the website. For example, at the time of our review, the Rx-Partners illegal online pharmacy website [edtabsselection.com](http://edtabsselection.com) only accepted MasterCard and American Express in select countries, despite operating illegally everywhere. Similarly, affiliates in the Rx-Profits rogue Internet pharmacy network did not accept MasterCard if the visitor came from some countries like Australia — but the option to use MasterCard “turned back on” for other locations, despite the universally illegal nature of that networks' websites.

LegitScript was intrigued that some online pharmacy networks promoted some payment methods above others, nor do we have a good explanation for why. In one example, the Israel-based Pronet online pharmacy network encouraged its customers to pay with Visa, noting: “Once you choose MasterCard, we will charge you with an additional 5% from the current order amount.” Similarly, Rxcash.biz's e-Cheque option is only for the US, with the online pharmacy network pledging that “(a)n additional 5% bonus pills will be given to any purchases made with Visa or American Express,” but not MasterCard or other options.

We also noted that within the same network, different varieties of payment options were accepted on different websites. This suggested that on some occasions, the same network may have multiple merchant identities.

#### **D. Positive Results in the Payment Sector**

In light of the difficulty of immediately correlating a rogue Internet pharmacy with a merchant and acquiring bank (and the consequential difficulty in quickly terminating associated merchant accounts), LegitScript cites two incidents from 2015 that highlight the results of two of CSIP's members, Visa and MasterCard, in addressing the utilization by two rogue Internet pharmacies of their services.

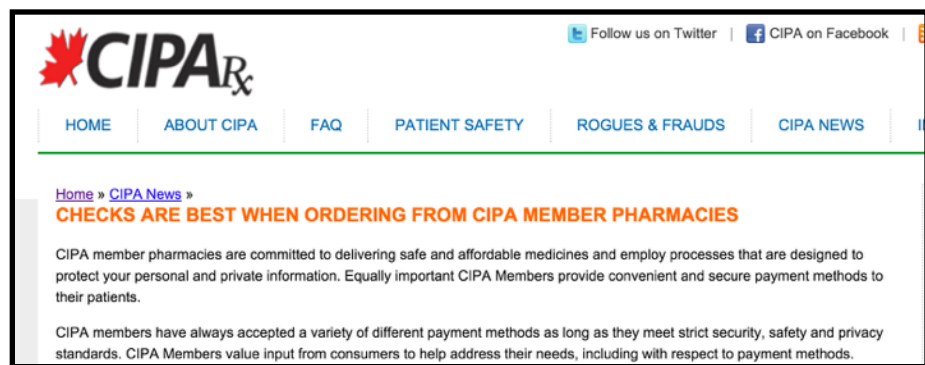
1. CanadaDrugs. Currently under indictment for selling counterfeit medicines to doctor's offices and clinics, most of [CanadaDrugs.com](http://CanadaDrugs.com)'s business is in the online pharmacy space, where it sells drugs from non-Canadian locations and from sources that are not licensed as pharmacies. The drugs are routed through a variety of locations,

including a Barbados warehouse — a supply-chain model that does not adhere to existing safety requirements.

Both payment networks took action to identify the merchant accounts associated with CanadaDrugs.com and the acquiring institution associated with the merchant. At present, only a single alternative payment option is offered (not Visa or MasterCard), with the company apparently unable to restore its ability to offer those payment options.

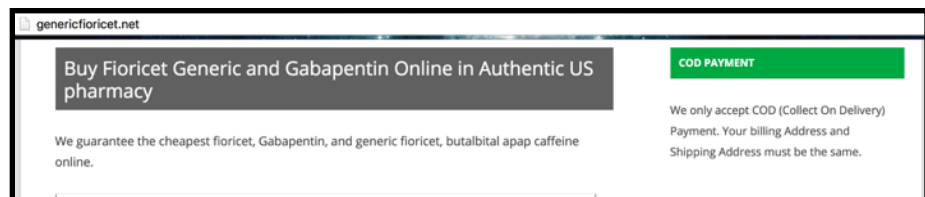
As a result of the continued focus of the payment networks on illegal online pharmacies, one key industry association of fake Canadian online pharmacies (websites that can produce a pharmacy license in Canada and market themselves as Canadian, but ship most of their medicines from other countries in an unregulated and illegal supply chain) went so far as to begin encouraging their customers to only pay by check instead of credit card. The reason was that the member online pharmacies lost their ability to process credit card payments.

The CIPA group of “faux” Canadian online pharmacies and the Brick and Click network illustrate the success of payment processors’ policies in this area.



**A page from the Canadian International Pharmacy Association (CIPA), an association of illegal online pharmacies not actually shipping most drugs from Canada, reacting to the loss of its members’ merchant accounts.**

2. Troy Pharmacy | Brick and Click. The extended Brick and Click network is a group of online pharmacies that sells prescription drugs — with a focus on addictive ones — without a valid prescription. One of the company’s dispensing pharmacies, Troy Pharmacy of Pennsylvania, repeatedly attempted to obtain merchant accounts to accept payment via Visa and other payment options. Through a continuing focus on this network of websites by payment networks, the websites now only accept Cash on Delivery.



**A Troy Pharmacy website, now only accepting COD after repeatedly losing multiple merchant accounts for Visa and MasterCard.**

## Top Internet Pharmacy Threats

A Look at the Top Ten Internet Pharmacy Groups Posing Risks to Patients

## Top Networks/Groupings

### A. Methodology

As noted earlier in this analysis, about 97% of the 30,000-plus websites that comprise the illicit online pharmacy marketplace can be collapsed into 125-150 networks or other groupings of websites subject to common control. This section of our analysis identifies the top ten targets, measured by network or other grouping, that LegitScript assesses as worthy of inclusion as a “top threat” to patient safety.

The identification of a network as a top threat is both an art and a science. One of the key factors that we consider is the size of the network when measured by websites. Size is, however, not the sole determining factor. We also look to the overall “visibility” of the network’s websites in organic search, as well as known instances of counterfeit or dangerous drug sales and the origin of the drugs — the actual threat to patients associated with the network’s business operations. Whether the drugs are sold with or without a valid prescription is also a key factor, as are any verified instances of fraud or misleading activity regarding the online pharmacy’s operations. Finally, we look to the extent to which the network has successfully hidden the identities of its principals and associates, making it less likely that law enforcement will be able to successfully take action to target the network.

To be sure, the lack of inclusion of an online pharmacy network in this section should not be read as suggesting that the websites do not pose a serious risk to human health. Reasons for non-inclusion may include the fact that the business is already under indictment and its activities are in the process of being curtailed, for example, or simply because the network is smaller compared to several on this list.

### B. Top Threats by Network

Following are the top 10 online pharmacy threats for 2016 as assessed by LegitScript. Each section contains a brief description of the network and sample websites operating within the network.

#### 1. RxCash (Affz)

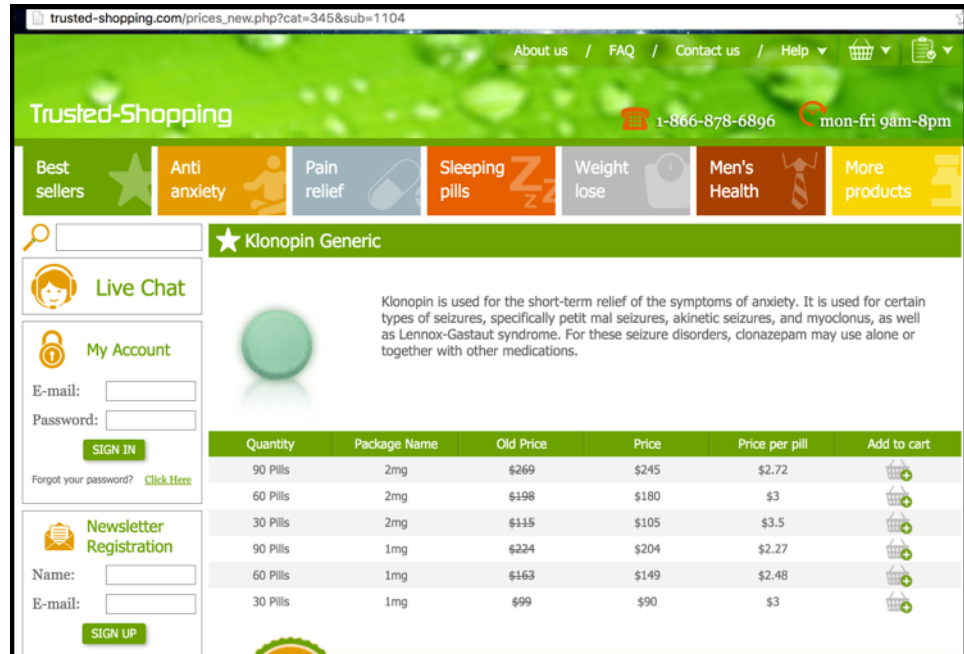
Previously one of the largest rogue online pharmacy affiliate marketing networks, the RxCash network, which now goes by the name Affz (it changes its name from time to time), has shrunk to just a few hundred online pharmacies, but these retain their potency in organic search and risk to patients. LegitScript’s sense is that RxCash poses the most serious risk to patients seeking to obtain a prescription drug online.

The network, which operates chiefly from Israel and the country of Georgia, sells a variety of controlled substances without a prescription,

The RxCash network has been around since 2003, and is tied to multiple instances of significant patient harm, selling fake drugs and addictive medicines.

and in some verified cases these drugs have been counterfeit, with one patient known to LegitScript having suffered permanent brain damage.

Sample online pharmacies in the network, which has been in operation since 2003, include [norxonline.net](http://norxonline.net), [trusted-shopping.com](http://trusted-shopping.com), and [unitedtabs.com](http://unitedtabs.com).



The screenshot shows the website [trusted-shopping.com](http://trusted-shopping.com) with a green header. The main navigation bar includes links for 'About us', 'FAQ', 'Contact us', and 'Help'. Below the header, there are several category buttons: 'Best sellers', 'Anti anxiety', 'Pain relief', 'Sleeping pills', 'Weight lose', 'Men's Health', and 'More products'. The main content area is titled '★ Klonopin Generic'. It includes a description of the drug, a table of product listings, and a sidebar with 'Live Chat', 'My Account', and 'Newsletter Registration'.

Quantity	Package Name	Old Price	Price	Price per pill	Add to cart
90 Pills	2mg	\$269	\$245	\$2.72	
60 Pills	2mg	\$198	\$180	\$3	
30 Pills	2mg	\$115	\$105	\$3.5	
90 Pills	1mg	\$224	\$204	\$2.27	
60 Pills	1mg	\$163	\$149	\$2.48	
30 Pills	1mg	\$99	\$90	\$3	

**[trusted-shopping.com](http://trusted-shopping.com), an affiliate of the RxCash (Affz) network of Internet pharmacies. Klonopin is a controlled substance subject to abuse, which the online pharmacy sells without requiring a prescription.**

EVAparmacy's thousands of online pharmacies can easily produce a Canadian or US pharmacy license. The problem is, they are all forgeries.

## 2. EVAparmacy

EVAparmacy merits our #2 ranking due to the illegal, unsafe, and extremely deceptive nature of its business model. The network is arguably the largest illegal online pharmacy network in existence, with anywhere from 3,000–10,000 online pharmacies active at any one time that sell prescription drugs without requiring a prescription. While some of these websites have traditionally been used in spam marketing efforts, the network has shifted to a model of attempting to persuade customers that it is a safe Canadian online pharmacy.

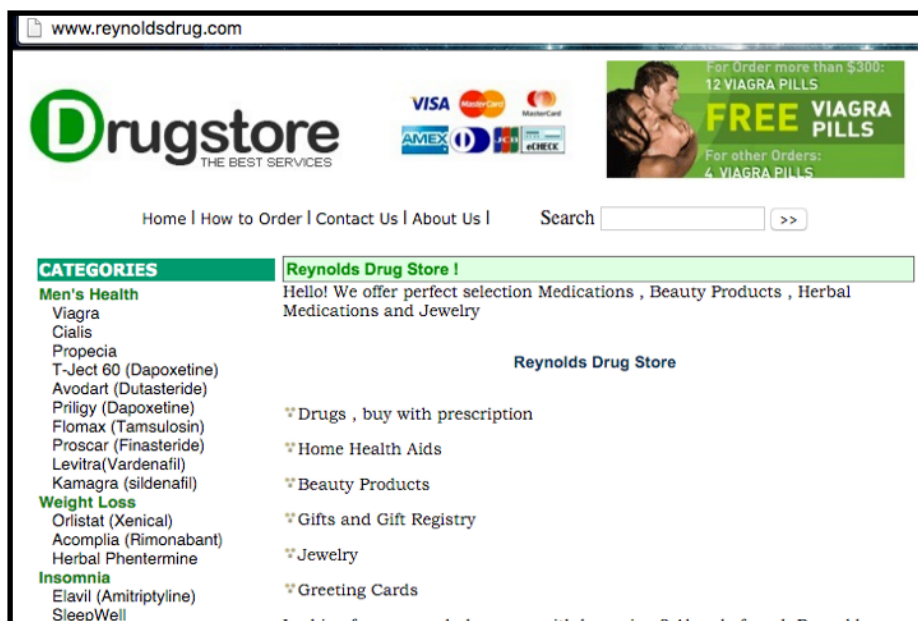
However, the business has nothing to do with Canada, and is primarily run out of Russia and Eastern Europe, with a possible base in Australia. The network has gone so far as to post pharmacy licenses purportedly from Manitoba, Texas, and other jurisdictions on its websites. However, LegitScript has verified that these are forged licenses and that the online pharmacy network has no connection to these jurisdictions at all.



Among the other unsafe and deceptive techniques used by the network are to hijack websites previously operated by real pharmacies, such as Reynolds Drug in South Carolina, a legitimate brick-and-mortar pharmacy shown in the image below. Years ago, EVApharmacy hijacked the pharmacy's domain name: while [reynoldsdrug.com](http://reynoldsdrug.com) retains the pharmacy's address and branding, orders placed on the website are filled by EVApharmacy with the drugs being shipped from Pakistan or China.



Above, the real Reynolds Drug store, a licensed pharmacy in South Carolina. Below, the pharmacy's website, which has been hijacked by the EVApharmacy gang but misappropriates the real pharmacy's address.



The address and good name of the real Reynolds Drug, a brick-and-mortar pharmacy in South Carolina, are used by a Russian criminal network to sell unapproved drugs.



Sample online pharmacies in the network include [rxmedscanada.com](http://rxmedscanada.com), [rx-checkout.net](http://rx-checkout.net), and [reynoldsdrug.com](http://reynoldsdrug.com).

### 3. Rx-Partners

Like EVApharmacy, Rx-Partners is a well-known, notorious online pharmacy network that typically has between 3,000 and 6,000 online pharmacy websites up and running at any one time. The network's websites sometimes market themselves as Canadian or US pharmacies, but ship drugs from India and other locations without a prescription. The drugs are considered by the FDA to be unapproved, such as "Cialis Black," an ED product that is not actually sold by the licensed makers of Cialis that has reportedly been tested to contain 40 times the active amount of the approved ingredient, tadalafil.



**Above, "Black Cialis" offered by an Rx-Partners websites. Reliable industry partners have indicated that some Black Cialis, which is not an authentic or approved product, has tested to contain up to 40 times the safe and permitted amount of tadalafil, the active ingredient in Cialis.**

Sample online pharmacies in the network include [prescriptionspoint.com](http://prescriptionspoint.com), [xl-pharmacy.com](http://xl-pharmacy.com), and [us-ds.com](http://us-ds.com).

### 4. Medicina Mexico

The Medicina Mexico network of 150-plus online pharmacies is, from a narrative perspective, perhaps the most fascinating of the top threats listed in this section. Its history is, in some ways, intertwined with the history of the Internet itself, particularly the domain name registration community.

In 1995, Stephen Michael Cohen, a convicted felon and con man convicted for, among other things, masquerading as a licensed attorney, presented documents to Network Solutions, then the sole domain name registrar for dot-com domain names, purportedly giving him new ownership of the domain name [sex.com](http://sex.com). The documents were forgeries, and several years of lawsuits ensued, with Cohen on the run to Mexico where he hid himself, as well as reportedly millions of dollars in revenue from his illicit [sex.com](http://sex.com) earnings.

Among the reasons that Rx-Partners is a threat includes its sales of fake products like "Black Cialis," reportedly tested to include 40 times the approved amount of its active ingredient, tadalafil.

Medicina Mexico is the latest iteration of long-time con man Stephen Michael Cohen's forays into duping customers with fake attorney's licenses, fake legal documents, fake banks, fake ISPs, and now fake pharmacies.

Fast forward to today: [sex.com](http://sex.com) has been, after years of litigation, returned to its rightful owner, and Mr. Cohen now operates the Medicina Mexico online pharmacy network, which purportedly "owns 93 license [sic] pharmacies in Mexico." (It does not, in fact, own any licensed pharmacies, though you can receive very convincing paperwork suggesting that it does.) Mr. Cohen has continued masquerading as an attorney in his communications with various registrars and LegitScript, presenting fake court documents, and going so far as to create a fictitious banking institution as well as a fake ISP. The convicted con man splits his time between San Diego, where he briefly was able to obtain a California state investigator's license (now revoked) and Mexico.

Given all of the fraud and deception apparently intrinsic to Cohen's business operations for decades, LegitScript feels safe in inferring that any drugs sold by the network are high-risk. Rogue Internet pharmacy websites in the Medicina Mexico network include [fastrxdelivery.com](http://fastrxdelivery.com), [mexicanmedsonline.com](http://mexicanmedsonline.com) and [meds4sale.com](http://meds4sale.com).



**[fastrxdelivery.com](http://fastrxdelivery.com), a fake online pharmacy purportedly in Mexico operated by ex-convict Stephen Michael Cohen, who also has set up various fake ISPs, fake banks, and fake law firms.**

## 5. PharmCash

The PharmCash network is so similar in structure and content to Rx-Partners that LegitScript has often wondered if the two are interlinked.

The websites in the network inaccurately market their drugs as being approved by the FDA as safe and effective, and do not require a prescription for the sale of prescription drugs.

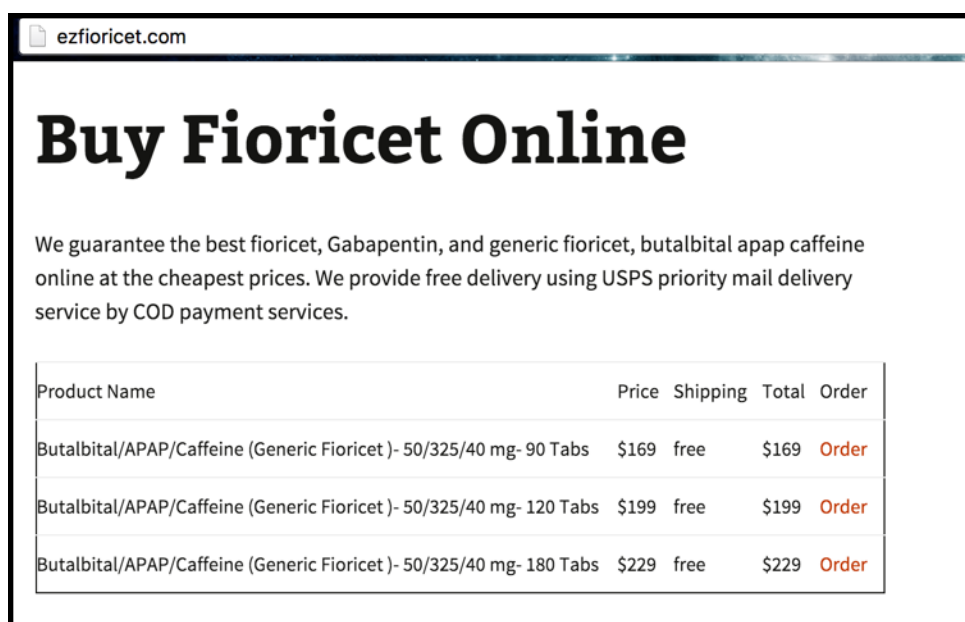
Sample websites in the network include [canadianmedspharmacy.com](http://canadianmedspharmacy.com), [medsforsale.net](http://medsforsale.net) and [pillstock.net](http://pillstock.net).

## 6. Brick and Click Extended Network

The Brick and Click extended network of online pharmacy websites is the only one that chiefly operates its supply chain from within the United States and focuses on US consumers. The larger network includes several groups of sub-networks, and focuses primarily on prescription drugs that are not yet classified as controlled substances, but that contain controlled substances (such as Fioricet, which contains butalbital) or other potentially addictive drugs. The business's operations are centered around being an "online pill mill" and allowing patients to simply fill out an online form in lieu of seeing a doctor in person. Historically, the network's primary focus has been on tramadol and carisoprodol, both of which are now controlled substances.

Sample websites in the network include [rxfield.com](http://rxfield.com), [ezfioricet.com](http://ezfioricet.com), and [genericfioricet.net](http://genericfioricet.net).

The Brick and Click extended network of online pharmacies have historically focused on retaining customers by selling them addictive medicines, hoping that it will keep them coming back.



ezfioricet.com

## Buy Fioricet Online

We guarantee the best fioricet, Gabapentin, and generic fioricet, butalbital apap caffeine online at the cheapest prices. We provide free delivery using USPS priority mail delivery service by COD payment services.

Product Name	Price	Shipping	Total	Order
Butalbital/APAP/Caffeine (Generic Fioricet) - 50/325/40 mg- 90 Tabs	\$169	free	\$169	<a href="#">Order</a>
Butalbital/APAP/Caffeine (Generic Fioricet) - 50/325/40 mg- 120 Tabs	\$199	free	\$199	<a href="#">Order</a>
Butalbital/APAP/Caffeine (Generic Fioricet) - 50/325/40 mg- 180 Tabs	\$229	free	\$229	<a href="#">Order</a>

**[ezfioricet.net](http://ezfioricet.net), an online pharmacy in the extended Brick and Click network of websites. The business model is predicated on pushing drugs that are subject to abuse and addiction and ensuring a repeat customer base.**

## 7. Worldwide Drug Store

The Worldwide Drug Store online pharmacy network fits within the classic rogue online pharmacy model employed by EVApharmacy, Rx-Partners, and others, selling prescription without a prescription, considered unapproved for sale by the US Food and Drug Administration and its foreign counterparts. Drugs are usually imported from India or Southeast Asia, despite the websites' implication of licensure or presence in Canada.

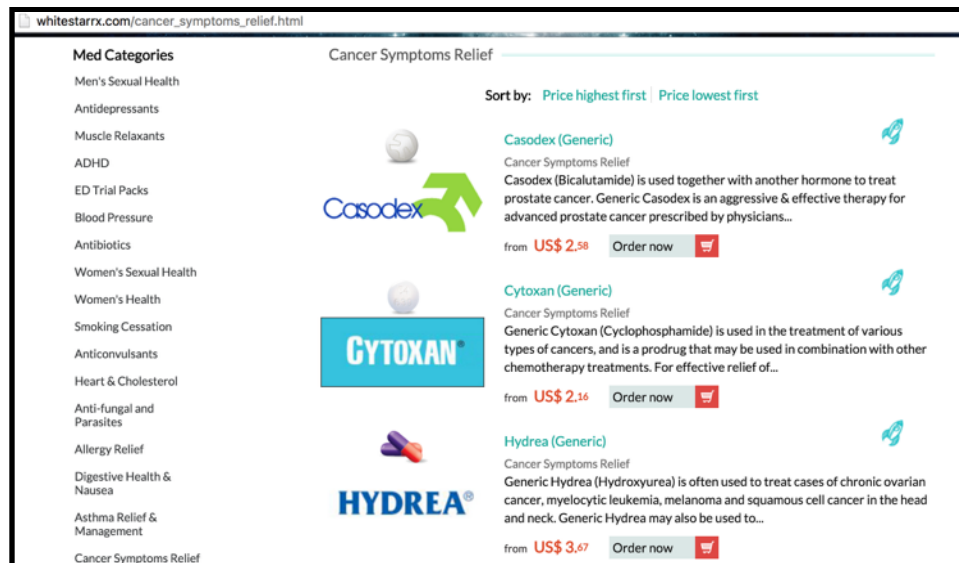
Sample websites in the network, which is comprised of roughly 1,000–1,500 websites, include [canadian-drug-pharmacy.com](http://canadian-drug-pharmacy.com), [canadian-pills.com](http://canadian-pills.com), and [247-meds.com](http://247-meds.com).

## 8. RxProfits

The RxProfits network, like RxCash, appears to operate chiefly from Israel and former Soviet bloc nations. The network, which also operates an illegal tobacco sales affiliate network (DirectNet Partners) as well as “replica” products that appear to infringe on various rights-holders' intellectual property rights, sells prescription drugs without a prescription, with the drugs considered unapproved by the FDA and its foreign counterparts.

The network, which is comprised of about 350 online pharmacies, includes [allpharmacymedicines.com](http://allpharmacymedicines.com), [whitestarrx.com](http://whitestarrx.com) and [pharmacy-xl.org](http://pharmacy-xl.org).

RxProfits online pharmacies underscore that the online pharmacy threat isn't just about lifestyle drugs; it includes unapproved and substandard cancer medicines as well.



The screenshot shows the website [whitestarrx.com/cancer\\_symptoms\\_relief.html](http://whitestarrx.com/cancer_symptoms_relief.html). The page is titled "Cancer Symptoms Relief" and features a sidebar with "Med Categories" including Men's Sexual Health, Antidepressants, Muscle Relaxants, ADHD, ED Trial Packs, Blood Pressure, Antibiotics, Women's Sexual Health, Women's Health, Smoking Cessation, Anticonvulsants, Heart & Cholesterol, Anti-fungal and Parasites, Allergy Relief, Digestive Health & Nausea, Asthma Relief & Management, and Cancer Symptoms Relief. The main content area displays three products: Casodex (Generic), Cytosoxan (Generic), and Hydrea (Generic). Each product listing includes a description, a price starting from US\$ 2.58, 2.16, and 3.67 respectively, and an "Order now" button.

**[whitestarrx.com](http://whitestarrx.com), an affiliate of the RxProfits online pharmacy network. The network has expanded beyond traditional lifestyle medicines and focuses on cancer drugs such as Casodex and Hydrea, which are illegally imported and typically alternate, unapproved versions of the real thing.**

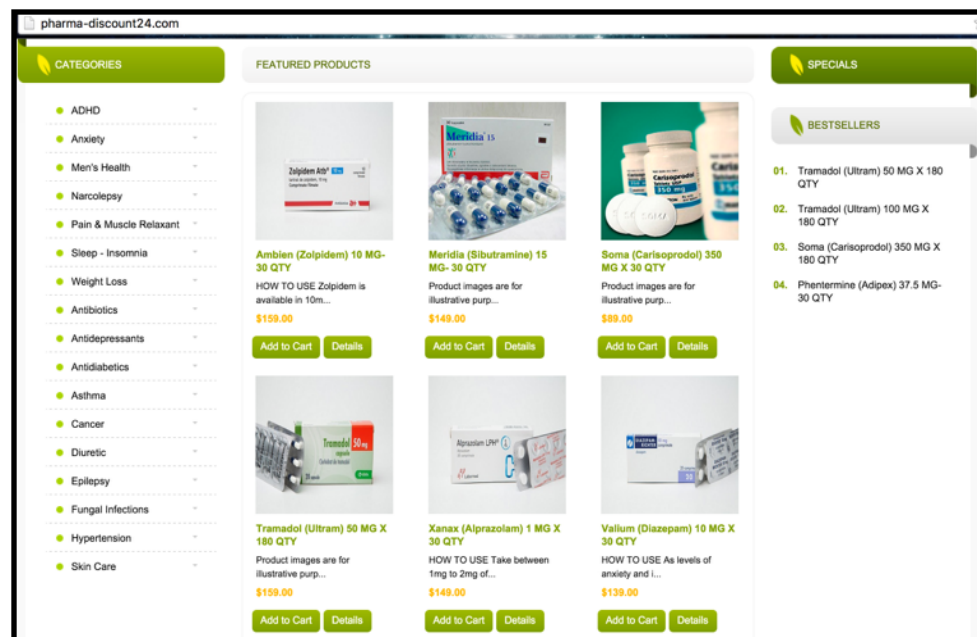
## 9. Everest Network

The Everest Internet pharmacy network is comprised of a few hundred online pharmacies, such as [rx-elife.com](http://rx-elife.com) and [elifepharmacy.com](http://elifepharmacy.com), that target customers in the US and EU and selling drugs that purport to be sourced from US or EU pharmacies, but that are not approved for sale in any such countries (and thus cannot truly be from any licensed pharmacy in those countries). The network has a traditional focus on the lifestyle drugs, but also sells unapproved cardiovascular medicines such as Norvasc and Plavix.

## 10. Investra-24hs

The network, which is comprised of about 150 online pharmacies, includes [pharma-discount24.com](http://pharma-discount24.com), [rx-pharma24.com](http://rx-pharma24.com) and [globalpharm24.com](http://globalpharm24.com). The network's websites sell prescription drugs, including controlled substances, without a prescription. While the network purports to operate from Argentina — some of the drugs may in fact be sourced from the pharmacy there that the network has claimed to operate in the past — others have been sourced from a variety of locations in India and Southeast Asia.

The Investra-24hs network sells drugs from a variety of locations, including Argentina. But some of its drugs can't legally be sold in most jurisdictions, like sibutramine, an ingredient linked to heart failure.



[pharma-discount24.com](http://pharma-discount24.com), part of the Investra-24hs online pharmacy network, which sells a variety of controlled substances from Argentina and other locations without a prescription. These include drugs that are banned across most of the world like Meridia (sibutramine), a weight-loss drug that lost FDA approval after being shown to cause heart failure in many patients.

# The Future of the Internet Pharmacy Marketplace

Projections for 2016 and Beyond



## The Future of the Internet Pharmacy Marketplace

- **Expect to see the continued growth of psychoactive highs sold online: if current trends hold, about 2,000 new designer drugs will be introduced to the marketplace in 2016.**
- **We expect clustering to continue in all sectors and to be more pronounced in the domain name and payments sectors.**
- **Traditional affiliate marketing will continue to diminish as a strategy for illicit online pharmacy networks, further consolidating control over online pharmacy websites among a smaller group of entities and individuals.**

What will the Internet pharmacy marketplace look like in 2016? We think that the fundamentals will stay the same: roughly 30,000 or so illicit online pharmacies when measured by domain name, with over 95% of the websites associated with up to 125-150 businesses or organizations.

But we do see three evolving trends worth mentioning.

### A. Psychoactive Highs: An Emerging, Dangerous Marketplace

The term “psychoactive highs” — sometimes called “legal highs” or “designer drugs” — refers to products that are not explicitly marketed as containing controlled substances; however, they are designed to offer users a similar psychoactive effect as that offered by ecstasy, marijuana, methamphetamine, and other “street drugs.” In some cases, these products may actually contain a controlled substance; in other instances, it may be a slightly or significantly altered chemical structure or compound. In all cases, however, the inherently unregulated nature of this marketplace means that the user can never be totally certain about what the product contains, raising the risk to users’ health.

Psychoactive highs have received recent media scrutiny due to a number of deaths, hospitalizations and other adverse effects. Consider, for example:

- AB-FUBINACA, a synthetic cannabinoid that was responsible for a recent spate of hospitalizations at one university.<sup>4</sup>
- BHO (butane hash oil), also known as budder, shatter, wax, honey, or 710. This synthetic marijuana concentrate is part of a growing trend called “dabbing.”<sup>5</sup> Cooking the product presents risks similar to manufacturing methamphetamine in home labs.

We forecast about 2,000 new psychoactive drug products to hit the marketplace in 2016, primarily aimed at youth and young adults.

<sup>4</sup> See <https://www.washingtonpost.com/news/morning-mix/wp/2015/11/13/former-student-pleads-guilty-to-federal-drug-dealing-charges-in-wesleyan-overdose-case/>

<sup>5</sup> See <http://www.livescience.com/51202-marijuana-dabbing-trend.html>

- Para-methoxyamphetamine (PMA). The drug resembles ecstasy (3,4 methylenedioxymethamphetamine) but can be five times as strong.

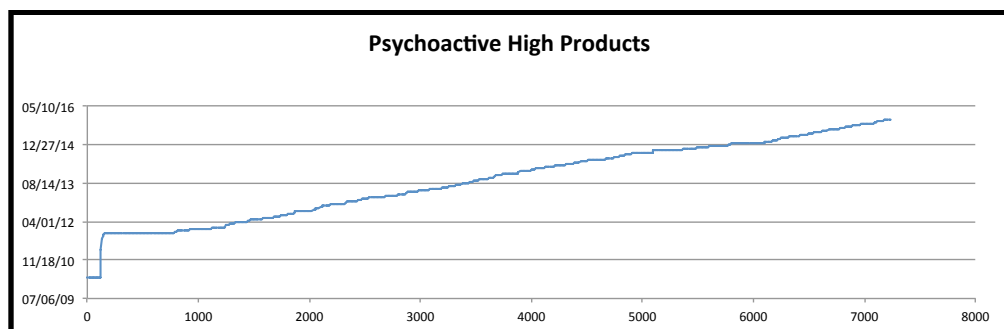


A page from [silkroad-pharmacy.com](http://silkroad-pharmacy.com), selling a psychoactive high known as PMA, or synthetic ecstasy.

With no quality control over psychoactive highs, or a drug approval process, users have no reliable way to know what they are ingesting, or how much.

However, it takes longer to have an effect, prompting some users to take more pills — and unwittingly give themselves a fatal overdose.<sup>6</sup>

In 2016, LegitScript forecasts that the psychoactive highs marketplace will add another 1,750 to 2,250 products on top of existing products, continuing steady growth seen since 2008. (To put this in context, consider that the total number of new drugs approved each year by the FDA since 1983 has ranged from two to forty-nine.<sup>7</sup>)



Growth in LegitScript's database of psychoactive highs, 2010 to present.

<sup>6</sup> See <http://abcnews.go.com/US/story?id=95562&page=1>

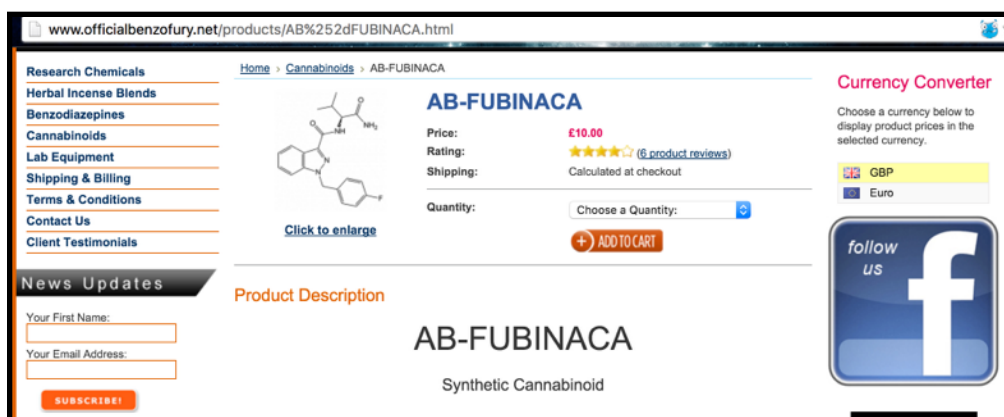
<sup>7</sup> See <http://www.fda.gov/downloads/Drugs/DevelopmentApprovalProcess/HowDrugsareDevelopedandApproved/DrugandBiologicApprovalReports/NDAandBLAApprovalReports/UCM435753.pdf>.



As noted in the table above, since 2010 (when LegitScript began actively tracking psychoactive highs sold online), we have seen the number of psychoactives available online increase at a steady pace just short of 2,000 products per year. For the most part, older products are not simply being phased out; rather, the total options available to consumers — particularly young adults and children — are growing.

For intermediaries, all of this is worth noting for several reasons: liability, regulatory risk, public relations, and not least, public health. Indeed, LegitScript thinks that between 2016 and 2018, psychoactives are poised to present the same sorts of challenges to intermediaries that online pharmacies have posed over the last decade.

Often masquerading as “research chemical” websites, we see psychoactives as a future challenge for intermediaries.



**A page within officialbenzofury.net selling AB-FUBINACA, a dangerous synthetic cannabinoid.**

There is, however, one complicating factor: the difficulty in immediately and decisively ascertaining, simply by looking at a website selling the products, what ingredients those products contain. (By contrast, if a product is marketed as a prescription drug, there are only two possibilities: it contains the active pharmaceutical ingredient, making it highly regulated; or it does not, making it counterfeit.) This means that for products marketed as offering the user a psychoactive experience, intermediaries cannot typically base voluntary anti-abuse policies on the ingredients. Rather, some companies have chosen to base policies on the marketing of the product itself, irrespective of chemical composition.

Looking forward to 2016, LegitScript forecasts continued growth in the marketplace for psychoactive highs and a commensurate growth in media and regulatory attention. In general, we encourage intermediaries to review and update policies banning the use of products that are designed to afford the consumer and experience mimicking that of a controlled substance.

## B. The Continuation of Clustering

As noted earlier in this report, a striking trend is the “clustering” of rogue Internet pharmacies within each sector at marketplace participants that will provide services. To recap, this exists to varying degrees in all sectors but is most obvious in:

- The shipping sector, where private carriers have mostly been eschewed in favor of the US Postal Service as a means of getting illicit medicines to customers; and,
- The domain name registration industry, where most registrars, and a growing number of registries, voluntarily terminate or suspend domain names used to illegally sell prescription drugs — but those that do not are magnets for illicit online pharmacies.

We think that this trend will continue, as follows, for each sector:

- Online advertising. In this sector, with the main marketplace participants (Google, Bing, Yahoo!) blocking and removing illegal online pharmacy ads, there is simply no good place for the bad actors to go. In fact, rogue Internet pharmacies have largely been relegated to small advertising platforms such as 7search.com, with a tiny fraction of the online ad marketplace. However, as noted in the bullet below, we see some rogue Internet pharmacies shifting their attempts to gain visibility to social media.
- Social media. While paid advertisements placed on social media platforms by illicit online pharmacies are not currently a major problem, some illicit online pharmacy operators have sought to achieve visibility with an increased presence on Facebook, Twitter, Pinterest, and other social media platforms’ unpaid platforms (i.e., through normal profile creation). We expect this trend to continue.
- Shipping. If the US Postal Service implements new policies designed to cut down on its usage by illicit online pharmacies, private carriers will likely encounter renewed use, or attempted use, by illicit online pharmacies. Until and unless that happens, however, the economically rational response for illicit online pharmacies will be to continue using government-sponsored carrier services.
- Domain name registration. With the clustering of about 50% of rogue Internet pharmacy domain name registrations at just 1% of the marketplace, registrars without abuse policies (or those that do not enforce their abuse policies) may wish to consider the likelihood that the absence of such policies invites unwelcome regulatory scrutiny. In general, nearly all new gTLDs appear to be significantly less utilized by rogue Internet pharmacies as compared to the traditional .com, .net, .org, and other older TLDs (and some ccTLDs), and we expect that more and

In 2016 and beyond, clustering of rogue online pharmacies at sector participants viewed as friendly by illicit actors will continue and become more pronounced.

more of the registrar hold-outs will adopt and enforce new policies. This will likely lead to two dynamics: first, the clustering of more of the marketplace at a smaller number of registrars, and — as currently exists today — more illicit online pharmacies setting up shell corporations to obtain ICANN accreditation. One other trend to note: the status of some illicit online pharmacy networks as domain name resellers.

- **Payment.** Though more difficult to measure than other sectors, we expect clustering within the payment sector at a shrinking number of acquiring banks and ISOs will continue. We expect the problem of obfuscated merchant identifiers to continue throughout 2016 and beyond.

### C. The Centralization of Internet Pharmacy Networks (and Death of Affiliate Marketing)

In 2008, when LegitScript began actively monitoring the Internet pharmacy marketplace, arms-length affiliate marketing represented the dominant model within the industry. That is, at a central website operated by a drug supplier or affiliate marketing program, affiliate marketers with prior connection to the network or drug supplier, and with no pharmacy background, could anonymously sign up for the program, download Internet

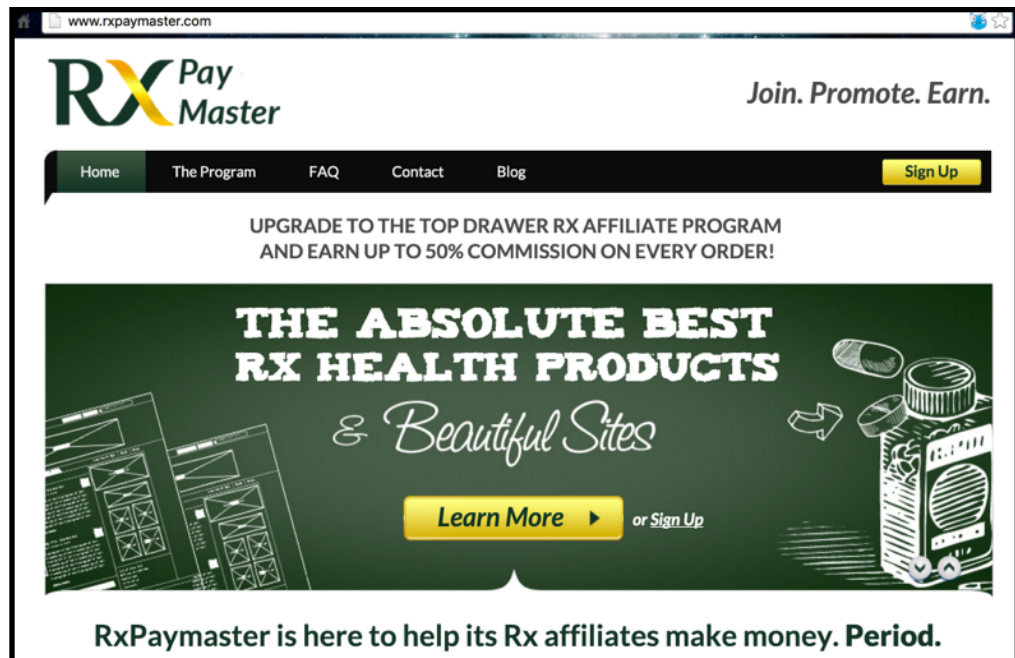


**RxPayouts.com** as the website existed in April 2006. Between 2006 and 2010, the affiliate marketing program sponsored tens of thousands of websites selling addictive drugs without a valid prescription, operated by hundreds of arm's-length affiliate marketers.

Historically, affiliate marketing represented a key vector for illicit online pharmacy networks to spawn thousands of websites and reach more customers. But...

pharmacy templates, and within minutes, set up hundreds of online pharmacy websites. These programs began to take off in 2004, and from 2008 to 2010, LegitScript estimated that there were 125-150 core groupings of online pharmacies representing over 95% of the marketplace; of these, the significant majority were affiliate marketing programs.

...although illicit online pharmacy affiliate marketing programs will continue to exist, the current trend is inward, with some programs being shuttered and others only dealing with trusted affiliates.



**RxPaymaster, also known as RxProfits, one of the longest-running affiliate marketing programs for illegal online pharmacies. As compared to 2009, the program has drawn inward and tends to only allow trusted affiliate marketers to operate its websites. It's one of the relatively few surviving affiliate marketing programs for online pharmacies.**

What was notable about the prevalence of Internet pharmacy affiliate marketing programs was that the supplier of the drugs, and the affiliate marketing network business owner, were often totally unknown to the webmaster operating the Internet pharmacy website. That is, the various participants in a single affiliate marketing network often did not know the true identity of the others. From a law enforcement perspective, this made the networks relatively easy to infiltrate, and from the online pharmacy networks' perspective, led to increased risk. And indeed, several of the key affiliate marketing networks from 2008–2010 — Spamit, GlavMed, 4rx, DispensaryMeds, PillValue, RxPayouts, RxCashCow, PillChecks, Rx-Mex, Asian Capital Equities, and more — have been shuttered by law enforcement, or in a few cases simply shut down their affiliate marketing program as a means of mitigating risk.

Although Internet pharmacy affiliate marketing programs will continue to exist throughout 2016 and beyond, the number of active affiliate marketing

programs utilizing the traditional model — making their programs available to unknown affiliate marketers — has all but disappeared. Of those Internet pharmacy marketing programs that still appear on the popular affiliate marketing guide [affiliateguide.com](http://affiliateguide.com), only about a dozen remain active (most are defunct), and of those, only a couple accept unknown affiliate marketers. The rest require a recommendation or introduction from a trusted source, or proof of ongoing involvement in illicit online drug sales.

Analytically, this means two things: first, that there have emerged a number of “super-affiliates” that are known and trusted by the online pharmacy networks and/or their suppliers; and second, that some online pharmacy networks have consolidated and now operate their websites in-house (or by contracting out to a specific third party). In either case, it means that the online pharmacy networks are drawing inwards, increasingly dealing only with trusted associates and seeking to conceal their identities and bases of operations — a challenge for law enforcement as well as organizations like LegitScript that monitor the industry.

Likewise, for intermediaries, it means that illicit online pharmacy operators are more likely to be sophisticated and to have experience in the industry. In general, we think that these online marketers will typically avoid platforms that they know to be all but hopeless (such as Google or Bing Ads) and banks such as Wells Fargo or Bank of America. But, by contrast, these individuals and businesses will invest even more heavily in relationships with other trusted intermediaries in the domain name, banking, and marketing sectors.

Throughout 2016, we think that this trend will continue: a collective drawing-inward of the online pharmacy marketplace, with a shrinking number of participants; each participant, however, is likely to control a respectively larger share of the marketplace.

## Conclusion

- **Rogue Internet pharmacy operators are rational economic actors and adapt to changing marketplace conditions, including anti-abuse policies implemented by intermediaries.**
- **To date, and going into 2016, intermediary-led marketplace disruption has contributed to the clustering of illicit online pharmacies at a small number of service providers in key sectors.**

If one central theme runs through this report, it is that even if the operators of illicit online pharmacies do not play by the same drug safety rules as everyone else, they must play by the same economic rules. That is, when the services for which they have a demand — online advertising, domain name registration, content hosting, payment processing and shipping — are not supplied, or are only supplied by a few participants in each market, the rogue Internet pharmacies respond accordingly.

Of course, the degree to which illicit online pharmacies remain a problem varies by sector. There are many multiples more domain name registration providers than there are online advertising services, so it's unsurprising that the illegal online pharmacies can still register domain names somewhere, but as a practical matter, cannot participate in any of the major paid search advertising services. Similarly, whereas it is possible to immediately identify, in most cases, the registrar for an illicit online pharmacy domain name (and act to disable the website), identifying the payment processing provider can take days or weeks in the best-case scenario. None of these statements is a qualitative judgment about a sector or its participants; rather, they are simply facts that mean that each sector faces different challenges and opportunities.

Bolstering these general observations are specific data findings about the nature of the online pharmacy marketplace: we think it remains steady but slightly shrinking at roughly 30,000 websites online at any one time, with about 20 new websites created each day. English-language countries are the most commonly targeted by illicit online pharmacies, perhaps lured by the problem of high drug prices in the US; Japan is the #2 target. Meanwhile, most illicit online pharmacies are in the .COM space, with very low levels of adoption into the new gTLD space. LegitScript hopes that these and other data assist intermediaries and any other readers of this analysis in assessing and developing strategies to reduce risk and protect the public health.

The problem of illegal, unsafe online drug sales will likely never cease. However, through the leadership of intermediaries who refuse to do business with these merchants, the illicit marketplace has been disrupted and will continue to be throughout 2016 and beyond.

LegitScript appreciates the opportunity to have conducted this analysis for the members of the Center for Safe Internet Pharmacies, and welcomes the opportunity to answer any questions.