

**Internet Drug Outlet  
Identification Program  
*Progress Report for State and Federal  
Regulators: September 2018***

*Prepared By*

The National Association of Boards of Pharmacy



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# Internet Drug Outlet Identification Program Progress Report: September 2018

## Introduction

Social media, like most things on the internet, can be used for good or ill. Consumers need a healthy dose of skepticism when reading social media posts – especially when those posts concern their health. Consumers increasingly look to social media for health-related information, and a significant percentage say it influences their decisions, including those regarding their medication. It is concerning, therefore, that much of this information is misleading and potentially dangerous. In addition, many social media posts promote the illegal sale of prescription drugs and lead consumers to illegal online drug sellers. Some social media companies have taken steps to prevent such content from appearing on their platforms, but illicit posts still get through.

The National Association of Boards of Pharmacy® (NABP®) evaluated several social media platforms to determine the extent to which illegal online drug sellers use these platforms to sell prescription medicine illegally. Finding posts promoting prescription drugs was not difficult. Most did not sell drugs directly, but they included links or web addresses leading to rogue internet drug outlets selling unapproved medications without a prescription. These evaluations and findings are detailed later in this report.

The rogue sites discovered through NABP's evaluation of social media platforms are now included in NABP's list of [Not Recommended Sites](#), along with more than 11,000 drug sites NABP has found to be operating out of compliance with US federal and state pharmacy laws and practice standards. In all, nearly 95% of the total number of sites NABP has evaluated since 2008 have been found to be out of compliance with these laws and standards. These findings are detailed in the Results section below.

Knowing that consumers look to social media for health-related information presents an opportunity to educate patients. NABP uses Facebook and Twitter, for example, to educate patients on safe medication use. Consumer safety advocates emphasize the importance of

social media to health care providers to disseminate valid information. They also suggest some level of regulation of posts appearing on social media platforms may be in order. Studies have shown there are tools that can be used to comb these platforms for posts that promote illegal activity – tools that could be employed in enforcement efforts. In addition, NABP collaborates with several technology companies to ensure their pharmacy- and prescription drug-related advertisers are operating lawfully. NABP encourages social media platforms to implement similar policies for their user-generated or organic posts in the interest of improving the user experience and protecting consumers.

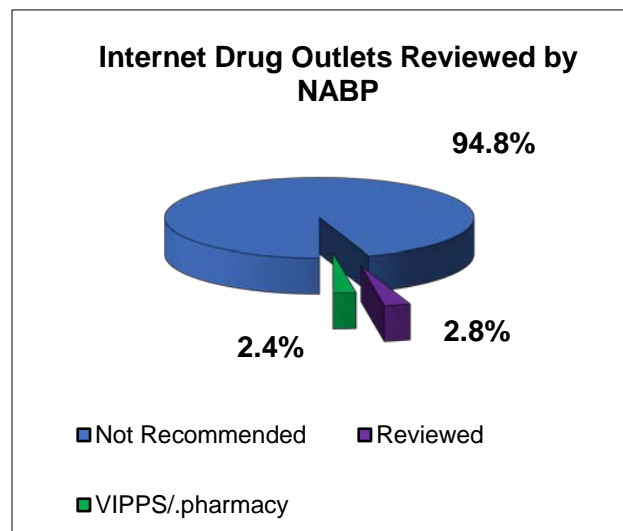
## Results

### A. Findings of Site Reviews to Date:

As of June 30, 2018, NABP has reviewed 11,943 internet drug outlets selling prescription medications to US patients. Of these, 11,324 (94.8%) were found to be operating out of compliance with state and federal laws and/or NABP patient safety and pharmacy practice standards. These sites are listed as

[Not Recommended](#) on NABP's

[safe.pharmacy](#) website. Of the websites identified by NABP as Not Recommended, the majority were found to be dispensing prescription drugs without a valid prescription. Many also offer foreign and unapproved drugs that may be substandard or counterfeit. Of the total number of sites added to the Not Recommended list since 2008, 13% were selling CS. By contrast, of the 82 sites identified as Not Recommended from January 1 through June 30, 2018, 32 sites (39%) were selling CS. That is down from the 54% of Not Recommended sites selling CS identified in the second half of 2017, but still considerably higher than the 11-year average and a definite concern for patient safety given the current opioid crisis. The 11,324



internet drug outlets currently listed as Not Recommended on the NABP website are characterized in the table below.<sup>1</sup>

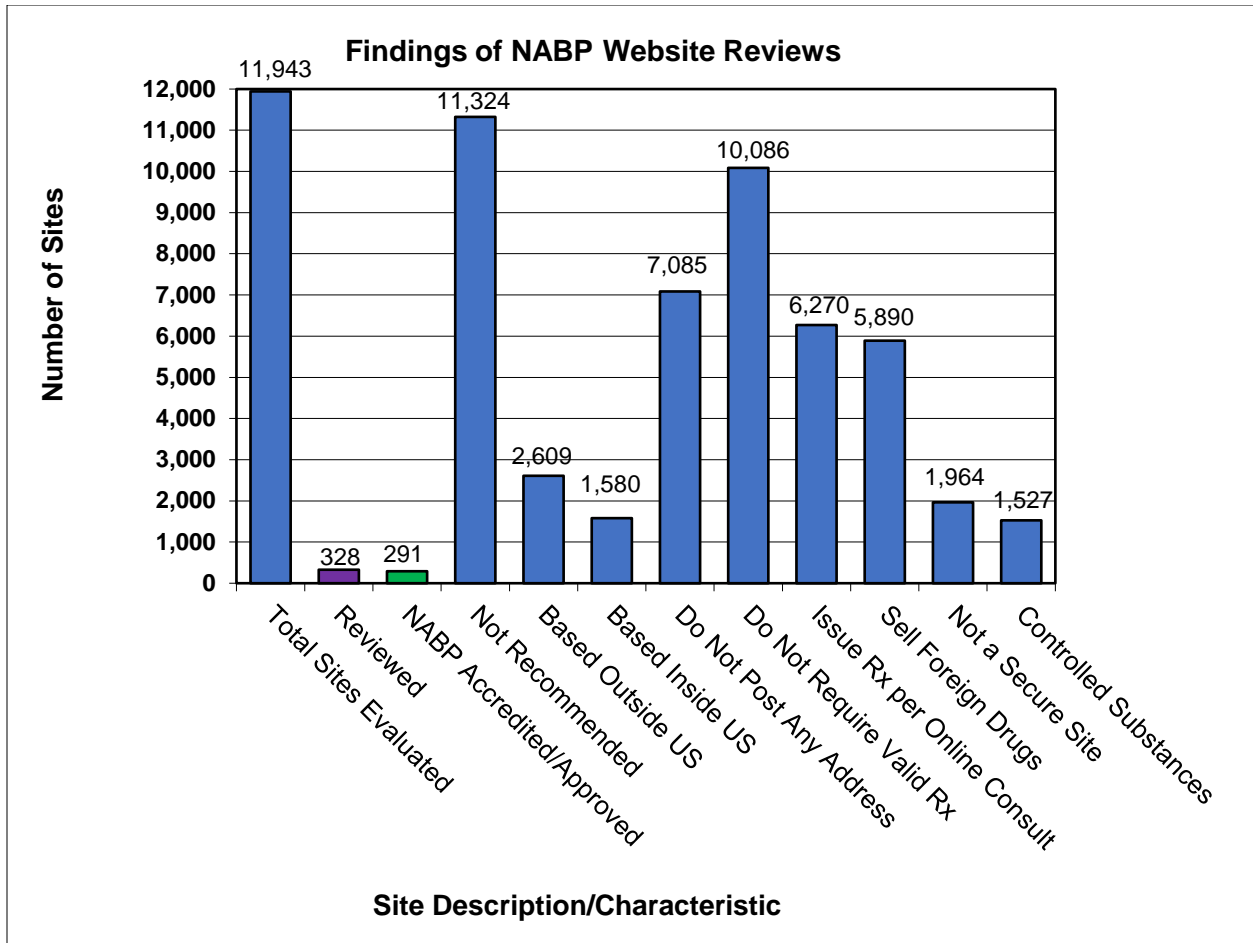
**Not Recommended Sites**

Physical Location:	<ul style="list-style-type: none"> <li>• 2,609 (23%) outside US</li> <li>• 1,580 (14%) inside US</li> <li>• 7,085 (63%) no location posted on website</li> </ul>
Prescription Requirements:	<ul style="list-style-type: none"> <li>• 10,086 (89%) do not require valid prescription</li> <li>• 6,270 (55%) issue prescriptions per online consultations or questionnaires only</li> </ul>
Medications:	<ul style="list-style-type: none"> <li>• 5,890 (52%) offer foreign or non-FDA-approved medications</li> <li>• 1,527 (13%) dispense CS</li> </ul>
Encryption:	<ul style="list-style-type: none"> <li>• 1,964 (17%) do not have secure sites, exposing customers to financial fraud and identity theft</li> </ul>
Server Location:	<ul style="list-style-type: none"> <li>• 4,835 (43%) outside US</li> <li>• 6,008 (53%) inside US</li> <li>• 464 (4%) have unknown server locations</li> </ul>
Affiliations:	<ul style="list-style-type: none"> <li>• 9,689 (86%) appear to have affiliations with rogue networks of internet drug outlets</li> </ul>

The table above, as well as the bar graph on page 6 of this report, shows the characteristics of drug sites listed as Not Recommended on the *safe.pharmacy* website as of June 30, 2018. More than half sell foreign or non-FDA-approved medications to US patients, and 86% are either based outside of the US or, as in most cases, do not post any physical address on the website.

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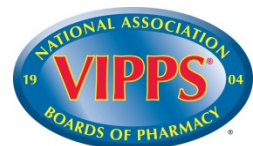
<sup>1</sup> The research findings NABP reports herein and on the Not Recommended list include the total number of websites selling prescription drugs to US patients that NABP staff has reviewed and found to be out of compliance with program standards, including those sites that were found to be noncompliant at the time of review but may since have been deactivated. The numbers reported here do not represent the entire universe of websites selling prescription drugs illegally, but rather, a representative sampling of the online environment over the last 11 years.



The standards against which NABP evaluates internet drug outlets are provided in the Appendix of this report.

Three hundred twenty-eight (2.8%) of the 11,943 sites selling prescription medications to US patients were designated as reviewed. These sites lack any egregious violations that would cause them to be ranked as Not Recommended but have not satisfied the requirements of NABP’s Verified Internet Pharmacy Practice Sites® (VIPPS®) or .Pharmacy Verified Websites Program. Two hundred ninety-one (2.4%) of the 11,943 sites selling prescription medications or offering resources to US patients were accredited through the VIPPS program or verified through the .Pharmacy Program.

**B. Recommended Internet Pharmacies:** NABP, along with many patient safety advocates and policy partners, continues to recommend that patients use internet pharmacies and related resources whose websites



have been reviewed and approved by NABP. These entities have been granted VIPPS accreditation and/or a .pharmacy domain name. Their websites have been evaluated and found to be in compliance with pharmacy laws and meet high standards for pharmacy practice and patient safety. As of June 30, 2018, 65 pharmacies (each with one or more approved domains) were listed on the [NABP website](#) as VIPPS-accredited, and 198 pharmacies and resources (each with one or more active .pharmacy-verified domains) were listed on the [Find a Safe Site](#) page of the .Pharmacy Program website, *www.safe.pharmacy*. Going forward, all VIPPS-accredited pharmacies will have one or more active .pharmacy domains.

**C. .Pharmacy Program:** With popular social media platforms posting misleading health



information, promoting the illegal purchase of prescription medicine, and linking to rogue internet drug outlets, it is especially important that patients have a way to identify safe websites. NABP's .Pharmacy Program makes it easy. The .pharmacy domain name identifies legitimately operating pharmacies and pharmacy-related entities by incorporating the "seal of approval" into the domain name. By looking to the right of the dot for the .pharmacy extension in a web address, patients can be assured they are visiting a safe and legally operating website. NABP grants use of the .pharmacy domain only to legitimate website operators that adhere to pharmacy laws in the jurisdictions in which they are based and in which their patients and customers reside. Technology companies including Google, Bing, Yahoo!, Twitter, and Snap rely on NABP's website verification process to ensure that their pharmacy- and prescription drug-related advertisers are operating lawfully. Likewise, Visa and Mastercard require verification for pharmacy merchants conducting credit card transactions online.

As of June 30, 2018, a total of 539 .pharmacy domain names have been registered by 286 pharmacies and related entities. Of these, 416 were registered to pharmacies, 44 were registered to boards of pharmacy and regulatory agencies, 23 were registered to associations and consumer advocacy sites, 24 were registered to resource and referral sites, 26 were registered to medical professional sites, five were registered to manufacturers, and

one was registered to a school or college of pharmacy. Of the 539 .pharmacy domain names registered, 386 (72%) are active, while the remaining registered domain names are parked.

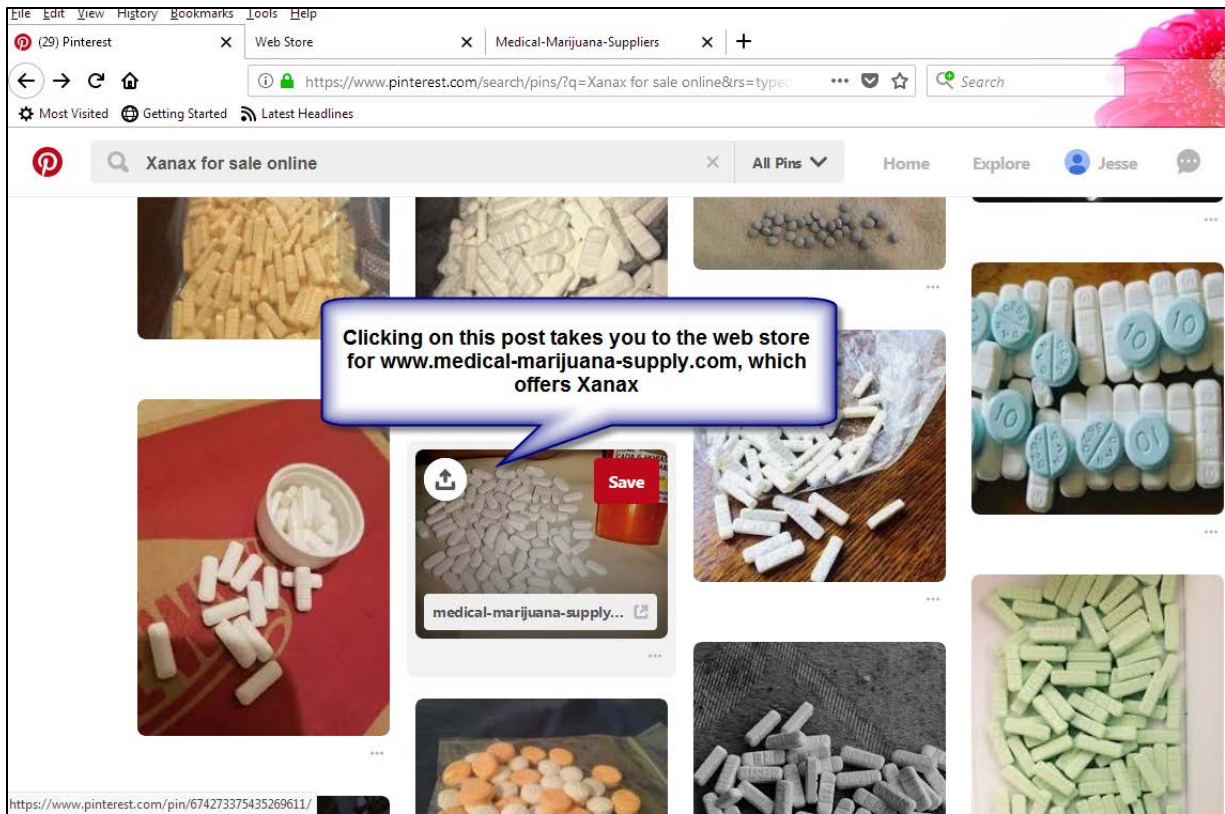
### **Social Media Presents Threats and Opportunities for Patients and Stakeholders**

Every social media post has the potential to influence others' opinions and actions. In many cases, that includes decisions related to their health. Sometimes, unfortunately, these posts sway people to buy prescription medicine from illegal online drug sellers that may endanger their health.

**A. NABP Research Reveals Pain Points on Multiple Platforms:** NABP performed several keyword searches using prescription drug terms on multiple social media platforms over a four-week period and found many that promote the sale of prescription drugs, including CS, and link to rogue websites. On the social media platform Pinterest, for example, NABP found 66 Pins promoting prescription medicine and providing links to websites that purportedly sell them. Not all those links were functional, but 25 (38%) of them linked patients to websites selling prescription medicine illegally. Of those, all 25 (100%) sold drugs that were not FDA-approved, 24 (96%) did not require a prescription, and three (12%) sold CS. Of the remaining 41 Pins, 20 had nonfunctional links, five linked to sites that do not ship drugs to the US, and 16 linked to blogs or informational sites that do not sell prescription drugs.

Search terms that returned posts promoting online drug sellers included "Viagra," one of the most commonly counterfeited prescription drugs; "Kamagra," an erectile dysfunction drug imported from India that is not approved in the US or the United Kingdom; "Acyclovir," (brand name Zovirax), used to treat viral infections; "Ciprofloxacin," (brand names Cetraxal, Ciloxan, and Cipro), an antibiotic, which, if misused, can lead to bacterial resistance; and "Xanax" (generic name alprazolam), an anti-anxiety CS that is addictive and, if misused, can cause dangerous events including death.



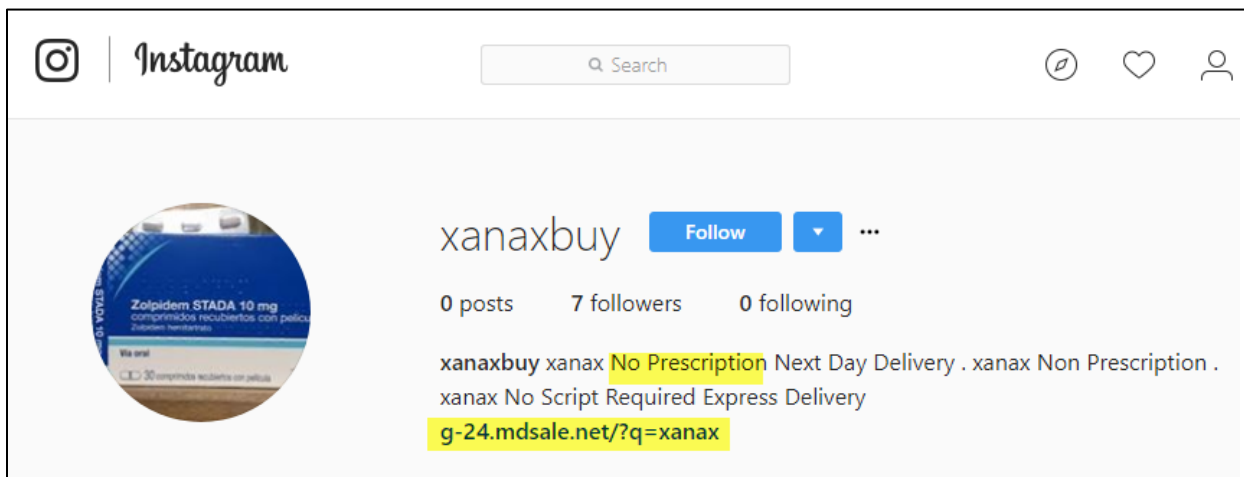


This Pinterest post, found using the search term “Xanax,” leads internet users to an illegal online drug seller offering Xanax, hydrocodone, Oxycontin, and Percocet without a prescription.

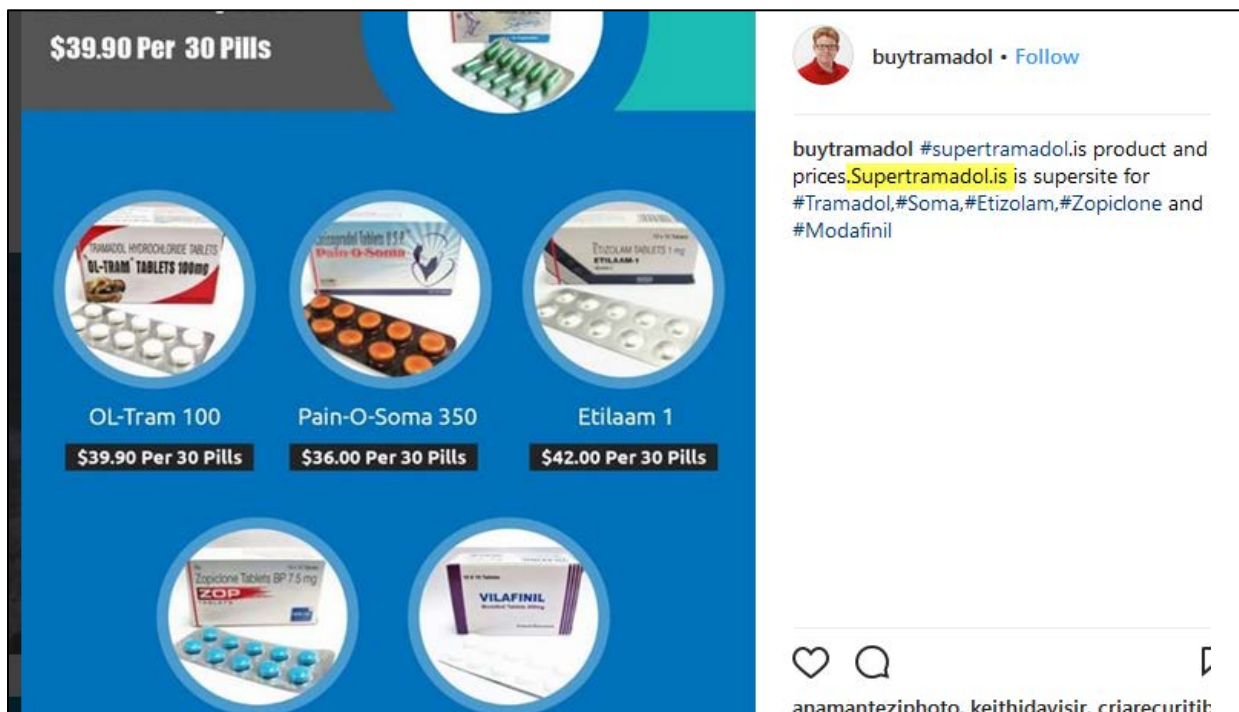
Pinterest representatives indicated that they are aware of this problem and are taking steps to address it. Pinterest proactively scans for and removes this type of content, as evidenced by the fact that only a small percentage of rogue content was discovered among billions of Pins. Representatives said the company aims to further reduce the number of illicit Pins that slip through their filters.

NABP also discovered links to rogue internet drug outlets from posts on the social media platform Instagram that promote the sale of prescription drugs, including CS. One post, found using the search term “buy Xanax,” provides a URL for a portal site linking to multiple illegal online drug sellers. One of the rogue sites the portal site links to offers Xanax, hydrocodone, and Percocet with no prescription. Another sells unapproved versions of tramadol and carisoprodol imported from India. Searches for prescription drug terms on Facebook also returned multiple posts promoting the illegal sale of prescription drug products, including Lantus® SoloStar®, Singulair®, tretinoin, and Xanax. Twitter posts, or Tweets, also promoted

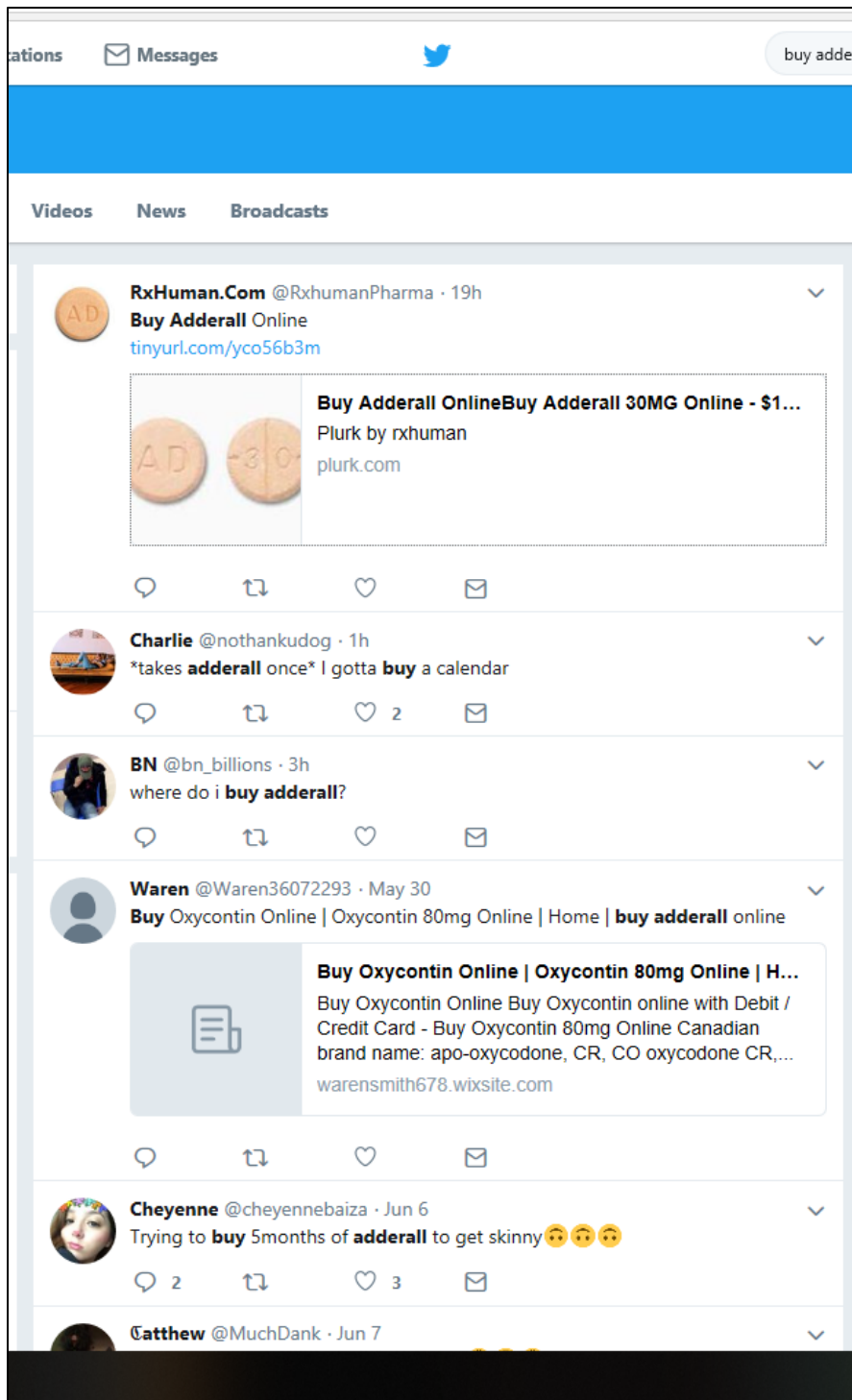
the sale of prescription drugs, including CS, and linked to rogue internet drug outlets that sell them. For instance, a Twitter search for the term “buy Adderall” returned Tweets providing links to websites selling Adderall as well as OxyContin online. On eBay, advertisements were found for birth control pills, tretinoin, albuterol, and a pain relief product containing codeine. On Reddit, posts were found promoting the online sale of Adderall®, metformin, Xanax, and other prescription medicine without a prescription. (See screenshots below.)



The Instagram post above provides a URL for a portal site linking to multiple illegal online drug sellers, at least one of which offers Xanax, hydrocodone, and Percocet with no prescription.



This Instagram post, above, provides the URL for a rogue site selling unapproved versions of tramadol and Soma® imported from India.



Several Twitter posts also promoted the sale of prescription drugs, including CS, and linked to rogue internet drug outlets that sell them. A Twitter search using the term “buy Adderall” returned Tweets providing links to websites selling Adderall as well as OxyContin, as shown here.

## B. Patients Look to Social Media for Health Information:

Considering the popularity of social media and its influence on consumers' decision making, NABP's findings are unsettling. According to The Pew Research Center, some 88% of 18- to 29-year-old Americans say they use some form of social media. Seventy-eight percent of those aged 30 to 49 use social media, 64% among those aged 50 to 64 use social media, and 37% of Americans 65 and older use social media.<sup>2</sup> More than 200 million people use Pinterest every month, and 80% of millennials say Pinterest helps them decide what they want to buy<sup>3</sup>. Social media now plays almost as large a role in purchasing decisions as television does,<sup>4</sup> and sellers are reaping the rewards. Fifty-two percent of businesses say social media positively influences revenue and sales.<sup>5</sup>

“A large proportion of patients [46.6% of those surveyed] admitted starting medications as advertised on social media platforms without consulting a physician.”

– *Journal of Medical Internet Research*

Consumers are increasingly using social media for health-related purposes. According to a 2017 study by the Alliance for Safe Online Pharmacies, 72% of daily social media users would consider purchasing medications online, in contrast to the 75% of non-social media users who would not consider using an online pharmacy.<sup>6</sup> A study published in the November 16, 2017 *Journal of Medical Internet Research* supports the finding that social media influences people's behaviors and self-medication practices. The study authors state, “A large proportion of patients [46.6% of those surveyed] admitted starting medications as advertised on social

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<sup>2</sup> Pew Research Center. “Social Media Use in 2018.” <http://www.pewinternet.org/2018/03/01/social-media-use-in-2018/>. Accessed July 27, 2018.

<sup>3</sup> CoSchedule Blog. “101 Social Media Statistics You Need to Know to Build Your 2018 Strategy.” <https://coschedule.com/blog/social-media-statistics/>. Accessed July 30, 2018.

<sup>4</sup> *Business 2 Community*. “47 Superb Social Media Marketing Stats and Facts.” January 19, 2016. <https://www.business2community.com/social-media/47-superb-social-media-marketing-stats-facts-01431126#i90hfHtlqOvP7mLj.97>. Accessed July 30, 2018.

<sup>5</sup> *Clutch*. “How Businesses Use Social Media: 2017 Survey.” September 14, 2017. <https://clutch.co/agencies/social-media-marketing/resources/social-media-survey-2017>. Accessed July 30, 2018.

<sup>6</sup> Alliance for Safe Online Pharmacies. “Online Pharmacy Consumer Behavior and Perception Survey.” May 2017. <https://buysaferx.pharmacy/public-awareness-campaigns/canadian-online-pharmacies/factsheets/online-pharmacy-consumer-behavior-and-perception-survey/>. Accessed July 30, 2018.

media platforms without consulting a physician.”<sup>7</sup> Clinical decisions made between a doctor and patient are based on the patient’s understanding and informed consent after an explanation of potential risks, preferences, and available resources. “On the contrary, social media and other online platforms, which are typically unregulated, may pose a potential threat to patient safety by encouraging the illegal online nonmedical use of prescription drugs,” the authors state. Knowing that patients turn to social media for health-related information presents an opportunity for patient safety advocates to provide educational material and links to reliable resources. “It is unquestionable,” the study authors state, “that health care and allied health professionals can use the power of social media to spread information.” For instance, patients should be encouraged to consult with their health care practitioners before starting, stopping, or making changes to their medication use, and they should use verified sources when buying medicine online. The authors further suggest that some form of regulation or monitoring of social media platforms is advisable, stating, “there should be cyber surveillance as part of social accountability for spreading potentially incorrect health information.”

**C. ‘Big Data’ Machine Learning Shows Promise in Scouring Social Networks:** Surveillance could be used to identify posts promoting the illicit use of prescription medicine, as demonstrated in studies by Tim K. Mackey, MAS, PhD, and colleagues and published in the *Journal of Medical Internet Research*. In a 2015 study, they found more than 45,000 Tweets that directly promoted non-medical use of prescription medications by providing a URL that actively marketed the illegal online sale of prescription drugs of abuse.<sup>8</sup> In a 2017 study, they built upon their earlier research with the use of an innovative methodology involving the use of “big data” machine learning. This method allowed the researchers to use an “unassisted machine learning algorithm to filter out hundreds of thousands of Tweets unrelated to the

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<sup>7</sup> *Journal of Medical Internet Research*. “Health-Seeking Influence Reflected by Online Health-Related Messages Received on Social Media: Cross-Sectional Survey.” November 16, 2017. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5709655/>. Accessed July 30, 2018.

<sup>8</sup> *Journal of Medical Internet Research*. “Establishing a Link Between Prescription Drug Abuse and Illicit Online Pharmacies: Analysis of Twitter Data.” December 16, 2015. <http://www.jmir.org/2015/12/e280>. Accessed July 27, 2018.

study's objective and isolate Tweets that specifically mentioned the marketing and sale of prescription opioid drugs." They subsequently evaluated the sites selected.

In a September 5, 2018 House Energy and Commerce Committee hearing, Representative David McKinley brandished a copy of this article while chastising Twitter CEO Jack Dorsey for allowing this rogue content to exist on the platform.<sup>9</sup> While Dorsey stated in his testimony that Twitter has policies in place to block such content, it appears additional tools are needed.

Looking forward, the "big data" strategy discussed in this article "could also serve as an important digital tool for stakeholders (such as law enforcement personnel, drug regulators, and substance abuse researchers) actively engaged in the fight against illegal online distribution and sale of controlled substances."<sup>10</sup> Mackey and colleagues state in a related article published October 19, 2017, in the *American Journal of Public Health*, "Our methodology can also help ensure that the [Ryan Haight Act] is better implemented, monitored, and enforced in a constantly evolving digital environment in which social media use is becoming ubiquitous in a broad range of Internet-using populations, including young people susceptible to substance abuse."<sup>11</sup> Twitter has taken steps to bolster its advertising policy and explicitly references NABP verification as a requirement to advertise pharmacy services, but there is still work to do. Use of a surveillance tool, such as the one Mackey and colleagues describe, to monitor user-generated, or organic, content offers Twitter and other platforms an opportunity to further improve users' experience and protect public health.

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<sup>9</sup> C-Span, "Clip of Social Media and Content Monitoring." September 5, 2018. <https://www.c-span.org/video/?c4747415/controlled-substances>. Accessed September 7, 2018.

<sup>10</sup> *American Journal of Public Health*. "Twitter-Based Detection of Illegal Online Sale of Prescription Opioid." November 8, 2017. <https://ajph.aphapublications.org/doi/10.2105/AJPH.2017.303994>. Accessed July 27, 2018.

<sup>11</sup> *American Journal of Public Health*. "Machine Learning to Detect Prescription Opioid Abuse Promotion and Access via Twitter." October 19, 2017. [https://buysaferx.pharmacy/wp-content/uploads/2017/10/machine\\_learning.pdf](https://buysaferx.pharmacy/wp-content/uploads/2017/10/machine_learning.pdf). Accessed July 27, 2018.

## Discussion

It is clear that bad actors use social media platforms to lead consumers to rogue internet drug outlets that sell prescription drugs illegally and endanger patient health. NABP encourages social media companies to take voluntary actions to prohibit posts that promote illegal activity, to make use of tools and collaborative partnerships to monitor the platforms, and to take down these posts when they are discovered. NABP also encourages stakeholders interested in promoting patient safety online to use the powerful communication vehicle that social media provides to counteract misleading and fraudulent information with valid educational facts and resources. As stated in the November 16, 2017 *Journal of Medical Internet Research* study, “Health education in the digital era needs to be accurate, evidence-based, and regulated. As technologies continue to evolve, we must be equipped to face the challenges it brings with it.”

In keeping with its mission to assist its member boards and jurisdictions in protecting the public health, NABP remains committed to upholding the integrity of the practice of pharmacy – in any practice setting or location – and ensuring that patients worldwide have access to safe and effective prescription medications. For further information, please contact Melissa Madigan, policy and communications director, via email at [mmadigan@nabp.pharmacy](mailto:mmadigan@nabp.pharmacy).



## Appendix

### Internet Drug Outlet Identification Program Standards

1. **Pharmacy licensure.** The pharmacy must be licensed or registered in good standing to operate a pharmacy or engage in the practice of pharmacy in all required jurisdictions.
2. **DEA registration.** The pharmacy, if dispensing controlled substances, must be registered with the US Drug Enforcement Administration (DEA).
3. **Prior discipline.** The pharmacy and its pharmacist-in-charge must not have been subject to significant recent and/or repeated disciplinary sanctions.
4. **Pharmacy location.** The pharmacy must be domiciled in the United States.
5. **Validity of prescription.** The pharmacy shall dispense or offer to dispense prescription drugs only upon receipt of a valid prescription, as defined below, issued by a person authorized to prescribe under state law and, as applicable, federal law. The pharmacy must not distribute or offer to distribute prescriptions or prescription drugs solely on the basis of an online questionnaire or consultation without a preexisting patient-prescriber relationship that has included a face-to-face physical examination, except as explicitly permitted under state telemedicine laws or regulations.

**Definition.** A valid prescription is one issued pursuant to a legitimate patient-prescriber relationship, which requires the following to have been established: a) The patient has a legitimate medical complaint; b) A face-to-face physical examination adequate to establish the legitimacy of the medical complaint has been performed by the prescribing practitioner, or through a telemedicine practice approved by the appropriate practitioner board; and c) A logical connection exists between the medical complaint, the medical history, and the physical examination and the drug prescribed.

6. **Legal compliance.** The pharmacy must comply with all provisions of federal and state law, including but not limited to the Federal Food, Drug, and Cosmetic Act and the Federal Controlled Substances Act (including the provisions of the Ryan Haight Online Pharmacy Consumer Protection Act, upon the effective date). The pharmacy must *not*



dispense or offer to dispense medications that have not been approved by the US Food and Drug Administration.

7. **Privacy.** If the pharmacy website transmits information that would be considered Protected Health Information (PHI) under the Health Insurance Portability and Accountability Act (HIPAA) Privacy Rule (45 CFR 164), the information must be transmitted in accordance with HIPAA requirements, including the use of Secure-Socket Layer or equivalent technology for the transmission of PHI, and the pharmacy must display its privacy policy that accords with the requirements of the HIPAA Privacy Rule.
8. **Patient services.** The pharmacy must provide on the website an accurate US street address of the dispensing pharmacy or corporate headquarters. The pharmacy must provide on the website an accurate, readily accessible and responsive phone number or secure mechanism via the website, allowing patients to contact or consult with a pharmacist regarding complaints or concerns or in the event of a possible adverse event involving their medication.
9. **Website transparency.** The pharmacy must not engage in practices or extend offers on its website that may deceive or defraud patients as to any material detail regarding the pharmacy, pharmacy staff, prescription drugs, or financial transactions.
10. **Domain name registration.** The domain name registration information of the pharmacy must be accurate, and the domain name registrant must have a logical nexus to the dispensing pharmacy. Absent extenuating circumstances, pharmacy websites utilizing anonymous domain name registration services will not be eligible for approval.
11. **Affiliated websites.** The pharmacy, website, pharmacy staff, domain name registrants, and any person or entity that exercises control over, or participates in, the pharmacy business must not be affiliated with or control any other website that violates these standards.