Bing's Disservice to Online Drug Safety

By Roger Bate

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Key Points

- To warn consumers of the dangers of importing medicine, the search engine Bing has placed pop-up warnings against foreign websites selling medicines. Unfortunately, the sites targeted are credentialed foreign pharmacies, while potentially rogue sites are in effect given a clean bill of health by having no pop-up warnings.
- Original research confirms this folly. Using the search terms "Viagra" and "Canada," I identified websites and ordered the prescription drug Viagra from nine credentialed sites with warnings; all sold legitimate Viagra. I also ordered Viagra from 14 uncredentialed sites with no warnings; two of these sites sold fake Viagra. To add insult to possible injury, the uncredentialed sites were on average 25 percent more expensive.
- Bing must change its policy, since the current one is driving traffic to unsafe sites and away from legitimate international pharmacies.

It is well-known that Americans pay more for medication than the citizens of other nations. To avoid high prices, some enterprising Americans, perhaps as many as four million, buy from foreign web pharmacies, often at under half the price they would pay in the US.[1]

Until web sales took off, many Americans, particularly seniors in states bordering Canada, would travel over the border to buy their medication. A string of pharmacies in Western Canada sprung up to service this demand. Early in this century, demand switched from physically visiting Canada to online purchases from Canadian websites.

There are obvious risks to purchasing medication online due to the anonymity of the web, where rogue actors have established sites to sell bogus medicine and steal identities. Therefore, groups such as the Canadian International Pharmacy Association (CIPA) and PharmacyChecker.com were established to credential websites linked with real pharmacies selling proper medicine and assist patients looking for cheaper good-quality medication.

US pharmacies and all major pharmaceutical companies always disliked Americans purchasing foreign pharmaceuticals since the former directly lost business and the latter wanted to maintain consistently higher prices on medicines in the US. The argument advanced by the pharmaceutical companies is that higher pricing leads to more research and development. While there is truth to this stance, higher prices harm millions of poor or underinsured Americans, who may forgo or not take their medication as often as prescribed to save money.

With a nod to this reality, historically the Food and Drug Administration (FDA) has allowed individuals to import a 90-day supply of most prescription medicines, even though the law forbids such importation. While importation is prevented primarily to inhibit price arbitrage, it is often argued that importation aids safety.[2]

Recently, due to the alarming increase in fatal opioid overdoses fueled predominantly from foreign sources, legislative efforts and policy have increased the powers of various agencies, including the FDA, to intercept and destroy medicine imports. Clearly the target is illegally trafficked narcotics, especially opioids. Yet other medicines, such as personal imports of life-saving medicines, may be prevented in the process, as companies seek to limit any potential liability and packages are stopped without much reason.[3]

Fortunately this new opioid law—known as the SUPPORT for Patients and Communities Act—includes a measure protecting those importing drugs for "personal or household use," putting into law, albeit not exhaustively, the sentiment that limited personal importation will be tolerated.[4] However, reports persist of the FDA interdicting drugs intended for personal use.[5] It is too early to tell how these recent policy measures are affecting drug imports systematically, but search engines and payment companies are clearly being pressured to limit people's ability to import medicine.

Specifically related to Bing, informed sources tell me that Microsoft has been pressured by the FDA and legislators to prevent the sale of opioids over the internet. The message is clear that the government's priority is preventing the sale of opioids rather than allowing access to medicines.

What Did Bing Do?

On November 12, Bing, Microsoft's internet search engine, announced a change in its policy on access to medicines via the web.[6] The search engine will now generate a pop-up warning whenever a user attempts to access a site that has been flagged by the National Association of Boards of Pharmacy (NABP) as appearing "to be out of compliance with state or federal laws or NABP patient safety and pharmacy practice standards."[7] Simply dispensing foreign medicines is sufficient to make the list.

Bing is trying to alert those seeking drugs from overseas of the potential dangers of such practices. There are numerous risks of buying pharmaceuticals online, ranging from bogus medicines to identity theft. However, as I have attested in the peer-review literature, buying from credentialed overseas sites can be done safely, at least in the general understanding of that word.[8] Purchasing pharmaceuticals can never be 100 percent safe, including those bought from brick-and-mortar pharmacies in the US. Nevertheless, the dangers of buying online remain, and US pharma and pharmacy interests have used those risks to scare people from buying online and alarm policymakers who have not legislated to explicitly allow such purchasing.

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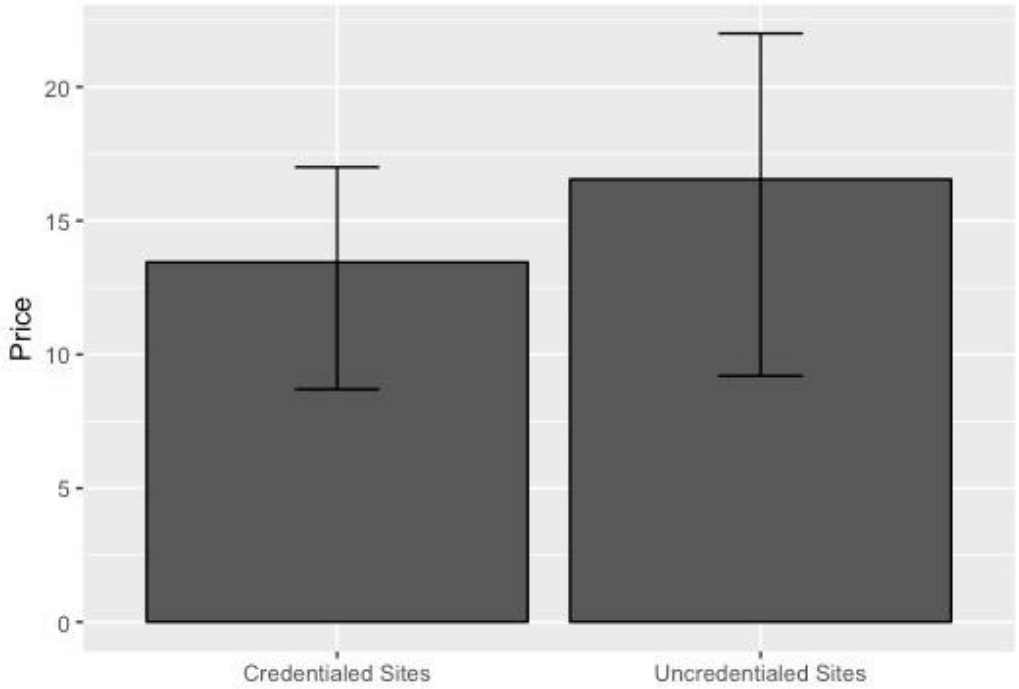
Convincing Bing to highlight the CIPA- and PharmacyChecker.com-credentialed sites with pop-up warnings represents a major conquest for pharma interests. One can argue that since these sites encourage folks to break the law (a law that is not enforced, but still a law), it is legitimate. Bing has bought into the NABP's dangerous self-interested argument that any overseas site, even if linked to a legitimate foreign pharmacy, is illegitimate for simply taking business from a US pharmacy. Using the NABP list of sites it deems unacceptable has led to a ludicrous and dangerous outcome, as a myriad of non-credentialed sites have no such pop-up warnings.

This report investigates the quality of a key medicine dispensed by sites with warnings and without warnings. In doing so, this report will evaluate the quality of Bing's warning system and offer commentary on the use of online notifications to ensure patient safety in purchasing pharmaceuticals.

Online Buying

I undertook a simple Bing search using the terms "Viagra" and "Canada," and a string of adverts and websites popped up. The foreign sites credentialed by PharmacyChecker.com or the CIPA (such as Canadian Pharmacy King) have a pop-up warning against them. But sites such as Canadian-pharmacyon.com,

Figure 1. Average Price of Viagra Obtained from Credentialed and Uncredentialed Sites



Source: Author.

which explicitly state that one can get prescription drugs without prescriptions and are not credentialed by any entity, have no pop-up warnings.

Using the same methodology as with previously published peer-review studies,[9] I sampled Viagra from credentialed sites with Bing pop-up warnings and from uncredentialed sites not displaying pop-up warnings. I bought the smallest samples possible from nine credentialed sites and 14 uncredentialed sites, primarily based on how someone might shop using a Bing search: The earlier an item appears in a search of "Viagra" and "Canada," the more likely it is to be purchased.

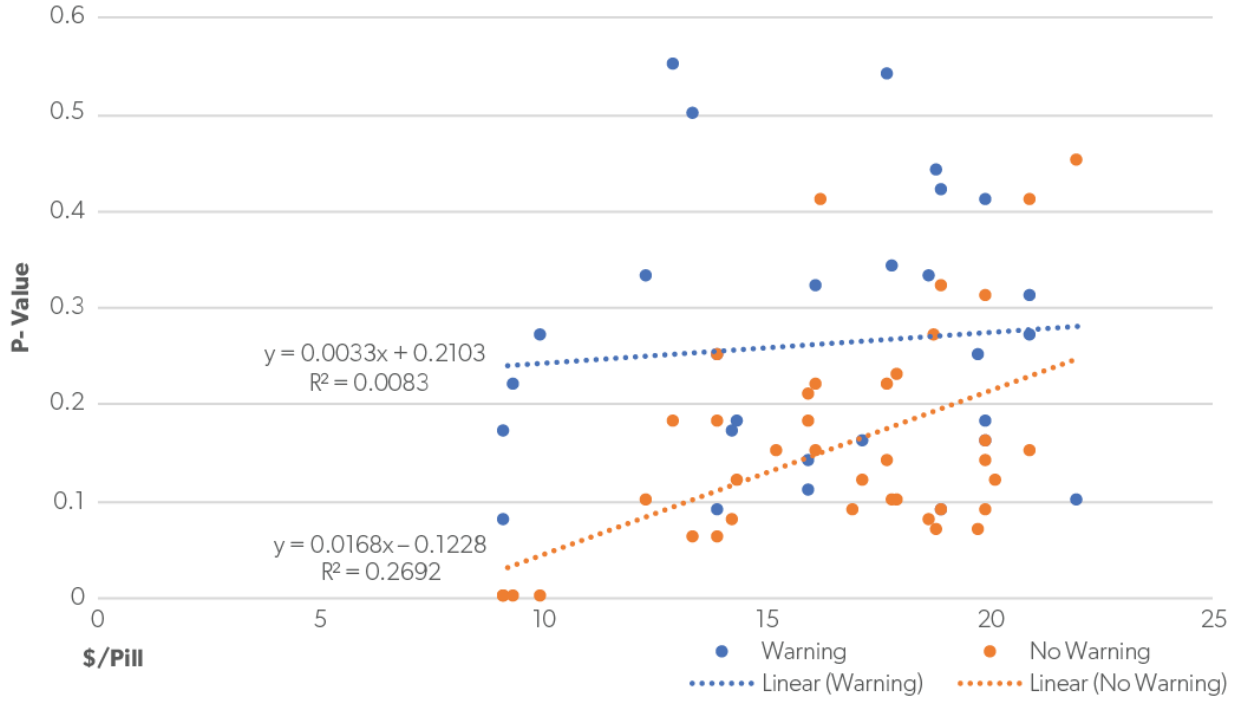
Using a handheld Raman spectrometer, I tested for authenticity as per previous research. Raman spectrometers are frequently used as a quick, reliable, and cost-effective way to differentiate between genuine and counterfeit drugs.[10] The device compares an unknown sample—in this case a pill—to a reference standard by comparing the frequencies of certain kinds of light that are scattered after the two substances have been illuminated with a monochromatic laser.[11] The device compares the resulting "spectra" from the scans, which generates a p-value denoting the probability that the difference between the reference standard and the sample is due to measurement uncertainty rather than the difference in molecular structure. Therefore, a p-value of greater than or equal to 0.05 would represent a pass result (i.e., any difference is due to measurement uncertainty), while a p-value of less than 0.05 would represent a failed result.[12]

Results

After testing several pills from each site, the nine credentialed sites yielded 28 results, and the 14 uncredentialed sites yielded 39 results. None of the samples from the credentialed sites failed, whereas four of the 39 samples from two of the uncredentialed sites were not authentic and appeared to be fake, displaying no correct spectra for Sildenafil (the active ingredient in Viagra).

In addition to the uncredentialed sites including fake medicines, on average they were about 25 percent more expensive. The average cost was $16.55 per pill (ranging from $9.20 to $22.00 per pill), whereas it was $13.45 (ranging $8.70 to $17.00 per pill) from the credentialed sites (Figure 1). The fake pills were at the cheaper end at $9.50 per pill. But as the saying goes, nothing is as expensive as a fake medicine. It does not work, and it might kill you.

Figure 2. Cost and Quality of Viagra



Source: Author.

These prices were then compared with US brick-and-mortar pharmacies, which from a quick online search averaged around $41.00 per pill. With pills bought from credentialed sites being a third of the price of those bought at US pharmacies, one can see why people buy online. The discount price from foreign sites is actually understated because I did not buy the cheapest per-pill deals but just the smallest sample size possible. People who buy in larger quantities could get pills at the lowest end of the range, well under $9.00 each.

Figure 2 shows the quality measurements (p-values) plotted against the price. Of the sites with a warning, the trend line is almost flat, implying that price has no relationship with quality. Within this sample, that makes sense. All the samples are from licensed pharmacies selling products, presumably identical Pfizer or Pfizer-licensed products.

However, the sites without a warning show a rising trend line and an R-squared with some explanatory power. The implication is that more expensive products are better quality, probably actual Pfizer products. Extrapolating from the trend line, anything cheaper than $10.28 a pill is likely to fail authentication, and anything below $7.30 is likely to have zero p-value and be a fake.

It is interesting that the failing products are cheaper. Web sellers (of drugs and probably most products) fall into two main camps: those that want repeat business and hence do the best job they can satisfying the customer (cheap, quality products reliably delivered) and those that want to make what they can from a customer now, not expecting their business again. These sellers may sell shoddy products or not even deliver the product after the money is taken. They obviously want to sell at high prices, but with competition from good sellers, they will probably price low to attract customers. So those selling fake products are likely to sell cheaply to attract buyers. This finding is particularly disconcerting with drugs because those looking online on overseas sites are by definition looking to save money and hence may go to the cheapest sources.

I noted in extensive prior research that fake drugs are usually priced similarly to the legitimate product they are copying, sitting literally alongside real drugs on shelves.[13] This was in order *not* to differentiate themselves from the market primarily because the vast majority of pharmacists are not complicit in their sale but are being duped too. But the unique characteristics of buying on the web—where sellers can be anonymous and where repeat

business may be less likely—can make the pricing different.

In earlier work on web purchasing, I saw some cheaper pricing of fake Viagra, but it was more pronounced in this latest sample.[14] Viagra is an unusual product in that it is in high demand but not often covered by insurance, and some men will not want to ask for a prescription. As a result, individuals may be more likely to buy from risky sources than they would for other pharmaceuticals. To confirm a pricing and quality bias, one would need to sample different types of drugs over time.

But from this small sample, one can conclude that someone going to Bing to find Viagra is being directed to less safe sites, some of which are selling fake products. That is not to say that those sites know they are selling bogus products. Often, sellers go to an intermediary, or an intermediary seeks them out, offering to sell cheaper versions of the product. Commercial buyers of these products should, on their customers' behalf, test the products, but often they will not go to the expense of doing so. This also gives them plausible deniability if the products end up being bogus. Such action is negligent, but sellers may genuinely not know whether they are selling a good deal or a dangerous fake.

Conclusion

One repeatedly hears of the dangers of buying online. When a respected search engine such as Bing warns one against a site, only a fool would buy from it. Yet Bing's policy is driving people away from sites selling authentic and cheaper Viagra and onto ones that sell potentially fake, more expensive products. The results may differ if one picked other medicines to sample. But Viagra is one of the most popular medicines to buy online, and it must at least represent a scenario of the dangers involved in Bing's policy.

Bing's policy to alert searchers of the possible dangers of buying medicine from foreign websites has backfired. Rather than encouraging safer purchasing of pharmaceuticals, the measure is driving consumers to uncredentialed sites that may be dangerous and did send me fake Viagra while advising consumers not to buy from credentialed sites with good track records. Bing has made a mistake and should rectify its policy immediately.

About the Author

Roger Bate is an economist who researches international health policy, with a particular focus on tropical disease and substandard and counterfeit medicines. He is a visiting scholar at the American Enterprise Institute.

Notes

1. Robin A. Cohen and Maria A. Villarroel, "Strategies Used by Adults to Reduce Their Prescription Drug Costs: United States, 2013," US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics, January 2015, https://www.cdc.gov/nchs/data/databriefs/db184.pdf; and Gabriel Levitt, "Fewer Americans Importing Medications in 2016: Good or Bad? Oh, and Happy New Year!," PharmacyChecker Blog, December 31, 2015, https://www.pharmacycheckerblog.com/fewer-americans-importing-medications-in-2016-good-or-bad-oh-and-happy-new-year.

2. Congress has passed laws, implemented by the FDA, that makes the personal importation of medicine illegal. But Congress applies exceptions. The Prescription Drug Import Fairness Act of 2000 was passed into law as Section 746 of an appropriations bill for the FDA and other agencies in 2000 (H.R. 4461). In this law, Congress articulates these findings: "Patients and their families sometimes have reason to import into the United States drugs that have been approved by the Food and Drug Administration ("FDA")." Prescription Drug Import Fairness Act of 2000, Pub. L. No. 106-387. Furthermore, the FDA's "Coverage of Personal Importation" says that "FDA personnel may allow entry of shipments when the quantity and purpose are clearly for personal use, and the product does not present an unreasonable risk to the user." US Department of Health and Human Services, Food and Drug Administration, *Regulatory Procedures Manual*, December 12, 2017, chap. 9, 23, https://www.fda.gov/ICECI/ComplianceManuals/RegulatoryProceduresManual/default.htm; and US Department of Health and Human Services, Food and Drug Administration, "Is It Legal for Me to Personally Import Drugs?," August 22, 2018, https://www.fda.gov/aboutfda/transparency/basics/ucm194904.htm.

3. See Chapter 3 of the SUPPORT for Patients and Communities Act, expanding the authority of Health and Human Services (through the FDA) to debar individuals importing controlled substances on the basis that they have engaged "a pattern of importing or offering for import. . . adulterated or misbranded" drugs. (Misbranded drugs include simply imported drugs.) SUPPORT for Patients and Communities Act, Pub. L. No. 115-271, https://www.congress.gov/115/bills/hr6/BILLS-115hr6enr.pdf.

4. Curiously, while the initial House version of the bill included the protection for personal importation, the language was dropped in the Senate version of the bill. See SUPPORT for Patients and Communities Act, Pub. L. No. 115-271, § 3022, https://www.congress.gov/115/bills/hr6/BILLS-115hr6enr.pdf; and SUPPORT for Patients and Communities Act, S.6193, 115th Cong., 27, https://www.congress.gov/115/bills/hr6/BILLS-115hr6eas.pdf. A Kaiser Family Foundation article noted that congressional staffers speaking on background stated the change was because senators "believed it was unnecessary." Adding further: "The FDA already has discretion to look the other way on personal imports and told lawmakers it has no intention of changing the policy." Michael McAuliff, "Buried in Congress' Opioid Bill Is Protection for Personal Drug Imports," Kaiser Health News, September 27, 2018, https://khn.org/news/buried-in-congress-opioid-bill-is-protection-for-personal-drug-imports/. While on the surface the comment may be true, the subtle change nevertheless stresses the political stakes involved.

5. Michael McAuliff, "Trump Administration Seizing Cheaper Medications from Canada and Other Countries," Tarbell, June 14, 2018, https://www.tarbell.org/2018/06/trump-administration-seizing-cheaper-medications-from-canada-and-other-countries/?ref=featured.

6. Bing Blogs, "Bing to Warn Customers About the Threats of Fake Online Pharmacies," November 12, 2018, https://blogs.bing.com/search/2015/08/06/bing-to-warn-customers-about-the-threats-of-fake-online-pharmacies/.

7. National Association of Boards of Pharmacy, "Not Recommended Sites," January 2, 2019, https://safe.pharmacy/not-recommended-sites/.

8. Roger Bate and Kimberly Hess, "Assessing Website Pharmacy Drug Quality: Safer Than You Think?," *PloS One* 5, no. 8 (August 13, 2010), https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0012199; and Roger Bate, Ginger Zhe Jin, and Aparna Mathur, "In Whom We Trust: The Role of Certification Agencies in Online Drug Markets," *B. E. Journal of Economic Analysis & Policy* 14, no. 1 (2013): 111–50.

9. See Bate and Hess, "Assessing Website Pharmacy Drug Quality."

10. Bate and Hess, "Assessing Website Pharmacy Drug Quality."

11. Mark R. Witkowski, "The Use of Raman Spectroscopy in the Detection of Counterfeit and Adulterated Pharmaceutical Products," *American Pharmaceutical Review* (January/February 2005), http://www.horiba.com/fileadmin/uploads/Scientific/Documents/Raman/aprraman.pdf.

12. Thermo Scientific, "Analytical Methods for Field-Based Material Identification and Verification: Probabilistic Evaluation vs HQI Similarity Assessment," 2014, https://assets.thermofisher.com/TFS-Assets/CAD/Application-Notes/TS-Pharma-pvalue-HQI.pdf; and Gurvinder Singh Bumbrah and Rakesh Mohan Sharma, "Raman Spectroscopy—Basic Principle, Instrumentation and Selected Applications for the Characterization of Drugs of Abuse," *Egyptian Journal of Forensic Sciences* 6, no. 3 (September 2016): 209–15, https://www.sciencedirect.com/science/article/pii/S2090536X15000477.

13. Roger Bate, *Phake: The Deadly World of Falsified and Substandard Medicines* (Washington, DC: AEI Press, 2014).

14. Bate and Hess, "Assessing Website Pharmacy Drug Quality"; and Bate, Jin, and Mathur, "In Whom We Trust."

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