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# Buying prescription drugs on the Internet: Promises and pitfalls

## ABSTRACT

Patients can save time and money by purchasing drugs from Internet pharmacies, but they can also end up with counterfeit or substandard medications. Online pharmacies bypass the safeguards of a doctor-patient relationship, creating a dangerous opportunity for prescription drug abuse and unchecked medication interactions and side effects.

## KEY POINTS

Online pharmacies have become a mainstream, multibillion-dollar industry that is likely to grow even more.

Many medications are cheaper online, but not all. Hidden costs include shipping and handling fees as well as online "cyberdoctor" consultations to obtain prescriptions.

Online pharmacies often provide prescriptions for patients despite clear contraindications.

Medications purchased online may be expired, made in substandard facilities, or even counterfeit.

Patients using Internet pharmacies should be advised to choose only sites with a Verified Internet Pharmacy Practice Sites (VIPPS) logo, indicating they have met standards set by the National Association of Boards of Pharmacy.

**S**INCE ITS BEGINNINGS, the Internet has held great potential for enhanced communication and commerce, as well as danger of misinformation and abuse. Such promises and pitfalls apply to Internet pharmacies: while offering patients savings and convenience, they also bypass the traditional doctor-patient relationship and its safeguards, may violate privacy, and may supply consumers with incorrect medications. As the Web expands, however, more patients are likely to use it to purchase medications. Health care providers should be aware of the advantages and disadvantages of Internet pharmacies and how to counsel patients on their use.

This article discusses the pros and cons of ordering medications online, explains the legal issues, and provides guidance on how to best use Internet pharmacies.

## INTERNET USE IS UBIQUITOUS

The Internet has become a major tool to empower patients<sup>1</sup>: accessing medical information is the sixth most common reason people use the Web.<sup>2</sup> The number of searches on MEDLINE (the US National Library of Medicine's site) increased from 7 million in 1997, when it became freely accessible to the public, to 120 million in 2003.<sup>3</sup> Although only a few million people used the Internet initially, an estimated 200 million people in the United States—70% of the population—did so in 2003,<sup>4</sup> and more people are using it all the time.



Internet pharmacies have also expanded. In early 1999, only a few Web sites sold medications; by the end of the year, 400 did,<sup>5</sup> and in early 2004, the US Food and Drug Administration (FDA) estimated that there were more than 1,000.<sup>6</sup> No one knows how many Internet pharmacies exist now, but searching the Web with the term “Internet pharmacy” via Yahoo or Google yields millions of hits.

Online pharmaceutical sales is a multibillion-dollar industry. Nearly \$2 billion worth of medications were sold online in 1999, and \$3.2 billion were sold in 2003, representing about 1.3% of the \$240 billion spent that year on medications in the United States. In 2005, 32% of online consumers (6% of total consumers in the United States<sup>7</sup>) shopped for medications and other health care products on the Web.<sup>8</sup>

Internet pharmaceutical sales are expected to grow to an estimated \$13.2 billion worth of prescriptions by 2007, about 4% of pharmaceutical sales in the United States. An additional 13% of US pharmaceutical sales are expected to involve online ordering with in-store pickup of medications.<sup>9</sup>

### ■ TYPES OF ONLINE PHARMACIES

Internet pharmacies are of four types:

- Extensions of pharmacy chains that offer a variety of online health information and products
- Independent pharmacies, which often use the Internet to try to compete with larger chains
- Mail-order pharmacies that use the Internet to facilitate the ordering process
- Pharmacies that operate exclusively online.

Each type of pharmacy provides somewhat different services and products, and may differ in aspects of privacy, security, payment methods, and verification of prescription authenticity.<sup>1</sup>

### ■ ONLINE PURCHASING OFFERS ADVANTAGES

Online pharmacies offer significant advantages to the consumer and to the supplier: many managed care organizations are turning

to online prescription plans as a means of providing better service at lower cost.<sup>10,11</sup>

Online purchasing is convenient to the consumer.<sup>12</sup> Drugs can be ordered at any time of day or night, and patients need not spend time on doctor visits when requesting refills. Direct mail delivery facilitates access for people living in remote rural areas and for those who otherwise have trouble getting to pharmacies.

Computerization and centralization of prescriptions could potentially reduce prescription errors and detect interactions between medications.<sup>4</sup> For some patients, anonymous access to medications offers another advantage.

### ■ ARE PRESCRIPTIONS CHEAPER ONLINE?

Prescription costs are rising 9% to 12% per year, constituting one of the fastest rising aspects of health care spending.<sup>13</sup> Retail prescription costs are increasing at twice the overall rate of national health care expenses.<sup>11</sup> Americans pay 60% more than the British and Swiss do for the same medications and two thirds more than Canadians do.<sup>14</sup>

Lower prescription costs are often cited as a major reason for using the Internet. Surveying only companies based in the United States, Consumer Reports found that patients can purchase five commonly prescribed medications on the Internet for 29% less than at local pharmacies.<sup>15</sup>

But savings may not extend to every medication: prices for some popular medications such as sildenafil and finasteride can actually be higher online.<sup>16,17</sup> Internet pharmacies can also add hidden costs to the consumer, such as shipping, handling, and processing fees. Extra costs can be applied to individual medications or to an entire order.<sup>18</sup> Prices that are 10% higher than local prices may actually end up costing 40% more after factoring in additional costs.<sup>16</sup>

**Americans pay two thirds more than Canadians do for the same drugs**

### ■ ‘CYBERDOCTORS’ OFFER VIRTUAL PATIENT CONTACT

Many Internet pharmacies use so-called cyberdoctors to determine the need for medications on the basis of online questionnaires.

Bloom and Iannacone<sup>16</sup> found that the average cost of an evaluation was \$70 (range \$20–\$90), which was more than the average price of a local office visit.

It is difficult to establish whether a cyberdoctor is a real person or merely a computer program designed to guide patients towards responses needed to justify a prescription. Few Web sites cite the credentials of the doctors performing online services. Some sites include disclaimers stating that the physicians may not reside in the same country as the patient or the pharmacy.<sup>17</sup>

The quality of service provided by cyberdoctors is questionable. In one study,<sup>19</sup> a researcher requested sildenafil, posing as a 45-year-old man with a history of heart disease and currently taking nitrates. Despite the obvious contraindications, one of the five cyberdoctors that were investigated actually prescribed the medication. Similarly, a fictitious 69-year-old woman with obesity, coronary artery disease, and hypertension, taking multiple medications that could interact with sildenafil, had no trouble obtaining the drug.<sup>20</sup> In another study, 100% of the polled cyberdoctors prescribed orlistat for weight loss to a fictitious patient with a body mass index of only 28, a level too low to warrant a prescription.<sup>21</sup>

#### ■ DOCTOR-PATIENT RELATIONSHIP BYPASSED

Purchasing medications from the Internet bypasses the traditional safeguards placed by the FDA, Congress, and health care providers, thereby placing consumers at risk.<sup>22</sup> About 20% of online pharmacies do not require prescriptions,<sup>23</sup> a practice that appears to be more common among Internet pharmacies based outside of the United States and Canada.<sup>24</sup> Patients can obtain almost any medication without medical records being kept,<sup>25</sup> leading to the likelihood that contraindications, side effects, and drug interactions will be overlooked.<sup>4</sup>

#### ■ DRUG ABUSE IS EASY

The second most common type of illegal drug use (after smoking marijuana) is the nonmed-

ical use of prescription drugs.<sup>26</sup> Drug abusers can now sit comfortably at their computers at home and avoid local pharmacies and doctors altogether.<sup>23</sup> The US Drug Enforcement Administration found 537 Web sites selling controlled substances; many used cyberdoctors instead of requiring a prescription.<sup>14</sup> Even potent synthetic opioids such as tramadol can easily be obtained online: one study showed that most of the advertised links on Google for that pain medication did not require any prescription.<sup>23</sup>

#### ■ WHERE ARE INTERNET PHARMACIES LOCATED?

Internet pharmacies are not always forthcoming about where they are located. Bloom and Iannacone,<sup>16</sup> in a study of 46 Internet pharmacies, found that only 5 (11%) would reveal their geographic location beyond any information offered on the Internet. It is possible for a Web site to be listed as being in one place but located elsewhere: CanadaRx, for example, is in Bermuda. Deceit about location raises concerns about the validity of a Web site and its source of medications.

#### ■ COUNTERFEIT AND SUBSTANDARD MEDICATIONS

There is no way to know where most online pharmacies obtain their medications and what substances are actually sent to patients: medications can be counterfeit, contain discontinued ingredients, or be illegal. The FDA estimates that, worldwide, more than 10% of medicines sold are counterfeit or substandard, a figure that may be as high as 25% in poor countries.<sup>27</sup> An analysis of pharmaceutical shipments seized by customs officials found that 67% were either not approved by the FDA or had been taken off the market because of safety concerns, 5% contained no active ingredients, and 28% contained controlled substances prohibited from being imported.<sup>14</sup> In another seizure of imported medications, 88% of the 1,153 drug products examined contained drugs that were not FDA-approved.<sup>28</sup>

Web sites are not required to state where drugs are manufactured, and fake labels and

**It is hard to tell if a cyberdoctor is a real person or a computer program**



packaging are easily constructed.<sup>29</sup> Terrorists could pose as legitimate Internet pharmacies and send toxic substances instead of real medications.<sup>30</sup>

Quality control in drug manufacturing varies widely between countries. More than 200 countries make drug products: one third have good regulatory controls in place, one third have controls but no enforcement, and one third have no controls.<sup>31</sup> Some Web sites deceptively advertise that their medications are “FDA-approved” but do not acknowledge that the drugs come from countries that may not meet FDA manufacturing standards.<sup>10</sup>

### ■ PRIVACY CONCERNS

Unregulated Internet pharmacies have a vast potential for violating privacy rights. Under the regulations of the Health Insurance Portability and Accountability Act (HIPAA), legitimate pharmacies must protect their patients’ privacy and must have mechanisms in place to help this process. On the Internet, pharmacies could make purchases public, leading to embarrassing revelations about patients’ health and medical problems. They could also sell their information to other companies, increasing Internet spam and e-mail schemes. The attraction of Internet anonymity is therefore balanced by this potential loss of privacy.

### ■ ONLINE IMPORTING FROM CANADA

In the first quarter of 2003, Canadian Internet sales of gastrointestinal medications increased by 73%, cardiovascular medications by 60%, and statins by 55% compared with the same quarter the previous year. Fueling the increase in the US-Canadian market is the desire by US consumers to reduce costs of medications and the fact that little evidence exists that legitimate pharmacies either break Canadian laws or endanger health.<sup>32</sup>

A recent study of 44 commonly purchased brand-name medications found that 41 were cheaper from Canadian Internet pharmacies than from major US pharmacy chains, with a mean savings of 24%. The three medications that were more expensive were for erectile dysfunction.<sup>33</sup>

The laws surrounding importing medications are complicated. The FDA has a “person-

al importation policy” that allows people to personally carry up to 3 months’ worth of medications from Canada with a valid prescription. However, directly importing medications from other countries using the Internet or by other means is illegal. Drugs may be exported by the original manufacturer and re-imported only by the same manufacturer.<sup>29</sup>

While the FDA still threatens to criminally prosecute Internet and mail-order pharmacies that violate the law, little evidence exists that these pharmacies actually harm consumers.<sup>29</sup> According to the US Government Accountability Office, medications purchased from Canada are as safe as or safer than those purchased in the United States.<sup>21</sup> Medications for use in the United States are increasingly manufactured in other countries; the sources for Canadian and US medications are often the same. Seventeen of the 20 largest drug companies produce their medications in Ireland because of tax incentives. If medications are made in Ireland, shipped to Canada, and purchased by US consumers, then the drugs are identical in quality to those purchased in the United States and no re-importation law is violated.

Because of the current political climate—with senior citizens importing drugs to save money—laws concerning drug importation from Canada are not strictly enforced.<sup>34</sup> Unless there is a crackdown, the practice is likely to increase.

Some companies, such as GlaxoSmithKline, have stopped shipping drugs to Canadian wholesalers that sell to online pharmacies because of suffering profits. This has resulted in calls for product boycotts by senior citizens.<sup>10</sup>

### ■ ATTEMPTS TO REGULATE INTERNET PHARMACIES

The FDA and drug manufacturers have issued consumer alerts to make people aware of problems with Internet pharmacies. The FDA Web site contains hints on how to spot and avoid health fraud and allows for reporting of suspicious sites. About 60,000 complaints are filed per month using this system.<sup>10</sup> On the FDA site, [www.fda.gov/oc/buyonline/others.html](http://www.fda.gov/oc/buyonline/others.html) is a buyer’s guide for purchasing medications using Internet pharmacies; and

**Worldwide,  
more than 10%  
of medicines  
are counterfeit**

TABLE 1

**Accredited online pharmacies\***

COMPANY	WEB SITE
Anthem Prescription	www.anthemprescription.com
Caremark.com	www.caremark.com
DrugSource, Inc.	www.drugsourceinc.com
Drugstore.com	www.drugstore.com
Familymeds.com	www.Familymeds.com
HOOK SUPERX, Inc. (CVS/pharmacy)	www.cvs.com
Medco Health Solutions, Inc.	www.medcohealth.com
Omnicare, Inc. (Care for Life)	www.careforlife.com
Prescription Solutions	www.rxsolutions.com
RxWEST Pharmacy	www.rxwest.com
Tel-Drug, Inc. (CIGNA)	www.teldrug.com
Walgreens Co.	www.walgreens.com

\*Pharmacies accredited by the National Association of Boards of Pharmacy

LIST OF PHARMACIES. VIPPS NATIONAL ASSOCIATION BOARDS OF PHARMACY. WWW.NABP.NET/VIPPS/CONSUMER/LISTALL.ASP. ACCESSED 1/20/06.

**Patients should buy drugs on the Internet only with great caution**

[www.fda.gov/ora/oasis/ora\\_oasis\\_ref.html](http://www.fda.gov/ora/oasis/ora_oasis_ref.html) lists international Web sites banned from sending prescriptions to the United States.

During the Clinton administration the FDA received \$10 million to investigate Internet pharmacies, enough to fund 100 agents.<sup>35</sup> Civil penalties of up to \$500,000 were established for selling prescription drugs without valid prescriptions. By December 2000, 400 Web sites had been evaluated for possible regulatory or criminal activity, with action taken against 49 and with another 40 under active review.<sup>36</sup> The US Federal Trade Commission has taken enforcement action against more than 800 Web sites due to false product claims or misleading information.<sup>4</sup> President Bush has targeted “rogue” Internet pharmacies in his national drug control strategy and is increasing law enforcement activities.<sup>37</sup>

Given the international nature of the Internet, it is important that other countries also take an aggressive stand on dangerous Internet pharmacies. Britain and Canada, facing similar problems as the United States, have also pursued and prosecuted illegal activities.<sup>38</sup> Britain does not allow individuals to import medications for their private use, and

the British Medicines and Healthcare Products Regulatory Agency (the equivalent of the FDA) is investigating Internet and foreign pharmacies for selling medications without prescriptions.<sup>39</sup> In Canada, one doctor was fined \$25,000 for countersigning prescriptions for US patients,<sup>40</sup> and several physicians have been incarcerated.<sup>10</sup>

### Professional accreditation

Professional organizations are also trying to reduce problems surrounding Internet pharmacies. Normally, pharmacies are regulated by state law, but Internet pharmacies bypass such laws.

The Verified Internet Pharmacy Practice Sites (VIPPS; <http://nabp.net/vipps/intro.asp>) accreditation program was started in 1999 by the National Association of Boards of Pharmacy to ensure that Internet pharmacies maintain good dispensing practices, maintain patient privacy, and are reviewed and inspected periodically as are traditional pharmacies. The strict 17-point program criteria also ensure authenticity and security of prescription orders, quality assurance, and consultation with pharmacists.<sup>1</sup> Only 12 sites have been approved so far (TABLE 1).<sup>41</sup> Canada's






National Association of Pharmacy Regulatory Authorities has contracted to use VIPPS certification in Canada; pharmacies shipping medications into the United States are ineligible.<sup>29</sup>

The American Medical Association and the National Association of Boards of Pharmacy have drafted guidelines for their members for acceptable standards of Web-based behavior and practices. These policies require health care professionals to write prescriptions only if they have had face-to-face rather than online contact with a patient.<sup>4</sup>

The North American Pharmotherapeutic Consultants Association is a newly formed professional organization based in Vermont consisting of Canadian, Mexican, and American physicians and pharmacists who wish to help guarantee the quality assurance standards of Internet pharmacies.<sup>29</sup> They charge \$35,000 for

a 2-year accreditation term and allow consumers to check their Web site for accredited Internet pharmacies. However, our recent attempts to find their Web site have been unsuccessful. The Canadian International Pharmacy Association ([www.ciparx.ca/index.html](http://www.ciparx.ca/index.html)) also provides an accreditation program and lists Internet pharmacies on their Web site that have joined the program.

## ■ ADVISING PATIENTS

Patients should be advised to purchase medications on the Internet only with great caution. They should avoid cyberdoctor evaluations and Web sites that do not require prescriptions. Patients should use VIPPS-approved Web sites and report any problems to the FDA. 

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