



PHARMACY CORNER

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# The Cross-border Procurement of Mexican Pharmaceuticals in El Paso, Texas; A Review of Primary Literature

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## Introduction

The use of Mexican pharmaceuticals by United States (US) consumers has been discouraged by the FDA due to safety concerns. However, continued practice of self-prescribing and procurement of medications from Mexico by US residents has been documented in various regions across the US.<sup>(1-4)</sup> Concerns with the use of these products stem from literature that suggests that some products purchased in Mexican pharmacies might have an inadequate amount of medication or a complete lack of active ingredients, which may result in appropriate treatment of the disease or condition for which the medication is being used.<sup>(5)</sup> Additionally, there is data to suggest that patients who import these medications may not report this practice to their healthcare provider.<sup>(6)</sup> This could lead to an incomplete drug profile review by the provider, putting patients at risk for drug-drug and drug-disease state interactions. Additional concerns in individual patient care resulting from the purchase of these pharmaceuticals also include a lack of drug monitoring and the possibility of duplicate therapies.<sup>(7)</sup> Ultimately, self-prescribing could also affect others through the inappropriate use of antibiotics and related increase in resistance.<sup>(3)</sup>

There are several factors that may lead to the procurement of Mexican pharmaceuticals. The fluidity of the US-Mexico border region may contribute to the practice of cross-border utilization of medical services.<sup>(8)</sup> In 2009, Texas was the state with the most passenger crossings in the United States. The bureau of transportation statistics (BTS) recorded over 72 million US-Mexico border crossings by passengers in personal vehicles in Texas. Of these crossings, 18 million (approximately 1.5 million per month), were recorded in El Paso, Texas.<sup>(9)</sup> In addition to frequent border crossings, other factors such as reduced cost and easier access to pharmaceuticals also likely play a role. Furthermore, other cultural factors related to people's values and belief systems may further increase the likelihood of the purchase and use of Mexican pharmaceuticals.

Reports in the literature have attempted to describe the purchase and consumption of Mexican pharmaceuticals and the type of medications involved. Because of the concerns that arise from self-prescribing and drug importation, it is important to quantify the type and amount of Mexican pharmaceuticals that are being procured by El Paso residents living on the US-Mexico border and to analyze why residents choose to import pharmaceutical products. The objective of this review was to examine recently published primary literature about the cross-border procurement of Mexican pharmaceuticals in El Paso, Texas.

## Methods

### *Study identification and retrieval*

A literature search was conducted to include abstracts and studies published in Elsevier and similar databases since the year 2000. The following combination of search terms was utilized: unsafe Mexican medications El Paso; counterfeit prescription drugs Mexico El Paso; cross-border medications El Paso; US residents purchasing medications in Mexico; Mexican pharmaceuticals in El Paso; Mexican contraceptives in El Paso; and Mexican contraceptives across the border since 2000.

### *Article inclusion criteria*

To be eligible for inclusion in this review, studies must have met the following criteria: address self-prescribing and/or Mexican pharmaceutical procurement by United States residents or the reasons for cross-border procurement, being conducted in El Paso, Texas and/or Ciudad (Cd.) Juarez, and be written in English or Spanish. Studies that focused on illegal substances, that were written in another language, or published before the year 2000 were excluded.

### *Data abstraction and synthesis*

Data from articles meeting inclusion criteria were synthesized qualitatively in order to identify the following relevant outcomes: prevalence of cross-border procurement, types of products imported, reasons for cross-border purchases, factors correlated with cross-border purchases, and attitudes/beliefs regarding drug importation.

## Results

After a literature search was conducted, only six studies and two abstracts met both inclusion and exclusion criteria and were included for the purposes of this review.

### *Prevalence of Cross-Border Procurement*

Two studies examining the extent of cross-border procurement of Mexican pharmaceuticals by El Paso, Texas residents were found. In general, both studies support the idea that about one third of the population of El Paso reportedly purchases Mexican medicines. A binational study by Rivera et al. administered to residents of El Paso County a twenty-four item questionnaire regarding cross-border health utilization over the 12 months preceding the survey.<sup>(10)</sup> A total of 500 participants in El Paso were interviewed in person in either English or Spanish. Approximately 33% (N=165) of El Paso residents reported acquiring pharmaceuti-

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cal products across the border over the past year. A second study by Byrd et al. used a cross-sectional, random-digit, 40-item telephone survey of El Paso County residents to determine what fraction of residents seek health care services in Mexico and what kind of services they seek.<sup>(11)</sup> Investigators completed 2,560 interviews and determined that about 32% of El Paso County residents seek health care services in Mexico. Of these, 82% of respondents reported visiting a pharmacy. Thus, this was the most common health service sought by El Paso residents.

### *Types of Products Imported*

Three studies examining the types of Mexican pharmaceutical products imported that were found. Of these, one article assessed drug importation as a whole, while the other two articles focused on contraceptives and anabolic steroids. The first study by Byrd et al. found that the top three categories of drugs imported by El Paso County residents were antibiotics, analgesics, and allergy medications.<sup>(11)</sup> Other categories of drugs imported by at least 10% of survey respondents included skin creams, blood pressure medicines, and contraceptives. Less popular categories of drugs that were also named in this study included diabetes and arthritis agents, hormones, heart medications, and fertility drugs.

**Table 1.** Medications bought in Mexican pharmacies near the US-Mexico Border, Oct.–Nov. 2007<sup>(11)</sup>

Medication Category	Percent (%)
Antibiotics	79.1%
Pain Pills	57.8%
Allergy	31.0%
Skin Creams	30.4%
Blood Pressure	12.5%

Note: Survey responders may have purchased more than one drug type.

A study by Potter et al. focused on the cross-border purchase and use of contraceptives. A postpartum survey administered between May 1996 and April 1997 at Thomason Hospital in El Paso, Texas, analyzed the type of birth control methods (BCM) used by a subset of multiparous women (N= 1312) in a two-year interval preceding the survey.<sup>(12)</sup> The survey found that 39% of the women who reported using contraceptives purchased these products in Mexico. These included oral contraceptives, injectables, intra-uterine devices (IUDs), and condoms. Thirty out of 40 (75%) women reported purchasing IUDs in Mexico. Additionally, 127 out of 236 (53.8%) women purchased injectable contraceptives in Mexico, and 193 out of 472 (40.9%) women purchased oral contraceptives in Mexico.

Street et al. analyzed anabolic steroid use in a study in which an 18-item questionnaire was administered to private gymnasium users (n= 516) in El Paso.<sup>(13)</sup> Of those surveyed, approximately 11% reported using anabolic steroids, with pharmacies in Cd. Juarez being the most prevalent source of these products. Among partici-

pants, the most popular injectable steroid was nandrolone decanoate, while the most common oral steroids were methenolone acetate and fluoxymesterone. The authors noted that some subjects purchased veterinary steroids in Cd. Juarez.

### *Reasons for Cross-Border Procurement of Medications*

Two qualitative and one quantitative study analyzed the reasons why El Paso residents acquire Mexican medications. Cost was cited as the main reason for which El Paso residents purchase pharmaceutical products across the border in two different studies. Byrd et al. listed the top five reasons for acquiring Mexican pharmaceuticals as: lower cost (86.5%), convenience (77.1%), having a Mexican prescription (69.0%), no need for a prescription (55.4%), and additional potency or strength of medicines from Mexico (51.8%).<sup>(11)</sup> Other reasons given for acquiring Mexican medications included better quality of Mexican medicines (42.5%), Mexican pharmacist recommendation (45.0%), and unavailability of the medicine in the United States (30.2%). The second study by Potter et al., which focused on oral contraceptives (OCs), interviewed 1,046 women living in El Paso to examine why they chose to obtain oral contraceptives across the border in Mexico.<sup>(14)</sup> Decreased cost was the most commonly cited advantage, but participants also saw advantages in purchasing OCs without a prescription and in larger quantities, as well as the convenience of having someone else obtain the OCs.

While these studies examined the influence of cost qualitatively, Fullerton et al. quantified price differences for brand name medicines between El Paso, Texas and Cd. Juarez, Chihuahua.<sup>(15)</sup> Two-tailed t-tests demonstrated that patients can save an average of \$389, or about 29%, annually. The largest and smallest recorded annual cost savings for select brand medications were \$1,615 for Nexium® and \$11 for Premarin®. Although most products were cheaper in Cd. Juarez, there were some notable exceptions which included: quinapril (Accupril®), fexofenadine (Allegra®), tadalafil (Cialis®), venlafaxine (Effexor ER®), vardenafil (Levitra®), and sildenafil (Viagra®). The results of this study suggest that substantial, statistically significant cost-savings can be achieved by purchasing brand-name pharmaceutical across the border in Cd. Juarez. One limitation of this study was the small sample of pharmacies.

### *Factors Correlated With Cross-Border Purchases*

Factors associated with an increased familiarity with Mexico, such as a history of residing in Cd. Juarez, categorizing oneself as Mexican, frequent border crossings, and having completed some education in Mexico correlated positively with making cross-border pharmaceutical purchases.<sup>(10,12,14)</sup> A lack of health insurance also correlated positively with seeking Mexican pharmaceuticals.<sup>(10,11)</sup> Being older and female were additional factors associated with seeking cross-border services and medications in Juarez.<sup>(14)</sup> Surprisingly, language preference did not influence the likelihood of seeking health-care goods and services across the border.<sup>(10)</sup>

### **Discussion**

Roughly one third of El Paso residents seek pharmaceutical products across the border.<sup>(10,11)</sup> While antibiotics are the most commonly purchased agents, imported products range from anti-hypertensives to pain killers and hormones.<sup>(11-13)</sup> Purchasing medicines without a prescription and in larger quantities may be conve-

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nient; but, ultimately, cost seems to be the driving force behind drug importation.<sup>(11, 14, 15)</sup> Factors that are associated with familiarity with Mexico and a lack of health insurance are also positively correlated with seeking pharmaceutical services across the border.<sup>(10-12, 14)</sup>

### Implications

It is possible that the products that El Paso residents purchase in Mexico are of a substandard quality. The FDA has already warned consumers that these products may contain no active ingredients or inadequate amounts. Furthermore, many of the medications purchased along the border such as antibiotics, analgesics, and steroids also carry serious warnings, guidelines for use, and monitoring parameters that patients in El Paso may not be aware of and may not be adhering to. When this happens, both safety and efficacy are compromised. The assistance of licensed medical professionals is needed to make sure medications are used safely and appropriately.

To address questions regarding safety and efficacy, health care providers must have frank discussions with their patients about what pharmaceuticals they are taking and where they are purchasing them. Even if an immediate threat does not emerge from the use of Mexican pharmaceuticals, providers should obtain more complete drug profiles for their patients. This should help decrease the risk for future drug-drug and drug-disease state interactions.

### Limitations

The current validity of existing prevalence estimates of cross-border procurement may be in question due to the potential impact of new passport requirements and recent drug-cartel related violence in Cd. Juarez. It is currently not known if the number of El Paso residents who seek pharmaceuticals across the border has declined due to these recent developments. The requirement for obtaining a US passport implemented on June 1, 2009 and a rise in drug-cartel related violence in Cd. Juarez may have led to a possible decrease in the number of annual border crossings. It would be important to investigate whether these issues have had an impact on the prevalence of cross border procurement of pharmaceuticals. Lastly, it is not known how health care reform in the U.S. and recent efforts by the Mexican government to limit the sale of antibiotics to prescription-only status may lead to future changes in this practice.

### Conclusion

El Paso residents do seek pharmaceutical products across the border, and until we know more about how recent developments have changed self-prescribing and procurement practices, healthcare providers still need to actively seek this type of information. In order to optimize health outcomes related to medication use, providers should routinely ask patients about all pharmaceutical, herbal, and supplement products they are using and where they obtain them.

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