

Kristine Voon  
International Pharmacy Practice  
Dr. Kenneth Hale and Dr. Helen Kim  
3 December 2014

*Pharmacy Practice in North America  
Canada, Iceland, Mexico, Puerto Rico, and the United States of America*

Pharmacy practice around the world is currently at many different stages of advancement. In the United States alone, pharmacy practice has evolved so much over the past 200 years, and if one looks at what the profession is like in other countries, it is almost like looking at a snapshot in time of the US's own pharmaceutical timeline. This paper will focus on five countries: the United States (and Puerto Rico), Canada, Iceland, and Mexico. Some countries seem to be more behind in practice, mirroring where the US was 50 years ago, while other countries seem to be even more advanced, a glimpse into what pharmacy practice will be like in the US's not-too-distant future. A brief overview of the demographics, pharmacy workforce, education, and licensing/regulations in each country may help lend some understanding to why pharmacy practice is the way it is in those areas of the world. And while some countries may still be in the early stages of development, there are definitely efforts that are being made to advance the profession of pharmacy in those areas and in the most advanced countries as well. Clearly, pharmacy is an ever-growing field, and it seems as though pharmacists will be catapulted into an even more clinical role in the health care system in the future.

*I. Background and Demographics:*

As seen in Table 1 (appendix), out of the five countries, the United States is the largest in terms of population, with 316 million people, while Iceland is the smallest, being home to only 323,000 denizens.<sup>1</sup> In countries with a higher percentage of people living in an urban setting, access to healthcare is easier to come by. Referring to Table 1, Mexico has the lowest percentage of people living in an urban area (77%),<sup>2</sup> which could make it difficult for people to seek out health care from a physician or pharmacist. In larger cities in Mexico, Western medicine is quite common, but in more rural settings, Mexicans often resort to their own traditional practices or home remedies (e.g. herbal or spiced teas) to cure their ailments, sometimes in combination with Western medicine or alone.<sup>3</sup> If these home remedies are found to be ineffective, patients may then seek out the help of *yerberos* (herbalists), *sobadores* (massage therapists), or *curanderos* (holistic healers who focus on social, physical, spiritual, and psychological aspects of health).<sup>3</sup> Furthermore, with over 89% of the population identifying with Catholicism, many people turn to prayer or their church in times of support or need.<sup>3</sup> With an increase in use of herbal medications in this portion of the population, it is imperative that pharmacists be aware of this practice and that they are trained in the safety, efficacy, and interactions of herbals with other medications that the patient may be on. Canadians face a similar problem, with 80% of the

population living in an urban setting. In fact, the majority of people live within 100 miles of the US border. This leaves much of the rest of the country as just empty landmass, but there are still people who live in these remote areas. For some of these people, that means they live more than 200 miles away from their nearest community pharmacy. The Canadian government has responded by providing grants to encourage community pharmacists to work in these remote locations, and currently, 6% of practicing pharmacists work in rural settings.<sup>4</sup> Interestingly, there has been an interest in rolling out automated dispensing machines to help increase access to these patients in need. Essentially, these are like medication “vending machines,” and technicians would be restock them with the most common maintenance medications; patients would then scan in their prescription, a pharmacist from a remote location would review the prescription, print a label, and then counsel the patient over the phone.<sup>4</sup> The use of these automated machines is still somewhat controversial, though, bringing up issue of patients delaying treatment by using these machines instead of seeking care. However, in these situations, it may be the best alternative to no health care at all.

When it comes to how much each country spends on healthcare, it is clear from Table 2 that the United States is an outlier, spending a whopping 17.9% of our total GDP on healthcare with no real improvement in the health parameter of life expectancy at birth (76 years) when compared to the other countries. Iceland has the best outcomes in terms of life expectancy (83 years), spending only 9.1% of its total GDP on healthcare.<sup>5,6</sup> There are probably a multitude of reasons explaining why this disparity exists, but one large contributing factor may be the prevalence of obesity in the United States (44% of the population).<sup>7</sup> Obesity can lead to other chronic diseases such as cardiovascular disease, diabetes, etc. A huge way pharmacists can contribute to their communities is to encourage healthy eating and exercise habits. In community pharmacies in Canada and the United States, there are pharmacist-led clinics, services, and programs to help patients achieve their weight loss goals. In a study published by the *Journal of the American Pharmacists Association* in May 2014, a 6-month pharmacist-led weight loss program was carried out at a Walgreens pharmacy in Phoenix, Arizona and showed promising results. Pharmacists held 14 private, one-on-one, face-to-face encounters with each patient, and by the end of the study, all 12 patients achieved weight, with a mean weight loss of about 10 pounds,  $P < 0.001$ .<sup>8</sup> Although this was a small study, it still goes to show that pharmacists are easily accessible health care providers who can really make a difference in a person’s overall health care and life. While these services may not be as well-developed (or developed at all) in Mexico and Iceland, it seems as though steps are being made towards producing educated professionals who can perform clinical work as well.

## *II. Training, Education, and Licensure:*

In the United States, there are about 130 pharmacy schools. In 1950, the first PharmD program was created at the University of California at Francisco (UCSF).<sup>12</sup> Now, one must graduate with a PharmD degree in order to practice, but there are still pharmacists who practice

with a B.S. Most PharmD programs are 6 or 8 years long and focus heavily on clinical skills and direct patient care. In fact, 5% of the curriculum consists of “Introductory Pharmacy Practice Experiences” (IPPEs) and 25% of “Advanced Pharmacy Practice Experiences” (APPEs). There are also M.S. and PhD programs if one is interested in research, but one cannot be a registered pharmacist with these degrees. After completion of a PharmD degree, one may decide to pursue a one- or two-year residency in order to refine their skills as a clinical pharmacist. These residencies are offered in different specialties, and they are becoming more and more sought-after and competitive, but they are not a requirement yet. It is the vision of The American College of Clinical Pharmacy (ACCP) that by 2020, “pharmacists providing direct patient care will have the knowledge and skills developed through the completion of an accredited pharmacy residency program.”<sup>13</sup> Currently, to become a pharmacist in the US, one must receive a Doctor of Pharmacy (PharmD) degree from an AACP-accredited school and pass the North American Pharmacist Licensure Examination (NAPLEX). In 48 jurisdictions, one must also pass the Multi-State Pharmacy Jurisprudence Exam (MPJE), which is a multiple-choice exam that combines federal- and state-specific questions regarding the legal aspects of pharmacy practice (Arkansas, California, Guam, Puerto Rico, Virginia, and the Virgin Islands do not participate in the MPJE and have their own law examination requirements). In a survey conducted by the International Pharmaceutical Federation (FIP) in 2012, out of the 109 countries that were surveyed, the United States was second only to India in the amount of graduating pharmacy students that year, graduating about 12,719 students.<sup>9</sup> In 2000 to 2008, there was a shortage in the number of practicing pharmacists in the US, so many PharmD programs increased their class size, and more colleges and universities established new PharmD programs. The mission for these PharmD programs is to train highly-educated and clinically-trained pharmacists, which is why about 30% of the curriculum is dedicated to either introductory or advanced pharmacy practice experiences (IPPE/APPE) outside of the classroom, in addition to didactic coursework.

In Canada, this same emphasis on clinical training is present. To become a practicing pharmacist in Canada, one may possess either a Bachelor’s degree in pharmacy or a PharmD. Currently, the vast majority of Canadian pharmacists are practicing with a Bachelor’s degree, while a small percentage is practicing with a PharmD. With more and more PharmD schools being developed in Canada, they will likely see a shift in what type of training practicing pharmacists will have in the coming years, with PharmDs becoming the majority. To become licensed, one must then pass a national board exam (except for Quebec, where different assessments are required by the provincial pharmacy regulatory authority).<sup>13</sup> The national board exam consists of two parts: Part I is a multiple choice section regarding pharmacology and therapeutics, and Part II is an OSCE component (Objective Structured Clinical Evaluation), in which pharmacists must demonstrate their communication, clinical skills, and professional judgement in a variety of real-life situations. In these OSCEs, there are 8-20 stations, and the student is presented with a problem that must be solved within about 7 minutes. In the interactive stations, one may be presented with a problem regarding therapeutics, communication, ethics, etc. In non-interactive stations, pharmacy students must demonstrate their competencies in

checking prescriptions, making dosage calculations, etc.<sup>10</sup> The Pharmacy Examining Board of Canada (PEBC) developed an OSCE in order to assess and identify weaknesses in language proficiency, communication, and problem-solving skills of entry-level pharmacists. Interestingly, over 90% of Canadian graduates pass the multiple-choice and OSCE parts of the exam on the first try, compared to only 30-50% of international graduates.<sup>10</sup> This implementation of the OSCE component for licensure highlights the fact that the Canadian licensing system has an advanced vision for what pharmacists are capable of and should be doing in the healthcare system. While the US does not currently require an OSCE for licensure, it would not be surprising if it were required in the future.

Typically, in the PharmD curriculum, students are taught to be more than just “dispensers,” and are taught to really embrace their role as a clinical pharmacist in the healthcare team. In countries such as Mexico and Iceland, however, this role is not as well-developed, most likely because they are still working on improving their pharmacy curriculum. In Iceland, formal teaching of pharmacy began in 1957 at its only pharmacy school, at The University of Iceland, and it wasn’t until the year 2000 that the pharmacy department split off from the Faculty of Medicine to become its own independent Faculty of Pharmacy.<sup>11</sup> The university offers a *candidatus pharmaciae* program, which consists of a B.S. portion (90 credits), and an M.S. portion (60 credits). Sixty percent of the lesson time is devoted to lecture, while the remaining 40% is devoted to practical work.<sup>11</sup> Many of their courses are similar to those found in PharmD programs in the U.S., including pharmacokinetics/pharmacodynamics, therapeutics, as well as courses on ethics and how to communicate with patients. When creating their *candidatus pharmaciae* program, Iceland looked to other Nordic schools as well as the European Union requirements on pharmacy education, so that students who graduate from The University of Iceland with a Cand. Pharm. degree can also practice in other countries that are part of the EU.<sup>11</sup> They also offer Master’s and PhD programs, but no PharmD program as of yet. Most classes are taught in Icelandic, but textbooks are commonly in English, so it is almost imperative that one be bilingual. The education mostly revolves around teaching and research. In fact, there has been an increase in the number of international students who travel to Iceland to pursue their PhD.<sup>11</sup> Because of this, the pharmaceutical manufacturing companies in Iceland have been booming. In a statement posted on the university’s website in 2006, their “goals and action plan for 2011” mainly focused on research and teaching; there was no mention of expanding the clinical role of the pharmacist just yet.<sup>11</sup> While Iceland is currently growing in terms of pharmaceutical manufacturing, it is still trying to catch up, and it probably won’t be too long until pharmacists in the community or hospital setting will start to receive even more clinical training that will help them advance their skills to take even better care of their patients. Just because these countries do not have a PharmD program does not mean that their practicing pharmacists are not well-educated. Rather, with more training, this will empower the pharmacist to take on new roles in patient care and to expand their scope of practice.

In Mexico, four-year Bachelor's degree programs in pharmaceutical chemistry and biology exist at a few universities, although an exact number of programs could not be found. Here, too, the PharmD degree has yet to be implemented. Schools (like La Universidad de La Salle) offer classes such as pharmacology and therapeutics, pharmaceutical technology, and even forensic chemistry. In parts of Mexico, if law officials need help with medications that may be related to a forensics case, pharmacists may be called upon for their knowledge, a niche that is very different from the roles of a pharmacist in the US! The Mexican Council for Accreditation of Pharmaceutical Education states that its main objectives are to: "promote and encourage all actions related to education and training in the pharmaceutical sciences" and to provide "continuous improvement of the quality of pharmaceutical education in Mexico." So although there is no PharmD program yet, there seems to be a vision for clinical pharmacy practice in the future.

### *III. Scope of Practice:*

When it comes to the scope of practice in these five countries, the pharmacist's role varies vastly. In the 1960s in the United States, organizations such as the Indian Health Services and the Veterans Health Administration began to give pharmacists the authority to work with other healthcare professionals regarding Collaborative Drug Therapy Management (CDTM) for some of the most common disease states such as hypertension, hyperlipidemia, anticoagulation, diabetes, etc.<sup>14</sup> The prescriber (often a physician) and the pharmacist will sign an agreement stating that the pharmacist may work under protocol to perform patient assessments, order certain laboratory tests, administer drugs, and are authorized to initiate/monitor/adjust drug therapy for patients. Aside from the Indian Health Services and the Veterans Health Administration, certain hospitals and clinics authorize physician-pharmacist CDTM agreements, but laws vary from state to state. According to the CDC, at least 36 states have these CDTMs as of December 31, 2012.<sup>15</sup> In at least 21 states, pharmacists are authorized to initiate therapy; they may order or interpret laboratory tests related to drug therapy management in 31 states; in at least 38 states, they are allowed to modify therapy; and in at least 6 states, they are allowed to discontinue therapy.<sup>15</sup> Within the US, some states give their pharmacists more rights than others. For example, in New Mexico, all pharmacists can conduct CDTM for emergency contraception, vaccinations, and even tobacco cessation.<sup>15</sup> Pharmacists are one of the most easily accessible healthcare professionals, and many states realize this and have granted pharmacists the authority to help disseminate their knowledge to the public to improve patient care. Additionally, when New Mexico became the 9th state to pass CDTM legislation in 1993 with the Pharmacist Prescriptive Authority Act (PPAA), they also created a new position called the "pharmacist clinician." During school at the University of New Mexico, students undergo training similar to physician assistants to learn how to do proper physical assessments. They must complete a 60-hour board approved physical assessment course and 9 months of observed clinical experience, which is incorporated into the UNM's curriculum.<sup>16</sup> If pharmacists can learn to do simple physical assessments, this would free up a lot of time for the physician to see more patients and

spend more time with them. Many states see the value of pharmacists as a part of the healthcare team, and one of the main challenges today is the fight for provider status, and for pharmacists to be recognized as a healthcare provider by the public as well as the federal healthcare system. In October 2013, California was the first state to grant pharmacists with provider status with Senate Bill 493, a huge step for the profession.<sup>17</sup> Hopefully the rest of the nation will follow soon.

For my research on Puerto Rico, I interviewed pharmacist Jaime Capestany, who is a clinical coordinator at Mt. Carmel Hospital East's anticoagulation clinic as well as a faculty member at The Ohio State University; he grew up in Puerto Rico and says that pharmacy was a relatively unknown profession in the beginning, but it has recently grown in popularity and awareness. The University of Puerto Rico is a big medical center for all of the Caribbean. It offers a PharmD program that is primarily research-focused, and there is more emphasis in industry. Professors may teach in Spanish and English, so students must be bilingual. Many US Pharmacy chains are also present in Puerto Rico, but independent pharmacies (usually family-owned, called "traditional pharmacies") are more common. Students must pass the NAPLEX, and pharmacies must follow the same rules and regulations as in the US, as they are under US law, but many "off-the-record" practices in independent pharmacy anyway. For example, if the pharmacist has an established relationship with a patient who comes in complaining of cold symptoms, the pharmacist may sell him/her a small supply of amoxicillin or another antibiotic. This transaction is performed on a cash-only basis, and only if the pharmacist has a good relationship with the patient. Jaime says this practice is still fairly common in independent pharmacies, with a variety of medicines, but mostly antibiotics. Of course, controlled substances are still given by prescription only. Puerto Rico also has pharmacists working in a VA setting (Veterans Affairs - Caribbean Health Care System), where pharmacists execute MTMs and common ambulatory care practices, much akin to the US.

In Canada, the practice of pharmacy seems to be slightly more advanced than in the US. Pharmacists can provide a wide range of services, most of which are government-funded and include: smoking cessation, weight management, anticoagulation clinics, "MedsCheck," and palliative care clinics.<sup>18</sup> Additionally, most of the thirteen provinces (except Yukon and Nunavut) allow some extent of prescriptive authorities for their pharmacists. Pharmacists in Alberta seem to have the most authority, being able to provide emergency prescription refills, renew/extend prescriptions, change drug dosages/formulations, make therapeutic substitutions, initiate prescription drug therapy, and order and interpret lab tests.<sup>18</sup> In fact, these basic prescribing rights have already proved their worth when, in 2013, a flood in Calgary drove victims out of their homes, forcing them to leave their medications behind. Fortunately, the community was able to avoid chaos and disaster because the pharmacists were there to prescribe or extend their prescriptions so that people did not have to go without them. Additionally, community pharmacists in Alberta, Saskatchewan, Manitoba, and Nova Scotia can even prescribe OTC or prescription-only medications for minor ailments/conditions including cold sores, mild eczema, oral thrush, heartburn, skin rash, fungal skin infections, yeast infections, and

minor sleep disorders.<sup>19</sup> These minor ailments are less serious medical conditions that do not require lab or blood tests, and pharmacists are required to notify the patient's primary care physician afterwards. In these provinces, pharmacists are considered legal prescribers, and the patient has the right to present the prescription to the pharmacy of his/her choice.<sup>19</sup> Still, going to the pharmacist for any of these conditions saves the patient time and money and can build trust in the pharmacist-patient relationship. Other provinces are currently working on granting pharmacists this right. Clearly, pharmacy practice in Canada is very similar to the United States, but it is also more advanced in ways.

Pharmacy practice in Mexico, however, is vastly different from practice in the United States. Many drugs which are prescription-only in the US (such as Lipitor, Viagra, some beta-blockers, etc.) can be purchased over-the-counter at most Mexican pharmacies. In fact, many Americans cross the border into Mexico in hopes of obtaining these medications for a fraction of the cost of what they would pay for them in the US. However, in 2005, the FDA warned the public about the issue of counterfeit drugs in Mexico. One study showed that the drug Evista (raloxifene) sold at a Mexican pharmacy had no active ingredient.<sup>20</sup> Some reports indicate that illegal products made up to 10% of the pharmaceutical market in Mexico.<sup>21</sup> Antibiotics used to be OTC as well, but patients would end up buying the wrong antibiotic, or purchasing a supply that was not a sufficient course of therapy, thus leading to an increase in drug-resistance patterns. Finally, in 2010, antibiotics were made prescription-only.<sup>22</sup> When it comes to regulations, there are none that dictate who can own a pharmacy. Mexican law does require a pharmacist (known as a "químico farmacobiólogo" or "QFB") to work a few hours a week at pharmacies where controlled substances are sold, but mostly it is the clerks who are left to run the pharmacy. The QFBs are usually trained to work in a lab or for industry, and the ones who do work in pharmacies usually have more administrative roles. The pharmacy clerks require only a secondary education and work mostly unsupervised. In one study conducted from August 2007 through January 2008, researchers wanted to ascertain the role and expertise of these clerks.<sup>22</sup> They visited 32 pharmacies along the US-Mexico border over a span of five months and observed the interactions between patients and clerks, and then they interviewed the clerks themselves about their education and training. They found that 82% of the clerks had a secondary school education, 7% had a primary school education only, and that 11% received technical/university training.<sup>22</sup> When the researchers asked the clerks where they learned how to manage medicines, 91% said that they learned from clerks, who also never received formal training themselves (7% learned through courses, and 2% learned through a university degree). Interestingly, 88% of all employees wore a white coat (despite their level of training), but only 60% of them felt "well-" or "very-well qualified" to advise clients on medications.<sup>22</sup> Despite these very lax laws in Mexico, there are objectives put out by the National Pharmacists Association of Mexico (Asociación Nacional de Farmacias de México) to promote more training for dispensing drugs. On their website, their vision was to eradicate the concept of the "dispenser" and to spread national health programs to Mexican society and to draw attention to the pharmacy. Their objectives state that they strive to promote professionalization of pharmacy

services, to promote a more ethical market, and to promote more rational practices in handling and dispensing of medications.<sup>23</sup> While the situation for pharmacy practice is not ideal in Mexico, changes are coming, albeit slowly.

The profession of pharmacy is evidently different among these five countries, and it is exciting to see it grow and expand into its full potential. Each country is in its own stage of development, and even in the most developed countries, there is still room for growth. By examining pharmacy practice around the world, we can all learn from each other to further advance the profession as a whole. Pharmacists are one of the most accessible healthcare members and can play a huge role when it comes to taking care of the patient. While some countries have already figured this out, others are still on their way to realizing just how big of an impact a pharmacist can make on a person and on society as a whole.

## Appendix

Table 1.

### *Population and Percent Urban Population in Each Country*

<b>Country</b>	<b>Population<sup>1</sup></b>	<b>Urban Population<sup>2</sup></b> (population living in a town of 2,000 or more)
USA	316 million	78%
Mexico	122 million	77%
Canada	34.5 million	80%
Puerto Rico	3.6 million	99%
Iceland	323,000	94%

Table 2.

### *Comparison of %GDP Spent on Health, Life Expectancy, and Obesity*

<b>Country</b>	<b>% Total GDP Spent on Health (2010)<sup>5</sup></b>	<b>Life Expectancy (Years, Males, 2011)<sup>6</sup></b>	<b>% Obese (Males, BMI <math>\geq</math> 30, 2012)<sup>7</sup></b>
USA	17.9%	76	44%

Mexico	6.2%	72	30%
Canada	10.9%	80	26%
Puerto Rico	N/A	N/A	N/A
Iceland	9.1%	83	19%

#### References:

1. “Health expenditure, total (% of GDP) - worldbank.org” *The World Bank*. Web. 2 September 2014. <<http://data.worldbank.org/indicator/SH.XPD.TOTL.ZS>>
2. “Urban Population (percent of total population living in urban areas) - kff.org” *The Henry J. Kaiser Family Foundation*. Web. 2 September 2014. <<http://kff.org/global-indicator/urban-population/>>
3. Centers for Disease Control and Prevention. Web. 5 September 2014. <<http://www.cdc.gov/tb/publications/guidestoolkits/ethnographicguides/Mexico/chapters/chapter2>>
4. Côté L, Normandeau M, Maheux B, Authier L, Lefort L. Collaboration between family physicians and community pharmacists: opinions of graduates in family medicine. *Can Fam Physician*. 2013;59(9):e413-20.
5. “Total Expenditure on Health - kff.org” *The Henry J. Kaiser Family Foundation*. Web. 2 September 2014. <<http://kff.org/global-indicator/total-expenditure-on-health/>>
6. “Life Expectancy (male) - kff.org” *The Henry J. Kaiser Family Foundation*. Web. 2 September 2014. <<http://kff.org/global-indicator/life-expectancy-male/>>.
7. “Male Prevalence of Obesity - kff.org” *The Henry J. Kaiser Family Foundation*. Web. 2 September 2014. <<http://kff.org/global-indicator/male-prevalence-of-obesity/>>.
8. Harmon M, Pogge E, Boomershine V. Evaluation of a pharmacist-led, 6-month weight loss program in obese patients. *J Am Pharm Assoc* (2003). 2014;54(3):302-7.
9. “Global Workforce Report, 2012.” *International Pharmaceutical Federation*. [http://www.fip.org/files/members/library/FIP\\_workforce\\_Report\\_2012](http://www.fip.org/files/members/library/FIP_workforce_Report_2012). 6 September 2014.
10. “Objective Structured Clinical and Performance Examinations (OSCE and OSPE) for Licensure. *Pharmacy Examining Board of Canada*. <https://www.nodakpharmacy.com/pdfs/OSCEandOSPE.pdf>. 6 September 2014.
11. “Pharmaceutical Sciences - english.hi.is” *University of Iceland*. Web. 12 September 2014.

- <[http://english.hi.is/school\\_of\\_health\\_sciences/faculty\\_of\\_pharmaceutical\\_sciences/front\\_page](http://english.hi.is/school_of_health_sciences/faculty_of_pharmaceutical_sciences/front_page)>
12. "Doctor of Pharmacy (PharmD) - pharmacyschool.usc.edu" - *USC School of Pharmacy*. Web. 12 September 2014.  
<<https://pharmacyschool.usc.edu/programs/pharmd/pharmdprogram/>>
  13. "Postgraduate Year One Pharmacy Practice Residency Equivalency." *American College of Clinical Pharmacy*. *Pharmacotherapy* 2009;29(12):1493-1494.  
<<http://www.accp.com/docs/positions/positionStatements/paper013>> 12 September 2014.
  14. Giverson S, Yoder S, Lee MP. *Improving Patient and Health System Outcomes through Advanced Pharmacy Practice. A Report to the U.S. Surgeon General*. Washington, DC: Office of the Chief Pharmacist, U.S. Public Health Service; 2011.
  15. National Center for Chronic Disease Prevention and Health Promotion, Division for Heart Disease and Stroke Prevention. *State Law Fact Sheet: Select Features of State Pharmacist Collaborative Practice Laws*. Division for Heart Disease and Stroke, December 2013. [http://www.cdc.gov/dhdsp/pubs/docs/Pharmacist\\_State\\_Law.PDF](http://www.cdc.gov/dhdsp/pubs/docs/Pharmacist_State_Law.PDF). 12 September 2014.
  16. "Pharmacist Clinician Information." Web. 14 September 2014. <[http://www.nm-pharmacy.com/Pharmacist\\_Prescribing/Pharmacist\\_Clinician/pharmacist\\_clinician.htm](http://www.nm-pharmacy.com/Pharmacist_Prescribing/Pharmacist_Clinician/pharmacist_clinician.htm)>
  17. "California Pharmacists Association." Web. 14 September 2014.  
<<http://www.cpha.com/Advocacy/Pharmacist-Provider-Status>>
  18. "Pharmacists' Expanded Scope of Practice - pharmacists.ca" *Canadian Pharmacists Association*. Web. 5 September 2014.  
<<http://www.pharmacists.ca/index.cfm/pharmacy-in-canada/scope-of-practice-canada/>>
  19. "Minor Ailment Assessments - nbpharma.ca" *New Brunswick Pharmacists' Association*. Web. 5 September 2014. <<http://nbpharma.ca/minor-ailment-assessments>>
  20. United States. U.S. Food and Drug Administration. *Counterfeit Drugs Purchased in Mexico*. 10 May 2005.  
<http://www.fda.gov/Safety/MedWatch/SafetyInformation/SafetyAlertsforHumanMedicalProducts/ucm151048.htm>. 14 September 2014.
  21. World Health Organization. *Counterfeit Medicines*.  
[http://www.who.int/medicines/services/counterfeit/impact/ImpactF\\_S/en/index1.html](http://www.who.int/medicines/services/counterfeit/impact/ImpactF_S/en/index1.html). 14 September 2014.
  22. Homedes N, Ugalde A. *Mexican pharmacies: benefits and risks for border residents in the United States of America and Mexico*. *Rev Panam Salud Publica*. 2013;33(3):196-204  
<http://www.scielosp.org/pdf/rpsp/v33n3/a06v33n3>. 14 September 2014.
  23. Asociación Nacional de Farmacias de México. Web. 14 September 2014.  
<<http://www.anafarmex.com.mx/>>