Full Length Research Paper

The opportunities and challenges to introduce pharmaceutical care in Cuba

Martínez Sánchez* and Alina de las Mercedes

International University of La Rioja, Spain.

Accepted 11 April, 2013

As with many countries across the globe, professional pharmacy is moving from a product orientation (dispensing medications) to a focus on patient care in Cuba. Such transformations are very difficult, especially for developing nation. To alter the roles and responsibilities of pharmacists, Cuba is beginning to enhance existing practice settings, first with revamping educational programs. The main change is the introduction of pharmaceutical care as the professional practice mode. Pharmacy curriculum now has experiential training to provide students with the new knowledge, skills, and abilities required for pharmaceutical care. The Cuban health successes in raising the overall health status of the population have led it to become a model for other developing nations. Using national data and the most recent figures from the Cuban National Institute of Statistics, this assessment of Cuban health care and its new pharmacy practice model notes the transformations being carried out in the pharmacy services, along with improvements in pharmacy education. An analysis of barriers in the context of the Cuban health system is provided.

Key words: Cuba, pharmaceutical care, health system, pharmacist.

INTRODUCTION

By the early 1990s, the pharmaceutical care (PC) model was adopted to emphasize that the role of the pharmacist involves “the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient's quality of life” (Hepler, 1989; Glen, 2007).

Many research articles show the impact of pharmaceutical care in pharmacy practice and education (Stoner et al., 2000; van Mil et al., 2004; Berenguer et al., 2004; King and Fomundam, 2010). In developed countries, the practice of pharmaceutical care has been established. Hospital and community pharmacists are offering pharmaceutical care services to their patients. However, implementing pharmaceutical care is a complex process and yet, many pharmacists complain that this transformation is not happening quickly enough, or going far enough. If all pharmacists are expected to universally deliver pharmaceutical care, they should adopt practice standards that provide meaning to the term and enable a holistic view of patient care. The answer to a fundamental question on whether the standards should be consistent regardless of various practice settings is that although the goals of pharmaceutical care exist independent of practice setting, the specific content of standards may vary from setting to setting (Erah and Nwazuoke, 2002).

In Cuba, as in other countries around the world, the pharmacy profession has moved from a product orientation (dispensing medications) to a patient focus. The main change currently affecting practice is the introduction of pharmaceutical care as a professional model. Pharmaceutical care is a patient-centered, outcome-oriented, contemporary pharmacy practice that requires the pharmacist to work in concert with the patient and the patient’s health care providers to promote health, prevent disease, and assess, monitor, initiate and

*Corresponding author. E-mail: saudade680227@yahoo.com.
modify medication use so that pharmacotherapy is safe and effective (Strand et al., 2004). Given the public nature of the health care system in Cuba, the government has adopted initiatives to encourage pharmacists to apply this new professional practice; thus, pharmaceutical care was considered in Cuban pharmacy legislation in 2005 (MINSAP, 2005). However, according to Ramalho de Oliveira et al. (2011), pharmaceutical care practice is scarce and not systematic in Cuba. The analysis of Cuban pharmacists’ contexts of practice could explain this phenomenon. Similarly, there are no legislation or pharmaceutical policies regulating the provision of pharmaceutical care services (Ramalho de Oliveira et al., 2011). At the same time, recent changes in Cuban Pharmacy Care toward ensuring a greater contribution of pharmaceutical services for quality health improvements have generally gone undocumented (Reed, 2000).

Therefore, this paper focuses on the strengths and vulnerabilities of the Cuban Health System to implement PC practice. Pharmaceutical services and its new trends toward patient centered care practice are analyzed to provide insights for developing recommendations for a PC implementation and integration policies appropriate for practice in all health care setting.

**METHODOLOGY**

This paper is part of a research project aimed at improving education in pharmacy, and it has been approved by the Cuban Ministry of Science, Technology and Environment, under the auspices of the University of Oriente, Santiago of Cuba (Cuba). Using national data and the most recent figures from the Cuban National Institute of Statistics (2010, 2011), this assessment of Cuban health care and its new pharmacy practice model notes the transformations being carried out in the community pharmacy setting, along with improvements in pharmacy education. An analysis of barriers in the context of the Cuban health system is provided in an overview of current trends that have linked a national network of pharmacies. To analyze such barriers, the domains presented by the International Pharmaceutical Federation (FIP) in studies on implementing pharmaceutical care in Europe were used, namely, barriers to resources, barriers related to attitudes and opinions, and barriers related to education and skills. Recent materials published about the current pharmaceutical care practice situation in Cuba were reviewed. The analysis here shares the pharmaceutical care emergence in Cuba and assesses its barriers, for learning by other developing nations.

**RESULTS AND DISCUSSION**

**The Cuban health care system**

Cuba’s population of 11 million (in 2010) has enjoyed remarkable gains in health status due to the effectiveness of its healthcare system. The political, social, and economic dimensions in health were prioritized almost a half century ago with equity in the allocation of health resources being established. The Pan American Health Organization (PAHO) reports: "By and large, infectious and parasitic diseases...decreased sharply...[and] diseases for which there are no vaccines or whose transmission is difficult to interrupt" are covered by monitoring programs (PAHO, 1986). A high level of health achievement and consumer satisfaction has been achieved today with Cuban social policies, coupled with synergies from broader social interventions in the society. Cuba’s population is well-educated, with free public education to the highest levels. Cuba has enjoyed very high literacy rates, compared to all the other Caribbean and South American countries.

Some infectious diseases were wiped out in Cuba; although, Cuba’s aging population (11% in 2010) faces greater numbers of chronic degenerative disease due to the increases in longevity in the population, as in all nations around the world. Infant mortality rates in Cuba are 4.9/1000 births compared to 6/1000 live births in the United States (CIA, 2011). An estimated 37,041 Cuban physicians and other health workers have visited 77 countries in such medical brigades (Millman, 2011). When these health professionals work for national authorities abroad, they can earn needed foreign exchange revenues. Many medical exchanges served as this nation’s development aid to poor, struggling nations. The Latin American School of Medical Science in Havana is perhaps the world’s largest medical school with about 10,000 students, all of whom are foreigner (Diplomat, 2007). Most come from Latin American countries, but the enrollment today also includes 91 Americans who were unable to enter U.S. medical schools. In 2010, the Latin American School of Medicine in Havana, Cuba (ELAM, Spanish acronym) announced the graduation of 34 American students. Currently, there is a total of 113 US graduates. This fact forced the institution to obtain accreditation of the Medical Board of California (Web Reference, 2012).

The Cuban population receives free preventative, curative, and rehabilitation services from routine medical attention and dentistry through hospital care with highly sophisticated medical technologies financed out of the state budget. All necessary diagnostic testing and drugs are provided free of charge to pregnant women and to persons receiving outpatient care in certain programs. Family out-of-pocket expenditures may include drugs prescribed for outpatient treatments, hearing aids, dental and orthopedic apparatuses, wheelchairs, crutches, and other similar articles, along with eyeglasses. Prices for these items remain low, also being subsidized by the state at a cost of 4,230,938,600 pesos (376.44 pesos per capita) in 2008 (Human Development Report, 2010).

Of course, Cuban doctors and other health professional earn much less than their counterparts up north. This is a significant contribution to containing the costs of health care. The cost per day in a US hospital is nearly $2000,
versus an average inpatient day in Cuba that is $5.49 (Investor's Business Day, 2012). Cuba spends 9.9% of its gross domestic product on its healthcare system, comparable to France (8.7%), Germany (8%), and 18% for the US, but higher than Latin American countries (Bolivia 3.4%, Ecuador 2.3%, Jamaica 2.4%). Cuban health expenditures (2007) were $193 per capita, which makes Cuba one of the lowest in the western hemisphere (Dresang et al., 2005). The population growth rate ranged from 0.3 to 1% annum, while its life expectancy for a while remained close to many developing countries (Health Expenditure, 2007). Life expectancy in Cuba is 75.1 for men and 79.2 for women. Table 1 shows medical staff from the Ministry of Public Health as of December 31, 2010.

### Cuban pharmaceutical services: Clinical pharmacy and pharmaceutical care

Contributing to Cuba's effectiveness in primary care is its provision of pharmacy services which have become an important aspect of drug policy. The overall objectives of national drug policy are aimed at ensuring equitable availability and affordability to essential drugs, in addition to promoting therapeutically sound use and economically efficient drug utilization. The latter is the responsibility of pharmacists, thus the ongoing effort at upgrading toward pharmaceutical care. Cuba currently has 2,117 pharmacies in varied distribution with a national average of 18.34 pharmacies per 100,000 inhabitants. This is a small range as compared to the provincial capitals in Spain (values 21.6 to 72.5), some provinces of Cuba (e.g. Ciego de Avila and Guantanamo) have indices of 22.17 and 21.05 per inhabitants, respectively, which are values similar to the highs of Switzerland (22.41) and the United Kingdom (20.64) (Fernandez and Fernandez, 2005). Established in 1991, the National Drugs Program is to ensure more rational use of pharmaceuticals, thereby improving the related quality of medical care. In 1994, the program was reformulated with measures requiring a medical prescription for most drugs; regulating prescriptions written by doctors according to their medical specialty; assigning patients to drug distribution units in their area of residence; strengthening the work of the local pharmacotherapeutic committees; and maintaining regulations on the distribution of consumer products intended for long-term or lifelong use. A special effort has been made to revise the WHO Essential Drug List, which every nation should adopt. Cuba reduced the number of active principles to 343 distributed among 29 drug classes with 439 dosage forms. Traditional and natural medicinal products used by the populace are included. The official drug control center is responsible for ensuring that products meet international quality standards (GMP and GSP). The 1996 National Health System of pharmacoepidemiology strategy was created as a national network for evaluating and controlling rational drug use in each territory.

Substantial state investment and accelerated training of engineers and scientists promoted Cuban biotechnology to establish itself in the global market (Everson, 2007). Ernst and Young (2005) put exports of biotech products at US$300 million, including several innovative vaccines; genetic engineering is progressing also. A deep product pipeline adds to some 100 patents already registered, with another 500 patents throughout the world. Collaborations are established with Canada and Great Britain, among a number of emerging economies and developing nations. Cuban research also prioritizes developing affordable vaccines for diseases affecting poor populations, including typhoid fever and cholera, a fundamentally needs-driven, rather than market-driven approach. Cuba also produces generic drugs, including human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS) anti-retroviral, selling them to developing countries at a fraction of the price sold by transnational (Everson, 2003). Within the health team, the pharmacist's clinical role is to advise on aspects of pharmacotherapy, including drug information for patients and health team members. Given this new role, scientific rigor is necessary amongst the professional pharmacy staff, including direct supervision of drug therapies in patients; drug information service; drug delivery systems; programs of advice, guidance and education for staff and patients; and promoting rational drug use (Martínez-Sánchez, 2011). Although clinical pharmacy is actually taught in Cuban universities, it could be improved by taking into account aspects such as the insufficient attention given to the clinical component into the so-named: "Model for the Pharmaceutical Practitioner" and the lack of a curricular conception that highlights the importance of the methods used by professionals to solve the most general and common problems in professional activity. Clinical function lack adequate treatment when judging our pharmacist’s qualification.

Therefore, because there is no clinical practice, pharmacists do not receive pay for these services, the clinical pharmacy is not a specialist, and has no official appointment, he/she is simply a pharmacist appointed to perform those functions. In Cuba, like other countries, the clinical pharmacy movement has arrived at the universities, but it has not gone beyond its borders (Martínez-Sánchez, 2003). The basic principles of modern Cuba's educational system are that it is free, public, and secular. The professional, ideological, and cultural levels of graduates is seen as an indication of success in the Cuban educational enterprise (WHO, 2009). Three universities offer the Bachelor of Science in Pharmacy (BSc Pharm) degree. The curriculum includes...
basic science courses and specialized coursework in pharmacy. According to Cuban economic and social reality, the mission of the pharmacy profession is twofold, namely, to provide medicines to populations with growing health care needs and to help people obtain the best outcomes from medication therapies; hence, directly improving public health. One of the main aims of pharmacy education in Cuba is to achieve the balance between, and integration of, the enabling sciences, applied pharmaceutical sciences, social sciences, and clinical education (Sánchez, 2010). Similar trends have been described in pharmaceutical education in the USA; Cuba also includes the development of leadership attributes, critical thinking skills, societal responsibility, and social and emotional intelligence into the pharmacy curriculum.

Moreover, in Cuba, extra- or co-curricular activities focus on serving communities surrounding universities and colleges.

Government initiatives to encourage pharmacists to apply this professional direction began with the Cuban Pharmacy Legislation in 2005. As to curricular changes, several pharmaceutical care courses have students discussing this new model and indentifying differences from previous practice models. Offering students better opportunities to develop clinical skills during time at the university has pharmacy educators instilling in their students a high level of motivation, commitment, and the self-confidence in order for them to assume responsibility for improvement of drug therapy outcomes in patient populations.

Despite efforts so far in generalizing the practice of pharmaceutical care, it is far from standardized and not yet embraced by the majority of practicing pharmacists today. Pharmacist’s role continues mainly devoted to activities not directly related to patient care, while pure clinical roles in the practice of pharmaceutical care remain limited. Such is to be expected, as usually health authorities, as well as health care teams, are applying pharmaceutical care experimentally (Lores, 2009).

### Barriers in the path toward pharmaceutical care

All new concepts confront barriers and challenges, and the concept of pharmaceutical care is no exception. Although there are many different environments in which pharmaceutical care is provided within the practice settings (e.g., hospital and community pharmacy settings), the barriers experienced by the pharmacist are often shared among these different settings. Due to the scarcity of published studies on current pharmaceutical care in Cuba and the barriers to its implementation, the analysis is based on the few published studies on pharmaceutical services, especially services related to clinical pharmacy and pharmaceutical care.

### Barriers to resources

Some authors have described and classified barriers for implementing pharmaceutical care; lack of resources is one of these cares (Van Mil, 2000; Ngorsuraches and Li, 2006). Pharmacists from different backgrounds and environments need to find out what their difficulties are and prioritize the problems that need to be solved first.

For example, in developing countries, severe resource limitations seem to be one of the main barriers to overcome (Uema, 2008). A study by Megret and Dias (2010) identified lack of trained staff and lack of space on pharmacies as barriers to provide clinical services to patients. Other study by Reyes (2012) at the hospital setting showed lack of software for medication assessment, and lack of protocols or consensus report for treatments as contradictions in the paths toward pharmaceutical care practice (Reyes, 2012). Other study by Moure (2003) showed lack of personal resources as barrier to pharmaceutical care practice in Havana city. These findings are consistent with previous studies related to barrier to pharmaceutical care practice (Sreelalitha and Vigneshwaran, 2012; Berenguer and La Casa, 2004; Lounsbery and Green, 2009).

### Table 1. Medical staff from the Ministry of Public Health as of December 31, 2010

<table>
<thead>
<tr>
<th>Human resource</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctors</td>
<td>70,594</td>
<td>71,489</td>
<td>72,416</td>
<td>74,552</td>
<td>74,880</td>
<td>282,248</td>
</tr>
<tr>
<td>Family Physicians</td>
<td>33,769</td>
<td>33,221</td>
<td>32,548</td>
<td>32,289</td>
<td>34,261</td>
<td>36,478</td>
</tr>
<tr>
<td>Dentists</td>
<td>10,559</td>
<td>10,751</td>
<td>10,887</td>
<td>11,234</td>
<td>11,572</td>
<td>12,144</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>2,753</td>
<td>2,891</td>
<td>2,939</td>
<td>2,962</td>
<td>2,993</td>
<td>2,956</td>
</tr>
<tr>
<td>Nurses, auxiliary nurses technicians</td>
<td>89,462</td>
<td>94,512</td>
<td>97,800</td>
<td>107,761</td>
<td>106,436</td>
<td>103,014</td>
</tr>
<tr>
<td>Assistants</td>
<td>94,286</td>
<td>114,152</td>
<td>126,966</td>
<td>139,113</td>
<td>133,788</td>
<td>87,628</td>
</tr>
<tr>
<td>Total</td>
<td>267,649</td>
<td>293,795</td>
<td>311,008</td>
<td>335,622</td>
<td>329,669</td>
<td>282,248</td>
</tr>
</tbody>
</table>

(a) Doctors and dentists correspond to the total of registered professionals. The rest of the staff includes personnel working in the Ministry of public health. (b) Including graduates in nursing. (c) Including dental technicians, pharmacy, laboratory, x-ray, dental assistants and other technical means of the health authorities. (c) Including graduates in nursing.
Barriers related to attitudes and opinions

Efforts to better understand the lack of advancement in pharmacy practice have generally focused on barriers to practice change, and indeed many barriers have been identified. Previously identified barriers to practice change may represent only observable aspects of an underlying pharmacy culture resistant to change. An examination of pharmacy culture will provide mechanisms for the development of culturally specific change initiatives (Rosenthal, 2010). Culture is a dominant force in shaping any profession. Culture can be understood as a "patterned system of perceptions, meanings and 'shared values' about a 'profession' which facilitates sense making amongst a group of people sharing common experiences" (Bloor and Dawson, 1994). There are few studies published in this area carried out in Cuba. A study by Dupotey (2011), to reveal pharmacists’ roles in the health care system through the eyes of physicians and nurses in community and hospital settings in Santiago de Cuba showed lack of pharmacist’s time, lack of time of nurse or physician, underutilization of pharmacist as medication expert and ethical trouble in interprofessional communication as barrier to establish professional relationship with pharmacist. According to Dupotey (2011) in Cuba, there have been recently research studies for the implementation of pharmaceutical care programs in various community and hospital services, but it has not yet been identified at the social barriers that limits the spread of this practice, based on perceptions of patients, pharmacists and other health professionals. Currently, he is developing a research project in Santiago de Cuba, with the aim of establishing a strategy for the implementation of pharmaceutical care in the territory, from the perception and attitudes of patients, pharmacists, managers and general health. In the aforementioned project, mixed quantitative and qualitative methodologies were used to determine how different social groups that are linked to pharmacy practice, perceive to pharmacists; on the other hand, it emphasized the different clinical services, their level of satisfaction with these, the main activities made with the health team, from the perspective of all involved (Ramalho de Oliveira and Dupotey, 2008).

Barriers related to education and skills

With pharmaceutical care approach, the pharmacist requires knowledge concerning the patient, drug, and disease and skills necessary to identify drug-related needs of a patient (Hepler, 2004).

Cuba is grappling with the need to expand, enhance, and improve existing education programs for pharmacy students, in light of expanding roles and responsibilities for pharmacists. Accordingly, some topics related to pharmaceutical care were introduced to incorporate social pharmacy subject in the Cuban pharmacy curriculum. Understanding that social pharmacy is an interdisciplinary discipline that enables pharmacists to act, take part in, and take responsibility for drug matters at a societal level (Sorense, 2003), this initiative was introduced to provide students with more opportunities and exercises to improve communication competence, critical thinking, problem solving, and analytical and ethical reasoning. The new discipline includes three subjects: pharmacy services (includes community and hospital pharmacy and experiences in ambulatory, inpatient, and managed-care environment), management and special pharmacy services (includes pharmaceutical care practice), and ethics in pharmacy (includes marketing, knowledge of drug distribution, health care delivery systems, ethical principles pertaining to professional practice). This is however, only the first academic step towards teaching pharmaceutical care in Cuba.

The intention is to continue improving the course activities in order to offer students better opportunities to develop pharmaceutical care skills during their time in university. This represents a challenge for pharmacy educators; they must be encouraged to implement support for these new roles into pharmacy education, by instilling in their students a high level of motivation, commitment, and the self-confidence required to assume responsibility for improvement of the drug therapy outputs in patients. Similar curricular changes, developing the concept of pharmaceutical care, have taken place in Chile (Ruiz and Pinilla 2002). Likewise, pharmacy programs in Canada train individuals to provide and promote excellence in patient focused care, based on the philosophy of pharmaceutical care (Austin and Ensom, 2008).

Conclusion

The structure, functions and mission of the Cuban health system are a significant stronghold for the development of the pharmacy profession, recognizing the contribution of the pharmacist in improving human health. The responsibility of all pharmacists in the continuous improvement of their professional activities through ongoing training, research, and a patient-centered pharmacy practice is the intended direction. In future, standardization of a methodology for the practice of pharmaceutical care as a function of the structural health care system, as well as validation of the results of this practice in humanistic, economic and professional terms, will be the test for the Cuban health system’s next great achievement. Pharmacy education must continue its development towards a pharmacist capable of fulfilling this mission, with a concomitant social commitment.
REFERENCES

Millman J (2007). Evolution in the practice of pharmacy
Wall Street J., p. 1