



## Mapping and Preliminary Inspection of Medicine Stores and Pharmacies in Montserrado County, Liberia

---

March 2012



This report is made possible by the generous support of the Bill & Melinda Gates Foundation, through the Sustainable Drug Seller Initiatives (SDSI) program, implemented by Management Sciences for Health.

## **About SDSI**

The Sustainable Drug Seller Initiatives (SDSI) is a program that builds on Management Science for Health's Strategies for Enhancing Access to Medicines (SEAM) and East African Drug Seller Initiatives (EADSI) programs. The program's goal is to ensure the maintenance and sustainability of the public-private drug seller initiatives in Tanzania and Uganda and to introduce and roll out the initiative in Liberia.

## **Acknowledgments**

The mapping and preliminary inspection of medicine stores and pharmacies in Montserrado County was a collaborative effort between the Liberia Medicines and Health Products Regulatory Authority, the Pharmacy Board of Liberia, the Liberia Institute of Statistics and GIS, and Management Sciences for Health (MSH) under the Sustainable Drug Seller Initiatives (SDSI) in Liberia. The findings will inform SDSI with information to implement the next steps in the accreditation process to improve access to quality pharmaceutical products and services in Liberia. MSH wishes to acknowledge the contribution of various stakeholders and individual staff from the participating organization who contributed to the data collection process. Special thanks go to the proprietors and dispensers in various districts, zones, and communities in Montserrado County who were key respondents in this mapping exercise and provided valuable information.

Sustainable Drug Seller Initiatives  
Management Sciences for Health  
4301 North Fairfax Drive, Suite 400  
Arlington, VA 22203 USA  
Telephone: 703.524.6575  
Fax: 703.524.7898  
E-mail: [sdsi@msh.org](mailto:sdsi@msh.org)  
Website: [www.drugsellerinitiatives.org](http://www.drugsellerinitiatives.org)

## CONTENTS

---

|  |     |
|--|-----|
| Acronyms and Abbreviations.....  | v   |
| Executive Summary.....   | vii |
| Background .....   | 1   |
| Liberia Country Overview.....  | 1   |
| Pharmaceutical Sector .....  | 2   |
| Sustainable Drug Seller Initiatives in Liberia .....   | 5   |
| Methods.....   | 7   |
| Findings.....  | 9   |
| Distribution and Characteristics of Retail Outlets.....  | 9   |
| Registration Status of the Retail Outlets and Premises’ Standards .....  | 10  |
| Product Quality and Regulatory Infringements .....   | 12  |
| Discussion and Key Recommendations .....   | 17  |
| Annex 1: Additional Data .....   | 19  |
| Annex 2. Mapping Tool and Inspection Checklist.....  | 23  |
| Annex 3. Functions and Duties of the Pharmacy Board and Liberia Medicines and Health<br>Products Regulatory Authority [LMHRA Act, 2010]..... | 27  |
| Annex 4. Maps .....  | 29  |



## ACRONYMS AND ABBREVIATIONS

---

|        |  |
|--------|--|
| GIS    | geographic information systems                               |
| ID     | identification   |
| LISGIS | Liberia Institute of Statistics and GIS                      |
| LMHRA  | Liberia’s Medicines and Health Products Regulatory Authority |
| LRD    | Liberian dollar  |
| MOHSW  | Ministry of Health and Social Welfare [Liberia]              |
| MSH    | Management Sciences for Health                               |
| NDS    | National Drug Services                                       |
| PAL    | Pharmaceutical Association of Liberia                        |
| PBL    | Pharmacy Board of Liberia                                    |
| SDSI   | Sustainable Drug Seller Initiatives                          |
| USD    | US dollar  |



## EXECUTIVE SUMMARY

---

In February 2012, a team from the Liberia Medicines and Health Products Regulatory Authority (LMHRA), the Pharmacy Board of Liberia (PBL), Management Sciences for Health (MSH), the Liberia Institute of Statistics and GIS (LISGIS), and a representative of the Medicine Store Association in Montserrado County conducted a mapping and preliminary inspection of all medicine stores and pharmacies in communities in Greater Monrovia, Careysburd, St. Paul River, and Todee Districts. The key findings were as follows—

- *Numbers:* A total of 750 retail outlets (113 pharmacies and 637 medicine stores) were mapped. Of these outlets, roughly 80 percent were open, and a proprietor or dispenser was available to respond to questions for further inspection.
- *Registration status:* About 36 percent of the medicine stores and pharmacies inspected did not have a valid registration permit from the PBL. This is a significant problem because it denies revenue to the PBL and undermines the regulatory system. Additionally, only 44 percent of the medicine stores and pharmacies inspected had a valid dispenser's identification (ID) card, which is required by the PBL and should be renewed annually.
- *Inspection:* Although the majority of medicine stores and pharmacies (over 65 percent) were reportedly inspected in the past six months (very high frequency of inspection from PBL inspectors), most of the medicine stores inspected had several regulatory infringements. For instance, the premises of some recently registered medicine stores (two to three months prior to this survey) did not meet standards. This indicates overall lack of capacity to enforce regulation standards and ethics among inspectors. Frequently observed problems included the following—
  - *Premises:* About 52 percent of medicine stores and pharmacies met requirements for premise size and overall cleanliness. However, a few pharmacies and medicine stores were dirty and had unhygienic conditions, poor ventilation, and no working fan or air conditioning. Rooms were small and did not meet prescribed standard size, with the majority sharing the medicine storeroom with other businesses, such as drinking bars, cooking places, or people sleeping in the medicine store. In addition, a few medicine stores operated as injection rooms or sites for wound dressing. Some pharmacies do not meet pharmacy standards, and they should not be allowed to operate as pharmacies: either they should be downgraded to medicine stores or they should be closed.
  - *Products:* Of medicine stores and pharmacies inspected, 15 percent had expired medicines, 29 percent had stocked injectable formulations not allowed, and 22 percent had products that were not labeled in English or not labeled at all. About 39 percent of medicine store had public sector medicines, predominantly antimalarials and antibiotics.
  - *Personnel:* More than 40 percent of medicine stores and pharmacies had one full-time dispenser; pharmacies had slightly more staff members (either part time or full time). A majority of dispensers are either high school graduates or nurse aides and had a

PBL ID card. However, several medicine stores were found with children dispensing because the proprietor or dispenser was reported to be at work. These children could not supply key information. Only 22 percent of dispensers and proprietors interviewed had attended any kind of health or business skills training in the past 12 months, indicating higher training needs.

- *Record keeping:* More than 50 percent of medicine stores and pharmacies had some form of record keeping in place, particularly for sales, and a few record purchases. The inspection team did not assess the completeness or quality of recorded information, but these could easily be improved with standardized registers and training.

The results from mapping and preliminary inspection provide valuable information for the next steps, which will include training of the proprietors, dispensers, and inspectors and strengthening the regulatory environment within which medicine stores are operating. The Sustainable Drug Seller Initiatives (SDSI) program will continue to support the LMHRA and PBL to integrate geographic information system (GIS) technology into their regular work and to develop that capacity in collaboration with LISGIS. The application of GIS will be used to help regulatory authorities monitor adherence to regulatory standards (e.g., premises at recommended distances from each other) and overall impact of the outlets by linking to other spatially collected health information.



## BACKGROUND

---

### Liberia Country Overview

The 2008 national housing and population census<sup>1</sup> reported a total population of 3.4 million, with a growth rate of 2.1 percent. Population distribution is very uneven, with 6 of 15 counties—Montserrado, Nimba, Bong, Lofa, Grand Bassa, and Margibi—containing 75.2 percent of the total population. Of those six, Montserrado, Nimba, and Bong have 56 percent of the population (see figure 1). Table 1 lists some health and economic indicators for Liberia.

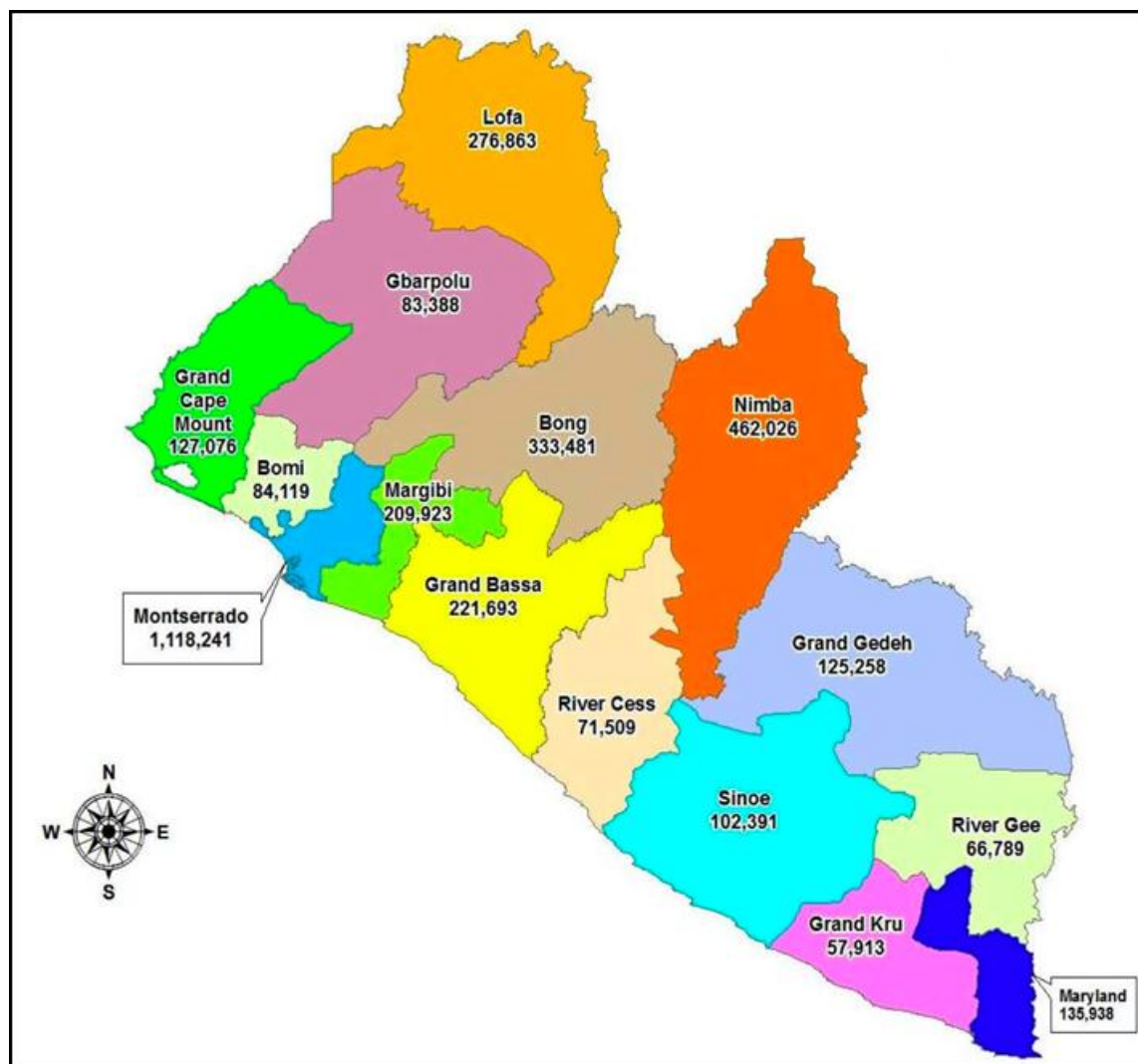
**Table 1. Health and Economic Indicators for Liberia**

| Indicator  | Value |
|--|-------|
| Gross domestic product per capita in purchasing power parity terms (USD) | 360.0 |
| Life expectancy at birth (years)   | 56.8  |
| Birth rate ( per 1000 population)  | 36.45 |
| Total fertility rate (children born per woman)                           | 5.02  |
| Death rate(per 1,000 population)   | 10.36 |
| Maternal mortality rate(per 100,000 live births)                         | 990   |
| Infant mortality rate(per 1,000 live births)                             | 72.71 |
| Under-five mortality rate (per 1,000 live births)                        | 112   |

Source: *CIA World Fact Book 2012*. "Liberia." [https://www.cia.gov/library/publications/the-world-factbook/geos/countrytemplate\\_li.html](https://www.cia.gov/library/publications/the-world-factbook/geos/countrytemplate_li.html).

---

<sup>1</sup> Government of the Republic of Liberia. 2008. *2008 National Population and Housing Census: Preliminary Results*. Monrovia, Liberia: LISGIS. [http://www.emansion.gov.lr/doc/census\\_2008provisionalresults.pdf](http://www.emansion.gov.lr/doc/census_2008provisionalresults.pdf).



Source: Government of the Republic of Liberia. 2008. *2008 National Population and Housing Census: Preliminary Results*. Monrovia, Liberia: LISGIS. [http://www.emansion.gov.lr/doc/census\\_2008provisionalresults.pdf](http://www.emansion.gov.lr/doc/census_2008provisionalresults.pdf).

**Figure 1. Population density by county in Liberia, 2008**

## Pharmaceutical Sector

The overall goal for the pharmaceutical sector is to “increase access to efficacious, high-quality, safe and affordable medicines for the people of Liberia.”<sup>2</sup> The specific objectives for the Ministry of Health and Social Welfare (MOHSW) relating to pharmaceuticals are—

- To coordinate policy and regulation for the pharmaceutical sector in Liberia, through all Government of Liberia agencies, in collaboration with the Ministry of Justice

<sup>2</sup> Ministry of Health and Social Welfare. 2007. *National Health Policy and National Health Plan 2007–2011*. Monrovia, Liberia. [http://www.ilo.org/wcmsp5/groups/public/---ed\\_protect/---protrav/---ilo\\_aids/documents/legaldocument/wcms\\_126728.pdf](http://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---ilo_aids/documents/legaldocument/wcms_126728.pdf).

- To ensure constant availability of safe and effective medicines and medical supplies to all segments of the population through strengthened supply chain management in support of the delivery of a Basic Package of Health Services
- To improve logistics management information systems to track and account for medicines throughout the system
- To facilitate the rational use of medicines through correct diagnosis, sound prescribing, good dispensing practices, and appropriate usage through appropriately trained prescribers, pharmacists, dispensers, and other authorized health workers and effective support supervision, increased consumer education through effective health education and through the elimination of illegal medicine vendors
- To strengthen the regulation of pharmaceutical professionals and pharmaceutical institutions and ensure compliance with internationally accepted professional standards for their registration
- To ensure that all medicines available in Liberia are registered and approved for their intended use, Good Manufacturing Practice international standards will be required for all medicines imported into the country

The framework to manage and coordinate the pharmaceutical sector in Liberia is contained in the 2001 National Drug Policy,<sup>3</sup> currently under revision. The overall goal for the policy is to use available resources to develop pharmaceutical services to meet Liberia's requirements in the prevention, diagnosis, and treatment of diseases by using efficacious, high quality, safe, and cost-effective pharmaceutical products. The policy objectives include—

- Ensuring the constant availability of safe and effective medicines at all segments of the population
- Providing medicines through the government, private, and nongovernmental sectors at affordable prices
- Facilitating rational use of medicines through correct diagnosis, sound prescribing, good dispensing practices, and appropriate usage
- Ensuring that the quality of medicines manufactured in Liberia and those imported into Liberia meet internationally accepted quality standards
- Encouraging self-sufficiency through local manufacture of medicines of acceptable quality for consumption and export
- Ensuring the provision of medicines for veterinary use

The MoHSW has an Essential Medicines List modeled after the World Health Organization's generic list. Revisions of the 2007 Essential Medicines List and the National Therapeutic

---

<sup>3</sup> Republic of Liberia, Ministry of Health and Social Welfare, National Drug Policy 2001.

Guidelines were completed in 2011.

The pharmaceutical sector comprises the Pharmacy Division, the PBL, the LMHRA, and the National Drug Services (NDS). The Pharmacy Division is responsible for developing policy and coordinating the pharmaceutical sector overall. The PBL is responsible for regulating professionals and institutions, including licensing, inspecting, and monitoring of retail pharmacies and medicine stores. However, without an effective inspectorate, pharmacies sell prescription-only medicines without prescription and medicine stores that are restricted to selling class C medicines sell everything, including antibiotics.<sup>4</sup> The annual fee to license a retail pharmacy is approximately USD 395 (LRD 28,000<sup>5</sup>), and for a medicine store is approximately USD 120 (LRD 8,520). The terms of reference for the Pharmacy Division and Pharmacy Board are listed in annexes 1 and 2, respectively.

According to its mission, “The Liberia Medicines and Health Products Regulatory Authority exists to implement the provisions of the LMHRA Act by employing Good Regulatory Practices to ensure that medicines and health products used in Liberia conform to the highest standards of quality, safety and efficacy.” The LMHRA Act<sup>6</sup> gives the following broad legal and regulatory mandate—

- To ensure that, the national medicine supply system, safe, effective, and good quality medicines reach the Liberian public
- To protect the Liberian public from the harmful effects of substandard and counterfeit medicines and health products
- To ensure fair trade practices in medicines and health products
- To promulgate regulations to fight illegal trade in medicines, including counterfeit and adulterated medicines and health products
- To conduct or facilitate necessary research and development, promote pharmacovigilance, and disseminate timely drug information

With the enactment of the LMHRA Act, most regulatory functions of the PBL were surrendered to the LMHRA except for the functions listed in annex 3 of this report that remain the responsibility of the PBL.<sup>7</sup>

The NDS is operated by an independent general assembly and board of directors. It is responsible for procurement, storage, and distribution of pharmaceuticals to public and humanitarian organizations that provide health care delivery in the country. It is also responsible for storing and distributing pharmaceuticals and commodities for the Global Fund

---

<sup>4</sup> Ministry of Health and Social Welfare. 2011. *Country Situational Analysis Report*. Monrovia: Republic of Liberia, MOHSW. Citation is to November 2010 first draft of the report.

<sup>5</sup> The current exchange rate is USD 1 = LRD 71.

<sup>6</sup> An Act to Establish the Liberia Medicines and Health Products Regulatory Authority (LMHRA), Government of Liberia, 2010.

<sup>7</sup> LMHRA Act, 2010.

to Fight AIDS, Tuberculosis and Malaria; the President’s Malaria Initiative; and other health stakeholders. The NDS manages one central warehouse and nine regional depots. Quality of medicines is controlled through reliance on two main suppliers, the International Dispensary Association and Missionpharma.

## **Sustainable Drug Seller Initiatives in Liberia**

Following the success of drug seller initiatives in Tanzania and Uganda (the Accredited Drug Dispensing Outlet program in Tanzania and the Accredited Drug Shop program in Uganda),<sup>8</sup> Liberia’s MOHSW expressed interest in pursuing a similar initiative. In addition, the US Agency for International Development Mission in Liberia has committed its support through Liberia’s National Malaria Control Program to help increase access to antimalarials through the private sector, in line with Liberia’s national malaria strategic plan. These commitments, coupled with support from the Bill & Melinda Gates Foundation, will pave the way for full nationwide scale-up on an accelerated schedule, starting with initial implementation in Montserrado County. Liberia offers a unique opportunity for building a sustainable drug seller initiative in an emerging-state context. Adapting an existing accredited drug seller initiative to the Liberian context provides the opportunity for improved access to quality essential medicines and basic health care referrals and services both in the more remote areas of the country and in more populated urban areas.

The SDSI objective in Liberia is to launch a nationwide initiative based on the programs in Tanzania and Uganda. By phasing in the program in Montserrado (which has nearly 70 to 80 percent of the retail pharmaceutical outlets in Liberia) and completing the mapping and preliminary inspections in Liberia’s other 14 counties, the country will be prepared for full rollout of the drug seller initiative. The political commitment in Liberia makes the situation suitable for immediate implementation and accelerated institutionalization.

In collaboration with Liberian stakeholders, SDSI will assist in the following key activities to adapt and implement the accredited drug shop model in Liberia—

- Build partner and key stakeholder consensus for a Liberian accredited drug seller model
- Develop accreditation standards for the Liberian model
- Develop consumer education strategies
- Implement and evaluate the Liberian accredited drug seller model in Montserrado County
- Complete mapping, sensitization, and initial inspections for the remaining 14 counties in Liberia in preparation for nationwide scale-up

---

<sup>8</sup> See Drug Seller Initiatives website, <http://www.drugsellerinitiatives.org/index.cfm>.

- Create a technical advisory body that contributes to development and implementation and establishes itself as the coordinating entity as the initiative moves from rollout into the maintenance phase

Planned activities in Liberia will expand private sector access to quality essential medicines and pharmaceutical services and provide further evidence of the adaptability and sustainability of the accredited drug seller concept and its transferability to a different setting.

## METHODS

---

The purpose of the mapping and preliminary inspection is, first, to identify and determine the geographic distribution of medicine stores and pharmacies and, second, to assess how retail outlets meet required regulatory standards for operating the business. These are the key first steps in the accreditation process. During the exercise, the survey teams took a comprehensive census of all existing retail outlets and inspected the premises to assess whether they meet the required standards set by the regulatory authorities. This updated and accurate information is critical for planning and implementation of other activities (for example, training and final inspection) in the accreditation process.

All pharmacies and medicine stores in Montserrado County (Greater Monrovia, Careysburd, St. Paul River, and Todee Districts) were surveyed. The following data collection steps were taken—

- Obtain a list of all medicine stores and pharmacies registered by the PBL and the LMHRA.
- Conduct a one-day training and field testing of the mapping and inspection tools for the survey team. The survey team included staff from the LISGIS, the PBL, and the LMHRA; a representative from the Liberia Medicine Store Association; and MSH personnel.
- Physically map all pharmacies and medicine stores using hand-held GPS devices to obtain their location for spatial/GIS display. Outlets that were reported to be out of business were excluded from the survey.
- Conduct a preliminary inspection using an inspection tool/checklist (see annex 2) of pharmacies and medicine stores that were operating on the day of the survey. Attempts were made to go back to the closed outlets or call the proprietors if a phone number was given. A few outlets may have been missed completely.

The data collected included information on the premise infrastructure, registration status, provider's qualifications and education level, availability of unauthorized products (expired or government medicines or injectables), record keeping, and whether standards set by the regulatory authority were met. Data were analyzed using the Excel program and ArcView GIS mapping software to develop maps with various attributes and variables of interest.

Before data collection, approval was obtained from the PBL and information was disseminated to all proprietors through radio announcements on all major FM stations in Monrovia. At the outlets, verbal informed consent was sought from all respondents for the mapping questionnaire after explaining the purpose and how collected data would be used. No names of informants have been used in the reports without the consent of the owners.





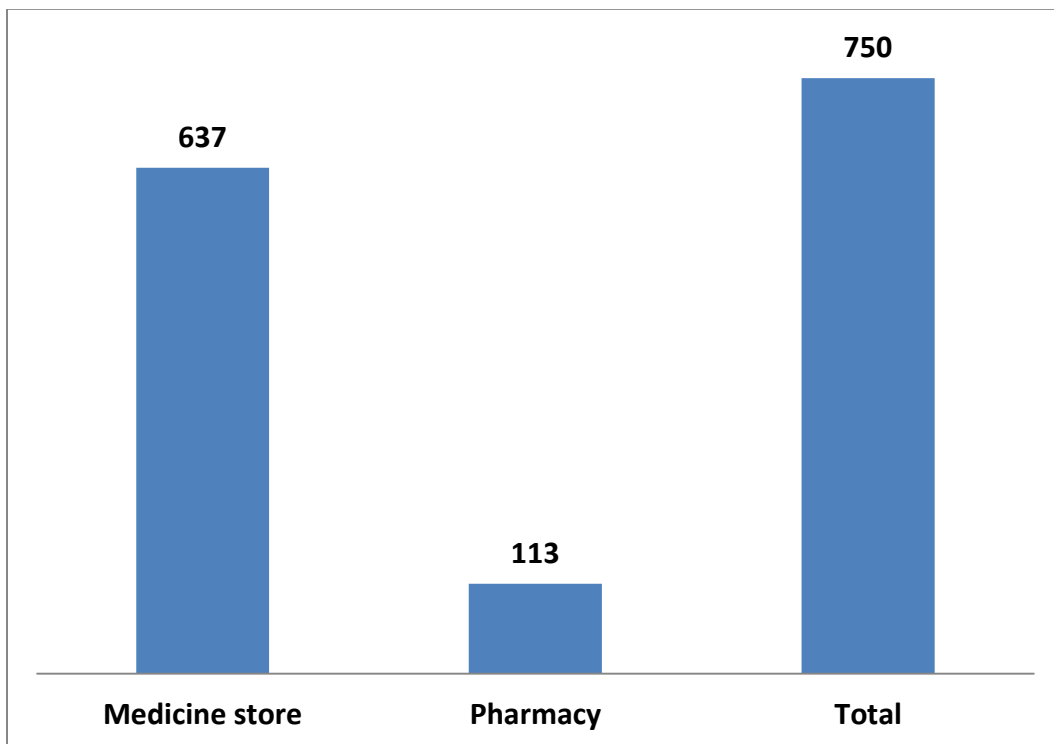
## FINDINGS

---

### Distribution and Characteristics of Retail Outlets

A total of 750 outlets were mapped, of which 637 (85 percent) were medicine stores, most of which (approximately 90 percent) are in Greater Monrovia. Figure 2 presents the distribution of the outlets.

About 21.2 percent of the retail outlets mapped were closed or the owners refused to cooperate during inspection; thus only 591 were inspected, table 2.



**Figure 2. Number of pharmacies and medicine stores mapped in Montserrado County, February 2012**

**Table 2. Number of Mapped Outlets That Were Open and Inspected**

| Outlet         | Closed | Open | Refused | Total |
|----------------|--------|------|---------|-------|
| Medicine store | 137    | 491  | 9       | 637   |
| Pharmacy       | 10     | 100  | 3       | 113   |
| Total          | 147    | 591  | 12      | 750   |

Of the people interviewed, 65 percent (dispensers and proprietors) were male, with fewer

females in the pharmacies than the medicine stores (figure 3).

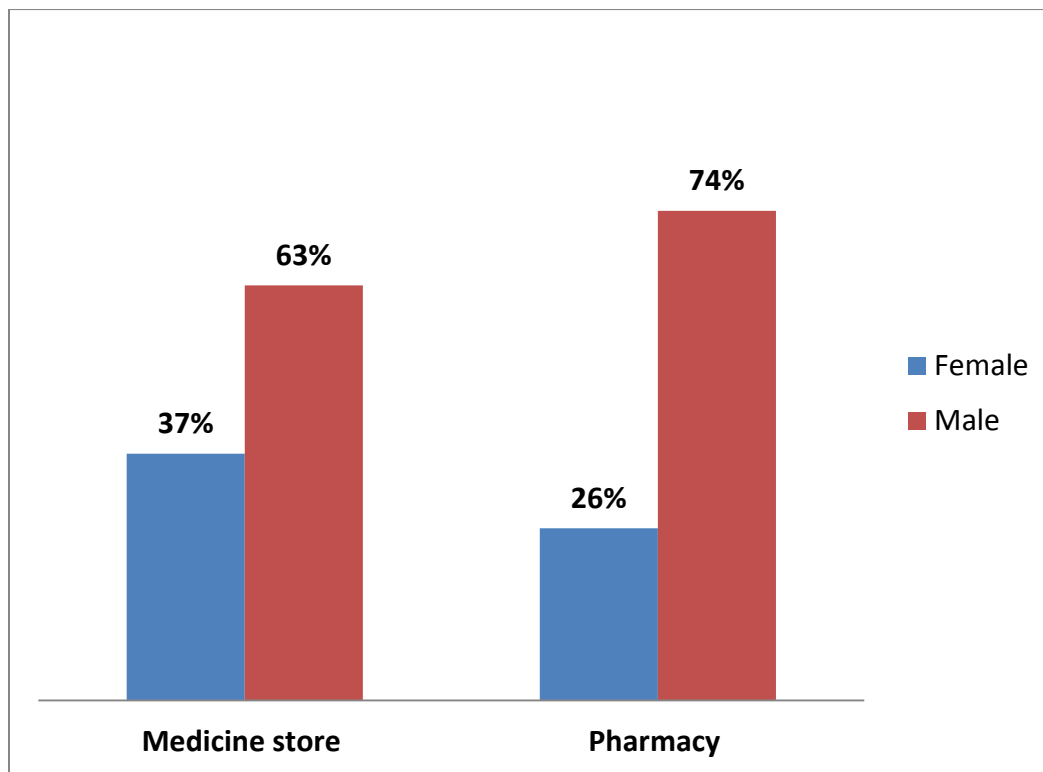


Figure 3. Respondents by gender in Montserrado County

### Registration Status of the Retail Outlets and Premises' Standards

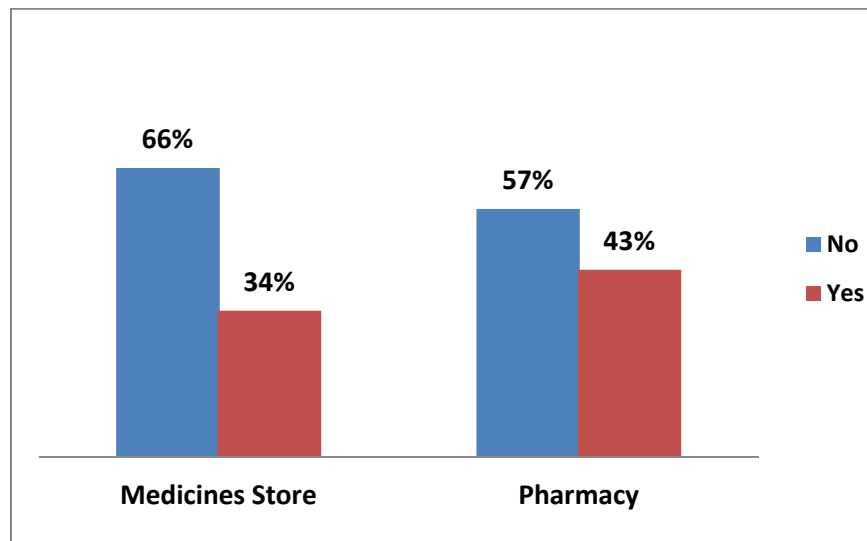
The PBL requires all pharmacies and medicine stores to be registered with the board and possess a valid business permit. In addition, dispensers in these outlets should have valid identification cards (renewed annually) and wear uniforms while working in the outlets. Outlets were inspected for these and other business requirements. About 36 percent of medicine stores and pharmacies were not registered with the PBL: 50 percent of medicine stores inspected were operating without a valid permit. The inspection team verified all permits, registration certificates, and business permits. Only 34 percent of dispensers in medicine stores and pharmacies interviewed had a uniform, while 47 percent had a valid identification on the day of the visit (table 3).

**Table 3. Number of Outlets Meeting Pharmacy Board Requirements**

| Requirement                          | Medicine store<br>N = 491 (%) | Pharmacy<br>N = 100 (%) | Total<br>N = 591 (%) |
|--------------------------------------|-------------------------------|-------------------------|----------------------|
| Registration certificate (in-charge) | 248 (51)                      | 68 (68)                 | 316 (53)             |
| Business permit                      | 261 (53)                      | 67 (67)                 | 328 (55)             |
| Dispenser ID                         | 225 (45)                      | 63 (63)                 | 288 (49)             |
| Dispenser uniform                    | 127 (26)                      | 47 (47)                 | 174 (29)             |

Only 29 percent of premises are owned by proprietors of medicine stores and pharmacies (see annex figure A4). Only 18 percent of proprietors (14 percent of medicine stores, 38 percent of pharmacies) own another outlet. When asked about the last time the shop was inspected, most medicine stores (84 percent) and pharmacies (92 percent) reported they were inspected in the past six months (very high frequency of inspection from PBL inspectors), but these reports could not be verified because no document is left at the outlets, although the figure is likely correct.

According to PBL guidelines, retail outlet premises should have minimum dimensions of 13 × 12 feet and be not less than 10 feet in height. During the inspections, less than 50 percent of the premises met these requirements (figure 4).

**Figure 4: Medicine stores and pharmacies that meet pharmacy board premise size requirements**

The inspection team assessed other regulatory standards that are required by the board; the findings are presented in table 4.

**Table 4. Other Premise Standards for Retail Outlets**

| <b>Standard</b>  | <b>Medicine store<br/>N = 491 (%)</b> | <b>Pharmacy<br/>N = 100 (%)</b> | <b>Total<br/>N = 591 (%)</b> |
|--|---------------------------------------|---------------------------------|------------------------------|
| Are the surroundings clean?  | 311 (63)                              | 78 (78)                         | 389 (66)                     |
| Is the inside of the premises clean?   | 321 (65)                              | 79 (79)                         | 400 (68)                     |
| Is the floor cemented or tiled?  | 358 (73)                              | 85 (85)                         | 443 (75)                     |
| Are the walls well painted?  | 320 (65)                              | 85 (85)                         | 405 (69)                     |
| Are the doors and windows strong and secure to prevent unauthorized entrance into the premises?                      | 309 (63)                              | 87 (87)                         | 396 (67)                     |
| Is the ceiling high and in good condition?   | 272 (55)                              | 81 (81)                         | 353 (60)                     |
| Is the dispensing room separate from the storage room?   | 105 (21)                              | 50 (50)                         | 155 (26)                     |
| Does the outlet have water for hand washing?   | 88 (18)                               | 46 (46)                         | 134 (23)                     |
| Is the ventilation sufficient (does it have at least one window)?  | 133 (27)                              | 42 (42)                         | 175 (30)                     |
| Are the dispensing and storage rooms completely sealed (no connection to a clinic or lab or other rooms in a house)? | 98 (20)                               | 42(42)                          | 140 (24)                     |
| Is there a NO SMOKING sign?  | 60 (12)                               | 13 (13)                         | 73 (12)                      |

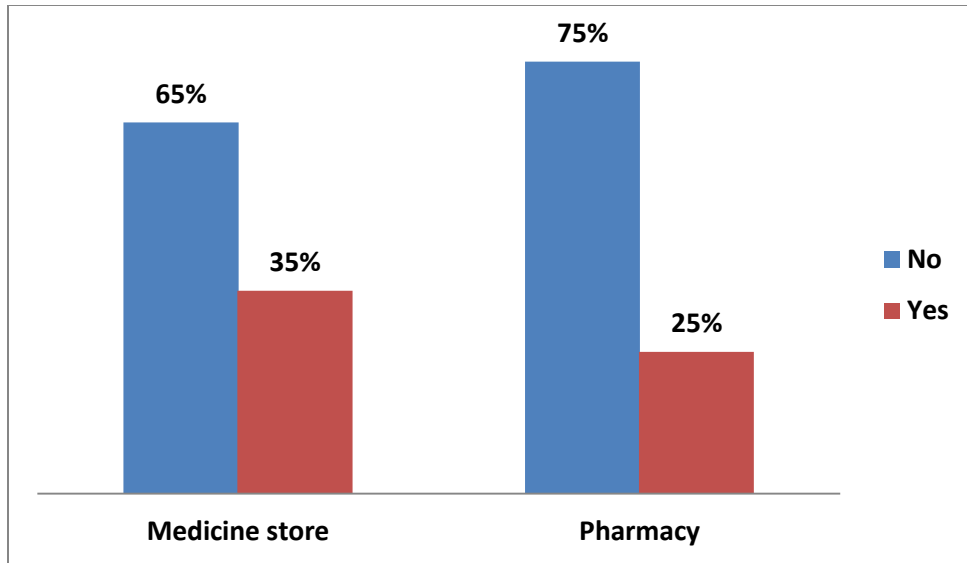
In terms of record keeping, only 37 percent of outlets record their purchases and sales (table 5), which is an essential aspect of inventory management. The quality of what is recorded was not thoroughly assessed.

**Table 5. Record Types Available at Retail Outlets**

| <b>Record type</b>       | <b>Medicine store<br/>N = 491 (%)</b> | <b>Pharmacy<br/>N = 100 (%)</b> | <b>Total<br/>N = 591 (%)</b> |
|--------------------------|---------------------------------------|---------------------------------|------------------------------|
| Sale/purchase record     | 164 (33)                              | 54 (54)                         | 218 (37)                     |
| Expired medicines record | 7 (1)                                 | 1 (1)                           | 8 (1)                        |
| None                     | 320 (65)                              | 45 (45)                         | 365 (61)                     |

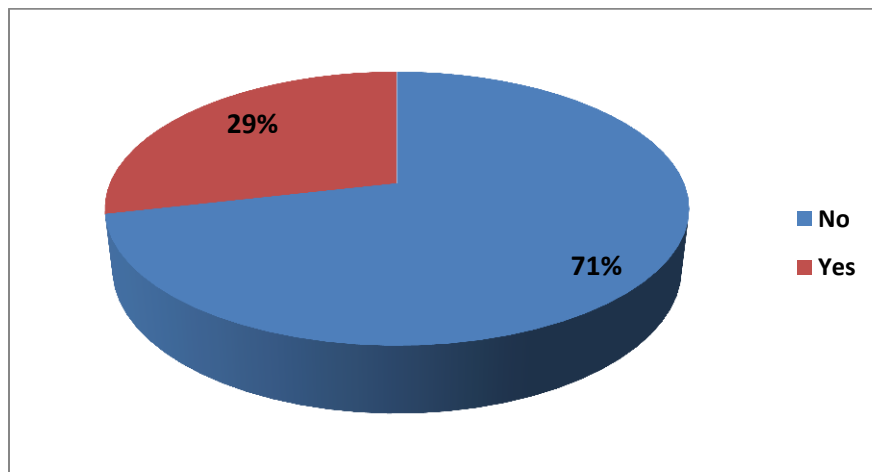
### **Product Quality and Regulatory Infringements**

Dispensers in pharmacies and medicine stores are expected to provide services and products of good quality while abiding to the regulatory framework of practice. The existing regulations allow pharmacies and medicine stores only to dispense medicines and not to provide any other services. Of those inspected, 35 percent of medicine stores and 25 percent of pharmacies were providing other services, such as wound dressing, diagnostics, and injections (figure 5), clearly in violation of the regulations.



**Figure 5: Prohibited services provided at medicine stores and pharmacies**

Medicine stores are not allowed to stock and dispense injectable formulations; however, almost 30 percent of the surveyed stores had injectables in stock (figure 6).



**Figure 6: Medicine stores with injectables in stock**

Regulatory infringements were further demonstrated by the presence of public sector medicines in 35 percent of medicine stores and 30 percent pharmacies (figure 7). Of the public sector medicines found in medicine stores and pharmacies, 39 percent was the antimalarial artemisinin-based combination therapy artesunate + amodiaquine.

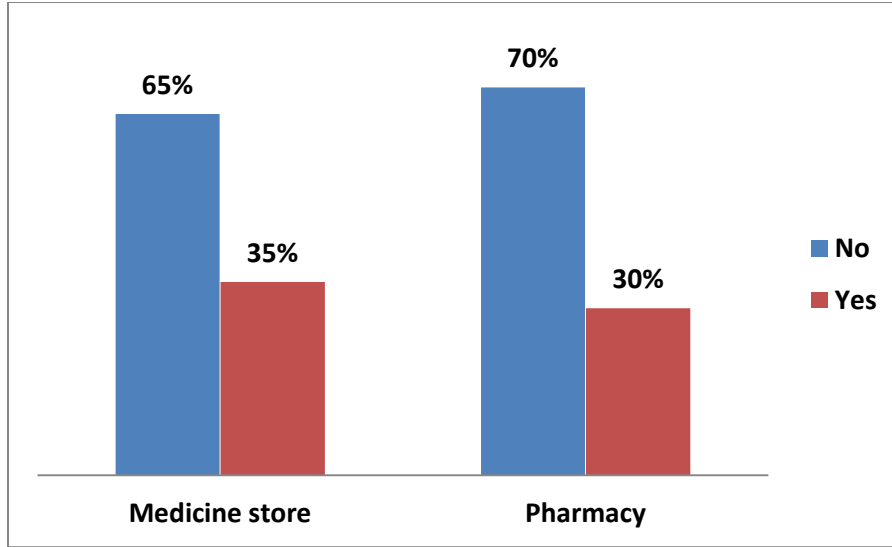


Figure 7: Medicine stores and pharmacies stocking public sector medicines

The presence of expired medicines and medicines labeled in a foreign language were an indicator used to assess medicine quality. Figure 8 shows the percentage of outlets with expired medicines or medicines labeled in a foreign language.

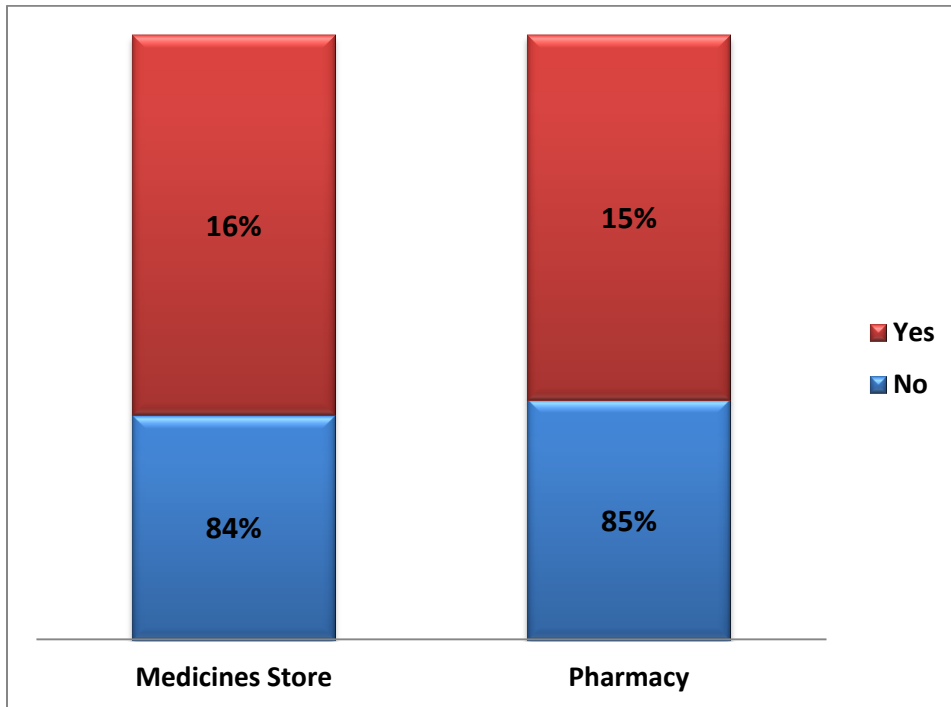


Figure 8: Medicine stores and pharmacies with expired medicines and medicine labeled in a foreign language

**Table 6: Number of Medicine Stores and Pharmacies with Product Labels or Packages Exclusively in Non-English Language or with Missing Labels**

| <b>Retail outlet</b>  | <b>Non-English label N (%)</b> | <b>Missing label N (%)</b> | <b>Total</b> |
|-----------------------|--------------------------------|----------------------------|--------------|
| <b>Medicine store</b> | 51 (12.3)                      | 33 (7.9)                   | 84           |
| <b>Pharmacy</b>       | 10 (10.7)                      | 13 (13.9)                  | 23           |
| <b>Total</b>          | 61 (12.1)                      | 46 (9.1)                   | 107          |





## DISCUSSION AND KEY RECOMMENDATIONS

---

This mapping and preliminary inspection was successful. The mapping and inspection survey highlights a number of challenges in the retail pharmaceutical sector in Liberia that SDSI would address; however, some of these challenges go beyond the SDSI scope. For example, not much difference exists between the premise standards of a pharmacy and a medicine store operating in a Greater Monrovia district where the regulation prohibits operation of medicine stores. The issue of medicine peddling was not addressed because plans exist to approach the issue as a separate activity in the near future. However, improving the quality of services and products dispensed at medicine stores, coupled with providing sustained consumer education, would be major steps in addressing the problem and boosting consumer confidence in products and services provided by medicine stores.

The widespread regulatory infringements observed during this mapping and preliminary inspection make strengthening the inspection system at the PBL and the LMHRA a major priority. The revision or updating of existing standards and their enforcement is a priority area. Although the issue was not part of mapping and inspection, teams observed that a majority of medicine stores had empty shelves, and dispensers and proprietors confirmed how they struggle to stock the outlets properly. An availability and price survey will confirm and quantify this problem.

The following next steps are recommended—

- Review, update, or develop the standards for the Liberia model Accredited Medicine Stores program with input from a broader group of stakeholders and approval by the SDSI National Steering Committee.
- Conduct sensitization meetings with proprietors and dispensers of medicine stores and Pharmaceutical Association of Liberia (PAL) members during the PAL retreat. Facilitation to the sensitization meetings will be provided by the PBL, LMHRA, and MSH team. The objective of these sensitization meetings is to orient various proprietors and dispensers of medicine stores and pharmacists on the accreditation program for drug sellers and standards for the Liberia model. A copy of the standards will be given to medicine store dispensers and proprietors with instructions to make improvements before participation in the training and other activities.
- Conduct baseline monitoring and evaluation to assess price and availability of products, quality of dispensing services, and product quality.



## ANNEX 1: ADDITIONAL DATA

---

**Table A1: Number of Years the Retail Outlet Has Been in Operation**

| <b>Years</b> | <b>Medicine stores (%)<br/>(N = 491)</b> | <b>Pharmacies (%)<br/>N = 100</b> | <b>Total (%)<br/>N = 591</b> |
|--------------|--|-----------------------------------|------------------------------|
| < 1 year     | 16                                       | 12                                | 15                           |
| 1–5 years    | 64                                       | 51                                | 62                           |
| 6–10 years   | 12                                       | 21                                | 14                           |
| > 10 years   | 6  | 9                                 | 6                            |
| Don't know   | 2  | 7                                 | 3                            |

**Table A2: Position of Respondent Available during the Day of the Mapping**

| <b>Position</b>  | <b>Medicine stores (%)<br/>(N = 491)</b> | <b>Pharmacies (%)<br/>N = 100</b> | <b>Total (%)<br/>N = 591</b> |
|------------------|--|-----------------------------------|------------------------------|
| Manager          | 3  | 32                                | 8                            |
| Owner            | 38                                       | 20                                | 35                           |
| Seller/Dispenser | 59                                       | 48                                | 57                           |

**Table A3: Number of Staff Employed by Retail Outlet (Both Full and Part Time)**

| <b>Number of workers</b> | <b>Medicine stores (%)<br/>(N = 491)</b> | <b>Pharmacies (%)<br/>N = 100</b> | <b>Total (%)<br/>N = 591</b> |
|--------------------------|--|-----------------------------------|------------------------------|
| 1                        | 37                                       | 15                                | 33                           |
| 2                        | 50                                       | 29                                | 47                           |
| 3                        | 11                                       | 27                                | 14                           |
| 4                        | 1  | 18                                | 4                            |
| 5                        | 1  | 2                                 | 1                            |
| More than 5              | 0  | 8                                 | 1                            |

**Table A4: Education Level of Dispensers and Proprietors Interviewed**

| <b>Qualification</b>    | <b>Total (N = 591)</b> |
|-------------------------|------------------------|
| No formal education     | 50 (8.5%)              |
| Nurse aide              | 281 (47.5%)            |
| Nurse assistant/midwife | 40 (6.8%)              |
| Clinical officer        | 19 (3.2%)              |
| Pharmacy technician     | 18 (3%)                |

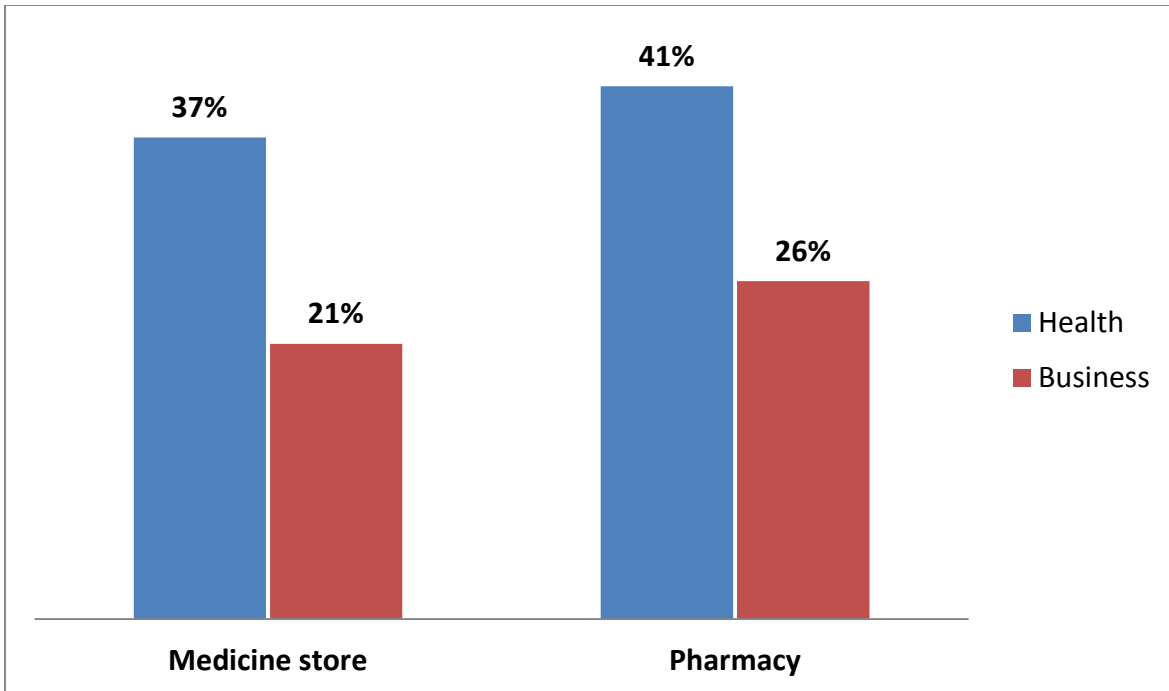


Figure A1: Owner or dispenser reported to have attended training in the past 12 months

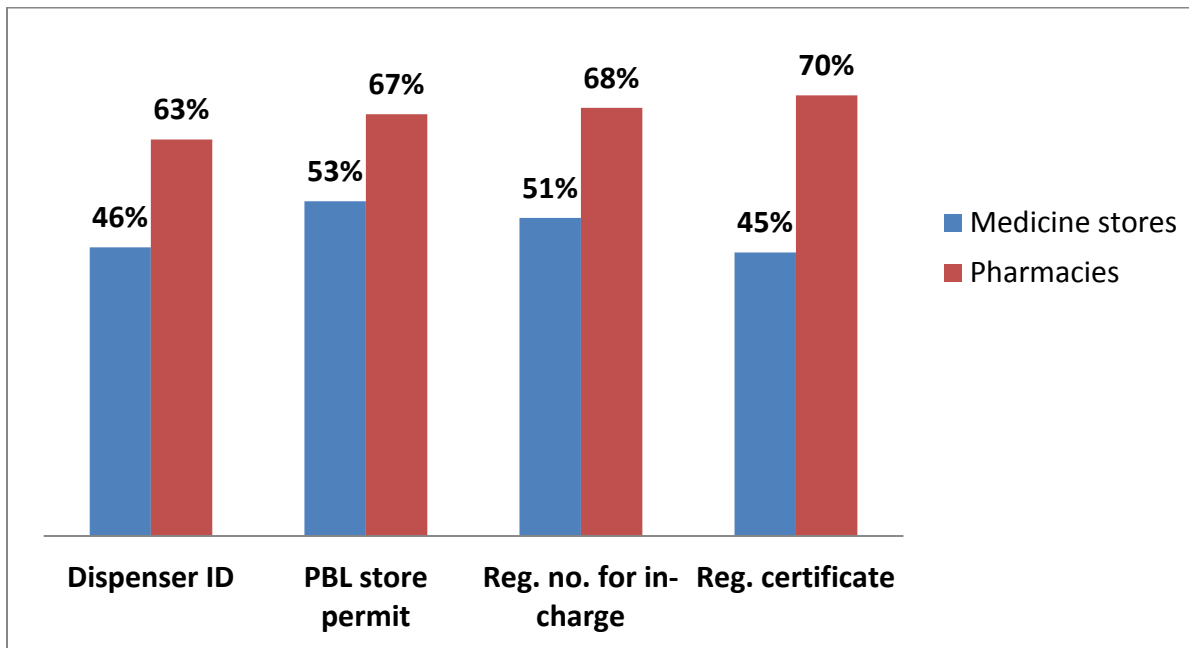


Figure A2: Retail outlets that met PBL requirements

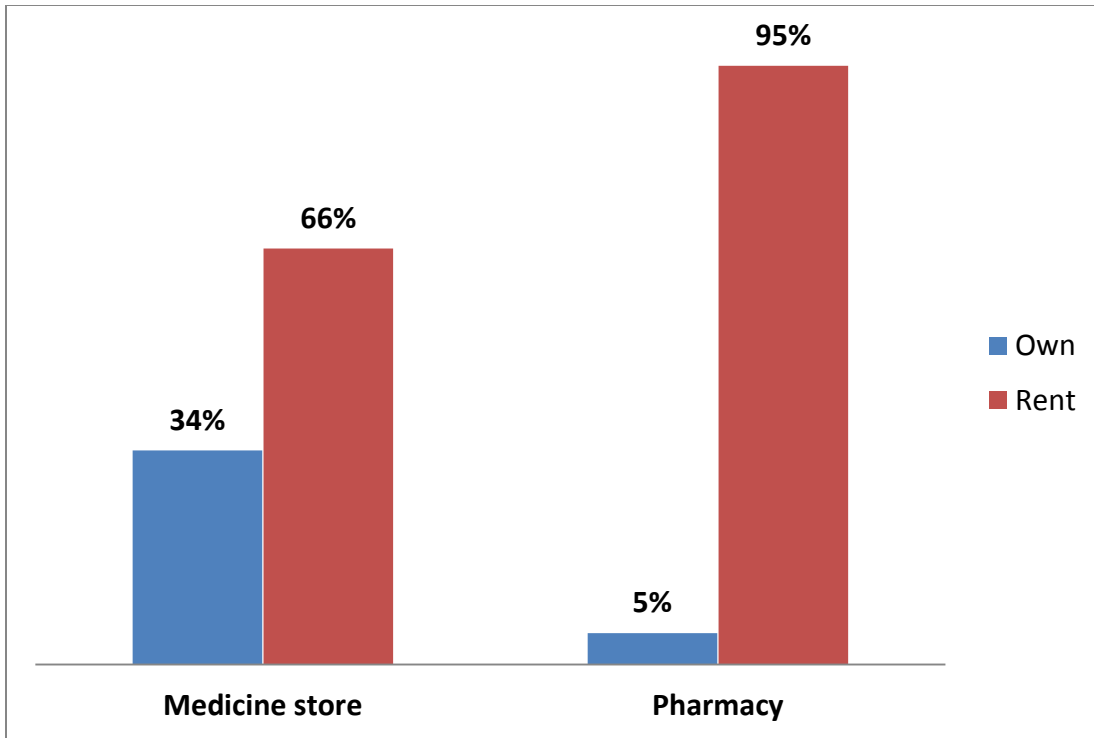


Figure A3: Ownership of the retail outlet premises

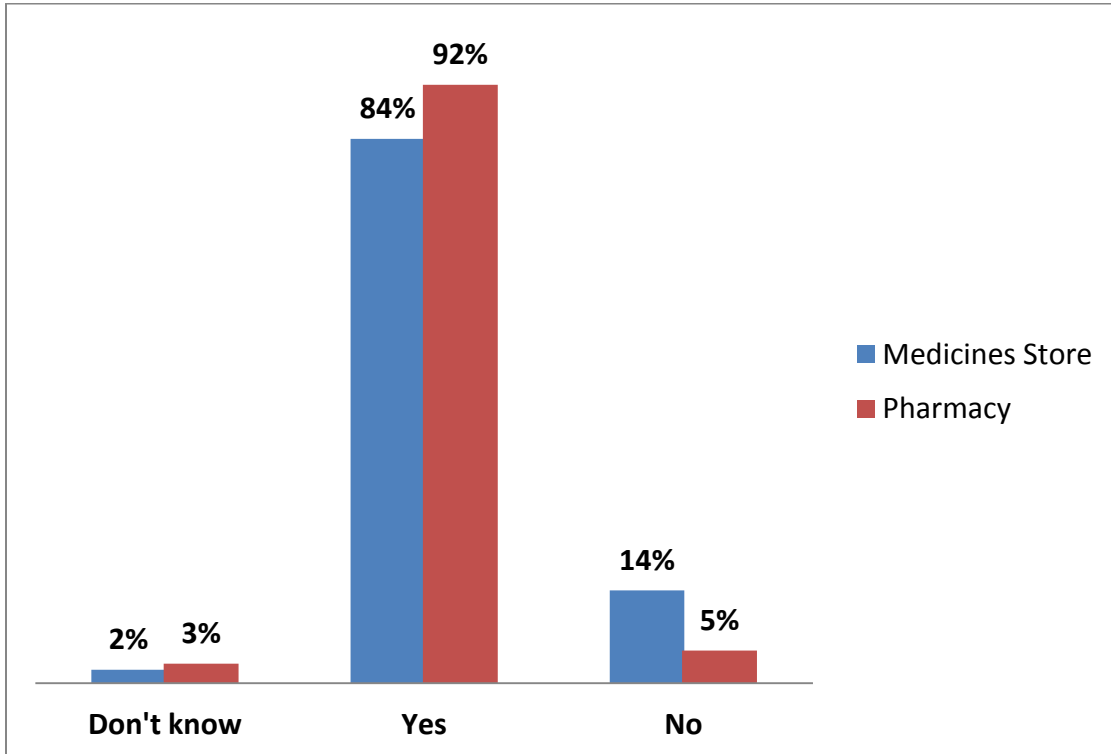


Figure A4: Retail outlets reported to have been inspected in the last six months

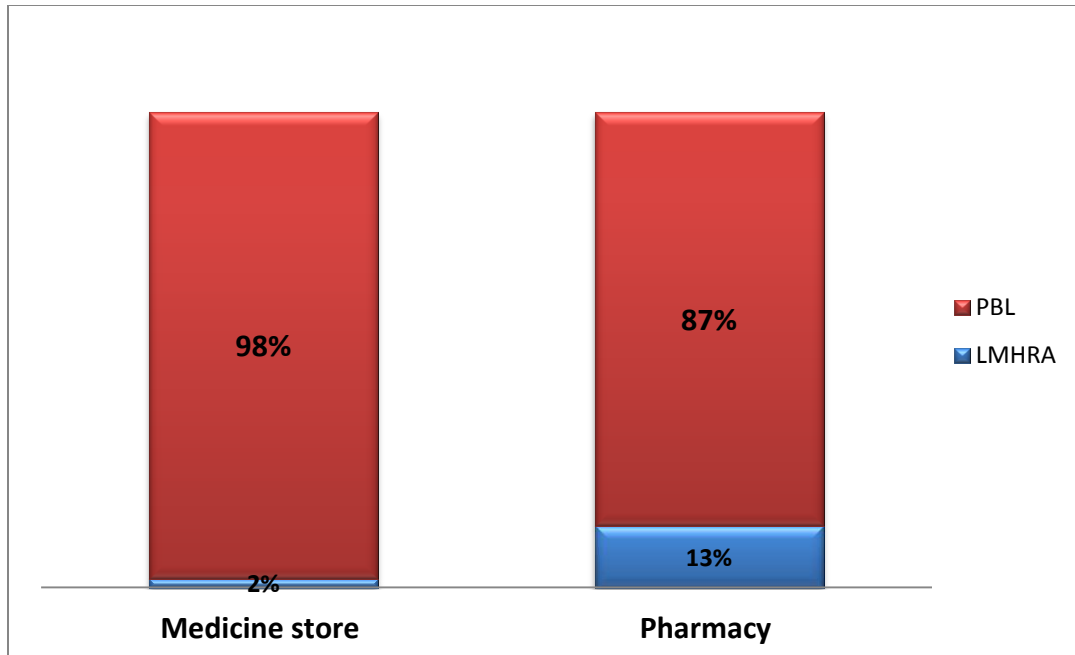


Figure A5: Agency reported to have conducted inspection in the past six months

## ANNEX 2. MAPPING TOOL AND INSPECTION CHECKLIST

### PHARMACY BOARD OF LIBERIA MAPPING TOOL FOR RETAIL PHARMACEUTICAL OUTLETS IN LIBERIA

| <b>Section 1: Verbal Consent</b>   |  |
|--|--|
| <p>Hello,<br/>My name is [Interviewer Name]. We are working with the Liberia Medicines and Health Products Regulatory Authority and the Pharmacy Board, to improve quality of services and access to quality essential medicines in the private sector. The results of this mapping will be used to plan further implementation to improve the availability of medicines in medicines stores and pharmacies in Liberia. I will be asking a variety of questions. I want to assure you that this information will be kept strictly confidential. Specific information shared with me today will not be shared with anyone beyond the study team. All of the identifying information will be coded so no one outside the study team will be able to identify your shop. This survey will take approximately xx hours to complete. Because of the length of this interview, we will take pauses when you have customers to serve and will stay out of your way until they have been served. Participation in this survey is mandatory. At this time, do you want to ask me anything about the survey?</p> |  |
| May I begin the interview now? Yes [ <input type="checkbox"/> ] No [ <input type="checkbox"/> ]  |  |
| Date:  | Interviewee Name: Phone Number:  |
| <b>Section 2: Background Information</b>   |  |
| Name of the Outlet:  |  |
| Type of the Outlet:  | [ <input type="checkbox"/> ] Pharmacy<br>[ <input type="checkbox"/> ] Medicine Store   |
| Location:  | [ <input type="checkbox"/> ] Greater Monrovia  |
|  | [ <input type="checkbox"/> ] Careysburd  |
|  | [ <input type="checkbox"/> ] St Paul   |
|  | [ <input type="checkbox"/> ] Todee   |
| Location/Zone:   |  |
| Location/Community/Town/Clan:  |  |
| GIS Coordinates:   | Easting_UTM:   |
|  | Nothing_UTM:   |
|  | Elevation_m:   |
| Years the shop has been open:  |  |
| Position of the person interviewed:  | [ <input type="checkbox"/> ] Owner<br>[ <input type="checkbox"/> ] Seller/Dispenser<br>[ <input type="checkbox"/> ] Manager  |
| Gender (of respondent):  | [ <input type="checkbox"/> ] Male<br>[ <input type="checkbox"/> ] Female   |
| <b>Section 3: Outlet Characteristics</b>   |  |
| How many people work at this outlet (all staff including the owner)?   | [ <input type="checkbox"/> ] Refused<br>[ <input type="checkbox"/> ] I don't know<br>_____   |
| How many of those people work full time at this outlet?  |  |
| Of the employees working in this outlet, how many have the following qualification:  | [ <input type="checkbox"/> ] No formal education _____<br>[ <input type="checkbox"/> ] High school _____<br>[ <input type="checkbox"/> ] Nurse aide _____<br>[ <input type="checkbox"/> ] Nurse Assistant/Nurse/Nurse Midwife _____<br>[ <input type="checkbox"/> ] Clinical Officer _____<br>[ <input type="checkbox"/> ] Pharmacy Technician |
| Has anyone at this outlet received any kind of health-related training during the last 12 months? (Include preservice and stand-alone workshops)   | [ <input type="checkbox"/> ] YES<br>[ <input type="checkbox"/> ] NO<br>[ <input type="checkbox"/> ] Refused<br>[ <input type="checkbox"/> ] Don't know   |

| <b>Section 3: Outlet Characteristics</b>  |   |
|---|---|
| Has anyone at this outlet received any kind of business management related training during the last 12 months?  | <input type="checkbox"/> ]YES<br><input type="checkbox"/> ]NO<br><input type="checkbox"/> ]Refused<br><input type="checkbox"/> ]Don't know                            |
| <b>ASK AND OBSERVE:</b> Does the outlet have following <u>valid</u> (2011) documents? <i>ID for Dispenser [Pharmacy Board]</i>                          | <input type="checkbox"/> ]YES<br><input type="checkbox"/> ]NO   |
| <b>ASK AND OBSERVE:</b> Does the outlet have following <u>valid</u> (2011) documents? <i>Medicines Store Permit [Pharmacy Board]</i>                    | <input type="checkbox"/> ]YES<br><input type="checkbox"/> ]NO   |
| <b>ASK AND OBSERVE:</b> Does the outlet have following <u>valid</u> (2011) documents? <i>Reg No for In-Charge Dispenser [Pharmacy Board]</i>            | <input type="checkbox"/> ]YES<br><input type="checkbox"/> ]NO   |
| <b>ASK AND OBSERVE:</b> Does the outlet have following <u>valid</u> (2011) documents? <i>Certificate of Registration [Ministry of Finance/Commerce]</i> | <input type="checkbox"/> ]YES<br><input type="checkbox"/> ]NO   |
| <b>ASK AND OBSERVE:</b> Does the outlet have following <u>valid</u> (2011) documents? <i>Certificate of Importation/Wholesale [LMHRA]</i>               | <input type="checkbox"/> ]YES<br><input type="checkbox"/> ]NO   |
| Does the owner of this outlet own other outlets?  | <input type="checkbox"/> ]YES<br><input type="checkbox"/> ]NO   |
| Does the owner own or rent the premises for the businesses?   | <input type="checkbox"/> ]Rent<br><input type="checkbox"/> ]Own   |
| Does the outlet keep any of the following records? Check all that apply   | <input type="checkbox"/> ]Expired medicines law<br><input type="checkbox"/> ]Drugs Register<br><input type="checkbox"/> ]None<br><input type="checkbox"/> ]Sales Book |
| When was the last time the outlet was inspected [provide the month and year]  | Month _____<br>Year _____<br><input type="checkbox"/> ] Don't know  |
| Who inspected the outlet?   | <input type="checkbox"/> ]Pharmacy Board<br><br><input type="checkbox"/> ]Regulatory Authority [LMHRA]<br><br><input type="checkbox"/> ]County Pharmacist             |
| Additional interviewer comments:  |   |
| <b>Thank Respondent for his or her time and end interview.</b>  |   |



**PHARMACY BOARD OF LIBERIA  
PRELIMINARY INSPECTION CHECKLIST**

*[Inspection date, findings, and names of inspectors to be signed in the Inspection Registers that remain in the premises]*

**SECTION A: General Information**

|  |                  |
|--|------------------|
| <b>Name of Accredited Medicine Store:</b>    |                  |
| <b>Address:</b>                              |                  |
| <b>Accreditation Certificate No:</b>         |                  |
| <b>Date of Accreditation:</b>                |                  |
| <b>Accredited Medicine Store proprietor:</b> |                  |
| <b>Accredited Medicine Store dispensers:</b> |                  |
| <b>Name:</b>                                 | <b>Cert. No:</b> |
| <b>Name:</b>                                 | <b>Cert. No:</b> |
| <b>Name:</b>                                 | <b>Cert. No:</b> |

**SECTION B: Condition of Premises and Professional Conduct**

| Premises   | Yes | No |
|--|-----|----|
| Clean and tidy   |     |    |
| Posters well displayed   |     |    |
| Accreditation certificate displayed (original)   |     |    |
| Business license displayed   |     |    |
| Dispenser certificate (copy) displayed   |     |    |
| Extended list of medicines for accredited medicine store                               |     |    |
| Hand washing facilities available  |     |    |
| Shelves available  |     |    |
| Lockable cupboards for prescription medicines available                                |     |    |
| Drugs protected from heat  |     |    |
| Drugs protected from light   |     |    |
| Record keeping and reference materials   | Yes | No |
| Which of the following are available?  |     |    |
| LMHRA Act  |     |    |
| Liberia STG/ELMS   |     |    |
| Accredited Medicine Store standards  |     |    |
| Accredited Medicine Store code of ethics   |     |    |
| Accredited Medicine Store dispenser's training manual                                  |     |    |
| Other reference book(s)  |     |    |
| Drug register  |     |    |
| Purchase records book kept for each item purchased or otherwise obtained? <sup>9</sup> |     |    |
| Packaging materials satisfactory?  |     |    |
| Labels, on stocks of medicines kept, satisfactory?                                     |     |    |

<sup>9</sup> Check the following: Date of receipt, Invoice number, Origin (Supplier), Quantity received, Batch number and expiry date.

| <b>SECTION C: Product Registration and Authorization</b>  |   |            |           |                                       |
|---|---|------------|-----------|---------------------------------------|
| Conduct inspection of the medicines currently in the premises. If there are unauthorized medicines, the PBL/LMHRA Inspectors should confiscate them. Unauthorized medicines include medicines that appear to be of questionable standard or fake, expired, not registered with LMHRA, not included in the list allowed to be stocked and sold in the Accredited Medicine Store. |   |            |           |                                       |
|   |   | <b>Yes</b> | <b>No</b> | <b>Quantity and batch confiscated</b> |
| 1   | Are there any unauthorized medicines in the accredited medicine store?              |            |           |                                       |
| 2   | Are there any unregistered (with LMHRA) medicines in the accredited medicine store? |            |           |                                       |
| 3   | Are there any public medicines with Republic of Liberia label?                      |            |           |                                       |
| 4   | Are there any medicines that are not included in the extended medicines list?       |            |           |                                       |
| 5   | Are there any expired medicines?  |            |           |                                       |
| 6   | Are there any medicines with questionable standard of quality/fake?                 |            |           |                                       |
| <b>Comments and Recommendations</b>   |   |            |           |                                       |
| <p><b>Inspector:</b><br/>                 Signed:.....Name.....Designation.....Date.....</p> <p>Signed:.....Name.....Designation.....Date.....</p>  |   |            |           |                                       |

## **ANNEX 3. FUNCTIONS AND DUTIES OF THE PHARMACY BOARD AND LIBERIA MEDICINES AND HEALTH PRODUCTS REGULATORY AUTHORITY [LMHRA ACT, 2010]**

---

### **Functions of the Board**

1. Administers examinations for the qualification of graduate pharmacists and dispensers who have completed the requirements for licensure
2. Registers and maintains the register for all pharmacists and dispensers practicing in Liberia
3. Supervises and controls the ethical behavior of practicing pharmacists and dispensers in Liberia
4. Ensures the continuing professional development of pharmacists and dispensers
5. Inspects pharmaceutical outlets for annual registration documents, conditions of premises, and qualifications of dispensers in stores
6. Issues permits to retailers annually
7. Evaluates curricula and issues annual permits to pharmaceutical training institutions
8. Sets standards and defines requirements for establishing and operating retail pharmaceutical outlets
9. Prepares and maintains a Liberian Pharmacopoeia
10. Advises the Minister of Health on all matters relating to the conditions of the practice of Pharmacy in Liberia

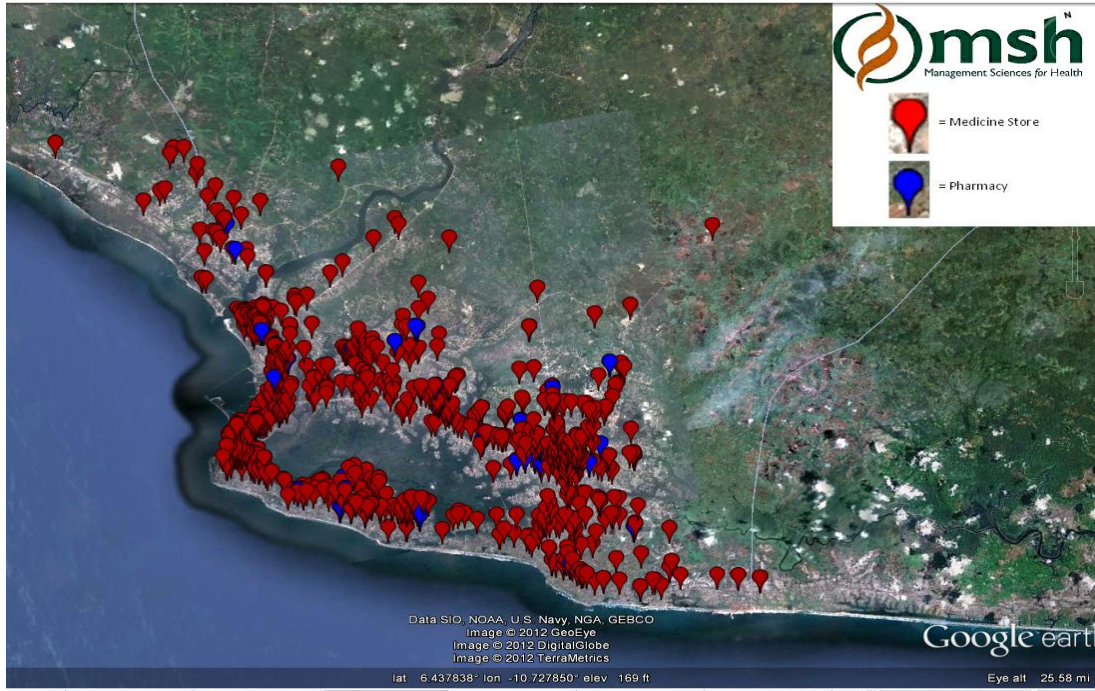
### **The functions and duties of the Authority include:**

1. Conduct registration of medicines and health products.
2. Issue licenses or permits for premises and personnel to engage in the manufacture, import, export, transit into or out of the Republic of Liberia, supply, storage, distribution, or sale of medicines and health products, excluding retail pharmaceutical outlets.
3. As and when deemed necessary by the Authority, suspend, cancel, or revoke such license or permits in accordance with regulations.
4. Establish an inspectorate and conduct inspections of premises where medicines or health products are manufactured, stored, distributed, supplied, and sold.
5. Confiscate expired, substandard, counterfeit, or unregistered medicines in accordance with regulations.
6. Establish and operate quality control laboratories to ensure safe, effective, and good quality medicines and health products for domestic and foreign markets.
7. Conduct postmarketing surveillance of medicines and health products.
8. Conduct pharmacovigilance of medicines and health products.
9. Issue warnings and conduct recalls of products.
10. Regulate the conduct of clinical studies of medicines and health products.
11. Prepare, keep, and update a registry of medicines and health products registered and approved for marketing in the Republic of Liberia.
12. Set standards of quality, safety, and efficacy of medicines and health products.
13. Promulgate regulations as necessary to meet its responsibilities under this Act, including regulations providing for administrative hearings necessary for effective enforcement of this Act.
14. Develop and disseminate guidelines, procedures, guidance and other materials necessary for effective implementation of the functions of the Authority.
15. Provide current and unbiased information on medicines and health products to health care professionals and the general public.
16. Regulate advertising and promotion of medicines and health products.
17. Be responsible for its human resources development.
18. Promote, monitor, and evaluate the implementation of this Act.



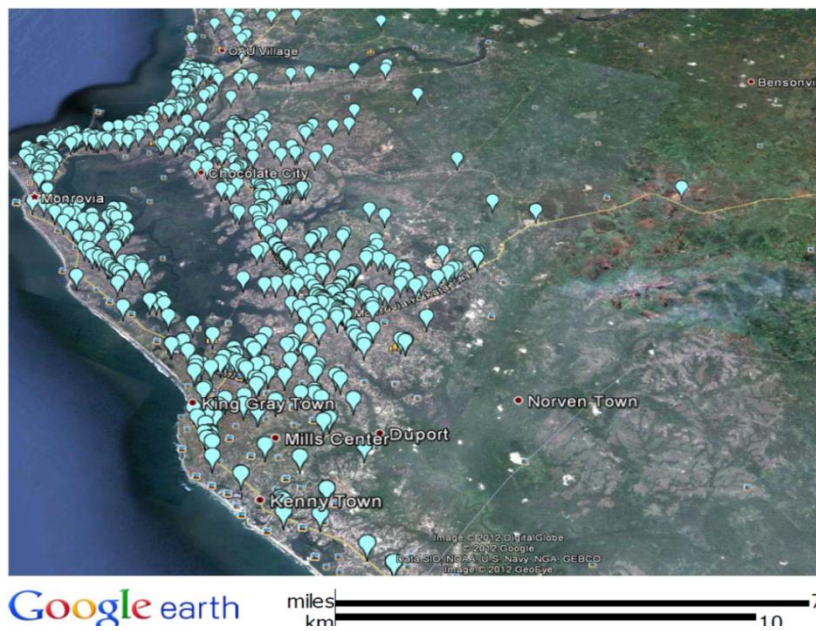
## ANNEX 4. MAPS

### Map of Drug Shop Pre-Accreditation Process in Montserrado County, Liberia, Medicine Stores vs. Pharmacies



Source: Google Earth. © Data SIO, NOAA US Navy, NGA, GEBCO. Image © 2012 GeoEye. Image © 2012 DigitalGlobe. Image © 2012 TerraMetrics.

### Medicine Stores in Montserrado County, Liberia, January 2011



Source: Google Earth. Image © 2012 DigitalGlobe. Image © 2012 Google. © Data SIO, NOAA US Navy, NGA, GEBCO. Image © 2012 GeoEye.



Medicine Stores with a Valid Permit in Montserrado County, Liberia, January 2011



Google earth



Source: Google Earth. Image © 2012 DigitalGlobe. Image © 2012 Google. © Data SIO, NOAA US Navy, NGA, GEBCO. Image © 2012 GeoEye.