

Annual Report

of

**The Operations of The
Barbados Drug Service**

**For Fiscal Years
April 1, 2012 - March 31, 2013**

**Barbados Drug Service
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Mr. Shawn Burgess (Temporary)

Executive Summary

The operations of the Barbados Drug Service (BDS) are governed by the Drug Service Act Cap 40A and the Financial Administration and Audit (Drug Service) Rules, 1980. There are many other pieces of legislation that either directly or indirectly impact on the functions of the BDS. Work is ongoing to revise and in some instances, enact some of the legislation that govern the Drug Service and Pharmacy in general. The BDS is a government department within the Ministry of Health comprising of 104 staff, charged with the responsibility of the Pharmaceutical Program, Program 363, sub program 383 (Drug Service).

The Mission statement of the Drug Service is to “To provide quality pharmaceuticals to all residents of Barbados at an affordable price and to serve the beneficiaries in a courteous and efficient manner. The BDS Vision is to *“To strengthen the operational capabilities through staff empowerment, public participation and cost sharing, and to lend support to the pharmaceutical services in the rest of the Caribbean region”*.

The Ministry of Health is responsible for assuring a functioning health care system. The Health Care Services are organized at three levels, Primary, Secondary and Tertiary. All these levels need a functioning Pharmacy program with adequate stock of high quality, safe, rationally prescribed, dispensed, and effective use of drugs. In Barbados, the public sector works in partnership with the private sector to carry out the pharmaceutical program. Every human being is entitled to the enjoyment of the highest attainable standard of health conducive to living a life of dignity. Access to health care, which includes access to essential medicines, is a prerequisite for realizing this entitlement. The Ministry of Health and its stakeholders, within reason, facilitate this right.

The main three goals of the Drug Service Program are to:

- Provide quality drugs and related items to all Government Healthcare Institutions, as well as the provision of medication free of cost to all residents of Barbados who qualify under the various categories of the Special Benefit Service.
- Make provision for persons not benefiting from the Special Benefit Program to receive medication at an affordable cost because all formulary drugs and related items enter the country free of duty and other taxes.
- Perform drug regulatory functions both in terms of ensuring the quality and efficacy of pharmaceutical drugs as well as overseeing the control of controlled substances including antimicrobials, hormones, narcotics, psychotropics and chemical precursors

The BDS report is produced annually as mandated under the Drug Service Act CAP. 40A sub section 6B, “...the Director and the Accounting Officer shall, within 3 months after the 31st of March in every year, submit to the Minister a report of the operations of the Drug Service during the preceding year.” The report in Section 4 provides an insight into the activities of the Drug Service. It must be highlighted that the usage ranking of antihypertensive and antidiabetic medicines at positions 1 and 2 respectively, correlate with the 2011 Annual Report of the Barbados National Registry which list hypertension and diabetes as the two top CVD risk factors for both acute Myocardial Infarction and stroke.¹

1. Barbados National Registry, 2011 Annual Report; 2011, Rose AMC, Martelly T, Craig L, Blackman T, Pitts G, Maul L, Hambleton IR, Hennis AJM, and the BNRCVD Surveillance Team

Immediately after the restructuring of the BDS (one year after), the drug expenditure of the BDS as a percentage of the Ministry of Health's budget dropped significantly from 13% in 2010/2011 to 6% in 2011/2012. Two years later, in the 2012/13 period, the expenditure of the BDS as a percentage of that of the Ministry's was 7%, which can still be considered favourable when compared to most developed countries. There will be a need to keep monitoring the expenditure.

The challenges encountered during the reporting period are shown in section 6 of the report. These challenges usually form the basis for the work plan of the following year. Appendix A shows the receipts and payments for the accounting period. The BDS Expenditure and Prescription volume are provided at Appendix B, and the Indicator Matrix for Budget Year 2012-2015 at Appendix C.

2.0

Introduction

Fiscal year 2012-13 was another challenging economic period for the Barbados Drug Service but we were pleased to have delivered our goal; that is, “to provide quality pharmaceuticals to all residents of Barbados at an affordable price and to serve the beneficiaries in a courteous and efficient manner.” In achieving its goal, the Barbados Drug Service (BDS) embraced three main objectives as determined under the Barbados National pharmaceutical policy, namely (i) To ensure access of affordable, safe, and quality drugs to all government health care institutions and the private sector pharmacies, (ii) To maintain and update the Barbados National Drug Formulary through the rational use of medications, and (iii) To ensure quality and safety of drugs through appropriate regulatory frameworks including testing, inspection, monitoring and surveillance.

Our 2012-13 Annual report underscored the effectiveness of the restructuring strategies from previous years and our continued strong execution. We consistently delivered on the commitment to our stakeholders and our objectives were realized. We remained focused on prioritizing and simplifying our business operations in both meeting our service delivery and regulating its quality. The continued high service demand was demonstrated in the dispensing service offered through the 15 public pharmacies and 85 Private Participating Pharmacies. In addition, the quality and continuous supply of our product was maintained respectively through an effective Drug Inspectorate and Supply and Inventory service. The overall operations of the department were realized with a staff complement of 105 and at a cost of \$31,884,490.

The BDS continued to recognize that the success or failure of its programmes lie in the hands of the clients. It is for this reason that quarterly public lectures are hosted to educate clients in sound pharmacy management techniques that can lead to rational use of medicines and by extension improved overall health care.

3.0

Background

The establishment of the Barbados Drug Service (BDS) in 1980 was guided by the fundamental philosophy of the World Health Organisation (WHO) which states that “if essential drugs are not available or if people do not have access to them, health care systems and primary health care cannot function properly and have no credibility, since all aspects of health care and disease control are affected by essential drugs”.

The BDS was established under the Drug Service Act 1980-58 to provide residents of Barbados with quality pharmaceuticals at an affordable price. In addition, the services offered by the BDS were designed to develop equity among all Barbadians and allow patients who use either the public or private sector to receive the same quality pharmaceuticals. The Drug Service Act CAP 40A and its Regulations and the Financial Administration and Audit (Drug Service) Rules, 1980 govern the operations of the Barbados Drug Service.

In 1981 the Special Benefit Service was established, and beneficiaries in both the public and private sectors obtained formulary drugs upon presentation of a prescription, and the appropriate co-payment. In 1986 co-payment was removed and the beneficiary’s age for children expanded from under 6 years to under 16 years. The current beneficiaries as listed in **Table 1** includes persons suffering from

diabetes, hypertension, cancer, asthma, glaucoma and epilepsy who receive formulary drugs used in these illnesses free of cost in both the public and private pharmacies. The drug cost for prescriptions filled in private pharmacies for all BDS beneficiaries are paid in full by the BDS whereas the dispensing fee is paid by the patient in the private sector.

Table 1 Beneficiaries of the Barbados Drug Service

| Groups Currently Covered (Beneficiaries) | Provision of Drugs And Related Items | |
|--|---|--|
| | Public Sector | Private Sector |
| 1. Persons 65 years and over | Free drug cost and no added dispensing fee | * Free drug cost and patient pays the dispensing fee |
| 2. Children under 16 years of age | Free drug cost and no added dispensing fee | * Free drug cost and patient pays the dispensing fee |
| 3. Persons who receive prescribed formulary drugs for the treatment of Hypertension, Diabetes, Cancer, Epilepsy, Glaucoma and Asthma | Free drug cost and no added dispensing fee | * Free drug cost and patient pays the dispensing fee |
| 4. Persons between 16 and 64 who are not included in 3 above | Free drug cost and no added dispensing fee | Patient pays drug cost** + pharmacy mark-up |

* A dispensing fee was charged to patients from April 1, 2011

** Patient pays a reduced cost free of duties and taxes

The Private Participating Pharmacies submit invoices for payment to the Barbados Drug Service thirty-six (36) days after the first day of the month in which the formulary drugs were dispensed to the beneficiary. Such accounts are duly certified by the patient or agent as to the services received. The Barbados Drug Service makes payment with respect to these invoices submitted by the last day of the month in which the invoices were submitted to the Barbados Drug Service.

4.0

Activities

The activities of the Barbados Drug Service are driven by six key areas of responsibility as detailed below:

Areas of Responsibilities

- (1) The Barbados National Drug Formulary (BNDF)
- (2) The Supply and Inventory Service
- (3) The Special Benefit Service (SBS)
- (4) The Barbados Drug Service Pharmacy Service
- (5) The Drug Inspectorate; and
- (6) The Drug Information Centre (DIC)

4.1

ACTIVITY 1: BARBADOS NATIONAL DRUG FORMULARY

Nature and Scope:

A formulary is a selection of active pharmaceutical moieties with their dosage forms and strengths, chosen according to health needs of the population and scientific criteria. The formulary is to address or solve health problems of a defined group of the population: primary care, hospitalized patients, private clinics or the majority of the population. The formulary is also an educational tool which provides information to prescribers about the medicines, with the aim of using them in a rational way. It includes supply protocols and a list of Specially Authorized Drugs together with complete drug monographs on indications, contraindications, adverse effects, and dosage for specific diseases.

The Barbados National Drug Formulary comprise a list of all drugs categorized under their International Non-Proprietary Name, rather than brand names. The 31st edition of the Barbados National Drug Formulary (BNDF) was published during the 2012-13 fiscal year. This publication was printed by the Government Printer and distributed to medical and pharmacy practitioners and students.

In accordance with Section 5(3) and 5(A) of the Drug Service Act Cap. 40A, the Minister of Health after consulting with the Drug Formulary Committee approved the preparation of the 31st edition of the BNDF through the Drug Service (Barbados National Drug Formulary) (Approval) Order, 2012 S.I 2012 No. 32 on May 11, 2012. Metamizol e.g. Baralgin[®] tablet was set out in the Schedule and approved for inclusion in the 31st Edition of the Barbados National Drug Formulary and was inserted into the 31st Edition of the Barbados National Drug Formulary.

The Drug Formulary Committee is comprised of the following members:

Endocrinologist - Dr. Colette George (Chairman)
Hospital Pharmacist, QEH - Mr. Basil Bradshaw (Deputy Chairman)
Director Medical Services, QEH - Dr. David Callender
Rheumatologist, QEH - Dr. Cindy Flower (resigned on August 8, 2012)
Representative Barbados Association of Medical Practitioners - Dr. Opal Gibson
Representative Barbados Association of Psychiatrist - Dr. Sharon Harvey
Director BDS - Mrs. Maryam Hinds (Ex Officio)
Representative Barbados Association of Pharmacy Owners - Mr. Hewley Hutson
Representative Barbados Registered Nursing Association - Mr. Stephen James
CMO - Dr. Joy St John (Ex Officio)
Representative Barbados Pharmaceutical Society - Mrs. Marina Thompson
Clinical Medical Officer, Polyclinic Service - Dr. Carl Ward
Patient Advocate (HOPE Foundation) - Miss Shelly Weir
Senior Pharmacist, QEH - Mrs. Naomi Whittaker

During the year under review the Drug Formulary Committee made a recommendations to the Minister of Health that the following drugs be added to formulary. Approval was given on 2012-11-23.

- Loperamide
- Candesartan 8mg, 16mg, 32mg Tab

- Cetirizine
- Donepezil
- Letrozole
- Econazole Vaginal Preparation
- Telmisartan/HCTZ
- Valsartan/HCTZ
- Tafluprost 0.015 Eye Drop

4.1.2

SPECIALLY AUTHORISED DRUGS

A Specially Authorised Drug (SAD) is one not found in the Barbados National Drug Formulary but may be made available to a physician for a specific patient and for a specific period of time. Such drugs may also be made available to an institution or department to be used by patients who attend a particular clinic/unit. A list of these drugs is provided in the formulary. The Drug Formulary Committee also recommends Specially Authorised Drugs to the Minister of Health. The Drug Formulary Committee made recommendations to the Minister of Health with respect to the following Specially Authorised Drugs during the 2012-13 fiscal year. Approval was given on 2012-11-23.

Specially Authorised Drugs approved on November 23, 2012

- Adamon 50mg/ml Injection
- Aglomelatine 25mg Tablet
- Alocid 20mg Capsule
- Amaryl 2mg Tablet
- Amaryl 4mg Tablet
- Angeliq 1mg E/2mg D Tablet
- Apo-Trihex 2mg Tablet
- Apo-Trihex 5mg Tablet
- Benzhexol 2mg Tablet
- Benzhexol 5mg Tablet
- Buscopan Plus 10mg H/ 500mg P Tablet
- Cilest 250/35 Tablet
- Cilostazol 50mg and 100mg Tablet
- Climen 2mg E/1mg C Tablet
- Diane 35 2mg C/35mcg E Tablet
- Femiane 75mg G/20mcg Et Tablet
- Gynera 75mcg G/30mcg E Tablet
- Levonorgestrel/Ee 150/30 Tablet
- Perphenazine 4mg Tablet
- Rivaroxaban 10mg, 15mg and 20mg Tablet
- Sitagliptin 100mg Tablet
- Sod Carboxymethylcellulose 0.5% Eye Drop
- Sunitinib 12.5mg, 25mg, and 50mg Capsule
- Thioridazine 25mg, 100mg Tablet
- Tritace 10mg Tablet
- Tritace 2.5mg Tablet
- Tritace 5mg Tablet
- Verapamil 2.5mg/MI Injection

Specially Authorised Drugs approved on November 23, 2012

- Voltaren 50mg Suppository
- Yasmin 3mg D/0.03mg E Tablet
- Yaz 3mg D/0.02mg Ee Tablet
- Zuclopenthixol 25mg/ml Injection

The money to procure these Specially Authorised Drugs comes from under the same item head: 210 Supplies and Material that is budgeted for the supply of formulary drugs to meet the needs of the public pharmacies. During fiscal year 2012-13, the Barbados Drug Service spent \$113,894.70 in procuring 1,183 Specially Authorised Drugs. This period recorded the second lowest average cost per SAD prescription. As given in Table 2, this expenditure represents a 6% decreased over the 2011-12 fiscal year. Expenditure with respect to SADs has been maintained at 1% of the overall BDS public sector expenditure over the last three fiscal years.

Table 2 SAD Expenditure versus Public sector Drug Expenditure for The 2003-13 fiscal Years

| Year | Number of SADs approved | Percentage Change in Number of SAD approvals | SAD Expenditure | Percentage Change in Expenditure | Total Drug Expenditure in Public Sector | Average Cost/ SAD | SAD Expenditure as a Percentage of Total Drug Expenditure in the Public Sector |
|----------|-------------------------|--|-----------------|----------------------------------|---|-------------------|--|
| 2003-04 | 560 | -71% | \$87,895.58 | -92% | \$7,438,565.00 | \$156.96 | 1% |
| 2004-05 | 751 | 34% | \$257,847.50 | 193% | \$8,262,528.00 | \$343.34 | 3% |
| 2005-06 | 784 | 4% | \$231,595.53 | -10% | \$8,930,806.00 | \$295.40 | 3% |
| 2006-07 | 608 | -22% | \$322,594.94 | 39% | \$11,403,711.00 | \$530.58 | 3% |
| 2007-08 | 715 | 18% | \$280,942.37 | -13% | \$10,439,220.00 | \$392.93 | 3% |
| 2008-09 | 955 | 25% | \$299,312.72 | 6% | \$12,932,110.00 | \$313.42 | 2% |
| 2009-10* | 1426 | 33% | \$198,202.38 | -51% | \$12,150,516.00 | \$138.99 | 2% |
| 2010-11 | 982 | -45% | \$125,953.12 | -57% | \$12,451,937.00 | \$128.26 | 1% |
| 2011-12 | 1016 | 3% | \$123,919.64 | -2% | \$11,765,288.00 | \$121.97 | 1% |
| 2012-13 | 1183 | 14% | \$113,894.70 | -9% | \$13,481,501.00 | \$96.28 | 1% |

* Tamiflu® was purchased for the H₁N₁ treatment

At Table 3 it is to be noted that though there is a 13% increase in the number of SADs approved free of cost in the 2012-13 versus the 2011-12 fiscal year, there is a 25% decline in expenditure. This can be attributed to the overall decline in the average costs per request for these drugs as seen in Table 2 and further detailed in Table 4. The only exception to this trend in the decrease in the average costs per request in 2012-13 versus the 2011-12 fiscal year is in the area of the anti-diabetics where there is seen a 66% increase.

Table 3 SAD Approval Status for Fiscal Years 2008-09 to 2012-13

| Approval Classification | 2008-09 Fiscal Yr. | | 2009-10 Fiscal Yr. | | 2010-11 Fiscal Yr. | | 2011-12 Fiscal Yr. | | 2012-13 Fiscal Yr. | |
|-------------------------|--------------------|-----------------------|--------------------|-----------------------|--------------------|-----------------------|--------------------|-----------------------|--------------------|-----------------------|
| | Number | Projected Expenditure | Number | Projected Expenditure | Number | Projected Expenditure | Number | Projected Expenditure | Number | Projected Expenditure |
| Approved Free of Cost | 889 | \$242,602.11 | 1328 | \$155,006.70 | 945 | \$111,176.33 | 990 | \$117,093.70 | 1139 | \$93,687.67 |
| Patient Pays cost | 8 | \$42,607.33 | 7 | \$5,216.73 | 3 | \$3,938.68 | 5 | \$664.28 | 15 | \$8,069.98 |
| Not Approved | 50 | \$9,379.17 | 69 | \$23,468.19 | 27 | \$1,844.85 | 13 | \$32.76 | 21 | \$1,090.18 |
| Generic on Formulary | 4 | \$686.88 | 17 | \$8,115.31 | | | 4 | \$270.38 | 2 | \$177.83 |
| Patient Pays Half Cost | 4 | \$4,037.23 | 5 | \$6,395.44 | 7 | \$8,993.25 | 4 | \$5,858.52 | 6 | \$10,869.04 |
| Grand Total | 955 | \$299,312.72 | 1426 | \$198,202.38 | 982 | \$125,953.12 | 1016 | \$123,919.64 | 1183 | \$113,894.70 |

N.B. The Cost of Therapy is the cost that is calculated based on the period for which the drug is approved; which is up to 1 year in some cases.

Table 4 Cost Comparison of the Top Specially Authorised Drugs Approved during Fiscal years 2008-09 to 2012-13

| Therapeutic Category | 2008-09 | | | 2009-10 | | | 2010-11 | | | 2011-2012 | | | 2012-2013 | | |
|---------------------------------------|--------------------|-------------|------------------------|--------------------|------------|------------------------|--------------------|-----------|------------------------|--------------------|-----------|------------------------|--------------------|-----------|------------------------|
| | Number of Requests | Cost (\$) | Avg. Cost/Request (\$) | Number of Requests | Cost (\$) | Avg. Cost/Request (\$) | Number of Requests | Cost (\$) | Avg. Cost/Request (\$) | Number of Requests | Cost (\$) | Avg. Cost/Request (\$) | Number of Requests | Cost (\$) | Avg. Cost/Request (\$) |
| Anti-Neoplastic Agents | 3 | 45,481.45 | 15,160.48 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Vasodilating Agents | 141 | 1,30,399.25 | 924.81 | 9 | 7,569.56 | 841.06 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Anti-Asthmatic Agents | 103 | 502,34.61 | 487.71 | 125 | 68,036.89 | 544.30 | 148 | 67,622.39 | 456.91 | 130 | 62,352.36 | 479.63 | 267 | 58,605.66 | 219.50 |
| Anti-Convulsant Agents | 4 | 5,510.29 | 1377.57 | 3 | 2174.98 | 725.00 | 2 | 1,967.18 | 983.59 | 2 | 2,816.66 | 1,408.33 | 7 | 5,188.85 | 741.26 |
| Antibacterial Agents | 590 | 18,911.27 | 32.05 | 574 | 15,405.16 | 26.84 | 759 | 18,573.92 | 27.47 | 801 | 2,2841.62 | 28.52 | 836 | 23,554.67 | 28.17 |
| Psychotherapeutic Agents | 18 | 5,812.63 | 322.92 | 2 | 1,586.52 | 793.26 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Pituitary Agents | 2 | 15,705.39 | 7,852.69 | -- | -- | -- | 1 | 14,854.88 | 14,854.88 | 2 | 16,258.98 | 8,129.49 | 2 | 2,106.14 | 1,053.07 |
| Tranquilizers | 7 | 1,214.03 | 173.43 | 9 | 939.55 | 104.39 | 9 | 1,145.00 | 127.22 | 12 | 1,405.02 | 117.08 | 10 | 1,021.36 | 102.13 |
| Anti-Diabetic Agents | 9 | 8,550.24 | 950.02 | 6 | 7,040.11 | 1,173.35 | 5 | 6,210.94 | 1,242.19 | 8 | 5822.82 | 727.85 | 7 | 7,744.33 | 1,106.33 |
| Anti-Viral Agents | 3 | 371.45 | 123.82 | 582* | 136,476.98 | 234.5 | 8 | 1,771.20 | 221.40 | 9 | 967.52 | 107.50 | 4 | 382.50 | 95.62 |
| Cardiac Agents | 5 | 1,492.59 | 298.52 | 5 | 1,351.63 | 270.32 | 5 | 1,855.61 | 371.12 | 4 | 1,459.64 | 364.91 | 8 | 1,365.32 | 170.66 |
| Respiratory-Cerebral Stimulant Agents | 3 | 3,736.51 | 1,245.50 | 5 | 6,395.44 | 1,279.08 | 6 | 7,556.96 | 1,259.49 | 2 | 4,565.20 | 2,282.60 | 5 | 9,454.65 | 1,890.93 |

*Tamiflu® used for the treatment of H₁N₁ represents 458 of these requests

4.2 **ACTIVITY 2: THE SUPPLY AND INVENTORY SERVICE**

4.2.1 ***Nature and Scope:***

The Supply and Inventory arm to the Barbados Drug Service is responsible for ensuring that a continuous supply of tendered pharmaceuticals and related products are available at all times. A Drug Tenders Committee as established under the Financial (Drug Service) Rules, 1980, is comprised of doctors and pharmacists from the public and private sectors together with a representative from the Central Purchasing Department; the current members are listed below:

Director, Barbados Drug Service - Mrs. Maryam Hinds (Chairman)

Asst. Director, BDS (Supply & Inventory) - Miss. Delores Mascoll (Deputy Chairman)

Hospital Pharmacist, QEH - Mr. Basil Bradshaw

Representative, Barbados Association of Medical Practitioners - Dr. Malcolm Howitt

Representative, Barbados Pharmaceutical Society - Mr. George Alleyne

Chairman, Drug Formulary Committee - Dr. Colette George

Representative, QEH Medical Staff Committee - Mr. David Callender

Representative, Chief Supply Officer - Mr. Rudolph Francis

This Committee adjudicates on the drug tenders and makes recommendations to the Minister of Health for approval. Once approval is granted by the Minister, the local distributor is sent the complete list of items awarded; written acknowledgement of this offer confirms their agreement to abide with the Terms & Conditions of the Tender and their obligation to maintain a continuous supply of tendered drugs and related items at all times. Unfortunately this is not always achieved by suppliers.

The Barbados Drug Service pays for drugs and related items listed in the Barbados National Drug Formulary to the following institutions and departments. Each pharmacy submits a drug requisition on an as needed basis to the supply section of the BDS, this requisition is vetted, entered into Smart Stream to generate the Drug Service Purchas Order which is sent to the supplier. The various suppliers deliver the items directly to the pharmacy.

- 1 All Government Hospitals
- 2 All Polyclinics and Out-Patient Clinics

The entities listed below submit their drug requisitions to the BDS office for pickup by the various local agents but the items are paid for by the respective departments/institutions.

- 1 The Barbados Defence Force
- 2 Her Majesty's Prison - Dodds
- 3 All other government departments who need a supply of non-prescription drugs as First-Aid stock.

The Ladymeade Reference Unit benefits from the tendered prices; however the Ministry of Health processes their drug requisitions and pays for their drugs.

Local pharmaceutical distributors are fully involved in the supply process, and direct overseas purchases are seldom made. The Local Distributors are allowed a 32% trading mark-up on cost, insurance and freight. They are responsible for importing,

warehousing, and distributing the drugs and related items supplied under the Barbados Drug Service programme as contracted in **Table 5**. It must be noted that there has been an increase in chemical moieties contracted over the ten year period with three exceptions seen in 2005-06, 2008-09 and 2012-13 fiscal years when there were marginal declines. The periods of declines are usually seen every three to four years. It must be noted that amidst the shrinkage of the formulary in 2011-12 there was no major decline in the number of chemical moieties contracted. This is due to the fact that all drugs that were removed from the formulary continued to be tendered as a specially authorized drug in order to make them more affordable to the public.

Table 5 Number of Drugs Contracted for the Ten Year Period

| MPC # | Fiscal Year (April 1 – March 31) | Number of Drugs (Chemical Moieties) |
|-------|----------------------------------|-------------------------------------|
| 24 | 2003-04 | 2036 |
| 25 | 2004-05 | 2087 |
| 26 | 2005-06 | 2077 |
| 27 | 2006-07 | 2141 |
| 28 | 2007-08 | 2210 |
| 29 | 2008-09 | 2201 |
| 30 | 2009-10 | 2727 |
| 31 | 2010-11 | 2736 |
| 32 | 2011-12 | 2754 |
| 33 | 2012-13 | 2709 |

4.2.2

External Sourcing of Difficult to Obtain Drugs

Within recent years it has become more and more difficult to source certain contracted drugs. When drugs cannot be procured under the tendering process, contact is made within the region to obtain these drugs. Also, both regional and extra regional pharmaceutical markets are tapped into through the PAHO strategic fund or the Regional Network of Pharmaceutical Procurement and Supply Management Authorities (CARIPROSUM) to procure drugs outside the tendering process.

The BDS continues its efforts to develop a website; with one of its functions being that of advertising its tenders internationally. It is opined that this website would enable the BDS to source pharmaceuticals globally and hence reduce the shortage situations.

4.3

ACTIVITY 3: THE SPECIAL BENEFIT SERVICE

Nature and Scope:

4.3.1

Beneficiaries

The Special Benefit Service provides drugs and related items listed in the Barbados National Drug Formulary free of cost at point of service to the following beneficiaries:

- (1) Persons 65 years of age and over;
- (2) Children under 16 years of age;
- (3) Persons who receive prescribed Formulary Drugs for the treatment of hypertension, diabetes, cancer, asthma, glaucoma and/or epilepsy.

It must be noted that during the 2010-2011 fiscal year the criteria for beneficiaries were enforced to ensure that only Barbadian citizens and permanent residents receive prescribed formulary drugs free of cost at point of service.

Irrespective of age, all Barbadian citizens and permanent residents prescribed formulary drugs for the treatment of hypertension, diabetes, cancer, asthma, glaucoma and epilepsy, receive it free of cost at point of service. Patients in the 16 – 64 age range obtain the other formulary drugs at a subsidised price found in the '*Prescription Pricing Guide-Purchasing Guide*'. This is so because all formulary drugs and related items enter the country free of import duty, environmental levy and value added tax. It is thus true to say that all residents of Barbados benefit from the programmes of the Barbados Drug Service as seen earlier in **Table 1**.

4.3.2 Private Participating Pharmacies (PPPs)

- There are ninety (90) Private Participating Pharmacies (PPPs) who are contracted with the Director, BDS to provide pharmaceutical services in the private sector but on average only eighty-five (85) provide service on a regular basis. The term of the current Agreement was April 1, 2011 – March 31, 2013. Subsequent to the implementation of the new Agreement, the following 13 pharmacies were approved to become PPPs with the Barbados Drug Service, and there was one closure, namely Knights Extra at Fontabelle.

PPPs that were contracted during the reporting Period

- Roundhay Pharmacy, Rosegate, St. John
- Healthcare Pharmacy, Westbury Road, St Michael
- HealthCare Pharmacy, Harts Gap, Christ Church
- Montrose Pharmacy, Montrose, Christ Church
- Genucare Pharmacy, Black Rock Main Road, St. Michael
- Multimed Pharmacy, Belleville, St. Michael
- Elgar Pharmacy, Market Hill, St. George
- HealthSmart, Coverly, Christ Church
- HealthSmart, Sunset Crest, St. James
- Holetown Pharmacy, Holetown, St. James
- Imart Convenience Store & Pharmacy, Sunset Crest, St. James
- Neighbourhood Pharmacy, Paynes Bay, St. James
- Riverside Pharmacy, River Road, St. Michael

4.3.3 Usage of the Special Benefit Service

Table 6 gives detailed statistics on the prescription volume and expenditure in the Private Participating Pharmacies over ten fiscal years 2003-04 to 2012-13, whereas **Table 7** shows the comparable percentage changes. The years, for which prescription volumes are not available, is due to the challenges in data entry. However with the implementation of mandatory electronic submission of reimbursement claims by Private Participating Pharmacies on April 1, 2011 prescription counts were readily available. It can be seen that the restructuring strategies implemented in 2011-12 made a significant impact on the expenditure; there being a 68.8% decline in expenditure over the previous year. Expenditure continued to decrease in the 2012-13 fiscal year, even though marginally. Despite this marginal 1.41% decline in expenditure the average prescription cost for this

period stood at \$12.31, a 0.3% increase over that seen in 2011-12. This may be due to the overall increase in cost of pharmaceuticals.

Table 6 Special Benefit Service statistics for the Years April 1, 2003-
March 31, 2012

| Year | Prescription Volume | Reimbursement (\$) |
|---------|---------------------|--------------------|
| 2003-04 | 990,943 | 21,851,776.00 |
| 2004-05 | 1,113,093 | 23,115,488.00 |
| 2005-06 | 1,331,537 | 30,540,237.00 |
| 2006-07 | 1,846,882 | 31,587,931.00 |
| 2007-08 | 2,055,016* | 36,535,775.00 |
| 2008-09 | N/A | 36,633,590.00 |
| 2009-10 | N/A | 40,561,950.00 |
| 2010-11 | N/A | 34,574,833.00 |
| 2011-12 | 879,104 | 10,787,176.00 |
| 2012-13 | 864,335 | 10,636,956.00 |

* Estimated Value

Table 7 SBS Percentage Changes in Prescription Volume and Expenditure for
Fiscal Years 2002-03 to 2011-12

| Year | Prescription (R _x) | Reimbursement (\$) | %Change in Expenditure | % Change in R _x Volume | \$/R _x |
|---------|--------------------------------|--------------------|------------------------|-----------------------------------|-------------------|
| 2003-04 | 990,943 | 21,851,776.00 | 7.9% | 3.8% | \$22.05 |
| 2004-05 | 1,113,093 | 23,115,488.00 | 5.8% | 12.3% | \$20.77 |
| 2005-06 | 1,331,537 | 30,540,237.00 | 32.1% | 19.6% | \$22.94 |
| 2006-07 | 1,846,882 | 31,587,931.00 | 3.4% | 38.7% | \$17.10 |
| 2007-08 | 2,055,016* | 36,535,775.00 | 15.7% | 11.3% | \$17.78 |
| 2008-09 | N/A | 36,633,590.00 | 0.3% | N/A | N/A |
| 2009-10 | N/A | 40,561,950.00 | 10.7% | N/A | N/A |
| 2010-11 | N/A | 34,574,833.00 | -14.8% | N/A | N/A |
| 2011-12 | 879,104 | 10,787,176.00 | -68.8% | N/A | \$12.27 |
| 2012-13 | 864,335 | 10,636,956.00 | -1.41% | -1.71% | \$12.31 |

* Estimated Value

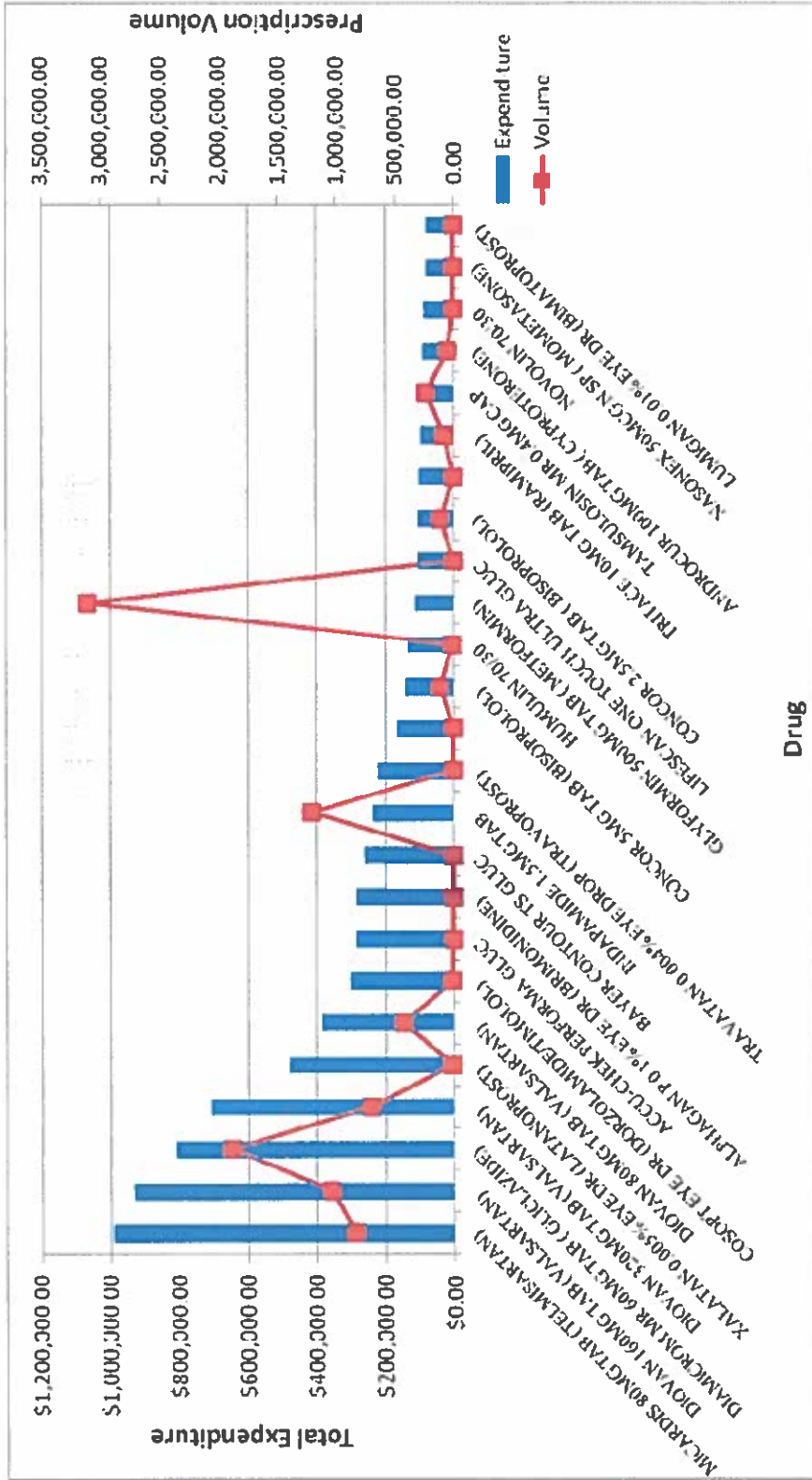
Table 8 Comparative List of the Top 25 Drugs Dispensed (by Price) in the Private Sector during the 2012-13 fiscal year

| Drug | Expenditure | Volume |
|--|--------------------|---------------|
| Micardis 80mg Tablet (Telmisartan) | \$992,592.09 | 837,858.00 |
| Diovan 160mg Tablet (Valsartan) | \$931,756.08 | 1,032,865.00 |
| Diamicrom MR 60mg Tablet (Gliclazide) | \$809,386.95 | 1,890,595.00 |
| Diovan 320mg Tablet (Valsartan) | \$709,787.98 | 699,512.00 |
| Xalatan 0.005% Eye Dr (Latanoprost) | \$478,229.85 | 14,604.00 |
| Diovan 80mg Tablet (Valsartan) | \$386,079.08 | 427,861.00 |
| Cosopt Eye Dr (Dorzolamide/Timolol) | \$303,324.00 | 9,252.00 |
| Accu-Chek Performa Glucose | \$284,644.14 | 5,744.00 |
| Alphagan P 0.1% Eye Dr (Brimonidine) | \$284,609.30 | 7,198.00 |
| Bayer Contour TS Glucose | \$259,827.75 | 4,929.00 |
| Indapamide 1.5mg Tablet | \$234,682.81 | 1,209,224.00 |
| Travatan 0.004% Eye Drop (Travoprost) | \$221,412.53 | 6,901.00 |
| Symbicort Turbuhaler 160/4.5 Inhaler (Budesonide/Formoterol) | \$166,414.62 | 3,794.00 |
| Concor 5mg Tablet (Bisoprolol) | \$142,907.56 | 116,116.00 |
| Humulin 70/30 Injection | \$135,289.14 | 10,230.00 |
| Glyformin 500mg Tablet (Metformin) | \$113,124.16 | 3,109,544.00 |
| Lifescan One Touch Ultra Glucose | \$102,778.98 | 2,112.00 |
| Concor 2.5mg Tablet (Bisoprolol) | \$102,570.43 | 104,402.00 |
| Seretide MDI 125/25 Inhaler (Fluticasone/Salmeterol) | \$98,730.50 | 1,596.00 |
| Tritace 10mg Tablet (Ramipril) | \$94,752.64 | 76,134.00 |
| Tamsulosin MR 0.4mg Capsule | \$92,068.54 | 234,049.00 |
| Androcur 100mg Tablet (Cyproterone) | \$89,533.55 | 49,646.00 |
| Novolin 70/30 Injection | \$85,390.24 | 6,502.00 |
| Nasonex 50mcg N Spray (Mometasone) | \$81,260.34 | 3,629.00 |
| Lumigan 0.01% Eye Drops (Bimatoprost) | \$79,979.20 | 2,716.00 |

The top twenty-five drugs dispensed in the private sector in 2012-13 fiscal year are ranked by expenditure in **Table 8**, and shows the comparative prescription volume.

Micardis[®] 80mg tablet and Diovan[®] 160mg tablet, both anti-hypertensive drugs, ranked at number 1 and 2 respectively in expenditure whereas Glyformin[®] 500mg tablet was the highest ranking in terms of volume. This was followed by Diamicrom MR[®] 60mg tablet at position 2 in the overall prescription volume.

The figure corresponding to **Table 8** shows an uneven distribution of expenditure to prescription volume as can be seen with Indapamide SR 1.5mg and Glyformin[®] 500mg tablets. These two pharmaceuticals have higher prescription volumes to Micardis[®] 80mg Tablet and Diovan[®] 160mg Tablet which rank in expenditure at positions 1 and 2 respectively. Similarly, Diamicrom MR[®] 60mg tablet with a significantly higher expenditure to Glyformin[®] 500mg tablets has a much lower corresponding prescription volume. For this reason drug costs and usage patterns must be considered when evaluating formulary selections against the budgetary impacts.



Corresponding figure to Table 8

Table 9 gives a comparative breakdown of drug usage in the private sector by therapeutic category for fiscal years 2011-12 and 2012-13. Approximately twice as much is spent on hypertension than on diabetes which comes in at numbers 1 and 2 respectively over these years. The corresponding number of hypertensive and diabetic patients represented in the prescription volume and expenditure in 2012-13 are 30,671 and 13,984 respectively.

Prior to 2012-13 fiscal year, glaucoma was not given benefit status but yet it had a high therapeutic ranking in the overall expenditure. Glaucoma was added to the benefit categories on December 11, 2012 but was not implemented until the approved budget was given in the 2013-14 fiscal year. It is for this reason that the expenditure was statistically the same as in the previous year. It is however not anticipated that adding glaucoma to the benefit category will increase the expenditure by any significant margin since the majority of these patients are already captured in the Special Benefit Service under the over 65's in the private sector or within the public sector.

Anti-lipemics showed a 183% reduction in expenditure in 2012-13 over the 2011-12 with a corresponding ranking of 6 and 10 for the respective years. This reduction may be explained by the fact that at the beginning of the 2011-12 fiscal year, the BDS continued to pay for prescriptions in the private sector for drugs within this therapeutic category. In addition, the reduction in prescription volume in 2012-13 would also contribute to the reduction in expenditure.

Table 9 Top Ten Therapeutic Categories in Private Sector for 2011-12 and 2012-13 Fiscal Years

| Therapeutic Class | 2011-12 Fiscal Year | | | | 2012-13 Fiscal Year | | | |
|---------------------------|---------------------|---------|-------------------|------------|---------------------|---------|-------------------|------------|
| | No. | Rx No. | Amount Spent (\$) | % of Total | No. | Rx No. | Amount Spent (\$) | % of Total |
| Hypotensives | 1 | 121,723 | \$4,517,963.44 | 44.20% | 1 | 158,726 | \$4,446,804.11 | 44.92% |
| Anti-Diabetes | 2 | 83,645 | \$2,402,846.84 | 23.51% | 2 | 75,957 | \$2,370,067.35 | 23.94% |
| Glaucoma | 3 | 18,966 | \$1,621,028.31 | 15.86% | 3 | 17,824 | \$1,584,472.65 | 16.01% |
| Anti-asthmatics | 4 | 25,204 | \$681,781.61 | 6.67% | 4 | 22,235 | \$653,505.88 | 6.60% |
| Anticonvulsants | 5 | 5,401 | \$300,993.09 | 2.94% | 5 | 5,144 | \$279,589.59 | 2.82% |
| Antilipemics | 6 | 15,101 | \$195,686.60 | 1.91% | 10 | 13,922 | \$69,165.55 | 0.70% |
| Anti-neoplastics | 7 | 2,054 | \$156,695.04 | 1.53% | 6 | 1,743 | \$167,872.19 | 1.70% |
| Analgesics | 8 | 39,260 | \$130,026.52 | 1.27% | 8 | 36,225 | \$113,145.47 | 1.14% |
| EENT Anti-Inflammatories | 9 | 5,067 | \$117,962.57 | 1.15% | 7 | 5,281 | \$115,757.07 | 1.17% |
| Unclassified Therapeutics | 10 | 3,879 | \$96,613.88 | 0.95% | 9 | 3,652 | \$98,672.24 | 1.00% |

4.3.4

Impact of the Restructuring Measures on the Barbados Drug Service

During the early years of the Barbados Drug Service, for example 1983-84 fiscal year, 26,384 prescriptions were dispensed in the 35 Private Participating Pharmacies at a cost of BDS \$0.2 Million. Co-payment was removed from SBS prescriptions on April 1, 1986 and the prescription volume rose proportionately from 41,390 in 1985-86 to 148,082 in 1986-87. Ten years later, in 1996-97, the prescription volume rose to 743,765 and then to 1,846,882 in 2006-07. Expenditure with respect to these prescriptions similarly increased from \$435,745 in 1985-86 to \$1,508,793 in 1986-87,

\$11,923,867 in 1996-97, and \$31,587,931 in 2006-07. In an effort to cost contain the BDS a policy decision was implemented in the 2010-11 fiscal year which saw a gradual tapering off of expenditure as seen in Table 10. This initial policy decision enforced that beneficiaries be restricted to Barbadian citizens and permanent residents only. Further reductions in expenditure were then realised in 2011-12 fiscal year with the introduction of the dispensing fee in the private sector based on the drug cost as seen in Table 11. The formulary review process as discussed earlier also significantly reduced the overall BDS expenditure. These cost cutting initiatives saw the decline in expenditure in the private sector from its peak of \$40,561,950.00 in 2009-10 to \$34,574,833.00 in 2010-11 and \$10,787,176.00 in 2011-12. The impact of the restructuring exercise was greatly seen in 2011-12 where there was a 221% reduction in expenditure over the previous year. At 2012-13 fiscal year a prescription volume of 864,335 was recorded at a cost of \$10,636,956.00. This was a 1% reduction in expenditure and a 3% decline in prescription volume recorded over the previous year.

Even though the expenditure continues to increase after the first restructuring measure in 2010-11 it was by a greatly reduced margin. The 2012-13 fiscal year showed a 1% decline in expenditure.

Table 10 Financial Impact on Restructuring of the BDS between 1985-86 and 2012-13 fiscal years

| Year | Private Expenditure | % Change in Expenditure | Private Prescription Volume | % Change in Prescription Volume |
|---------|---------------------|-------------------------|-----------------------------|---------------------------------|
| 1985-86 | \$435,745 | | 41,390 | |
| 1986-87 | \$1,508,793 | 71% | 148,082 | 72% |
| 1996-97 | \$11,923,867 | 87% | 743,765 | 80% |
| 2006-07 | \$31,587,931 | 62% | 1,846,882 | 60% |
| 2010-11 | \$34,574,833 | 9% | N/A | N/A |
| 2011-12 | \$10,787,176 | -221% | 879,104 | N/A |
| 2012-13 | \$10,636,956* | -1% | 864,335 | -1.71% |

* This figure can increase based on late submission of reimbursement claims from Private Participating Pharmacies.

It must be noted that patients filling their prescriptions in the public sector still continue to receive medication free of cost at point of service and with no added dispensing fee.

Table 11 Prescription Pricing Formula

| Cost of Drug to Pharmacy | Dispensing Fee to be Paid by the Beneficiary |
|--------------------------|--|
| \$0 - \$2.00 | \$5.00 minus Drug Cost |
| \$2.01 - \$10.00 | Cost plus \$5.00 |
| \$10.01 - \$20.00 | Cost plus \$7.00 |
| \$20.01 - \$40.00 | Cost plus \$12.00 |
| Over \$40.00 | Cost plus 30% |

4.4 ACTIVITY 4: THE BDS PHARMACY SERVICE

Nature and Scope:

4.4.1 BDS/ Public Sector Pharmacy Service

The BDS pharmacy service consists of 14 pharmacies located across Barbados as seen in **Table 12**. St. Lucy and St. James parishes do not have a BDS Pharmacy but they are serviced from Maurice Byer and Branford Taitt Polyclinic pharmacies respectively.

Table 12 List of BDS Pharmacies and Their Locations

| Pharmacy | Location |
|-------------------------------|-------------------------------------|
| Branford Taitt polyclinic | Black Rock Main Road, St. Michael |
| Edgar Cochrane polyclinic | Wildey, St. Michael |
| Geriatric Hospital | Beckles Road, St. Michael |
| Glebe polyclinic | Glebe, St. George |
| Maurice Byer polyclinic | Litchfield, Station Hill, St. Peter |
| Randal Philips polyclinic | Oistins, Christ Church |
| St. Andrew Out-Patient Clinic | Belleplaine, St. Andrew |
| St. John Out-Patient Clinic | Gall Hill, St. John |
| St. Joseph Out-Patient Clinic | Horse Hill, St. Joseph |
| St. Philip District Hospital | Ruby, St. Philip |
| St. Philip polyclinic | Six Roads, St. Philip |
| St. Thomas Out-Patient Clinic | Rock Hall, St. Thomas |
| Eunice Gibson polyclinic | Warrens, St. Michael |
| Winston Scott polyclinic | Ladymeade Gardens, St. Michael |

The Barbados Drug Service pharmacies provide beneficiaries with drugs and related items listed in the Barbados National Drug Formulary free of cost at point of service without charging a dispensing fee as applies in the private sector. As Table 1 indicates, any Barbadian citizen or permanent resident seeking medical attention within the public sector can have his/her prescription filled free of cost at point of service in one of the BDS pharmacies. The only exception to this is the pharmacies located at the Geriatric Hospital and the St. Philip District Hospital. These two pharmacies are set up specifically for dispensing in-patient prescriptions with some exception given to dispensing prescriptions for staff within these institutions. Prescriptions for non-benefit drugs which originate from private physicians can also be dispensed at the 12 BDS pharmacies at the same fixed cost + mark-up as pertains in the private sector.

Table 13 gives a ten-year trend in prescription volume and expenditure in the public sector. The largest percentage change in prescription volume was seen in the 2011-12 fiscal year where approximately 33% increase was recorded over the previous year. This coincided with the commencement of the policy decision on April 1, 2011 to implement a dispensing fee in the private sector. Several patients therefore opted to have their prescriptions filled in the public sector where no dispensing fee exists rather than paying the added dispensing fee. It must however be noted that despite this increase in prescription volume there was a 6% decline in expenditure. This anomaly would be as a direct result of the formulary changes and the removal of several high-priced combination drugs. In 2012-13 the prescription volume increased by 10% and expenditure by 13%. It must however be noted that of the \$13,481,501.00 BDS public sector expenditure for the 2012-13 fiscal year, approximately 1.6% (\$212,832.47) is to be reimbursed to the BDS by the Queen Elizabeth Hospital for pharmaceutical services rendered. This service agreement between the Barbados Drug Service and the Queen Elizabeth Hospital came about in 2003 when the QEH board was established and the institution was given its own pharmaceutical budget. It was agreed that prescriptions originating from the QEH could be filled in the BDS pharmacies and that the QEH would reimburse the BDS for such services rendered. The QEH prescriptions were color coded for easy identification; yellow prescriptions for general medicine and green prescriptions for ophthalmology.

Table 13 BDS Prescription volume and Expenditure for ten Fiscal Years: 2003-04 to 2012-13

| Year | Rx's | % change Over previous Year | Expenditure (\$) | % change Over previous Year | \$/Rx | % change Over previous Year |
|---------|-----------|-----------------------------|------------------|-----------------------------|---------|-----------------------------|
| 2003-04 | 637,851 | 23% | 8,323,481.00 | 27% | \$13.05 | 4% |
| 2004-05 | 687,579 | 8% | 8,262,528.00 | -1% | \$12.02 | -8% |
| 2005-06 | 700,604 | 2% | 8,930,806.00 | 8% | \$12.75 | 6% |
| 2006-07 | 659,750 | -6% | 11,403,711.00 | 28% | \$17.28 | 36% |
| 2007-08 | 662,677 | 0% | 10,439,220.00 | -8% | \$15.75 | -9% |
| 2008-09 | 731,639 | 10.4% | 12,932,110.00 | 24% | \$17.68 | 12% |
| 2009-10 | 778,267 | 6.4% | 12,150,516.00 | -6% | \$15.61 | -12% |
| 2010-11 | 814,400 | 4.6% | 12,451,937.00 | 2% | \$15.29 | -2% |
| 2011-12 | 1,083,082 | 32.9% | 11,765,288.00 | -6% | \$10.86 | -29% |
| 2012-13 | 1,206,351 | 10% | 13,481,501.00 | 13% | \$11.18 | 3% |

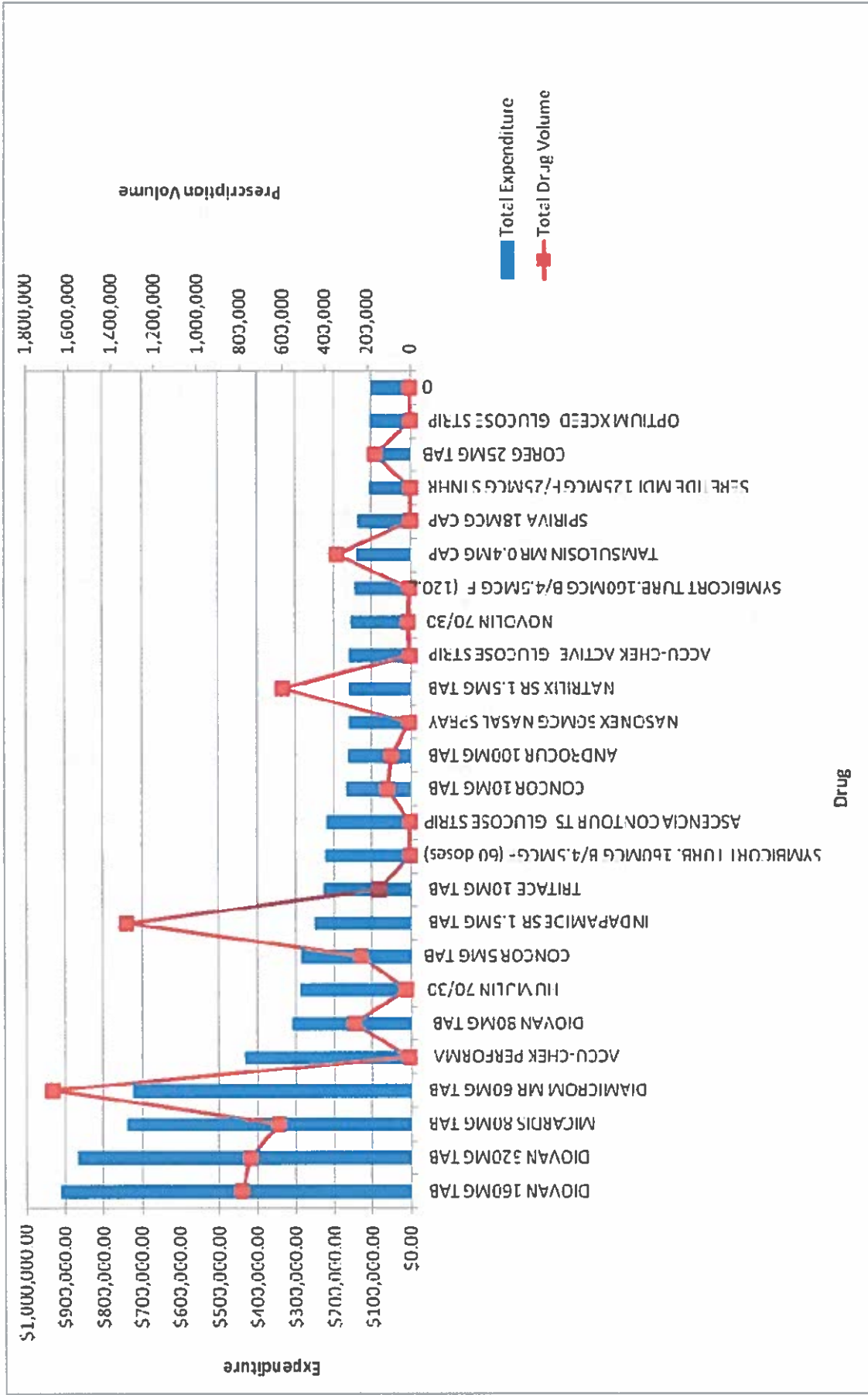
Table 14 gives the top 25 drugs dispensed in the public sector in the 2012-13 fiscal years. Diovan® 160mg and 320mg tablet, an anti-hypertensive drug, ranked at number 1 and 2 respectively in expenditure whereas Diamicon® 60mg was the highest ranking in terms of volume. Indapamide® SR 1.5mg tablet ranked at position 2 in volume.

The figure corresponding to Table 14 shows that there is not an even distribution of expenditure to prescription volume as can be seen with Indapamide SR 1.5mg versus Diovan® 160mg and 320mg tablets. In this example Indapamide® SR 1.5mg has a lower expenditure but higher volume to the Diovan® 160mg and 320mg tablets.

Table 14 Top 25 Drugs Dispensed (by Expenditure) in the Public Sector in 2012-13

| Drug | Total Expenditure | Total Drug Volume |
|---|-------------------|-------------------|
| DIOVAN 160MG TAB (VALSARTAN) | \$909,731.86 | 791,553 |
| DIOVAN 320MG TAB (VALSARTAN) | \$867,428.43 | 754,745 |
| MICARDIS 80MG TAB (TELMISARTAN) | \$737,685.76 | 619,904 |
| DIAMICROM MR 60MG TAB (GLICLAZIDE) | \$722,520.35 | 1,677,549 |
| ACCU-CHEK PERFORMA GLUCOSE STRIP | \$432,095.40 | 8,340 |
| DIOVAN 80MG TAB (VALSARTAN) | \$307,976.77 | 267,969 |
| HUMULIN 70/30 (LIL/STO) | \$288,951.88 | 21,388 |
| CONCOR 5MG TAB (BISOPROLOL) (SAD) | \$285,229.79 | 237,296 |
| INDAPAMIDE SR 1.5MG TAB (INDAPAMIDE) | \$250,582.86 | 1,330,764 |
| TRITACE 10MG TAB (RAMIPRIL)(SAD) | \$224,196.35 | 147,014 |
| SYMBICORT TURB. 160MCG B/4.5MCGF (Budesonide/formoterol) | \$220,128.40 | 2,840 |
| ASCENCIA CONTOUR TS GLUCOSE STRIP | \$218,530.26 | 3,974 |
| CONCOR 10MG TAB (BISOPROLOL) (SAD) | \$168,288.13 | 111,008 |
| ANDROCUR 100MG TAB (CYPROTERONE) | \$162,048.03 | 93,115 |
| NASONEX 50MCG NASAL SPRAY (MOMETASONE) | \$160,689.27 | 7,107 |
| NATRILIX SR 1.5MG TAB (INDAPAMIDE) | \$160,070.80 | 601,092 |
| ACCU-CHEK ACTIVE GLUCOSE STRIP | \$159,776.11 | 3,209 |
| NOVOLIN 70/30 | \$154,076.62 | 11,447 |
| SYMBICORT TURB.160MCG B/4.5MCG F | \$143,399.70 | 3,114 |
| TAMSULOSIN MR 0.4MG CAP | \$137,909.56 | 345,638 |
| SPIRIVA 18MCG CAP (TIOTROPIUM) (SAD) | \$136,429.92 | 1,089 |
| SERETIDE MDI 125MCG F/25MCG S INHR (FLUTICASONE/SALMETEROL) | \$107,644.10 | 1,739 |
| COREG 25MG TAB (CARVEDILOL) | \$107,421.52 | 164,090 |
| OPTIUM XCEED GLUCOSE STRIP | \$102,950.00 | 2,059 |
| FLIXONASE AQ 50MCG NASAL SPRAY (FLUTICASONE) | \$100,113.58 | 5,438 |

It is of interest to note that 80% of the drugs in Table 14 fall within the top three therapeutic classifications in Table 15, namely hypertension, diabetes and asthma. The detailed breakdown of these prescriptions by pharmacy for the 2012-13 fiscal year is given at Table 16.



Corresponding Figure to Table 14

Table 15 Top Ten Therapeutic Categories in Public Sector for 2011-12 and 2012-13 Fiscal Years by Expenditure ranking

| Therapeutic Class | 2011-2012 Fiscal Year | | | | 2012-2013 Fiscal Year | | | |
|---------------------------------|-----------------------|---------------------|-----------------------|------------|-----------------------|---------------------|------------------|------------|
| | Rank | Prescription Volume | Expenditure (\$) | % of Total | Rank | Prescription Volume | Expenditure (\$) | % of Total |
| Hypotensive Agents | 1 | 6,184 | \$3,939,464.32 | 46% | 1 | 9,412 | 3,951,293 | 42% |
| Diabetes Mellitus | 2 | 3,868 | \$2,356,298.86 | 28% | 2 | 1,141 | 3,057,916 | 33% |
| Anti-asthmatic Agents | 3 | 2,019 | \$857,414.64 | 10% | 3 | 2,762 | 657,595 | 7% |
| Anticonvulsants | 4 | 1,630 | \$259,916.87 | 3% | 8 | 1,710 | 231,696 | 2% |
| EENT Anti-Inflammatory Agents | 5 | 887 | \$256,358.61 | 3% | 5 | 885 | 269,053 | 3% |
| Glaucoma | 6 | 1,065 | \$247,315.25 | 3% | 4 | 1,339 | 350,409 | 4% |
| Analgesic Agents | 7 | 2,766 | \$199,366.33 | 2% | 7 | 3,254 | 243,931 | 3% |
| Anti-neoplastics | 8 | 496 | \$167,724.71 | 2% | 6 | 476 | 258,444 | 3% |
| Antilipemics | 9 | 1,049 | \$153,412.43 | 2% | 9 | 1,220 | 155,145 | 2% |
| Unclassified Therapeutic Agents | 10 | 162 | \$121,061.30 | 1% | 10 | 197 | 140,872 | 2% |
| Total Expenditure | | | \$8,558,333.32 | | | | 9,316,354 | |

Table 16 Barbados Drug Service April 1, 2012 to March 31, 2013 Report on Prescriptions Activities of the BDS Pharmacy Service

| Criteria | BDS PHARMACIES | | | | | | | | | | | | | | TOTAL |
|-----------------------------------|----------------|----------------|---------------|----------------|----------------|-----------------|---------------|----------------|---------------|---------------|--------------|-----------------------|----------------|-----------------|------------------|
| | Branford Taitt | Edgar Cochrane | Geriatric | Winston Scott | Maurice Byer | Randal Phillips | St. Andrew | Glebe | St. John | St. Joseph | St. Thomas | St. Philip Polyclinic | Warrens | St. Philip Hosp | |
| 1. SBS | 69,950 | 53,065 | 4,303 | 98,831 | 69,753 | 70,730 | 5,427 | 59,024 | 23,522 | 8,402 | 3,979 | 58,129 | 58,497 | 2,375 | 585,987 |
| 2. FTS | 287 | 253 | 0 | 988 | 243 | 180 | 0 | 114 | 71 | 11 | 0 | 81 | 167 | 0 | 2,395 |
| 3. PRIV | 2,673 | 1,671 | 0 | 2,599 | 3,371 | 2,940 | 71 | 2,035 | 1,020 | 354 | 64 | 2,507 | 1,857 | 0 | 21,162 |
| 4. OTHER | 63,724 | 49,750 | 22,745 | 113,673 | 65,877 | 69,997 | 6,451 | 49,831 | 20,512 | 6,232 | 5,872 | 55,867 | 58,622 | 7,654 | 596,807 |
| 5. DIST HOSPITAL | 0 | 0 | 0 | 0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TOTAL | 136,634 | 104,739 | 27,048 | 216,091 | 139,244 | 143,847 | 11,949 | 111,004 | 45,125 | 14,999 | 9,915 | 116,584 | 119,143 | 10,029 | 1,206,351 |
| 2. Special Benefit Service | | | | | | | | | | | | | | | |
| 1. 65 yrs & Over | 13,524 | 9,320 | 1,614 | 17,110 | 14,456 | 15,680 | 971 | 10,145 | 4,575 | 1,703 | 700 | 11,754 | 10,949 | 518 | 113,019 |
| 2. Under 16 yrs | 5,206 | 3,595 | 1,500 | 9,766 | 3,789 | 4,886 | 365 | 3,450 | 1,407 | 343 | 485 | 3,222 | 3,013 | 726 | 41,753 |
| 3. Cancer | 496 | 196 | 44 | 580 | 374 | 332 | 9 | 211 | 91 | 60 | 23 | 269 | 299 | 53 | 3,037 |
| 4. Diabetes | 11,631 | 8,682 | 918 | 16,021 | 12,647 | 11,821 | 1,031 | 9,077 | 4,038 | 1,403 | 781 | 9,875 | 11,097 | 384 | 99,406 |
| 5. Hypertension | 20,169 | 15,444 | 1,306 | 25,225 | 19,929 | 21,094 | 1,407 | 16,733 | 6,777 | 2,311 | 1,141 | 16,235 | 15,371 | 496 | 163,638 |
| 6. National Assistance | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9. Asthma | 3,382 | 2,646 | 150 | 5,192 | 2,563 | 3,497 | 253 | 2,299 | 886 | 276 | 157 | 2,241 | 2,323 | 34 | 25,899 |
| 10. Epilepsy | 1,187 | 712 | 384 | 2,165 | 974 | 1,128 | 79 | 588 | 302 | 104 | 58 | 767 | 837 | 443 | 9,728 |
| TOTAL | 55,595 | 40,595 | 5,916 | 76,059 | 54,732 | 58,438 | 4,115 | 42,503 | 18,076 | 6,200 | 3,345 | 44,363 | 43,889 | 2,654 | 456,480 |
| 3. Payment to Treasury | \$26,268.49 | \$17,640.70 | \$0.00 | \$37,157.59 | \$33,180.66 | \$32,205.87 | \$448.74 | \$22,267.71 | \$8,415.28 | \$2,872.77 | \$477.36 | \$24,751.44 | \$18,549.28 | \$0.00 | \$224,235.89 |
| Total receipts for the month | \$26,268.49 | \$17,633.98 | \$0.00 | \$37,255.82 | \$33,180.66 | \$32,206.83 | \$443.74 | \$22,307.19 | \$8,415.28 | \$2,871.40 | \$472.36 | \$24,739.91 | \$19,056.51 | \$0.00 | \$224,341.51 |
| All Pharmacies | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Accumulated Totals | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 136,634 | 104,739 | 27,048 | 216,091 | 139,244 | 143,847 | 11,949 | 111,004 | 45,125 | 14,999 | 9,915 | 116,584 | 119,143 | 10,029 | 1,206,351 |
| 2 | 55,595 | 40,595 | 5,916 | 76,059 | 54,732 | 58,438 | 4,115 | 42,503 | 18,076 | 6,200 | 3,345 | 44,363 | 43,889 | 2,654 | 456,480 |
| 3 | \$26,268.49 | \$17,640.70 | \$0.00 | \$37,157.59 | \$33,180.66 | \$32,205.87 | \$448.74 | \$22,267.71 | \$8,415.28 | \$2,872.77 | \$477.36 | \$24,751.44 | \$18,549.28 | \$0.00 | \$224,235.89 |

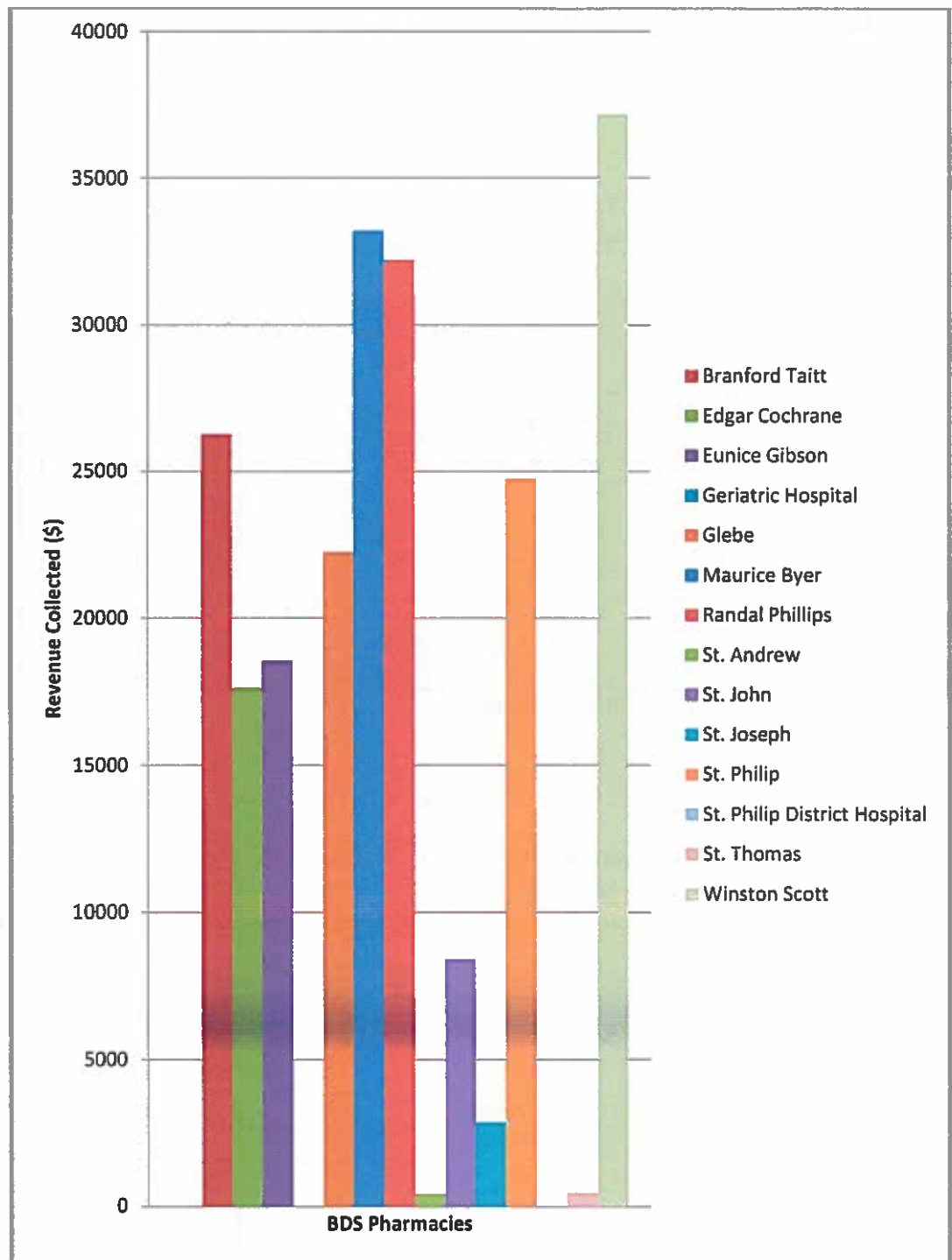
As stated earlier prescriptions originating from private physicians written for non-beneficiaries can also be dispensed at the BDS pharmacies at a fixed cost plus (+) mark-up as pertains in the private sector. This policy is in place in all BDS pharmacies except those at the two district hospitals. Non-beneficiaries are persons between the ages of 16 and 64 who have seen a physician in the private sector and receive a prescription for formulary drugs except those used in the treatment of diabetes, hypertension, cancer, asthma, glaucoma and epilepsy. The costs on these prescriptions are as given in **Table 11**.

The revenue collected at the BDS Pharmacies with respect to prescriptions for non-beneficiaries is given at **Table 17 and the corresponding figure**. This revenue is subtracted from the monies spent on drug purchases in order to reach the actual drug expenditure with respect to the BDS pharmacies.

Table 17 Revenue Collected by Pharmacy for Fiscal Year 2012-13

| Name of Polyclinic/Out-Patient Clinic Pharmacy | Revenue Collected for fiscal Year 2012-13 (\$) |
|---|---|
| Branford Taitt | 26,268 |
| Edgar Cochrane | 17,641 |
| Eunice Gibson | 18,549 |
| Geriatric Hospital | - |
| Glebe | 22,268 |
| Maurice Byer | 33,181 |
| Randal Phillips | 32,206 |
| St. Andrew | 449 |
| St. John | 8,415 |
| St. Joseph | 2,873 |
| St. Philip | 24,751 |
| St. Philip District Hospital | - |
| St. Thomas | 477 |
| Winston Scott | 37,158 |
| Total | 224,236 |

The BDS pharmacy programme is a social service and it offers patients the opportunity to have their prescriptions filled at the pharmacy closest to where they live or work, irrespective of whether that pharmacy is in the public or private sector.



Corresponding Figure to Table 17

4.4.2

Public versus Private Sector Usage

Table 19 provides comparative expenditures in the public and private sectors, together with their corresponding prescription volumes. Public sector prescription volume and expenditure show an increase in 2012-13 as opposed to the decrease seen in the private sector over this period.

Table 18 Total Number of Prescriptions filled and Their Expenditure in the Public and Private Sectors for Ten Fiscal Years 2003-04 to 2012-13

| Year | Public Sector | | | Private Sector | | | % Difference in Rx Cost (private vs. public) |
|---------|---------------------|------------------|---------|----------------|------------------|---------|--|
| | Rx's ^(a) | Expenditure (\$) | \$/Rx | Rx's | Expenditure (\$) | \$/Rx | |
| 2003-04 | 637,851 | 8,323,481.00 | \$13.05 | 990,943 | 21,851,776.00 | \$22.05 | 41% |
| 2004-05 | 687,579 | 8,262,528.00 | \$12.02 | 1,113,093 | 23,115,488.00 | \$20.77 | 42% |
| 2005-06 | 700,604 | 8,930,806.00 | \$12.75 | 1,331,537 | 30,540,237.00 | \$22.94 | 44% |
| 2006-07 | 659,750 | 11,403,711.00 | \$17.28 | 1,846,882 | 31,587,931.00 | \$17.10 | -1% |
| 2007-08 | 662,677 | 10,439,220.00 | \$15.75 | 2,055,016* | 36,535,775.00 | \$17.78 | 11% |
| 2008-09 | 731,639 | 12,932,110.00 | \$17.68 | N/A | 36,633,590.00 | N/A | N/A |
| 2009-10 | 778,267 | 12,150,516.00 | \$15.61 | N/A | 40,561,950.00 | N/A | N/A |
| 2010-11 | 814,400 | 12,451,937.00 | \$15.29 | N/A | 34,574,833.00 | N/A | N/A |
| 2011-12 | 1,083,082 | 11,765,288.00 | \$10.86 | 887,249 | 10,787,176.00 | \$12.20 | 11% |
| 2012-13 | 1,206,351 | 13,481,501.00 | \$11.18 | 864,335 | 10,636,956.00 | \$12.31 | 9% |

* Estimated values

Table 19 Top Ten Therapeutic Categories in the Public and Private Sectors for 2011-12 and 2012- 13 Fiscal Years

| Therapeutic Class | Amount Spent (\$) in 2011-12 Fiscal Year | | % difference in Private:Public | Amount Spent (\$) in 2012-13 Fiscal Year | | % difference in Private:Public |
|---------------------------------|--|-------------|--------------------------------|--|-------------|--------------------------------|
| | Private | Public | | Private | Public | |
| Hypotensive Agents | \$4,517,963 | \$3,939,464 | 13% | \$4,446,804 | \$3,951,293 | 11% |
| Diabetes Mellitus | \$2,402,847 | \$2,356,299 | 2% | \$2,370,067 | \$3,057,916 | -29% |
| Glaucoma | \$1,621,028 | \$247,315 | 85% | \$1,584,473 | \$350,409 | 78% |
| Anti-asthmatic Agents | \$681,782 | \$857,415 | -26% | \$653,506 | \$657,595 | -1% |
| Anticonvulsants | \$300,993 | \$259,917 | 14% | \$279,590 | \$231,696 | 17% |
| Antilipemics | \$195,687 | \$153,412 | 22% | \$69,166 | \$155,145 | -124% |
| Anti-neoplastics | \$156,695 | \$167,725 | -7% | \$167,872 | \$258,444 | -54% |
| Analgesic Agents | \$130,027 | \$199,366 | -53% | \$113,145 | \$243,931 | -116% |
| EENT Anti-Inflammatory Agents | \$117,963 | \$256,359 | -117% | \$115,757 | \$269,053 | -132% |
| Unclassified Therapeutic Agents | \$96,614 | \$121,061 | -25% | \$98,672 | \$140,872 | -43% |
| | | | -94% | | | -393% |

Table 20 and **Table 9** both list hypertension and diabetes in positions 1 and 2 respectively when comparing the BDS expenditure in the private and public sectors. It is of interest to note that hypertension and diabetes are also listed in positions 1 and 2 in the 2011 Annual Report of the Barbados National Registry as the two top risk factors in Myocardial Infarction (MI) and Stoke.

The corresponding number of hypertensive and diabetic patients represented in the prescription volume and expenditure in Table 20 are 23,505 and 12,096 respectively.

Table 20 also supports Table 19 in reporting the expenditure in the top ten therapeutic categories over the 2011-12 and 2012-13 fiscal years. The expenditure is generally higher in the public sector than in the private sector. 2011-12 shows a 94% disparity in favor of public to private sector expenditure and 2012-13 shows a similar disparity of 393%.

The biggest difference in is in the category of EENT Anti-inflammatory agents, used mainly in treating rhinitis; with 2011-12 listing 117% greater expenditure in the public sector over the private sector and 2012-13 listing at 132%.

Conversely, in both 2011-12 and 2012-13 fiscal years, the private sector records the highest expenditure to the public sector in the area of glaucoma; 85% recorded in 2011-12 and 78% in 2012-13.

Table 21 gives similar information of the public and private sector usage of the Special Benefit Service from the 1982-83 versus the overall BDS expenditure.

Between 2002-03 and 2005-06 fiscal years the anomaly outlined in Table 19 in reflecting the true expenditure versus prescription volume was corrected by estimating the amount of the public expenditure used by the BDS. This estimated amount was based on the logic that the BDS pharmacies account for an average of 41% of the total QEH and BDS expenditure on drug purchases.

In the 2005-06 fiscal year the QEH was managed by a board and the BDS was no longer responsible for the purchase of the drugs for that institution.

Table 20 Total Number of Prescriptions filled and Their Expenditure in the Public and Private Sectors for Fiscal Years 1982-2013

| Year | Public Expenditure | Private Expenditure | Total Expenditure | Public Expenditure as % of Total | Private Expenditure as % of Total | Public Rx Volume | Avg. Cost/Rx in Public | Private Rx Volume | Avg. Cost/Rx in Private |
|----------|--------------------|---------------------|-------------------|----------------------------------|-----------------------------------|------------------|------------------------|-------------------|-------------------------|
| 1982-83 | \$2,720,368 | \$140,756 | \$2,861,124 | 95 | 5 | 0 | \$0.00 | 21,126 | \$7.00 |
| 1983-84 | \$4,291,991 | \$207,772 | \$4,499,763 | 95 | 5 | 262,287 | \$16.00 | 26,384 | \$8.00 |
| 1984-85 | \$5,403,538 | \$341,990 | \$5,745,528 | 94 | 6 | 345,613 | \$16.00 | 50,220 | \$7.00 |
| 1985-86 | \$7,713,963 | \$435,745 | \$8,149,708 | 95 | 5 | 501,416 | \$15.00 | 41,390 | \$11.00 |
| 1986-87 | \$7,793,103 | \$1,508,793 | \$9,301,896 | 84 | 16 | 660,045 | \$12.00 | 148,082 | \$10.00 |
| 1987-88 | \$8,536,816 | \$3,346,816 | \$11,883,632 | 72 | 28 | 654,679 | \$13.00 | 300,000 | \$11.00 |
| 1988-89 | \$7,605,795 | \$3,627,183 | \$11,232,978 | 68 | 32 | 649,629 | \$12.00 | 362,718 | \$10.00 |
| 1989-90 | \$9,269,966 | \$4,701,687 | \$13,971,653 | 66 | 34 | 859,474 | \$11.00 | 371,327 | \$13.00 |
| 1990-91 | \$11,001,320 | \$5,667,514 | \$16,668,834 | 66 | 34 | 857,252 | \$13.00 | 449,446 | \$13.00 |
| 1991-92 | \$9,308,874 | \$5,896,776 | \$15,205,650 | 61 | 39 | 843,450 | \$11.00 | 425,727 | \$14.00 |
| 1992-93 | \$9,369,846 | \$6,330,465 | \$15,700,311 | 60 | 40 | 840,569 | \$11.00 | 494,681 | \$13.00 |
| 1993-94 | \$9,440,576 | \$7,228,270 | \$16,668,846 | 57 | 43 | 844,789 | \$11.00 | 555,000 | \$13.00 |
| 1994-95 | \$10,283,264 | \$8,307,134 | \$18,590,398 | 55 | 45 | 845,219 | \$12.00 | 578,808 | \$14.00 |
| 1995-96 | \$9,612,632 | \$9,979,983 | \$19,592,615 | 49 | 51 | 818,927 | \$12.00 | 692,735 | \$14.00 |
| 1996-97* | \$10,270,825 | \$11,923,867 | \$22,194,692 | 46 | 54 | 446,987 | \$23.00 | 743,765 | \$16.00 |
| 1997-98* | \$10,346,838 | \$10,857,428 | \$21,204,266 | 49 | 51 | 502,689 | \$21.00 | 803,990 | \$14.00 |
| 1998-99* | \$8,763,104 | \$9,273,790 | \$18,036,894 | 49 | 51 | 504,632 | \$17.00 | 806,950 | \$11.00 |
| 1999-00* | \$12,589,080 | \$13,590,363 | \$26,179,443 | 48 | 52 | 527,046 | \$24.00 | 786,738 | \$17.00 |
| 2000-01* | \$14,687,363 | \$15,798,637 | \$30,486,000 | 48 | 52 | 532,363 | \$28.00 | 833,050 | \$19.00 |
| 2001-02* | \$15,439,374 | \$17,360,242 | \$32,799,616 | 47 | 53 | 476,955 | \$32.00 | 921,110 | \$19.00 |
| 2002-03* | \$6,546,322 | \$20,259,106 | \$36,225,746 | 24 | 76 | 519,438 | \$13.00 | 955,000 | \$21.00 |
| 2003-04 | \$8,323,481 | \$21,851,776 | \$30,175,257 | 28 | 72 | 637,851 | \$13.00 | 990,943 | \$22.00 |

| Year | Public Expenditure | Private Expenditure | Total Expenditure | Public Expenditure as % of Total | Private Expenditure as % of Total | Public Rx Volume | Avg. Cost/Rx in Public | Private Rx Volume | Avg. Cost/Rx in Private |
|---------|--------------------|---------------------|-------------------|----------------------------------|-----------------------------------|------------------|------------------------|-------------------|-------------------------|
| 2004-05 | \$8,262,528 | \$23,115,488 | \$31,378,016 | 26 | 74 | 687,578 | \$12.00 | 1,113,093 | \$21.00 |
| 2005-06 | \$8,930,806 | \$30,540,237 | \$39,471,043 | 23 | 77 | 700,604 | \$13.00 | 1,331,537 | \$23.00 |
| 2006-07 | \$11,403,711 | \$31,587,931 | \$42,991,642 | 27 | 73 | 659,750 | \$17.00 | 1,846,882 | \$17.00 |
| 2007-08 | \$10,439,220 | \$36,535,775 | \$46,974,994 | 22 | 78 | 662,677 | \$16.00 | 2,055,016 | \$18.00 |
| 2008-09 | \$12,932,110 | \$36,633,590 | \$49,565,700 | 26 | 74 | 731,639 | \$18.00 | N/A | N/A |
| 2009-10 | \$12,150,516 | \$40,561,950 | \$52,712,466 | 23 | 77 | 778,267 | \$16.00 | N/A | N/A |
| 2010-11 | \$12,451,937 | \$34,574,833 | \$47,026,770 | 26 | 74 | 814,400 | \$15.00 | N/A | N/A |
| 2011-12 | \$11,765,288 | \$10,787,176 | \$22,552,464 | 52 | 48 | 1,082,101 | \$11.00 | 887,249 | \$12.00 |
| 2012-13 | \$13,481,501 | \$10,636,956 | \$24,118,457 | 56 | 44 | 1,206,351 | \$11.00 | 864,335 | \$12.00 |
| Total | \$301,136,056 | \$433,609,761 | \$734,745,817 | 41 | 59 | 20,454,677 | \$14.72 | 19,457,302 | \$22.29 |

* It must be noted that for the period 1996-97 to 2001-02 though the QEH expenditure was included in the public expenditure, the prescription volume does not include that from the Queen Elizabeth Hospital since it was not reported. It is for this reason that the average cost per prescription for this period is skewed to reflect higher than average.

Table 21 shows that the cost per prescription continues to be lower in the public sector than in the private sector, within the last ten years where data is available. 2006-07 was however the exception when the cost equaled off in both sectors at \$17.00/prescription. The public to private expenditure ratio increased from 52:48 in 2011-12 to 56:44 in 2012-13.

Another point of interest in Table 21 is the close to 10% increase in prescription volume in 2012-13 versus 2011-12 which can be attributed to the continued exodus of prescriptions from the private sector.

Table 22 also indicates the disparity in prescribing patterns in the private versus the public sectors especially as was seen earlier in the use of the deleted drugs during the April 2011 grace period. This also supports the higher prescription cost in the private sector. The high use of the glucose testing strips in the public sector can be attributed to the issuing of clinic stock in the polyclinics and out-patient clinics. This may also suggest that the majority of patients in the private sector are using non-formulary insulins which they obtain from sources other than Private Participating Pharmacies as is supported in the BDS Supply Protocols, 12th edition section 9 (iii), p, 9 (2011-2012).

“Effective immediately the BDS will only reimburse for one bottle of 50’s testing strips every three months to patients on oral diabetic medication, including non-formulary preparations which the patient purchased from the private pharmacy submitting the claim for strips dispensed, or those diabetic patients controlled on diet and exercise alone. In order for the diabetics controlled on diet and exercise alone to benefit, the prescription must clearly indicate that the patient is diabetic and controlled on diet and exercise only. BDS will reimburse for one bottle of 50’s testing strips every month to patients receiving insulin, including non-formulary insulin which the patient purchased from the private pharmacy submitting the claim for strips dispensed. BDS will not reimburse for Autodisc Sensors 100’s.”

Table 21 Expenditure in 2012-13 of the Top 25 Drugs Dispensed in the Public and Private Sectors

| No. | Public Sector | | Private Sector | |
|-----|--|----------------|---|----------------|
| | Drug Name | Price | Drug Name | Price |
| 1. | Diovan 160mg Tab (NVS) Valsartan | \$1,144,023.94 | Diovan 160mg Tab (NVS) Valsartan | \$1,001,657.26 |
| 2. | Diamicrom MR 60mg Tab (SER) Gliclazide | \$1,116,638.35 | Micardis 80mg Tab (BOE) Telmisartan | \$992,489.75 |
| 3. | Diovan 320mg Tab (NVS) Valsartan | \$1,111,844.78 | Diamicrom MR 60mg Tab (SER) Gliclazide | \$809,189.15 |
| 4. | Micardis 80mg Tab (BOE) Telmisartan | \$1,014,935.54 | Diovan 320mg Tab (NVS) Valsartan | \$756,754.37 |
| 5. | Clonazepam 2mg Tab (TOF) | \$947,897.11 | Xalatan 0.005% Eye Dr (PFI) Latanoprost | \$523,992.21 |
| 6. | Accu-Chek Performa Glucose Strip (PRI) | \$582,914.80 | Diovan 80mg Tab (NVS) Valsartan | \$386,034.41 |

| No. | Public Sector | | Private Sector | |
|-----|--|--------------|--|--------------|
| | Drug Name | Price | Drug Name | Price |
| 7. | Indapamide 1.5mg Tab (HEA) | \$503,378.57 | Cosopt Eye Dr (MSD) Dorzolamide/Timolol | \$303,291.03 |
| 8. | Humulin 70/30 Vial (Lil) Biphasic Isoph | \$419,283.07 | Alphagan P 0.1% Eye Dr (ALL) Brimonidine | \$284,609.30 |
| 9. | Diovan 80mg Tab (NVS) Valsartan | \$363,868.59 | Accu-Chek Performa Glucose Strip (PRI) | \$284,592.33 |
| 10. | Glyformin 500mg Tab (REM) Metformin | \$309,399.76 | Bayer Contour Ts Gluc (BYC) | \$259,717.77 |
| 11. | Androcur 100mg Tab (BSP) Cyproterone | \$296,501.58 | Indapamide 1.5mg Tab (HEA) | \$234,608.02 |
| 12. | Bayer Contour TS Gluc (BYC) | \$280,383.61 | Travatan 0.004% Eye Drop (ALC) Travopros | \$221,380.24 |
| 13. | Nasonex 50mcg Nasal Spray (SCA) Mometaso | \$253,565.31 | Symbicort Turbu 160/4.5 Inh (AZN) Budeso | \$166,370.56 |
| 14. | Aspirin E.C. 81mg Tab (RIM) | \$252,590.29 | Concor 5mg Tab (MEK) Bisoprolol | \$142,907.60 |
| 15. | Tamsulosin Mr 0.4mg Cap (HEA) | \$219,497.36 | Humulin 70/30 Vial (LIL) Biphasic Isoph | \$135,289.14 |
| 16. | Novolin 70/30 Vial (NOV) Biphasic Isoph | \$218,407.64 | Androcur 100mg Tab (BSP) Cyproterone | \$134,972.45 |
| 17. | Accu-Chek Active Glucose Strip (PRI) | \$216,462.24 | Glyformin 500mg Tab (REM) Metformin | \$113,120.03 |
| 18. | Symbicort Turbu 160/4.5 Inh (AZN) Budeso | \$211,824.35 | Lifescan One Touch Ultra Gluc (JOH) Dia | \$102,778.98 |
| 19. | Concor 5mg Tab (MEK) Bisoprolol | \$198,995.17 | Concor 2.5mg Tab (MEK) Bisoprolol | \$102,566.99 |
| 20. | Paracetamol 500mg Tab (HEA) | \$184,989.77 | Seretide Mdi 125/25 Inh (GSK) Fluticason | \$98,730.50 |
| 21. | Ventolin 100mcg Inhr (GSK) Salbutamol CF | \$184,223.91 | Tritace 10mg Tab (SFA) Ramipril | \$94,752.65 |
| 22. | Atorec 10mg Tab (EMC) Atorvastatin | \$155,802.54 | Tamsulosin Mr 0.4mg Cap (HEA) | \$92,032.65 |
| 23. | Xalatan 0.005% Eye Dr (PFI) Latanoprost | \$151,683.81 | Coreg 25mg Tab (ROC) Carvedilol | \$89,480.40 |
| 24. | Seretide Mdi 125/25 Inh (GSK) Fluticason | \$144,246.48 | Novolin 70/30 Vial (NOV) Biphasic Isoph | \$85,349.86 |
| 25. | Optium Xceed Gluc (ABD) Diagnostic Bloo | \$135,399.04 | Nasonex 50mcg Nasal Spray (SCA) Mometaso | \$81,260.34 |

4.5 ACTIVITY 5: THE DRUG INSPECTORATE

Nature and Scope:

4.5.1 Quality Assurance

Continuous efforts are made to ensure that drugs imported and sold in Barbados are manufactured in accordance with the United States Pharmacopoeia and the British Pharmacopoeia standards. In this regard, different brands of pharmaceuticals are constantly collected and sent for testing to the Caribbean Regional Drug Testing Laboratory in Jamaica, Eurofins, England and Experchem Laboratories Inc., Canada. In 2011-12 fiscal year, ninety-five (95) drug samples were sent for testing to the Caribbean Regional Drug Testing Laboratory and fifty-three results received.

4.5.2 Inspection of Pharmacies and Drug Manufacturer

For the 2012-2013 financial years, the Drug Inspectorate continued to maintain prudent vigilance over the operation and practice of pharmacy in Barbados. During the period under review, 13 new pharmacies were opened and 4 closed as listed in **Table 23**. There are currently 91 registered pharmacies that are annually inspected and subsequently registered in accordance with the Pharmacy Act CAP. 372D. The revenue generated from the annual certification of premises is at **Table 24**.

Table 22 Pharmacy Status for Fiscal Year 2012-13

| Pharmacies Opened | Date Opened | Pharmacies Closed | Date Closed |
|------------------------------|--------------------|--------------------------|--------------------|
| Roundhay | 2012-04-26 | Pearsons Worthing | June 2012 |
| Healthcare, Westbury Road | 2012-06-26 | One Stop | April 2012 |
| Healthcare, Harts Gap | 2012-07-05 | Prescription Specialist | June 2012 |
| Montrose Pharmacy | 2012-07-11 | Knights Extra | September 2012 |
| Genucare | 2012-08-24 | | |
| Multimed | 2012-10-16 | | |
| Elgar | 2012-10-31 | | |
| HealthSmart, Coverley Square | 2012-11-01 | | |
| Imart Convenience | 2012-11-08 | | |
| Neighbourhood Care | 2012-11-13 | | |
| HealthSmart, Sunset Crest | 2012-11-16 | | |
| Holetown | 2012-11-16 | | |
| Riverside | 2013-03-19 | | |

Table 23 Revenue Collected for the Annual Certification of Premises for Fiscal Years 2008 – 09 to 2012-13

| Year | Revenue Collected |
|---------|-------------------|
| 2008-09 | \$9,700.00 |
| 2009-10 | \$9,200.00 |
| 2010-11 | \$7,600.00 |
| 2011-12 | \$11,700.00 |
| 2012-13 | \$7,900.00 |

It must be noted that though there are 91 pharmacies with an annual registration of \$100.00 that there have been defaulters in payment over the years. Back payments are therefore necessary in such cases and hence the revenue may not always be recorded in the year for which payment was applied. Also of note is the fact that registration of pharmacies is carried out in a calendar year whilst revenue is reported in a fiscal year. In order to ensure that all Private Participating Pharmacies with the BDS are recertified on an annual basis in accordance with the section 15(2) of the Pharmacy Act, Cap 372D it has become one of the stipulations in the agreement between the Director, BDS and the Private Participating Pharmacy.

Routine inspections were also undertaken at the sole pharmaceutical manufacturer in Barbados namely, Carlisle Laboratories Limited. These inspections are done primarily to ensure that the drugs manufactured and the process of manufacturing is in accordance with World Health Organization's Good Manufacturing Practice techniques.

Two hundred and ninety-five (295) pharmaceutical samples from Carlisle Laboratories Limited were analysed in 2012-13 fiscal year as given in Table 25. They were found to be in compliance with Good Manufacturing Practice techniques and were considered suitable for marketing.

Table 25 Analytical Samples Tested for 2008-09 to 2012-13 Fiscal Years

Table 24 Analytical Samples Tested for 2008-09 to 2012-13 Fiscal Years

| Year | Number of Samples Analysed |
|---------|----------------------------|
| 2008-09 | 145 |
| 2009-10 | 172 |
| 2010-11 | 147 |
| 2011-12 | 176 |
| 2012-13 | 295 |

4.5.3

Registration of Manufacturers

In accordance with Section 40 and 41 of the following Financial Administration and Audit (Drug Service) Rules, 1980, the Drug Inspectorate processed new applications made by manufacturers to be listed as approved suppliers of drugs and related items.

“40. The Director of the Drug Service shall prepare and maintain a list of suppliers, approved by the Minister of Health, of drugs and related items and may restrict invitations to tender as well as contracts for the purchase of drugs and related items to those suppliers.

41. (1) Any person may apply in writing to have his name included in the list of suppliers maintained under rule 40, giving such information as the Director of the Drug Service requires.
- (2) The Director of the Drug Service must inform each applicant in writing whether his application to have his name included in the list of suppliers has been granted or refused.
- (3) The reasons for refusal of an application need not be given but an aggrieved person may apply to the Minister of Health to have his application considered by him.
- (4) All applications under these Rules and all information given in support or otherwise of an application is confidential."

The list of these manufacturers can be found at **Table 26**. The certificate from the Regulatory Authority in the country in which the manufacturing plant is located and the statements which substantiate that the manufacturer produces drugs for consumption in both the domestic and foreign market were properly endorsed by an accredited Notary Public.

Table 25 List of Manufactures Approved During Fiscal Years 2012-13

| Name of Manufacturer | Local Agents |
|----------------------|--------------|
| Solitaire Pharmacia | Rx Pro |
| Zen Pharma | Rx Pro |

4.5.4

Therapeutic Substances

In accordance with the Therapeutic Substances Act 1949, licenses were issued to local pharmaceutical companies, which allowed them to import antibiotics and sulphonamides into the country. For the fiscal years 2012-13, our records indicate that 771 permits were issued as given in **Table 27**.

Table 26 Therapeutic Substances Permits Issued for 2009-10 to 2012-13 Fiscal Years

| Year | Permits Issued |
|---------|----------------|
| 2009-10 | 465 |
| 2010-11 | 652 |
| 2011-12 | 523 |
| 2012-13 | 771 |

4.5.5

Importation and Exportation of Narcotic Drugs

Import and export Authorisations and Certificates were issued for the importation and exportation of narcotic and controlled substances, which fell under the purview of the 1961 Convention on Narcotic Drugs. **Table 28** gives the quantities of narcotics that were imported and exported during fiscal year 2012-13. Import and export activity for some narcotic drugs is sporadic and hence there would be no reportable data for the relevant year. This is seen for oxycodone, dihydrocodeine, cocaine and remifentanil during the 2012-13 fiscal year.

Table 27 Import and Export Permits Issued for Narcotic Drugs for 2012-13
Fiscal Year

| Narcotic | Quantities Imported | | |
|------------------|---|--------------------|---------------------------------------|
| | Amount Imported for Use in Local Market | Amount Re-exported | Amount Imported for Re-export to OECS |
| Pethidine | 3867.125 gms. | 4774.29 gms.* | 3781.9gms. |
| Morphine | 1458.31 gms. | 892.046 gms. | 154.46 gms. |
| Codeine | 7647.92 gms. | 145.04 gms. | 298.36gm. |
| Oxycodone** | | | |
| Fentanyl | 63.8 gms. | 0.747 gms. | 0.400gms. |
| Dihydrocodeine** | | | |
| Methadone | 135 gms. | | |
| Sufentanil | 370 mgs. | | |
| Cocaine** | | | |
| Remifentanil** | | | |

* Stocks imported for re-export to OECS will not be reflected in Barbados imports but all narcotic exports will show up as exports regardless of whether they are from Barbados' or OECS' quota.

** No activity during the fiscal year under review.

4.5.6

Psychotropic Substances

The International Narcotic and Control Board has placed tighter controls on the importation and exportation of Psychotropic Substances. The International Narcotic and Control Board now requires that particular attention be paid to the importation, exportation and use of benzodiazepines and other schedule IV Psychotropic Substances which have high therapeutic value and abuse potential.

With regards to the 1971 Convention on Psychotropic Substances during fiscal year 2012-13, **Table 29** gives the comparative quantities imported and exported for these Schedule II, III and IV Psychotropic Substances.

Table 28 Schedule II, III, and IV Psychotropic Substances Imported and Exported During Fiscal Year 2012-2013

| Psychotropic Substances | Schedule | Amount Imported for Use in Local Market | Amount Re-exported | Amount Imported for Re-export to OECS |
|-------------------------|----------|---|--------------------|---------------------------------------|
| Methylphenidate | II | 2,149.83g | 279.45 | - |
| Clobazam | IV | 495g | - | - |
| Diazepam | IV | 5744.25g | 1,668.72 | 150 |
| Clonazepam | IV | 262g | 26.9 | 39 |
| Midazolam | IV | 838.25 | 57.7 | - |
| Bromazepam | IV | 62.64 | - | - |
| Phenobarbital | IV | 13,304.52 | 11,437.49 | 68.25 |
| Nitrazepam | IV | 1,366.6 | - | - |
| Zolpidem | IV | 953.8 | 44.38 | - |
| Alprazolam | IV | 182.285 | 11.6 | - |
| Pentobarbital | III | 4764 | 368.55 | - |
| Chlordiazepoxide | IV | 356 | 8.9 | - |
| Lorazepam | IV | 838 | 360.82 | - |
| Dexamphetamine | II | 1.03 | - | - |

4.5.7

Precursor Chemicals

The tenets of the 1988 Convention on Precursor Chemicals have been sparingly applied in the importation of essential chemicals due to the fact that only 12 out of the 23 substances listed by INCB is covered in the local legislation. A framework is being put in place to provide the International Narcotic Control Board with relevant data, and to this end permits were issued for the importation of **ephedrine and pseudoephedrine during the 2012-13 fiscal year.**

Collaboration in the area of networking for the control of precursor chemicals is ongoing with the Customs and the Barbados Drug Service.

4.5.8

TRIPS Flexibilities (DOHA)

To increase availability of new patented drugs into Barbadian market, a consultant from World Intellectual Property Organization (WIPO) undertook a study and made recommendations for a proposed establishment of a regional Administration of Patents for Caribbean Countries to be based in Trinidad & Tobago. The study was commissioned by WIPO as a result of a resolution adopted at the 6th Ministerial meeting on IP for Caribbean countries which was held in Barbados in November 2006.

WIPO continued to support the region in strengthening the capacity of patent offices and the Ministry of Health in the use of Trade Related Aspects of Intellectual Property Rights (TRIPS) flexibilities.

The BDS is continuing its work with the legal and technical agencies to amend the Patent Act and Drug Service Act to use the flexibilities that exist within TRIPS and

Declaration on the Trade-Related Aspects of Intellectual Property Rights Agreement and Public Health (DOHA declarations). Under the World Trade Organisation (WTO) agreement, member countries may allow patented products to be manufactured under license by someone other than the patent holder for a limited period of time and in response to a public demand by a country with insufficient pharmaceutical manufacturing capacity. The goal of which is to globally address a pressing humanitarian problem.

4.6 **ACTIVITY 6: DRUG INFORMATION SERVICE**

Nature and Scope:

4.6.1 **Public Education Programmes**

The Barbados Drug Service sponsors an annual public lecture series on chronic diseases. The public is educated on various chronic illness and therapies (pharmaceutical and non-pharmaceutical) that can be used to combat these illnesses. Guidelines are also given on rational drug use and proper storage of medication. During the year under review, four (4) public lectures were hosted on the topics presented in **Table 30**.

Table 29 Public Lectures Held During Fiscal Year 2012-13

| Date | Topic | Speaker |
|-------------------|---|------------------------|
| May 15, 2012 | Diabetic Retinopathy | Dr. Sherwin Benskin |
| August 14, 2012 | The Treatment of Asthma in Barbados | Dr. Anne Marie Hassell |
| November 20, 2012 | The Treatment of Menopause in Barbados | Dr. Nigel Best |
| February 12, 2013 | Drug Abuse and Misuse – Not Just in Sports – What Every Barbadian Should Know | Dr. Adrian Lorde |

4.6.2 **Drug Information Queries**

There is one pharmacist in the Drug Information Centre who is responsible for answering all drug information queries coming from stakeholders. Drug Information queries vary from the cost and availability of pharmaceuticals in Barbados, to the therapeutic and pharmacokinetic profile of specific drugs. Several requests are also handled here on an on-going basis with respect to the pharmaco-economic and therapeutic profile of new drugs entering the market. Such requests originate primarily from the Drug Formulary Committee and pharmacovigilance unit. **Table 31** details the distribution of such requests.

Table 30 Top 10 Drug Information Requests for the 2012-13 Fiscal Year

| Classification of Query | # of requests | % |
|----------------------------------|----------------------|----------|
| BDS Protocols | 61 | 20 |
| Drug Availability and cost | 51 | 17 |
| Therapeutic Use | 44 | 14 |
| Pharmacology | 25 | 8 |
| Dosing/Administration | 24 | 7.8 |
| Adverse/Side Effects information | 19 | 6 |
| Drug Identification | 19 | 6 |
| Drug Interactions | 16 | 5 |
| Pharmacovigilance | 10 | 3 |
| Non-drug related | 9 | 3 |
| Other requests | 30 | 10 |

5.0

Resource Management

The Financial Statements for the 2012-13 fiscal year is at **Appendix A and the expenditure of the Special Benefit Service at Appendix B**. These detail the expenditure and revenue for the BDS.

The BDS is conscious of the fact that the economic environment does not allow for extravagant spending, and in the early years of the BDS it succeeded in containing spending at close to **10%** of the health care expenditure since percentages over 10 are generally accepted as high for developing countries. However over the last ten years from 2003-04, the BDS contained its spending at an average of 11% of the health care expenditure (see **Table 32**). The BDS expenditure rose to as high as 14% of the total health budget (current and capital) in the 2009-10 fiscal year when serious consideration had to be given to restructuring the operations in an effort to reduce expenditure. During 2010-11 fiscal year expenditure reduced to 13% and continued to show further reductions in the ensuing 2011-12 and 2012-13 fiscal years after the restructuring policies were introduced. With the implementation of the financial strategies the BDS was successful in containing its spending at **6%** of the health care expenditure in 2011-12. This is the lowest recorded figure over the last ten years of operation of the BDS. During 2012-13 it increased to 7% probably due to the return of some combination drugs to the formulary.

Table 31 BDS Expenditure as a Percentage of the Total Health Budget for the Ten Year Period 2003 to 2013

| Financial Year | Expenditure (\$) | | Total BDS Expenditure on Drugs (\$) | Total Health Care Budget (\$) | Total BDS Expenditure as a Percentage of Health Care Expenditure (%) |
|----------------|------------------|------------|-------------------------------------|-------------------------------|--|
| | Public | Private | | | |
| 2003-04 | 8,323,481 | 21,851,776 | 30,175,257 | 310,801,594 | 10 |
| 2004-05 | 8,262,528 | 23,115,488 | 31,378,016 | 306,704,609 | 10 |
| 2005-06 | 8,930,806 | 30,540,237 | 39,471,043 | 310,079,126 | 13 |
| 2006-07 | 11,403,711 | 31,587,931 | 42,991,642 | 350,674,341 | 12 |
| 2007-08 | 10,439,220 | 36,535,775 | 46,974,994 | 372,853,380 | 13 |
| 2008-09 | 12,932,110 | 36,633,590 | 49,565,700 | 381,057,823 | 13 |
| 2009-10 | 12,150,516 | 40,561,950 | 52,712,466 | 384,096,541 | 14 |
| 2010-11 | 12,451,937 | 34,574,833 | 47,026,770 | 355,847,415 | 13 |
| 2011-12 | 11,765,288 | 10,787,176 | 22,552,464 | 366,985,247 | 6 |
| 2012-13 | 13,481,501 | 10,636,956 | 24,118,457 | 347,705,764* | 7 |

* Provided from Draft Estimates 2012-13 fiscal year

There is still more that can be done to reduce the BDS expenditure. It is for this reason that the development of the technological strategies and tactics as proposed over the years were under development in the 2012-13 fiscal year. An IT consultant was brought on to review the dispensing software in the public pharmacies and make recommendations for the appropriate software package. The need to redevelop the BDS' pharmacies dispensing software was primarily to enable the development of the Wide Area Networking (WAN) in the BDS and on-line dispensing. Both public and private sector dispensing would be linked to a hub at the BDS whereby poly-pharmacy and overuse of pharmaceuticals would decline.

6.0 Challenges for 2012-13 Fiscal Years

1. Some Private Participating Pharmacies (PPP) are consistently delinquent in their monthly submissions of reimbursement claims though it is clearly stipulated in Section 12 (e) (h) and (i) of the Agreement between the Director, BDS and the PPP:

(e) The Private Participating Pharmacy shall submit a Claim to the Drug Service for a Dispensing Period within the first five (5) working days of the subsequent month and the Drug Service shall make payment

with respect to the Summary Financial Statement by the last day of the month in which the Claim has been submitted to the Drug Service.

(h) Where a Claim is returned under 12 (f) herein the Private Participating Pharmacy shall amend and re-submit such Claim to the Director no later than thirty (30) working days from the date of the notice and where documents have been submitted, payment shall be made only for parts of the Claim that can be verified;

(i) A Claim submitted after the period stipulated in 12 (e) herein or 12 (h), where applicable, shall be accepted only upon good cause set out in writing to the Director by the Private Participating Pharmacy and in any event no reimbursement shall be made in respect of a Claim submitted more than three (3) months after the said stipulated period;

There are however five (5) pharmacies that have signed onto the new contract with the BDS but have not yet submitted claims since they do not have the electronic capability. Hence, though there is a recorded count of 90 PPP, there is usually an average of 85 electronic submissions monthly, with some PPP routinely making late submissions.

2. Since the amalgamation of the Caribbean Regional Drug Testing Laboratory under CARPHA, the Barbados Drug Service has not been receiving any analytical results with respect to samples submitted. The BDS, with advice from the Director of the Caribbean Regional Drug Testing Laboratory, used the Certificate of Analysis from the respective manufacturers. The Director, BDS wrote to Health Canada to confirm that the laboratories used by the respective manufacturers were bona fide companies. She received confirmation of the date that they were inspected and passed.
3. With the implementation of the dispensing fee in the private sector, there continues to be an exodus of patients into the public polyclinics and out-patient clinics. Even with the increase in staff and extended hours in these pharmacies there continue to be long queues. There is a need to review the layout in these pharmacies in order to maximize the available space.

7.0

Plans for Budget Year 2012-2015

Appendix C details the plans and indicator matrix for budget years 2012-15. The successfully completed activities for fiscal year 2012-13 includes the following:

- (i) An Information Technology consultant was procured who developed the document outlining the BDS Business Processes and the BDS's Requirements for the Management Information System. Implementation of wide area network and rewrite of pharmacy software which was to follow did not commence in this financial year.
- (ii) One training session in Inventory Management was held for the BDS Pharmacy staff.
- (iii) Public education programmes were held quarterly
- (iv) One CE session was held for staff on diabetes management.

- (v) Assistance was sought from PAHO, but not yet formalised in developing the Standard Treatment Guidelines.
- (vi) All recalled drugs for the 2012-13 fiscal year were removed from the market in consultation with the Ministry of Consumer Affairs.
- (vii) Regular audits were conducted at both public and private pharmacies.
- (viii) A Pharmacovigilance Consultant was procured to assist in the collection and reporting of adverse drug reactions and other pharmacovigilance data received by the Barbados Drug Service.

Appendix A

Receipts and Payments Account for Period April 1, 2012 to March 31, 2013

| <u>Receipts</u> | \$ |
|--|-------------------|
| Accountant General | 31,633,496 |
| Recertification of Pharmacies (Private Pharmacies) | 7,900 |
| District Pharmacies (Sale of Pharmaceuticals) | 243,094 |
| Total | 31,884,490 |

| <u>Payments</u> | \$ |
|---------------------------|-------------------|
| Total Personal Emoluments | 5,282,822 |
| Travelling | 64,084 |
| Utilities | 279,640 |
| Rental of Property | 31,420 |
| Library | 8,326 |
| Supplies & Materials | 24,888,751 |
| Maintenance of Property | 24,669 |
| Operating Expenses | 93,067 |
| Machinery and Equipment | 11,917 |
| Furniture and Fixtures | 4,818 |
| Professional Services | 69,555 |
| Savings | 1,125,421 |
| Total | 31,884,490 |

Appendix B

| DRUG SERVICE EXPENDITURE AND PRESCRIPTION VOLUME | | | | | | | | | | | |
|--|--------------------|-----------------|-------------------|------------------------------|-------------------------|--------------------------|----------------|--------------------------|---------------------------|---------------------------|------------------------------|
| YEAR | PUBLIC EXPENDITURE | SBS EXPENDITURE | TOTAL EXPENDITURE | PUBLIC PRESCRIPTION (PRESC.) | PUBLIC PRESC. AVG. COST | PUBLIC AVG. MTHLY PRESC. | PRIVATE PRESC. | PRIVATE PRESC. AVG. COST | PRIVATE AVG. MTHLY PRESC. | PUBLIC EXP % of TOTAL EXP | PRIVATE EXP. % of TOTAL EXP. |
| 1982-83 | 2,720,368 | 140,756 | 2,861,124 | 0 | 0 | 0 | 21,126 | 7 | 1,761 | 95 | |
| 1983-84 | 4,291,991 | 207,772 | 4,499,763 | 262,287 | 16 | 21,857 | 26,384 | 8 | 2,199 | 95 | 5 |
| 1984-85 | 5,403,538 | 341,990 | 5,745,528 | 345,613 | 16 | 28,801 | 50,220 | 7 | 4,185 | 94 | 6 |
| 1985-86 | 7,713,963 | 435,745 | 8,149,708 | 501,416 | 15 | 41,785 | 41,390 | 11 | 3,449 | 95 | 5 |
| 1986-87 | 7,793,103 | 1,508,793 | 9,301,896 | 660,045 | 12 | 55,004 | 148,082 | 10 | 12,340 | 84 | 16 |
| 1987-88 | 8,536,816 | 3,346,816 | 11,883,632 | 654,679 | 13 | 54,557 | 300,000 | 11 | 25,000 | 72 | 28 |
| 1988-89 | 7,605,795 | 3,627,183 | 11,232,978 | 649,629 | 12 | 54,136 | 362,718 | 10 | 30,227 | 68 | 32 |
| 1989-90 | 9,269,966 | 4,701,687 | 13,971,653 | 859,474 | 11 | 71,623 | 371,327 | 13 | 30,944 | 66 | 34 |
| 1990-91 | 11,001,320 | 5,667,514 | 16,668,834 | 857,252 | 13 | 71,438 | 449,446 | 13 | 37,454 | 66 | 34 |
| 1991-92 | 9,308,874 | 5,896,776 | 15,205,650 | 843,450 | 11 | 70,288 | 425,727 | 14 | 35,477 | 61 | 39 |
| 1992-93 | 9,369,846 | 6,330,465 | 15,700,311 | 840,569 | 11 | 70,047 | 494,681 | 13 | 41,223 | 60 | 40 |
| 1993-94 | 9,440,576 | 7,228,270 | 16,668,846 | 844,789 | 11 | 70,399 | 555,000 | 13 | 46,250 | 57 | 43 |
| 1994-95 | 10,283,264 | 8,307,134 | 18,590,398 | 845,219 | 12 | 70,435 | 578,808 | 14 | 48,234 | 55 | 45 |

Appendix B Cont'd

| DRUG SERVICE EXPENDITURE AND PRESCRIPTION VOLUME | | | | | | | | | | | |
|--|--------------------|-----------------|-------------------|------------------------------|-------------------------|--------------------------|----------------|--------------------------|---------------------------|-------------------------------|------------------------------|
| YEAR | PUBLIC EXPENDITURE | SBS EXPENDITURE | TOTAL EXPENDITURE | PUBLIC PRESCRIPTION (PRESC.) | PUBLIC PRESC. AVG. COST | PUBLIC AVG. MTHLY PRESC. | PRIVATE PRESC. | PRIVATE PRESC. AVG. COST | PRIVATE AVG. MTHLY PRESC. | PUBLIC EXP % age of TOTAL EXP | PRIVATE EXP. % of TOTAL EXP. |
| 1995-96 | 9,612,632 | 9,979,983 | 19,592,615 | 818,927 | 12 | 68,244 | 692,735 | 14 | 57,728 | 49 | 51 |
| 1996-97 | 10,270,825 | 11,923,867 | 22,194,692 | 446,987 | 23 | 37,249 | 743,765 | 16 | 61,980 | 46 | 54 |
| 1997-98 | 10,346,838 | 10,857,428 | 21,204,266 | 502,689 | 21 | 41,891 | 803,990 | 14 | 66,999 | 49 | 51 |
| 1998-99 | 8,763,104 | 9,273,790 | 18,036,894 | 504,632 | 17 | 42,053 | 806,950 | 11 | 67,246 | 49 | 51 |
| 1999-00 | 12,589,080 | 13,590,363 | 26,179,443 | 527,046 | 24 | 43,921 | 786,738 | 17 | 65,562 | 48 | 52 |
| 2000-01 | 14,687,363 | 15,798,637 | 30,486,000 | 532,363 | 28 | 44,364 | 833,050 | 19 | 69,421 | 48 | 52 |
| 2001-02 | 15,439,374 | 17,360,242 | 32,799,616 | 476,955 | 32 | 39,746 | 921,110 | 19 | 76,759 | 47 | 53 |
| 2002-03 | 15,966,640 | 20,259,106 | 36,225,746 | 519,438 | 31 | 43,287 | 955,000 | 21 | 79,583 | 44 | 56 |
| 2003-04 | 8,323,481 | 21,851,776 | 30,175,257 | 637,851 | 13 | 53,154 | 990,943 | 22 | 82,579 | 28 | 72 |
| 2004-05 | 8,262,528 | 23,115,488 | 31,378,016 | 687,578 | 12 | 57,298 | 1,113,093 | 21 | 92,758 | 26 | 74 |
| 2005-06 | 8,930,806 | 30,540,237 | 39,471,043 | 700,604 | 13 | 58,384 | 1,331,537 | 23 | 110,961 | 23 | 77 |
| 2006-07 | 11,403,711 | 31,587,931 | 42,991,642 | 659,750 | 17 | 54,979 | 1,846,882 | 17 | 153,907 | 27 | 73 |
| 2007-08 | 10,439,220 | 36,535,775 | 46,974,994 | 662,677 | 16 | 55,223 | 2,055,016 | 18 | 171,251 | 22 | 78 |

Appendix B Cont'd

| DRUG SERVICE EXPENDITURE AND PRESCRIPTION VOLUME | | | | | | | | | | | |
|--|--------------------|-----------------|-------------------|------------------------------|-------------------------|--------------------------|----------------|--------------------------|---------------------------|-------------------------------|------------------------------|
| YEAR | PUBLIC EXPENDITURE | SBS EXPENDITURE | TOTAL EXPENDITURE | PUBLIC PRESCRIPTION (PRESC.) | PUBLIC PRESC. AVG. COST | PUBLIC AVG. MTHLY PRESC. | PRIVATE PRESC. | PRIVATE PRESC. AVG. COST | PRIVATE AVG. MTHLY PRESC. | PUBLIC EXP % age of TOTAL EXP | PRIVATE EXP. % of TOTAL EXP. |
| 2008-09 | 12,932,110 | 36,633,590 | 49,565,700 | 731,639 | 18 | 60,970 | N/A | N/A | 0 | 26 | 74 |
| 2009-10 | 12,150,516 | 40,561,950 | 52,712,466 | 778,267 | 16 | 64,856 | N/A | N/A | 0 | 23 | 77 |
| 2010-11 | 12,451,937 | 34,574,833 | 47,026,770 | 814,400 | 15 | 67,867 | N/A | N/A | 0 | 26 | 74 |
| 2011-12 | 11,765,288 | 10,787,176 | 22,552,464 | 1,082,101 | 11 | 90,175 | 879,104 | 12 | 73,937 | 52 | 48 |
| 2012-13 | 13,481,501 | 10,636,956 | 24,118,457 | 1,206,351 | 11 | 100,529 | 864,335 | 12 | 71,637 | 56 | 44 |
| Total | 310,556,374 | 433,609,761 | 744,166,134 | 20,454,677 | 15 | 1,704,560 | 19,452,614 | 22 | 1,621,051 | 42 | 58 |

Appendix C

Indicator Matrix for Budget Year 2012-2015

Programme Area: 363 - Pharmaceutical Programme

Sub Programme Area: 0383 –Drug Service

Goal: To provide quality pharmaceuticals to all residents of Barbados, at an affordable price and to serve the beneficiaries in a courteous and efficient manner

| Objective | Activities | Process Indicators | Outcome Indicator |
|---|---|--|--|
| 1. To ensure access of affordable, safe, and quality drugs to all government health care institutions and the private sector pharmacies | 1.1 Centralize and improve the pharmacy Information System and the development of a web site with linkages with all stakeholders (e.g. PPP, distributors, customs etc.) | 1.1.1 Procure an IT consultant 1.1.2 # of stakeholder meetings conducted 1.1.3 # of training seminars conducted | 1.1.1.1 % of public BDS pharmacies and Private Participating Pharmacies connected to the BDS hub |
| | 1.2 Renew reimbursement consultations with Private Health Insurance Companies to establish a policy framework for reimbursement for policy holders | 1.2.1 # of consultations with the Health Insurance providers 1.2.2 % of Health Insurers committed to the reimbursement process | 1.2.1.1 Policy document for reimbursement by private health insurance companies completed |
| | 1.3 Ensure a continuous supply of high quality medicines at an affordable price. | 1.3.1 % of 'new' tendered drugs undergoing analytical testing for quality assessment 1.3.2 # of tenders for drugs expanded to include other markets | 1.3.2.1 % of affordable drugs available on a continuous basis |
| | 1.4 Conduct quarterly training in inventory management. | 1.4.1 # of qualified persons involved in reviewing and executing the inventory management curriculum 1.4.2 # of inventory training | 1.4.1.1 # of pharmacy staff trained in inventory management |

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| 2. To maintain and update the Barbados National Drug Formulary through the rational use of medications | 2.1 To continue to provide drug information to health care providers and the general public 2.2 Provide quarterly continuing education programmes to the BDS pharmacist 2.3 Continue to conduct drug utilization reviews 2.4 Facilitate the development of STGs | 1.4.3 # of quarterly reports on inventory management seminars 2.1.1 # of public education programmes conducted 2.1.2 # of drug information request processed by the DIC 2.2.1 # of continuing education seminars conducted 2.3.1 # of drug utilization reviews conducted for CNCD (hypertension and diabetes) 2.4.1 # of STGs developed and established 2.4.2 # of consultations with stakeholders | 2.1.1.1 # of members of the public provided with information 2.2.1.1 % of BDS pharmacists attended/trained 2.3.1.1 # of drug utilization reports completed 2.4.1.1 % of physicians utilizing STGs |
| 3 To ensure quality and safety of drugs through appropriate regulatory frameworks including testing, inspection, monitoring and | 3.1 Continue the development and implementation of the Barbados National Pharmaceutical Policy including the review of the existing legislative framework and all relevant legislation | 3.1.1 # of stakeholders involved in the policy review, launch, and implementation planning meetings 3.1.2 % of existing legislation reviewed | 3.1.1.1 % of Drug Policy implemented |

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| surveillance | <p>3.2 Develop an SOP manual for BDS</p> <p>3.3 Establish a mechanism for regulatory, sharing and harmonization with other drug regulatory authorities</p> <p>3.4 Ensure that all recalled drugs are removed from the market in consultation with Consumer Affairs</p> <p>3.5 Establish formal periodic consultations with Custom Department, Police and the Post Office for the monitoring of</p> | <p>3.2.1 Procurement of a consultant for developing the SOPs</p> <p>3.2.2 # of stakeholder's meetings conducted</p> <p>3.3.1 Cabinet approval of the Legislative framework for drug regulatory harmonization</p> <p>3.3.2 CPC complete legislative bill for the legislative framework</p> <p>3.3.3 Parliament approves the legislative framework</p> <p>3.3.4 Legislative framework enacted</p> <p>3.4.1 % of recalled drugs removed from the market (need to create a data collection log)</p> <p>3.4.2 # of stakeholder meetings to inform the process of recalling drugs</p> <p>3.4.3 Policy manual for drug-recall developed</p> <p>3.5.1 # of stakeholder meetings/seminars conducted</p> <p>3.5.2 Formal agreement developed for the monitoring of drugs</p> | <p>3.2.1.1 SOP manual published and disseminated</p> <p>3.3.1.1 Legislation enacted</p> <p>3.4.1.1 Policy manual for drug re-call published</p> <p>3.5.1.1 Policy document for monitoring drugs published</p> |

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| <p>3.6 drugs.</p> <p>3.7 Fully implement and operationalize drug registration and pharmacovigilance programme</p> | <p>3.6 Conduct audits on public and private pharmacies.</p> <p>3.7 Fully implement and operationalize drug registration and pharmacovigilance programme</p> | <p>3.6.1 # of audits conducted</p> <p>3.7.1 Drug registration and pharmacovigilance programmes developed</p> <p>3.7.2 # of stakeholder meetings conducted</p> | <p>3.6.1.1 # of audit reports completed</p> <p>3.7.1.1 Drug registration and pharmacovigilance programme established</p> |

