AUDITOR GENERAL'S DEPARTMENT
PERFORMANCE AUDIT REPORT
MINISTRY OF HEALTH
MANAGEMENT OF DIABETES, A MAJOR CHRONIC NON-COMMUNICABLE DISEASE

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The Department is headed by the Auditor General, Pamela Monroe Ellis, who submits her reports to the Speaker of the House of Representatives in accordance with Section 122 of the Constitution of Jamaica and Section 29 of the Financial and Administration and Audit Act.

This report was prepared by the Auditor General's Department of Jamaica for presentation to the House of Representatives.

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Vision

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Auditor General's Overview

The mission of the Ministry of Health (MoH) is "to ensure the provision of quality health services and to promote healthy lifestyles and environmental practices." This is necessary for the effective prevention and control of diseases, including non-communicable diseases. This conforms to Vision 2030 Jamaica - National Development Plan Outcome 1, which specifies the achievement of "A Healthy and Stable Population."[1]

The Ministry in its situational analysis for its 2012-2015 Strategic Business Plan identified an increase in the prevalence of chronic non-communicable diseases as a major threat. According to the Ministry's National Strategic and Action Plan for the Prevention and Control of Non-communicable Diseases (NCDs) 2013-2018, 70 percent of all deaths in Jamaica in 2010 were due to the four major NCDs – cardiovascular diseases, cancer, diabetes and chronic lower respiratory diseases. The National Plan also indicated that 80 percent of deaths from cardiovascular diseases and type 2 diabetes, and 40 percent of deaths from cancers can be prevented.[2]

In order to achieve a healthy and stable population, as well as to reduce the incidences of deaths from NCDs, the National Plan outlines strategies to strengthen:

- disease surveillance, mitigation, and risk reduction,
- health promotion and primary health care approaches, and
- governance structures for supporting health service delivery.

The performance audit focussed on determining whether MoH had developed strategies, policies and interventions to prevent and control diabetes as a major NCD, and the extent to which it had implemented adequate systems to manage and evaluate the effectiveness of those strategies, policies and interventions.

The audit has shown that MoH has several strategies, policies and interventions to mitigate NCDs. However, the attention given to health promotion and public awareness was inconsistent with the Ministry's position that this was its main strategy in achieving its health priorities. Additionally, the Ministry's monitoring mechanisms and assessment practices needed improvement. We noted that the tools developed to monitor and assess the quality of care offered were not being consistently or extensively used.

I have made recommendations that the Ministry of Health and its Regional Health Authorities (RHAs) should consider implementing. I wish to thank the management and staff of MoH and the RHAs for the courtesies extended to my staff during the audit.

Pamela Monroe Ellis, FCCA, FCA, CISA
Auditor General

[1]Page XXVI: Vision 2030 Jamaica – National Development Plan
[2]Pages 18 & 10: MOH National Strategic and Action Plan for the Prevention and Control NCDs in Jamaica 2013-2018

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Summary

The Ministry of Health (MoH) is mandated to mitigate the public health impact of diabetes and other non-communicable diseases (NCDs) in Jamaica. Through prevention, early detection, diagnosis, treatment and rehabilitative care, the Ministry expects to improve the quality of life of patients with NCDs and reduce the incidences, morbidity and mortality associated with NCDs. In this regard, MoH is responsible for setting policies, norms and standards as well as monitoring and evaluating service delivery while the Regional Health Authorities are responsible for health care delivery.

The objective of the audit was to ascertain whether MoH had developed strategies, policies and interventions to prevent and control diabetes as a major NCD, and the extent to which it had implemented adequate systems to manage and evaluate the effectiveness of those strategies, policies and interventions.

The key findings are outlined in paragraphs 1 to 4.

Key Findings

1. **The attention given to health promotion[3] and education was inconsistent with MoH's position that this was its main strategy to achieve its health priorities.** We did not see evidence that the Ministry had embarked on a robust public awareness programme in support of its main strategy. The Ministry's responsibility for health promotion and education, according to the Vision 2030 National Development Plan, is to empower individuals to make informed choices to preserve their health and minimize their exposure to health risks. However, the Ministry did not have a NCDs communication plan. Public awareness was also negatively affected as the Ministry had not aired audio and audiovisual material as planned. We further noted that the Service Level Agreements (SLAs) between the Ministry and the Regional Health Authorities (RHAs), which outlined priority areas, did not include any performance indicators for health promotion and education. The Ministry has since advised us that it has taken steps to include these indicators in the Service Level Agreement.
2. **Inadequate monitoring of interventions for diabetes.** There was evidence of weakness in monitoring key areas of diabetes management such as blood glucose control and foot care. The Western Region's clinical audits revealed that the guideline measure of blood glucose control, the HbA1c test, was not being consistently used. The audits revealed that for 63 percent of the sampled patients, their HbA1c had not been checked and recorded in the last twelve months. This practice was contrary to MoH's guidelines for diabetes management, which require that the test be done at least annually. We noted that this situation extended beyond the Western Region as the National Health Fund (NHF), which

[3]Health promotion has been defined by the 2005 Bangkok Charter for Health Promotion in a Globalized World as "the process of enabling people to increase control over their health and its determinants, and thereby improve their health." Means of health promotion include health education and social marketing.

subsidises the cost of the test, terminated the status of 21 of 25 public health facilities as providers for this test due to inactivity. We further noted that reporting on the level of glucose control for patients was inadequate. While the Western Region reported it had failed to achieve the SLA target of 51 percent of patients having controlled glucose levels, the other three RHAs did not report on their achievement of this target. The Diabetes Association of Jamaica, with assistance from the NHF, trained 39 community health aides from the public health system in foot care in 2008, at a cost of $4 million. However, the community health aides were primarily assigned to the maternal and child care clinics. Blood glucose control and appropriate foot care could possibly prevent or delay complications and their related costly treatments, such as dialysis and amputations.

3. **Weak oversight and monitoring of the NCDs programme and regional activities.** MoH did not demonstrate that it is delivering the required oversight to ensure that policies and SLAs were being implemented and assessed. We noted a lack of timely clinical audits of programme interventions as well as inadequate reporting on programme outcomes. The Service Level Agreements provided for quarterly audits by the Regional Health Authorities as a measure to improve clinical quality of health services. However, only the Western Regional Health Authority conducted more than one of the required Chronic Non-communicable Diseases (CNCDs) clinical audits of health facilities to assess quality of care. The Western Region conducted 12 clinical audits for the period 2009-2012 at four of its 82 health facilities. The North East Region conducted an audit at one of its 73 health centres in 2012. The Southern and South East Regions did not carry out audits for their 89 and 74 health centres, respectively, during the period under review. The RHAs did not present evidence to support their claims that other types of audits, such as docket reviews, were done. The Ministry itself had its own target to conduct three clinical audits per annum to monitor quality of care for NCDs. However, it did not conduct these planned audits.

4. **Absence of adequate financial information to enable assessment of resource allocation for the diabetes programme.** The health information system did not facilitate assessment of the costs associated with different diseases. The Ministry therefore could not evaluate the financial impact of its programmes for diabetes and other NCDs, or reflect through budgetary allocations that there had been a strategic shift to treat NCDs as a priority area. We noted that, over the period 2008/2009 – 2014/2015, $151.6 billion was budgeted for general health services, including curative NCDs services, in the four Regional Health Authorities. However, there was no discrete budget for NCDs and the information system did not disaggregate costs according to disease conditions. This, therefore, hampered our ability to identify the cost of the diabetes programme and to properly assess the adequacy of resources or the cost-effectiveness of interventions.

Recommendations

1. MoH needs to reassess its approach to health promotion and education. If the Ministry does not put in place a robust public awareness and health promotion programme, with the appropriate use of various media, its plan to reduce risk factors will be greatly hampered. Although the Ministry cited financial constraints as a deterrent, it should seek to identify the most cost effective means of disseminating information to empower the population. The National Strategic Plan proposes partnerships "with media organizations and telecommunication companies in the development of a NCD Health Promotion and Communication Strategy with targeted messages for public education using print media, television, radio, social media and text messaging." We urge the Ministry to follow through with these plans, while adhering to its primary responsibility for public health messages. Financial gains resulting from reduced risk factors could then be channelled into improving the treatment interventions for diabetes patients.

2. The Ministry needs to strengthen its monitoring role to ensure health facilities are implementing and evaluating the prescribed clinical interventions. Further, the Ministry should ensure that the RHAs faithfully submit accurate reports to enable the Ministry to timely assess the impact of the various programmes. This would enable the Ministry to take timely strategic decisions to mitigate risks of loss of scarce resources or risks to its ability to fulfil its mandate.

3. The Ministry should take steps to implement financial information systems that will facilitate assessment of the economic impact of its strategies. Such systems should allow for appropriate cost-centre reporting and sufficient disaggregation of costs to assess its allocation of financial resources. MoH will then be able to assess whether resources are being used effectively, justify the need for more resources or take corrective action where targets are not being achieved.

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Part One

Introduction

Background

1.1 The increasing public health and economic burden of chronic diseases has been on the global health agenda for decades. From as far back as 1998, at the 50th anniversary of the World Health Organisation (WHO), NCDs were predicted to be one of two main fronts in the war against ill-health for the 21st century, the other being infectious diseases. The 1998 World Health Report further predicted, *"Many developing countries will come under greater attack from both, as heart disease, cancer and diabetes and other "lifestyle" conditions become more prevalent..."*[4] Chronic diseases are diseases of long duration and slow progression and are categorized as communicable (CDs) and non-communicable (NCDs). The audit focussed on diabetes as a major NCD.

1.2 "Diabetes is characterized by raised blood glucose (sugar) levels. This results from a complete or relative lack of the hormone insulin, which controls blood glucose levels, and/or an inability of the body's tissues to respond properly to insulin (a state called insulin resistance). The most common type of diabetes is type 2, which accounts for about 90% of all diabetes and is largely the result of excessive weight and physical inactivity. Type 1 diabetes is an autoimmune condition resulting in an absolute lack of insulin."[5] Uncontrolled diabetes can result in loss of limbs and sight, end-stage renal failure, heart attack, stroke and ultimately death.

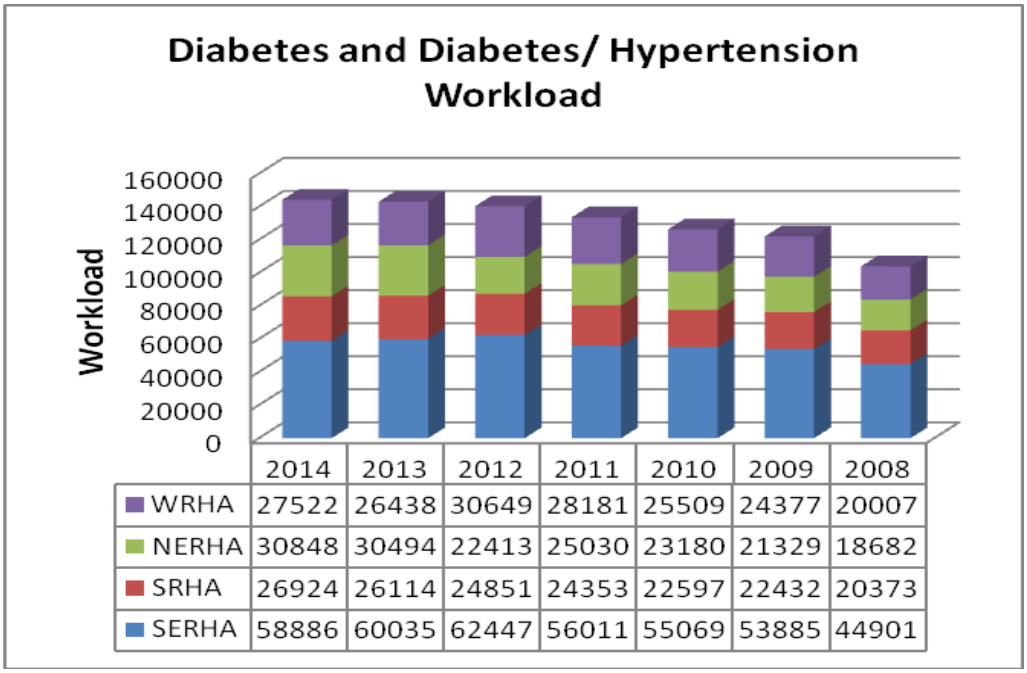
The Impact of Diabetes, as a major NCD, on the Public Health System

1.3 We were unable to assess the overall cost to treat NCDs, as the public health information system did not allow for the disaggregation of treatment costs according to disease conditions. Nevertheless, we noted several factors pointing to the heavy burden of treatment interventions for diabetes on the public health sector.

1.4 For example, for the calendar years 2008 – 2014, health centres reported 913,537 visits from patients requiring treatment for diabetes and diabetes with hypertension (**Figure 1**). Included in this amount were 13,637 newly diagnosed diabetics and 209,033 first time visitors. According to health centre Monthly Clinic Summary Reports for 2008 to 2013, diabetic patient visits accounted for between 10 to 17 percent of the total curative services in three regions (reports for the North East Regional Health Authority did not allow us to determine the ratios in that region). This represented the second highest percentage following hypertension.

[4] Page 2 – World Health Report 1998
[5] MOH National Strategic and Action Plan for the Prevention and Control NCDs in Jamaica 2013-2018

Figure 1 Diabetes and Diabetes/Hypertension Workload* for the period 2008-14



	2014	2013	2012	2011	2010	2009	2008
WRHA	27522	26438	30649	28181	25509	24377	20007
NERHA	30848	30494	22413	25030	23180	21329	18682
SRHA	26924	26114	24851	24353	22597	22432	20373
SERHA	58886	60035	62447	56011	55069	53885	44901

Workload = new, first and revisits from diabetics and diabetics with hypertension
Source: AuGD compilation from Monthly Clinic Summary Reports from health centres

1.5 Diabetic patients suffering from uncontrolled glucose levels and chronic complications were among those with the highest percentages of discharges[6] and average length of stay (ALOS) in public hospitals. For example, in 2011, in the North East region, diabetes accounted for the highest and second highest percentages of discharges for the St Ann's Bay (SAB) and Annotto Bay (AB) Hospitals, respectively. These patients had the third and second highest average length of stay: 9.09 days at the SAB and 10.5 days at the AB, respectively. Preliminary figures for 2014 showed that while diabetes remained among the top three conditions with the highest percentages of discharges at both hospitals, the average length of stay fell to 7.64 days at SAB and 6.54 days at AB.

1.6 Western region data showed diabetic patients with uncontrolled glucose levels and chronic complications as the leading cause of discharges in the region's hospitals in 2012 and the second highest cause in 2011 and 2010 behind hypertension. For example, in 2012, these patients accounted for 2.1 percent of the total discharges of 31,809 and the third highest average length of stay, at 15.1 days when compared to other conditions where the average length of stay was five days **(Figure 2)**. We are unable to comment on more recent statistics because the format for the WRHA reports changed in subsequent years and did not include the same information.

[6] Patients who have been treated for diabetes-related complications and subsequently released from hospital.

Figure 2 Average length of stay for diabetes patients in NERHA and WRHA for selected years

Region	Hospital	ALOS (Days)	Total discharges	% of Total discharges	Rank cause of discharges
NERHA: 2011	SABH	9.09	DNR*	3.28	1st
	ABH	10.05	DNR*	1.92	2nd
WRHA: 2012		15.1	31,809	2.1	1st
2011		9.3	34,579	7.3	2nd
2010		9.1	DNR*	7.5	2nd

*DNR – Did not report

Source: Extracted from NCD Annual Reports from RHAs

1.7 In addition to the use of public health facilities, diabetes treatment requires a significant amount of drug therapy. The NHF provides drugs for chronic diseases for the private and public sectors. It spent a total of $32.7 billion, excluding Jamaica Drugs for the Elderly Programme (JADEP), over the period 2008/2009 to 2014/2015. Diabetes drugs accounted for 23 percent or $7.6 billion of the total cost, excluding JADEP, and represented the second highest cost after hypertension, which accounted for 28 percent.[7]

Mortality rates for diabetes

1.8 For the period 2008 – 2013, deaths with diabetes as the underlying cause were 13.2 percent of total deaths for the period **(Figure 3)**. We also noted that diabetes was consistently the first or second leading cause of death among the top 15 leading causes of death in Jamaica.

Figure 3 Diabetes deaths (ages 5 years and over) for the period 2008 – 2013

Summary of Diabetes Mellitus as underlying cause of death (2008-2013)							
Calendar Year	2008	2009	2010	2011	2012	2013	Total
Total recorded diabetes deaths	1,703	1,777	2,002	2,266	1,974	1,910	11,632
Total recorded deaths	13,668	14,459	14,792	14,836	14,943	15,198	87,896
Percentage of total deaths	12.5%	12.3%	13.5%	15.3%	13.2%	12.6%	13.2%

Note: 2014 data was not yet available

Source: Registrar General's Department data on top 15 leading causes of death in Jamaica

[7] Data on use of NHF health cards for the audit period, provided by the NHF

Vision and Mission Statement

1.9 MoH's vision is, *"Healthy People, Healthy Environment".*

1.10 MoH's mission is, *"to ensure the provision of quality health services and to promote healthy lifestyles and environmental practices".*

Health System Management

1.11 The Ministry's mission is delivered through a network of 23 hospitals and 326 health centres, which are divided among the four Regional Health Authorities. MoH is responsible for setting policies, norms and standards, as well as monitoring and evaluating service delivery, while the Regional Health Authorities are responsible for health care delivery.

Funding

1.12 There is no discrete funding for NCDs in MoH's budget. However, $151.6 billion was budgeted for delivery of general health services, including curative NCDs services in the four Regional Health Authorities over the period 2008/2009 to 2014/2015. In addition, the National Health Fund (NHF), established by the Government to reduce the general health care burden, assists patients suffering from the major NCDs. The NHF spent a total of $32.9 billion on drugs for the treatment of NCDs using health cards, including JADEP cards, for the period 2008/2009 to 2014/2015.[8]

Audit Objective

1.13 The objective of the audit was to determine whether MoH had developed strategies, policies and interventions to prevent and control diabetes as a major NCD, and the extent to which it had implemented adequate systems to manage and evaluate the effectiveness of those strategies, policies and interventions.

Audit Scope and Methodology

1.14 Our audit focussed on the period 2008/2009 to 2014/2015. The audit work was carried out in accordance with International Organisation of Supreme Audit Institutions (INTOSAI) performance audit standards. The planning process involved gaining an understanding of the operations of MoH and the Regional Health Authorities. We reviewed documents internal and external to MoH and RHAs, interviewed senior management and staff, conducted site visits and limited surveys, held a Focus Group discussion and analysed data provided by the Ministry, the Regional Health Authorities and other agencies.

[8] Source: AuGD compilation using NHF data on use of NHF cards for diabetes drugs

Part Two

Strategies and Monitoring Systems

Delivery of Health Care strategy for Diabetes

2.1 The Ministry's health care strategy is delivered through the four Regional Health Authorities (WRHA, SRHA, SERHA and NERHA), while the Ministry has oversight responsibility for management of the NCDs programme. The aim of the NCDs programme, as it relates to diabetes, is to reduce diabetic incidences and mortality and improve the quality of life of diabetic patients through prevention, early detection, diagnosis, treatment and rehabilitation. This is done using an approach that focuses on reducing the main modifiable risk factors that contribute to diabetes and other NCDs, and administering treatment where necessary. MoH has stated that health promotion and education is its main strategy to achieving its health priorities, which include NCDs.

Health Promotion and Public Education

2.2 MOH's strategy is congruent with Vision 2030 Jamaica: National Development Plan (NDP), which recognized the need to strengthen the Health Promotion Approach, empowering individuals to make informed choices to preserve their health and minimize their exposure to health risks[9]. Vision 2030 further states that individuals will be encouraged to seek environments that minimize exposure to hazards, and practice healthy lifestyles, including balanced nutrition, regular physical exercise, adequate rest, and minimal exposure to health risk factors. Public education is intended to increase access to health information and create awareness of risk factors relating to diabetes and other NCDs.

The Ministry does not have a NCD Communication Plan

2.3 MoH did not present a NCD Communication Plan and a comprehensive education programme that would raise public awareness and encourage behavioural changes. Materials for use in educational activities were absent or dated, and some key activities regarding health promotion were not carried out. The Ministry planned to "build the capacity of health educators and other health workers in health promotion competencies." In a bid to raise public awareness and build capacity, MoH also planned to conduct Health Leadership workshops for faith-based organizations as well as National Social Marketing workshops on selected NCDs conditions and risk factors.[10] However, these targets were not achieved.

[9] Health promotion has been defined by the 2005 Bangkok Charter for Health Promotion in a Globalized World as "the process of enabling people to increase control over their health and its determinants, and thereby improve their health." Means of health promotion include health education and social marketing.

[10] Source: MoH Operational Plan 2012-2013

2.4 The Ministry reported that in 2008 the healthy lifestyle project that funded communication plans ended and it did not receive any major funding until June 2013. MoH also indicated that public health awareness and promotion activities are carried out by other organisations, in particular the National Health Fund. However, the Ministry's National Plan outlines its responsibility to "develop a NCD Health Promotion and Communications Strategy to guide public education programmes for NCD prevention and control." Further, in our view, the peculiarities of communicating public health issues and the specialist knowledge required appear to necessitate establishment of relevant policies, standards and guidelines that can be readily accessed or made publicly available. These are the purview of the Ministry, although it may seek to establish partnerships, public and private, in order to achieve its strategic objectives.

Absence of up-to-date educational material to support a robust Diabetes Awareness Programme

2.5 We found that MoH failed to prepare educational materials that were specific to the prevention and promotion of awareness of diabetes, such as posters, leaflets and brochures. At the time of our audit, the Health Promotion and Education (HPE) Unit did not have any materials available for dissemination to the public. The Unit advised that they received instructions in 2011 to discontinue printing, to facilitate redesign of the materials to make them more age and condition-specific, and more appealing to the public. However, the redesign was not done due to reported financial constraints. The Ministry advised in September 2015 that redesigned materials are currently at the Printers.

2.6 In addition to the absence of print materials, there was no placement of audio and audiovisual material as planned for 2012. MoH indicated that the service of an expert to do the design was necessary in order to facilitate the development of new materials. This service was also not procured because of reported financial constraints.

2.7 These shortcomings have contributed to the current inadequacy in public education and awareness that is necessary to address diabetes. MoH did not have adequate material to facilitate a robust educational campaign in keeping with its strategy. We also did not observe strategic use of social media or its website to support public awareness.

Priority given to health promotion activities was inconsistent with MoH's strategy

2.8 We found that there were no performance indicators for primary prevention[11] activities in the 2013-2015 Service Level Agreements between MoH and the Regional Health Authorities. The Agreements identify priority activities and establish performance indicators to achieve these activities. The absence of performance indicators for primary prevention and health promotion activities does not support the assertion of health promotion as a high priority area. This is inconsistent with MoH's stated strategy and sends the wrong message to the agencies responsible for service delivery. The Ministry has since advised us that it has taken steps to include these indicators in the Service Level Agreement.

[11] Prevention of CNCDs is classified into three categories namely: primary, secondary and tertiary prevention. Primary prevention involves activities geared towards individuals who are without the disease and includes outreaches to schools, workplaces and churches by the RHAs. These interventions, which focus on risk factor reduction, take place before the disease process begins and include sharing information so persons can understand their risk, take the necessary preventative measures and avoid the costs of disease and its complications.

Treatment strategies and guidelines

2.9 MoH manages the treatment of diabetes using the Guidelines for the Management of Diabetes 2007[12]. Routine treatment and follow-up visits are done in health centres (primary care) while diabetic complications are cared for in public hospitals (secondary care). Our review of the Guidelines and relevant literature identified achievement of blood glucose control and appropriate foot care as important elements in diabetes management. We also noted the importance of referrals to specialists, as necessary. Only WRHA reported on blood glucose control in its patients while the clinical audits conducted by two regions, WRHA and NERHA (mainly WRHA), revealed that the health centres did not consistently adhere to the guidelines for the management of diabetes.

Inadequate reporting on blood glucose control

2.10 Diabetes management aims to achieve controlled blood glucose level in order to prevent complications. Therefore, reporting on the number of patients who have controlled glucose level is important in assessing the effectiveness of management interventions. The Ministry of Health requires that 51 percent of diabetes patients should have their blood glucose level under control. This target was included in the 2007-2008 and 2013-2015 Service Level Agreements between MoH and the RHAs. The sole region that reported on this target, WRHA, indicated that it was not met **(Figure 4)**. Further, the region's reports may not have reflected the true position on the actual achievements of glucose control. This was due in part to the region's method of assessing patients' glucose control on the total number of visits by patients instead of the number of patients. Additionally, monthly tally sheets that were used to capture these visits and control did not identify the guideline criteria or tests used to determine control.

Figure 4 Levels of blood glucose control for the Western Region

Target Level of Control 51%	April 2014/ March 2015	April 2013/ March 2014	April 2012/ March 2013	Jan-Dec 2012	Jan-Dec 2011	Jan-Dec 2010	Jan-Dec 2009	Jan-Dec 2008
	%	%	%	%	%	%	%	%
Diabetes	43	42	33	29	29	43	36	43
Diabetes & Hypertension	NR*	NR*	43	34	33*	40	47	48

*Note: NR - Information for Diabetes and Hypertension was not shown in the reports for 2014 and 2015
Source: Data from WRHA CNCD Reports

Guideline Measure of Diabetes Control was not consistently utilised

2.11 MoH requires that in monitoring diabetes control, the blood glucose level (fasting, 2-hour post-prandial or random) or the haemoglobin (HbA1c) test should be done. Focus Group participants[13] cited the HbA1c test as a cost-effective means of assessing blood glucose control. This test is considered to give a more comprehensive view of diabetes control, as it reveals the

[12] We have received updated Guidelines dated July 2015.
[13] Our Focus Group comprised experts in the field of diabetes management and research as well as organisations offering support services to diabetes patients. Their identities have been concealed.

glucose levels in the blood over a three month period. MoH guidelines for the management of diabetes require at least a yearly HbA1c test and more frequently, if the HbA1c test gives a reading exceeding eight percent.

2.12 The WRHA clinical audit reports for 2009 to 2012 indicated a comment of "***not good enough***" when patients' laboratory investigations were reviewed. The reports disclosed that 61 percent of the 120 patient files that were sampled for the three years, did not reflect that a HbA1c test had been done and recorded within the last 12 months. The NERHA disclosed an 11 percent achievement, as only one of the nine patient files reviewed in 2012 showed that the test was done. The other two regions did not conduct clinical audits for the period and therefore did not report on this critical indicator.

2.13 It would appear that the HbA1c test has not been given priority within the public health system as a critical indicator of blood glucose control and by extension, a possible monitor of the success of treatment strategies. The regions reported several reasons for the inconsistent use of this test: "poor clinician uptake coupled with a lack of consistent reagent[14] supply," cash flow problems affecting the purchase of reagents[15] and a broken machine.[16]

2.14 Information from the NHF further showed a lack of use of the test in the public health sector. The local distributor of the machines for the HbA1c test provides the machines free of cost to the facilities while the NHF co-pays the cost of doing the test, in a similar manner to the funding of prescription drugs. Twenty-five public health facilities were registered as NHF-HbA1c Providers. However, the NHF reported that on March 1, 2015 it terminated the provider status of 21 of those facilities. The NHF indicated that this action resulted from inactivity; the facilities had not submitted claims for over two years. At the time of finalisation of this report we were not advised whether the NHF had reinstated the health facilities as Providers.

Foot care strategy was not faithfully followed

2.15 The Guidelines highlight foot care as a key feature of the management of diabetes and require that a physical inspection of the foot be done at each visit as well as a comprehensive foot examination annually. Problems, especially ulcers, may require the service of a podiatrist/chiropodist. Our audit revealed that this was not a consistent practice and was illustrated by the results of the clinical audits, which revealed that there was no record of foot examinations for more than 55 percent of the 219 patient files that were reviewed. In responding to a questionnaire we developed and administered, 50 percent of the 40 patients who participated from two health centres within the South East Regional Health Authority told us that they had never had a foot examination. Additionally, we noted that while foot care assistants were considered important in diabetes management, as indicated in the Ministry of Health's diabetes Guidelines[17], there were no posts on the Government Establishment for these individuals.

2.16 The Diabetes Association of Jamaica, with assistance from the NHF, trained 49 individuals in foot care at a cost of $4 million in 2008. This training included 39 community health aides employed in the public health system. However, the community health aides were primarily assigned to the maternal and child care clinics. The absence of proper foot care and examination can cause serious foot complications resulting in amputations. The Guidelines noted that "the

[14] A reagent is a substance that is used to test for the presence of another substance by causing a chemical reaction with it.
[15] Page 7: WRHA Non-communicable Diseases Prevention and Control Programme Annual Report (April 2012 – March 2013)
[16] SRHA Chronic Diseases Report January – December 2010
[17] Page 33 Guidelines for the Management of Diabetes – Ministry of Health Jamaica (November 2007)

Caribbean has one of the highest rates of non-traumatic amputations in the world," and that "the majority of amputations in patients with diabetes are preventable."[18] Data from MoH's Health Information System showed that between 2008 and 2010, 866 amputations were done in public health facilities. Amputations accounted for the highest average length of stay, some up to 25 days, in public hospitals. In addition, participants in the Focus Group highlighted the high mortality rate for patients who have had diabetes-related amputations.

Health Centres did not faithfully adhere to the strategy of referrals to specialists

2.17 MoH Guidelines require a management team of clinical specialists to ensure an integrated approach to the treatment of diabetes. The Guidelines indicate that persons with Type 2 diabetes should be referred to an endocrinologist, referred for nutrition therapy and eye exam, and to a mental health specialist, foot specialist, diabetes educator and other specialists, where necessary. The Guidelines also require that routine and annual depression screening, foot inspection and oral examination be done.

2.18 The CNCDs clinical audit reports for 2009 to 2012 by the Western and North East regions revealed that 75 percent or 97 of the 129 diabetes patients who had been sampled were not referred to a nutritionist/dietician. Over 85 percent of these patients were also not referred for dental or eye examinations, or screened for depression **(Figure 5)**.

Figure 5 Referrals to specialists

Source	Nutrition (Nutrition Therapy)	Ophthalmology (Eye examination)	Mental Health (Depression screening)	Dental (Oral)
RHAs CNCD Clinical Audit Reports	**32/129**	**16/129**	**2/129**	**3/129**
% Referrals	**25%**	**12%**	**2%**	**2%**

Source: CNCDs Clinical audit reports

2.19 This practice is contrary to MoH guidelines and does not allow for effective management of diabetic patients. Regular screening and preventative care can avert diabetic complications of the eye. Our audit revealed that 21 percent or 1,325 procedures carried out by the Cuban Eye Care Project were on diabetic patients, as shown in **Figure 6**.

[18] Page 49 Guidelines for the Management of Diabetes – Ministry of Health Jamaica (November 2007)

Figure 6 Surgical procedures for the Cuban Eye Care Project

Condition	2010	2011	2012	2013	Total
Cataract	596	918	723	730	2,967
Pterygium	343	254	397	664	1,658
Laser on diabetic patients	235	312	255	523	1,325
YAG Laser	66	80	28	57	231
Glaucoma	1	5	0	0	6
Other Surgeries	3	2	3	16	24
Total	**1,244**	**1,571**	**1,406**	**1,990**	**6,211**

Source: MoH Health information data

Set-backs in reorienting the health care system for chronic diseases

2.20 MoH planned to roll out the Chronic Care Model in at least 50 percent of Types 5 and 3 health centres and train 30 foot care assistants and 10 diabetes educators. There were also plans to train 50 percent of doctors and nurses in the Chronic Care Model, clinical management of hypertension and diabetes, nutrition management of obesity, diabetes and hypertension, and screening for depression. This was in keeping with its strategic objective of reorienting the health care system to the Chronic Care Model approach with a focus on primary health care[19]. MoH did not carry out these planned activities, citing lack of funds.

2.21 Although the Ministry carried out a pilot project of the Chronic Care Model in seven health centres we were unable to assess the overall outcome of the project. This was because the report submitted by the Ministry did not give its overall assessment of the project's achievements. In addition, the individual health centre reports included in the Ministry's report were not standardised to provide feedback on the specific objectives of the project.

2.22 Focus group participants identified the need to reorient our approach to NCDs away from an "acute care"[20] approach to a model that is more suitable for chronic diseases, which are long term and require more self-management. (**Appendix 1** contains a brief description of the Chronic Care Model and its components.) The Ministry also regards implementation of the Model as a key strategic objective. However, the Ministry needs to reassess its approach to implementation of the Model, and its policies and guidelines by extension. There needs to be greater accountability for reporting on achievement of the specific targets. MoH will find it difficult to assess the effectiveness of its initiatives, where there is inadequate reporting on indicators.

Assessing and reporting on programme objectives

Periodic programme reports were not consistently prepared and submitted

2.23 MoH delivers health care through the four Regional Health Authorities (WRHA, SRHA, SERHA and NERHA) and utilized quarterly meetings and annual reports from the Regional Health

[19] Source: MOH Operational Plans 2011-2012 and 2012-2013

[20] Acute care: Short-term medical treatment, usually in a hospital, for patients having an acute illness or injury or recovering from surgery.

Authorities to monitor and assess health service delivery. In addition, the RHAs were required to conduct clinical audits, at least quarterly, for the 323 health centres. These clinical audits were intended to facilitate the assessment of quality of care performance in the regions.

2.24 All RHAs are required to submit annual NCD reports to the Ministry of Health. However, the RHAs did not faithfully submit these reports. We noted that WRHA submitted annual reports for January 2009 to March 2013, while NERHA submitted annual reports for 2008, 2010 and a draft for 2011. SERHA submitted draft reports for 2011 and 2012, and SRHA submitted reports for 2010 and 2012. We subsequently received in October 2015, reports for 2013/2014 and 2014/2015 from all regions, except NERHA. NERHA submitted a report for 2013 and a preliminary draft for 2014. See **Figure 7.**

2.25 Our review of the annual reports for the period 2008/2009 to 2014/2015 revealed inconsistencies and the omission of critical management information from some reports. SRHA and SERHA did not include required information such as hospital discharges, average length of stay and number of patients on dialysis in their annual reports. The WRHA on the other hand, included the required information in their annual reports. MoH advised that the difference arose because the WRHA had a full time NCD Coordinator while the other regions did not.

2.26 We also found that the Regional Authorities did not consistently conduct clinical audits during the period under review. Clinical audits are a key element in monitoring quality of care and compliance with treatment guidelines. The WRHA submitted clinical audit reports for four of its 82 health facilities, covering the period 2009 to 2012. NERHA submitted a clinical audit report for one of its 73 health centres for 2012 while SERHA and SRHA did not submit any clinical audit reports for their 89 and 74 health centres, respectively (**Figure 7**). We further noted that MoH itself did not carry out its plan to conduct at least three clinical audits per annum. Some regions indicated that in the absence of clinical audits, other monitoring was done. For example, WRHA reported that it conducted docket reviews of patients' records, to ascertain that clinicians were adhering to established guidelines. SERHA reported that it conducted performance reviews assessing priority programme areas, while SRHA advised that senior members of the health care team do periodic monitoring. However, the regions did not present reports on these reviews and assessments to support their claims.

2.27 Lack of effective reporting and review hampers the ability of MoH to carry out quality medical management assessment and effective monitoring of the regions.

Figure 7 Status on reports from and audits conducted by the Regional Health Authorities

Regions	Clinical Audits Reports Submitted 2008 – 2015	Annual Reports Submitted 2008 – 2015
Western Regional Health Authority	Falmouth HC 2010-2012 Lucea HC 2009-2011 Montego Bay HC 2009-2011 Savanna-la-mar HC 2009-2011	2009 to 2012 2012/2013 to 2014/2015
South East Regional Health Authority	None	Draft 2010/2011; Draft 2011/2012, 2013/2014, 2014/2015
North East Regional Health Authority	2012	2008; 2010 Draft 2011 2013, preliminary 2014
Southern Regional Health Authority	None	2010; 2012, 2013, 2014/2015

Source: AuGD analysis of reports from regions

Lack of management information to facilitate assessment of the diabetes programme

2.28 The Ministry has stated that the clinical audits conducted were not necessarily representative of the performance in other health centres/clinics, because of the small sample sizes and diverse situations at the various health centres. However, given the sensitive nature of patient information and the need to observe confidentiality requirements, we sought to rely on the reports of clinical audits conducted by health personnel in the regions, which used specific audit tools. We were provided with results that represented the work of only two regions. Further, only one of those two regions had conducted more than one audit within the period covered by our review.

2.29 We noted that there was a general lack of management information from the Ministry and RHAs to allow for a proper assessment of MoH's performance in the management of diabetes. Information provided was not always in a structured and consistent manner to allow for analysis to determine the effectiveness of the system. This supports our view that the scope of monitoring within the regions and by MoH on a sector-wide basis was limited. Further, it was not clear what follow-up actions were taken by the Ministry to address the weaknesses identified by the clinical audits. In our view, there must be a robust governance structure to ensure that targets are met. If the overall governance structure and monitoring function of MoH is not reviewed and assessed appropriately programme gains may not be realised.

Financial reporting structures inadequate to facilitate assessment of resource allocation

2.30 Financing is an important element of strategies for any health programme. The programme itself will require financing and financial reporting can provide indicators on the cost-effectiveness of programme interventions. The National Health Fund (NHF) was instituted as a source of financing for the health system and contributes significantly to the diabetes programme, for example through subsidised prescription drugs. In terms of budgetary support, the CARICOM

countries committed, through the Port of Spain Declaration, to allocating specific revenues "...*inter alia* for preventing chronic NCDs, promoting health..."[21] This commitment required the implementation of a budget for NCDs as outlined in the progress indicator grid for the Port of Spain Declaration. We noted that there is currently no specific NCDs budget or "line item" for NCDs in MoH's budget, which means that Jamaica has not achieved this target. See **Appendix 2** for Jamaica's performance over the audit period.

2.31 The Ministry cited resource constraints as a reason for the non-achievement of some of its targets. However, while the NHF was able to provide us with financial information specific to diabetes and other NCDs, we were unable to find information that would allow us to analyse or evaluate the cost of the Ministry's interventions specific to diabetes. The financial management and reporting system did not disaggregate disease costs. We believe this leaves the Ministry without the necessary information to assess whether resources are being used cost-effectively, and the financial impact of its strategies. Consequently, the Ministry may not be able to justify the need for more resources. It could also be an indication that there has not been a strategic shift to bring more focus on NCDs and their impact, as budgetary allocations usually reflect priority programmes and objectives.

[21] Declaration of Port of Spain – Uniting to Stop the Epidemic of Chronic NCDs (September 2007)

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Appendices

Appendix 1: Brief description of the Chronic Care Model and its components

The Chronic Care Model is an approach to delivering care to persons with chronic illnesses. The Model consists of six components[22]:

- health system – organising to provide high quality care
- self-management support – empowering patients to manage their health care
- decision support – promoting care consistent with scientific data and evidence-based practice guidelines
- delivery system design – composition and function of the practice team, the organization of visits, and the management of follow-up care
- clinical information system – organising patient data to facilitate efficient and effective care
- community resources – utilising community resources such as faith-based organisations and support groups to help meet the needs of patients

[22] Source: Description of components at improvingchroniccare.org

Appendix 2: NCD Progress Indicator Status

NCD Progress Indicator Status / Capacity by Country in Implementing NCD Summit Declaration - **September 2010 - 2014 (adapted to reflect only Jamaica's results)**

POS NCD #	NCD Progress Indicator	2014	2013	2012	2011	2010
	COMMITMENT					
1,14	NCD Plan	√	√	√	√	√
4	NCD budget	X	X	X	X	X
2	NCD Summit convened	√	√	√	√	√
2	Multi-sectoral NCD Commission appointed and functional	√	√	√	√	±
	TOBACCO					
3	FCTC ratified	√	√	√	√	√
3	Tobacco taxes >50% sale price	√	√	√	√	√
3	Smoke free indoor public places	√	√	√	√	±
3	Advertising, promotion & sponsorship bans	√	±	±	±	√
	NUTRITION					
7	Multi-sector Food & Nutrition plan implemented	√	±	±	±	√
7	Trans fat free food supply	±	±	±	±	±
7	Policy & standards promoting healthy eating in schools implemented	√	√	√	√	√
8	Trade agreements utilized to meet national food security & health goals	X	X	X	X	X
9	Mandatory labeling of packaged foods for nutrition content	±	X	X	X	X
	PHYSICAL ACTIVITY					
6	Mandatory PA in all grades in schools	±	±	±	±	X
10	Mandatory provision for PA in new housing developments	x	x	x	x	x
10	Ongoing, mass Physical Activity or New public PA spaces	√	√	√	√	√
	EDUCATION / PROMOTION					
12	NCD Communications plan	±	±	±	±	±
15	CWD multi-sectoral, multi-focal celebrations	√	√	√	√	√
10	≥50% of public and private institutions with physical activity and healthy eating programmes					
12	≥30 days media broadcasts on NCD control/yr (risk factors and treatment)	√	√	√	√	√
	SURVEILLANCE					
11, 13, 14	Surveillance: - STEPS or equivalent survey	√	√	√	√	√
	- Minimum Data Set reporting	√	√	√	√	x
	- Global Youth Tobacco Survey	√	√	√	√	√
	- Global School Health Survey	√	√	√	√	√
	TREATMENT					
5	Chronic Care Model / NCD treatment protocols in ≥ 50% PHC facilities	√	√	√	√	√
5	QOC CVD or diabetes demonstration project	√	√	√	√	√

Key

√	In place
±	In process/partial
X	Not in place
*	Not applicable
□	No information
▀	Recent update