

LESSONS FROM THE IMPLEMENTATION OF THE JAMAICAN 2007
HYPERTENSION PROGRAMME GUIDE

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ABSTRACT

Stacy-Ann Christian: Lessons from the Implementation of the
Jamaican 2007 Hypertension Programme Guide
(Under the direction of John E. Paul)

Background: Chronic non-communicable diseases pose the greatest challenge for the Caribbean and Jamaica in particular. Of importance is that hypertension and related illnesses are among the leading causes of death. As a result, the successful implementation of the 2014 Hypertension Programme Guide, slated for later in 2016, is critical to positive health outcomes of the hypertensive population. However, due to limited knowledge regarding the implementation of the 2007 Hypertension Programme Guide, this research is focused on the lessons from evaluating its implementation.

Methods: This study uses a non-experimental, concurrent triangulation mixed methods implementation evaluation design. The study began with the collection of audit data from a sampling of 197 patient docket¹s at six health centres across all regions of the country. Fifteen key informants were also interviewed, including leaders from the Ministry of Health and Regional Health Authorities along with physicians, nurses and a

¹ Patient medical records

community health aide.

Results: Quantitative results indicated that while measuring the blood pressure for hypertensive patients was routinely done, overall the documentation in patient docket was not consistent between doctors and health centres. This suggests that there may be a lack of fidelity to the 2007 Hypertension Programme. Further, data from key informant interviews revealed that there are varying levels of familiarity with the 2007 Hypertension Programme Guide. However, all interviewees are familiar with general best practices in the management of hypertension. Notwithstanding familiarity with the Guide, the primary weakness cited by interviewees related to a shortage of medication, limited access to pharmacies and the fact that the Guide has not been updated recently.

Conclusion: Despite challenges identified in the quantitative and qualitative data, there are also successes, which could be helpful as a starting point for creating, disseminating and implementing the next Hypertension Programme. In addressing the identified barriers there are a few frameworks and strategies that could be helpful in ensuring the long-term success of the Hypertension Programme, namely Kotter's Eight Steps to Leading Change; the Practical Robust Implementation and Sustainability Model (PRISM); and lastly in the long-term health care reform to address the leadership and reporting challenges.

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LIST OF ABBREVIATIONS

BMI	Body Mass Index
CHA	Community Health Aide
CMO	Chief Medical Officer
CNDC	Chronic Non-Communicable Disease
NCD	Non-Communicable Disease
CARICOM	The Caribbean Community
RHA	Regional Health Authority
SRHA	Southern Regional Health Authority
SERHA	South Eastern Regional Health Authority
NERHA	North Eastern Regional Health Authority
WRHA	Western Regional Health Authority
MOH	Ministry of Health
RTD	Regional Technical Director
WHO	World Health Organization
PAHO	Pan American Health Organization
SWOT	Acronym for strengths, weaknesses, opportunities and threats, which is often used to evaluate projects/organizations
PRISM	Practical, Robust Implementation and Sustainability Model

CHAPTER ONE: INTRODUCTION

1.1 Demographic Profile

Jamaica gained its independence from Great Britain on August 6, 1962 and has adopted the Westminster Whitehall Model of parliamentary democracy with general elections called by the Prime Minister every five years. There is a bicameral legislature with cabinet governance and ministerial assignments. Laws, national policies and ministerial policies are promulgated at different levels of government (Subaran & Hardee, 2001).

Jamaica is the largest English-speaking Commonwealth Caribbean country and is approximately 11,000 square/km in size. The island is divided into fourteen parishes, with three major urban areas: Kingston, Montego Bay and Portmore.

Jamaica is experiencing decreased birthrates and relatively low death rates. The Jamaican population at the end of 2013 was estimated at 2,718,000. The 0-14 age group (who represent 29.8% of the population) is declining. In contrast, the 15-64 age group (61% of the population) is growing. There is also an increase of the elderly, 65 years old and over, which at 9.2%, is now the fastest growing segment of the population

(Statistical Institute of Jamaica, 2015).² There are many implications for the rising age of the population, including the management of chronic non-communicable diseases.

1.2 Overview of Health Care in Jamaica

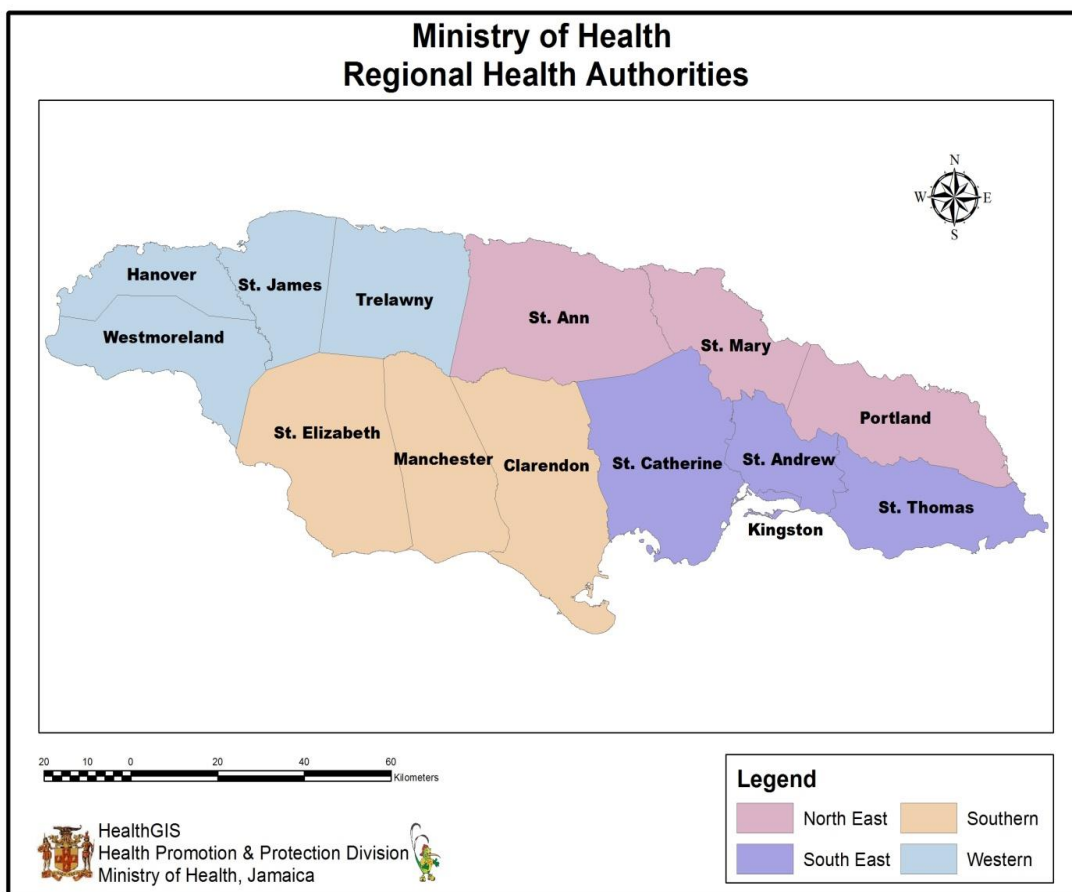
Jamaica has a two-tiered health care system whereby the public sector is primarily involved in primary care, public health and hospital care while the private sector mainly provides outpatient ambulatory services and pharmaceuticals (Chao, 2013). The research for purposes of this dissertation focuses on the public sector.

The public sector of the health care system is comprised of the Ministry of Health and the Environment (MOH), its agencies and departments, a network of twenty-three public hospitals including specialty care hospitals, 350 primary health care institutions and the University Hospital of the West Indies and Medical School. There are three levels for delivery of care in the public sector. Primary care is the first line of contact with patients and the health care system. Primary care facilities include all health centres nation-wide. Patients are assessed and appropriately referred to the next tier of the health care system depending on the nature of care that they require. This consists of secondary level facilities that include the majority of the island's hospitals. Patients

² Note that Jamaica defines elderly as sixty years of age and older.

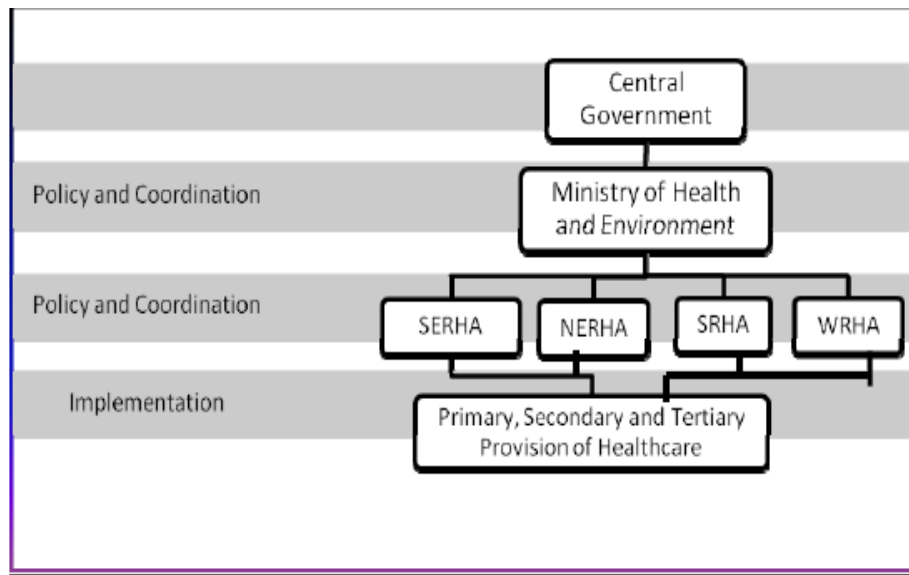
requiring admissions and/or surgical procedures as well as overall advanced level of care are handled at this stage. The final step is the tertiary level, which also includes hospitals providing specialized services. The current organizational arrangement of health care delivery within the public sector is mainly via hospitals and health centres distributed across the health regions.

Figure 1. Regional Health Authorities



Health care reform in 1997, through the enactment of the National Health Services Act, resulted in the decentralization of health care and the creation of four semi-autonomous Regional Health Authorities (RHAs) which ensures the delivery of public health services through a network of primary, secondary and tertiary health care facilities. The RHAs as seen in Figure 1 are defined by geographical boundaries of varying sizes and include the North East Regional Health Authority (NERHA), Southern Regional Health Authority (SRHA), Western Regional Health Authority (WRHA) and South East Regional Health Authority (SERHA). The North East Regional Health Authority (NERHA) is mainly rural and comprised of three parishes, namely, Portland, St. Mary, and St. Ann -- and serves approximately 13.7% of the total population (NERHA, 2009). The SRHA encompasses three parishes -- Clarendon, Manchester, and St. Elizabeth --and serves approximately 21.9% of the total population (SRHA, 2011). The South Eastern Regional Health Authority (SERHA) is mostly urban and has three parishes -- St. Andrew, St. Catherine, and St. Thomas -- and provides services to approximately 46.7% of the total population (SERHA, 2016). The Western Regional Health Authority (WRHA) is largely rural and contains four parishes including Trelawny, St. James, Hanover, and Westmoreland. The WHRA serves 17.6% of the total population (WRHA Annual Report, 2008).

Figure 2. Coordination of Health Care



Source: A Case Study of Jamaica's Health Financing System and its Impact on the Performance of the General Health System, Anya Cushnie, 2010

Health services provided by the public sector are funded by an annual budgetary allocation derived from collection of general and earmarked taxes, including property, asset taxes and general consumption taxes. Prior to 2008, user fees were also a source of funding for health care in the public sector. For fiscal year 2015-2016 the Ministry of Health was allocated \$49.09 billion for recurrent expenses and \$1.5 billion dollars for capital projects funded by the Ministry of Finance (Jamaica Information Service, 2015). Approximately, 86% of this budget was then further allocated by the MOH to the RHAs. The RHAs have the leading responsibility for managing the public health care networks and the delivery of health care services. The health sector reforms were designed to bring the responsibility for

health care closer to the point of service delivery (Jamaica Information Service, 2015).

With the decentralization of health care and the responsibility for the implementation of policies residing at the regional and local levels, there have been improvements in the administration of care being closer to the point of service. Further, while the allocation of resources by the regions at the primary and secondary levels allows for greater flexibility in administration and responsiveness to the communities served, some challenges do remain. For instance, the Non-Communicable Disease (NCD) Unit within the MOH does not have a direct reporting relationship with the RHAs and the responsibility for implementing guidelines such as the 2007 Hypertension Programme. It is only through goodwill on the part of the RHAs and collaboration with the MOH that the MOH is able to disseminate, train and coordinate the implementation of NCD programmes.

In 2008, user fees were removed from all public health facilities including hospitals (except University Hospital of the West Indies), health centers/clinics, laboratories, diagnostic facilities and pharmacies (Ministry of Health, 2008). The abolition of user fees was intended to improve access to health services for the poor. Moreover, the policy aimed to eliminate barriers to access, and relieve health staff of administrative tasks such as assessment of patient ability to

pay and identification of alternative modes of service delivery (Ministry of Health, 2008). The health care system was projected to lose approximately twelve percent of its funding by abolishing fees. In response to the shortfall in funding, the RHAs were advised to implement short term strategies to address staff shortages by recruiting and hiring nurses, doctors, pharmacists and community health aides on a temporary basis (Ministry of Health, 2008). Despite these makeshift strategies, it is not clear how the RHAs and the MOH planned to address these obstacles in the long term.

1.3 Statement of the Issue

Chronic non-communicable diseases and ageing are major public health challenges of the new millennium (Eldemire-Shearer et al., 2011). Non-communicable diseases are now the leading cause of death in developing countries with the rate rising fastest in lower income countries and Chronic Non-Communicable Diseases (CNCDs) are projected to increase by 17% over the next 10 years (Abegunde, Mather, Adam, Ortegon, & Strong, 2007). The top five causes of death between 2004 and 2008 in Caribbean countries were cardiovascular diseases, malignant neoplasms, respiratory diseases, digestive diseases and diabetes (Ferguson, Tulloch-Reid, Cunningham-Myrie, Davidson-Sadler, & Copeland, Lewis-Fuller, 2011). As a result, The Caribbean Community (CARICOM) convened the first regional summit of heads

of government to address chronic non-communicable diseases, which generated the Port-of-Spain NCD Summit Declaration in 2007, "Uniting to Stop the Epidemic of Chronic Non-Communicable Diseases." This united declaration has had mixed levels of success in member states such as Jamaica, and is still a work in progress (Samuels & Hospedales, 2011). Of the most prevalent chronic diseases, hypertension has been identified as the number one risk factor for mortality and the third leading risk factor for the global disease burden (Ezzati, Hoorn, Rodgers, Lopez, Mathers, & Murray, 2003). Another study on the changing faces of hypertension, diabetes, and arthritis revealed that between 2002 and 2007, the prevalence of these chronic diseases in Jamaica increased on average annually 17.2%, and hypertension in particular grew 12.7% per year (Bourne, McDaniel, Williams, Francis, Kerr-Campbell & Beckford, 2010). In addition, a study of self-reported chronic diseases in Jamaica found that 28.9% of a nationally represented sample self-identified as being hypertensive (Bourne & McGrowder, 2009). Another important fact highlighted in Table 1 is that hypertension is one of the greatest risk factors for cardiovascular disease for which the cost of care in Jamaica is significant (Abdulkadri, Cunningham-Myri & Forrester, 2009).

Table 1. Economic Burden of Hypertension in Jamaica

	Total Costs		Proportion Burden
	JMD	USD	
Direct Costs	\$10,340,558,810	\$116,199,110	57%
Hospitalization	\$965,854,819	\$10,853,521	5%
Consultation	\$773,808,610	\$8,695,456	4%
Medication	\$3,296,805,393	\$37,046,920	18%
Lab investigation	5,304,089,987	\$59,603,214	29%
Indirect Costs	7,877,716,352	\$88,523,613	43%
Morbidity	\$6,359,399,905	\$71,461,961	35%
Mortality	\$1,518,316,447	\$17,061,652	8%
Total Cost	\$18,218,275,163	\$204,722,723	100%

Adapted from: "The Economic Burden of Hypertension among Older Persons: Lessons from a Developing Nation" by Kathryn Mitchell-Fearon, Julian McKoy-Davis, Hazel Laws, Abdullahi O. Abdulkadri and Denise Eldemire-Shearer

Therefore, the Jamaican government has prioritized the importance of tackling NCDs in general due to the increased prevalence of diseases such as hypertension, diabetes and other chronic non-communicable diseases. Prioritization of NCDs is clear in not only the Ministry of Health Strategic Plan 2015-2018, but also in the redesigning of the primary care system and services currently underway (Ministry of Health, 2014). Both of these address the changing disease patterns and increased prevalence of NCDs as evidenced by the high number of individuals admitted to the hospital for avoidable complications from hypertension and diabetes. With the imminent rollout of the 2014 Hypertension Programme Guide and revisions to the Diabetes Guide currently underway, hypertension is the focus of this

research. It is hoped that the lessons from the implementation of the 2007 Guide will not only facilitate the implementation of the 2014 Hypertension Programme Guide but also other NCD programmes.

CHAPTER TWO: LITERATURE REVIEW

The initial literature search for this study included a review of data related to the demographics of the Jamaican population, such as socio-economic characteristics of citizens, average and source of income, along with the size and breakdown distribution of health professionals. The preliminary search utilized the websites of the Statistical Institute of Jamaica and the Jamaican Ministry of Health (Statistical Institute of Jamaica, 2011). These websites presented summary data on the overall population as well as a breakdown by Parish. These data were helpful in providing some understanding of the demographics of the country and supported the need for further research on ageing and chronic disease management. The focus of the research was the management of chronic diseases, including hypertension, in the Jamaican population.

Once this preliminary search was completed, a formal literature review was conducted. Databases that proved most helpful were PubMed, CINAHL, and Google Scholar. A search for articles referencing Jamaica or any other CARICOM member was conducted because these nations have similar demographics. Further, a search of the following terms was done to gain

greater understanding about chronic disease management in Jamaica and potentially identify gaps in research:

- Chronic diseases in Jamaica
- Chronic disease + treatment
- Chronic disease management
- Chronic disease management + African Americans
- Chronic disease management + minorities
- Chronic disease management + Jamaica
- Chronic disease management in the Caribbean
- Chronic disease management + CARICOM
- Ageing/Aging*³
- Ageing in the Caribbean
- Ageing + CARICOM nation states
- Ageing + chronic disease in Jamaica
- Ageing in place + CARICOM nation states
- Ageing in place + CARICOM nation states + chronic disease management
- Hypertension + CARICOM
- Hypertension + Jamaica
- Diabetes + Hypertension + developing countries

³ Please note that both the American English (aging) and British English spelling of ageing were used in the search.

2.1 Article Inclusion/Exclusion Criteria

Articles were included if they mentioned any of the above search criteria. This search resulted in approximately 3200 articles. Of these, the first 1600 were reviewed of which 37 articles met the search criteria including: written in English, search term(s), and published in peer-reviewed journals between 2000 and 2014. Grey literature from sources such as the Jamaican Statistical Institute, the Planning Institute of Jamaica and the Ministry of Health website were also included. These sources were included if the publication directly related to the search terms and criteria. For Caribbean-specific articles, the *West Indian Journal of Medicine* was most helpful. Articles from the United States and the United Kingdom were reviewed if they pertained to chronic disease management. This expanded search included articles that described lessons learned not only in the United States and the United Kingdom but also Canada and Australia. Within these countries, the search was limited to articles addressing chronic disease management in minority and low-income populations, which may bear some similarity to the West Indian populations. In reviewing the articles, common themes were identified and analyzed. Implications for chronic disease management and ageing, as well as any articles that would shed light on mechanisms to better manage chronic diseases were also closely reviewed.

2.2 Themes and Variables

The studies identified were primarily descriptive and qualitative in nature. The 37 articles found related to both ageing in the Caribbean and general chronic disease management. Of note, there were some common themes that appeared throughout the articles. The most prominent themes were related to 1) population demographics and the ageing population, 2) the rise of chronic diseases in the Caribbean, 3) chronic disease management, 4) workforce development and the use of nurses in managing chronic diseases and 5) primary care management of chronic diseases.

These publications illustrated that the demographics of the Caribbean are changing. The region does not have the numbers of larger developing countries, but is challenged nonetheless due to the size of the economies (Kinsella & Phillips, 2005). For instance, in Jamaica the population over 60 years of age will double during the period 2025 - 2030 while total population growth continues to fall (Eldemire-Shearer, 2008). Seniors are also at greater risk of increased difficulty managing chronic illnesses (James, Holder-Nevins, Morris, Eldemire-Shearer, Powell & Laws, 2012). Loss of function further decreases the likelihood of maintaining independence and ultimately the ability to age in place (James, Holder-Nevins, Morris, Eldemire-Shearer, Powell & Laws, 2012). A study of morbidity patterns in

older adults in the Parish of Clarendon revealed that the most prevalent morbid conditions were cardiovascular related disease including hypertension and diabetes. The fact that these two diseases accounted for more than 50% of the conditions seen in the health services reflects the importance of these diseases in the ageing Jamaican population (James, Holder-Nevins, Morris, Eldemire-Shearer, Powell & Laws, 2012). Another study relating to utilization of primary health clinics and care provided to the elderly in the Parish of St. Catherine showed that while clinical practices were good, there were relatively inadequate levels of prevention practices were in use. There were also impediments to prevention-related activities for the elderly in the primary health care system (Eldemire-Shearer, Holder-Nevins, Morris, & James, 2009). Barriers included inadequate staffing, overcrowded clinics, and high cost of medications (Eldemire-Shearer, Holder-Nevins, Morris & James, 2009). Inadequate staffing in the management of chronic diseases for the elderly is particularly troubling and makes it apparent that more healthcare workers are needed and that current healthcare workers need to be trained to ensure quality care. As a result, it is necessary to investigate whether increased management of chronic diseases (such as hypertension) outside of the clinical setting could improve overall quality of care and life for seniors with these conditions, which would increase their

independence and likelihood of maintaining good health for as long and comfortably as possible.

In the review of literature, the Jamaica 2030 Report (Statistical Institute of Jamaica, 2009) first issued in draft form in 2007, was helpful in framing the issues and prompting discussion on best practices for the management of chronic diseases such as hypertension. This report outlined an analysis including the strengths, weaknesses, opportunities and threats (SWOT) for the development of Jamaica and the support and improvement of population health by the year 2030. With regards to improving the health of those suffering from chronic diseases, the report identified systemic weaknesses including the lack of standard systems/indicators, research agenda, inadequate data/analysis and resources to implement and monitor programmes. It was also very clear that most CARICOM nations were greatly in need of programmes to better manage chronic disease (Healthy Caribbean Coalition, 2008). In evaluating best practices in the management of chronic diseases, the remaining articles covered a variety of topics: best methods to manage chronic diseases such as self-management, primary care management, and use of nurses and other health workers to assist in management of these illnesses and the growing burden of ageing with chronic disease(s).

In the article "Economic Burden of Diabetes and Hypertension in CARICOM States", Abdulkadri et al. illustrated the growing cost burden of managing chronic diseases in the ageing population (Abdulkadri, Cunningham-Myrie, & Forrester, 2009). The complexity and time spent by primary care physicians was also assessed to evaluate the burden of managing chronic diseases in the elderly population in primary care practices (Beasley et al. 2004; Ostbye, Yarnall, Krause, Pollak, Gradison, & Michener, 2005). The cost of care was taken into consideration and it was noted that the use of nurse case managers working in primary care could ultimately decrease emergency room visits and hospitalizations as compared to patients strictly utilizing the hospitals for primary care (Sylvia, 2008). While these analyses are based on data collected in the United States, many of the principles may be applied to other regions, including the Caribbean.

There were several articles relating to the increased use of nurses as a means to better manage chronic diseases such as hypertension (Shigaki et al, 2010) found that care by nurses was not only acceptable but also feasible and sustainable. However, the collaborative involvement of doctors was intrinsic to patient acceptability of nurse-led care. Other articles investigated the difference in perception of care and the challenges often faced by primary care physicians (Redsell,

Stokes, Jackson, Hastings, & Baker, 2007); Harris & Zwar, 2007). Due to the challenges faced by physicians, such as not having sufficient time to adequately assist patients in managing their chronic illnesses, it is even more crucial for nurses working with patients to have an adequate amount of quality time to support and advise patients regarding self-management. Further emphasis was given to the inadequacy or reduced attention to care of primary care physicians in their practice (Lukewich, Edge, VanDenKerkhof & Tranmer, 2014); Halcomb, Davidson, Salamonson, Ollerton & Griffiths, 2008). Owing to decreased time spent with patients regarding their chronic illnesses, care was generally not provided in accordance with clinical best practice guidelines, which lent strength to the argument that nurses could be better utilized in the management of chronic diseases. To gain a better understanding of nursing support of minority populations, specifically those of Afro-Caribbean descent, a review of literature that illustrated the challenges of managing chronic diseases with these patients was conducted (Higgenbottom, 2008). Similar to the United States, in the United Kingdom there has been increased attention to the impact of race on health. This has been a more recent trend due to the increased migration from the Caribbean to United Kingdom. This focus is especially important for the creation of health policies in the Caribbean in that it is more likely than not that many of the attributes

including cultural identity, diet, attitude and behavior remain the same (Cruickshank et al., 2001; Brown, 2006).

2.3 Limitations and Future Research

The strength of the research found on the Caribbean is useful was helpful to understand the current landscape for chronic diseases and ageing-related issues. Further, the two most central themes that arose out of the literature review were the need for disease management of chronic diseases, including diabetes, hypertension and cancer, and the high prevalence of chronic diseases in ageing populations. The articles reviewed were a combination of qualitative interviews, cross-sectional, and descriptive studies based on data collected by a variety of health organizations including the WHO, PAHO, the University of the West Indies (Mona Campus), Health Agency Canada, and the United Nations. Through the literature review process, best practices in the management of chronic diseases and especially hypertension were identified including best methods for self-management, primary care management, use of nurses and other health workers to assist in management of these illnesses, as well as the adequacy of the workforce to handle the growing burden of ageing with chronic diseases.

The literature was excellent in identifying the rising concern related to the increasing prevalence of chronic non-communicable diseases, the need and urgency for programmes to

stymie the escalation of these illnesses and a very well supported call to action by CARICOM nations. However, the primary limitation and threat to validity and applicability of the reviewed publications is that the overwhelming majority of the selected articles did not emphasize the implementation of management programmes for chronic diseases, and hypertension in particular, in the Caribbean. Instead, most of them focused on establishing best practices in countries such as the United States, Australia, Canada and the United Kingdom, all of which have substantially more resources to devote to health care than the CARICOM countries. While not completely on point, these publications were very helpful in identifying best practices and gaining insight into challenges to implementation, which may be faced in Jamaica.

2.4 The CARICOM Perspective: Chronic Disease

The CARICOM Summit on Chronic Non-Communicable Diseases (CARICOM CNCD), held in Port-of-Spain, Trinidad in 2007, set regional priorities. The resulting strategic plan of action for the prevention and control of CNCDs set five priority actions, in the following order: 1) Reducing risk factors such as use of tobacco, alcohol and salt intake and integrating programmes in schools, workplace and faith-based settings; 2) Integrating disease management and patient self-management education; 3) Continued CNCD surveillance, monitoring and evaluation; 4)

Increasing advocacy and healthy public policy along with maintaining media and social communication on the prevention and care of CNCDs, and 5) Ensuring adequate programme management, mobilizing resources and health financing (Samuels & Hospedales, 2011). This dissertation focuses on the second and third priority actions: integrating disease management and patient self-management education along with CNCD surveillance, monitoring and evaluation. These actions provide an umbrella for the implementation of chronic disease management programmes manifested in guides such as the 2007 Hypertension Programme.

2.5 Hypertension in Jamaica: Hypertension Programme Guide 2007(hereafter the "2007 Guide")

The 2007 Hypertension Programme Guide was drafted by the MOH and disseminated to all health centres. This guide is intended to be the primary resource for the treatment of hypertension within the public health setting (Ministry of Health, 2007). The 2007 Guide included five core sections: 1) Evaluating the Patient; 2) Treatment of Hypertension; 3) Management of Hypertension in Special Situations; 4) Indications for referral, and 5) Reduction of Risk Factors for Hypertension. The 2007 Guide details how a clinical exam should be conducted, including the measurement of body mass index (BMI), blood pressure (various positions) as well as the administration of ophthalmoscopy (fundoscopy) at the initial visit and yearly;

since acute and chronic hypertensive changes may manifest in the eyes from acute changes due to malignant hypertension, and chronic changes from long-term, systemic hypertension, this last exam is incorporated. The 2007 Guide further recommends initial and some continued laboratory investigations depending on diagnoses. The recommended laboratory investigations include urine analysis, blood creatine, electrolytes, triglycerides, and cholesterol, along with at least one chest x-ray and electrocardiogram. An understanding of the medical history and documentation of the demographics along with hypertensive risk factors and history of cardiac, cerebrovascular and renal disease are required. Further, an ongoing care regimen is outlined, which includes a recommendation for patients to follow-up at least monthly until ideal blood pressure is achieved, or more frequently if there are co-morbid conditions. The 2007 Guide also recommend treatment in special situations including the management of hypertension in the elderly, diabetics, patients with cardiac/renal failure and those women experiencing symptoms during pregnancy. The 2007 Guide clearly outline how the treatment of hypertension should be considered by stage of disease and advocates for the use of non-drug therapy for pre-hypertension or stage one hypertension defined as Systolic Blood Pressure 140-159/Diastolic Blood Pressure 90-99.

The 2007 Guide prescribes a team based approach to the management of hypertension with the cornerstone of care being lifestyle change. Proposed lifestyle changes include diet, exercise (i.e., frequency and intensity), and guidance regarding the overall management (including self-management) of comorbidities. Following the 2007 Guide, two things that must be carefully monitored are lifestyle changes and drug adherence. Both of these require clinical oversight and patient access to suggested drug therapies, which may be easier for populations such as the elderly due to drug subsidies (National Health Fund Annual Report, 2011). However, it may be more of a challenge for hypertensive patients to readily access clinical care in health centres due to overcrowding and long wait times (Eldemire-Shearer, 2012).

The challenge for the next version of the Guide lies in how we can best learn from the implementation of the 2007 Guide to ensure successful roll-out of the 2014 version, which is to be disseminated in 2016. In this regard, a multidisciplinary approach provides the greatest opportunity to tackle roadblocks to implementation. Further, data regarding knowledge, attitudes and practices related to the primary care of hypertensive patients will be advantageous in to enhancing the understanding of policymakers and key stakeholders on best practices for implementation and evaluation of not only the next iteration of

the Hypertension Management Programme but also other chronic NCD management programmes.

As indicated in "From Ageing Research to Policy and Practice", a locally appropriate age-friendly guideline and clinical toolkit for primary health care has been established to identify and prevent chronic diseases through screening (Eldemire-Shearer, 2012). There are, nonetheless, significant implementation barriers to overcome and large numbers in clinics where work needs to be done (Eldemire-Shearer, 2012). The focus of prior research has been on identifying hurdles to adequate clinical care of chronic diseases provided by clinicians. This research builds on this knowledge by evaluating the implementation process of chronic disease management programmes via guidelines such as the 2007 National Hypertension Management Programme; reviewing the accountability of the current system to ensure targets are met and improved health outcomes, and analyzing opportunities to maximize stakeholder engagement in the management of hypertension at the national and regional levels.

2.6 Problem Statement & Research Aim

One of the greatest concerns is that many hypertensive patients go untreated and undiagnosed. This situation could exist for multiple reasons, such as potential unaffordability or unavailability of drugs. Despite the removal of user fees in

2007 for clinic visits, there are significant wait times due to a shortage of clinicians and unattainability of drugs (Campbell, 2013). With the removal of user fees, the Ministry of Health has fewer resources to provide care to more patients and most importantly screening. There has been increased use of facilities without a corresponding increase in resources or clinician manpower -- both physicians as well as nurses-- to manage care. The literature review did not identify any standardized instruments to capture quality of service data, including reports by practitioners documenting time available to assess and treat patients. However, other research indicated that due to overcrowding of facilities post-abolition of user fees, patients are often forced to leave after waiting entire workdays without being seen, which can increase the number of undiagnosed and poorly controlled hypertensive patients (Campbell, 2013). The 2007 Guide could be used to facilitate and expedite treatment. However, it is unclear whether clinicians are knowledgeable of the Guidelines and are able to provide care according to expected standards. Further, through dialogue with senior MOH personnel, most regions do not routinely conduct recommended audits despite the provision of audit tools, which are aligned with the Guidelines to ensure that appropriate care is given to hypertensive patients (Ministry of Health, 2015). With very little data to demonstrate the implementation of the

2007 Guide it is difficult to ascertain whether hypertensive patients in general and special populations such as the elderly, are treated in accordance with the specified standards. Further, proof of successful implementation of the 2007 Guide would have to take place prior to evaluating the health outcomes of the target population. Ultimately, without knowledge of how the 2007 Guide was implemented, including review of data regarding implementation fidelity, there is little way to assess the adequacy of the public health system in addressing hypertension and improving population health outcomes. Moreover, this information is key to understanding challenges and successes prior to implementing the following (2014) iteration of the hypertension programme guide. This research, therefore, proposes to answer the following question and sub-questions:

2.7 Research Question

This research, therefore, proposes to answer the following question and sub-questions:

1. How can health leaders use information about the knowledge, practices and attitudes on the treatment of hypertension and the implementation of the 2007 Hypertension Guidelines to support and ensure the successful implementation of the 2014 Guidelines for the Management of Hypertension?

1(a) How are guidelines such as the 2007 Guide for the Management of Hypertension implemented and utilized in health centres?

1(b) Are clinicians knowledgeable of the 2007 Guide, including best practices in treating hypertension in the general population as well as specific populations such as the elderly and pre-hypertensive patients?

1(c) Are there anticipated clinical and/or capacity limitations to implementing the 2014 Guidelines for the Management of Hypertension?

1(d) Are there mechanisms in place to ensure self-audits and external audits by the RHAs to ensure improved health outcomes for hypertensive Jamaicans?

1(e) Learning from the 2007 Guide, what models may be supportive of and appropriate for the implementation of the 2014 Hypertension Programme Guidelines to ensure administrative and clinical buy-in?

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

This chapter discusses the study aims and also includes a description of the study design, study setting, data collection methods, data analysis methods and ethical considerations.

3.1 Study Design and Setting

The aim of this study is to develop a plan for change for the Jamaican Ministry of Health, which is responsible for the creation and dissemination of policies and guidelines such as the 2007 Guide.

This study uses a non-experimental, concurrent triangulation mixed methods implementation evaluation design from the multiple perspectives of MOH and RHA leadership, clinicians and community health aides. To date no formal evaluation of the implementation of the 2007 Hypertension Programme Guide and associated processes had been done in Jamaica prior to this project.

Evaluation

Evaluation is a systematic investigation of the effectiveness of programmes in a way that is adapted to their political and organizational environments (Rossi, Lipsey, & Freeman, 2003). Evaluations are used to inform and assist in

making decisions about policies or programmes at different levels of creation and implementation. There are different types of evaluations: (1) developmental evaluation which addresses testing innovations for addressing problems; (2) formative, process, or implementation evaluations, which assist in improving the design and implementation of an ongoing intervention; and (3) summative, outcome, or impact evaluations, which assess the overall merit or significance of a programme (Bamberger, Rugh, and Mabry, 2011). While there is variation in the nomenclature and the fact that implementation evaluation may also be referred to as process or formative evaluation, for purposes of consistency this research will use the term "implementation evaluation." Knowledge from implementation evaluation may assist decision-making about a programme, improve planning and implementation of policies, and allow for modifications at different levels of programme development. Ultimately, implementation evaluation documents the extent to which an intervention has been carried out as planned and what departures from the plan, if any, have occurred and why (Patton, 2014). Patton further states that unless a programme is operating as designed there is little reason to expect it to produce the desired outcomes. In the context of the current research it is important to understand the implementation process and whether or not there is fidelity to the intended

implementation design prior to conducting an impact or outcomes evaluation on the effectiveness of the Programme.

Mixed Methods

There are multiple definitions for mixed methods, including “research in which the investigator collects and analyzes data, integrates the findings, and draws inferences using both qualitative and quantitative approaches or methods in a single study or a programme of inquiry” (Tashokkori & Creswell, 2007). Mixed methods have also been characterized as the utilization of quantitative and qualitative research approaches, including data collection and analyses, for the distinct purpose of adding breadth, depth and corroboration (Johnson, Onwuegbuzie & Turner, 2007).

Further, mixed methods may enrich the study and enhance the findings through triangulation, which is the practice of using multiple sources to corroborate, explain or more fully understand an issue. There are three major strategies or forms of inquiry that may be employed in mixed methods. These include, sequential inquiry allowing one method, quantitative or qualitative, to elucidate information regarding the other; concurrent, where data sources are combined in the analysis of a research problem, or transformative, where a new theoretical framework is developed (Creswell, 2003).

Philosophical Approach

Philosophical approaches in research include post positivism, constructivism, and pragmatism. These approaches can be used to further guide strategies of inquiry and methodology. The chosen approach assists researchers in determining what and how knowledge will be gained throughout the research process (Creswell, 2003). This research utilizes a pragmatic qualitative inquiry. Unlike post positivism, which is often associated with quantitative approaches, or constructivism, which is focused on the subjective worldview of participants, pragmatism seeks useful answers for solving or addressing concrete problems. In addition, pragmatism involves understanding demands, opportunities, and constraints surrounding a situation. This philosophical view is often associated with mixed methods research and especially in focusing on the use of multiple methods of data collection to inform problems that are being studied (Creswell & Clark, 2011).

Design

For this study, a concurrent triangulation mixed methods approach is used whereby quantitative and qualitative data were collected at the same time. Each method is weighted equally and neither the quantitative nor qualitative approaches are given any greater importance or relevance. In fact, the qualitative data answer key questions regarding the implementation of the

2007 Guide. In contrast, the quantitative data further supplement information regarding implementation. The presence or absence of key quantitative data was reviewed to evaluate whether or not clinicians adhered to the 2007 Guide. For instance, one of the cornerstones of the 2007 Guide is an emphasis on lifestyle change as a means of managing hypertension. Quantitative data from patient docketts were reviewed to ascertain whether clinicians collected information regarding diet, exercise and other risk factors, including compliance with prescribed medication regimens.

3.2 Quantitative Data Collection

Ministry of Health Audits

The Ministry of Health has an established audit system. In keeping with the research approach of looking at process and evaluating the implementation of The Guidelines the Ministry audits were used. The MOH planned random audits across all Regional Health Authorities in an effort to collect baseline data for both the Hypertension and Diabetes Management Programmes. The selection of health centres was purposive in that it included a wide range of health centres across all regions, which included centres in urban and rural areas. In an effort to understand the implementation process the MOH NCD Director was accompanied for most of the audits conducted. One health centre was selected in each region but for the

southeastern and the western regions where the Ministry of Health audited two health centres. Documentation collected by the Ministry of Health was done through two means: (1) direct observation of care; and/or (2) by consulting patient docketts.

When the Ministry of Health does audits of this nature, the care of ten hypertensive and ten diabetic patients are observed or followed. Patients are registered according to the order in which they present at the Medical Records window within the health centre. A diagnosis sheet is used to document the names and diagnosis of each of the 20 patients observed. This sheet will be used to ensure that the numbers D1 - D10 or H1-H10 corresponds to a patient's medical record number and the resulting audit sheets with results are de-identified. The first ten hypertensive and ten diabetic clients (20 patients in total) are observed to conduct an assessment of the correct measurement techniques for weight and blood pressure. Patients who have both diabetes and hypertension may also be used to fill the required quota. The auditor observes the measurement of blood pressure and weight. Patients are then interviewed on exit from the doctor's consultation room to ascertain their opinion on their experience at the health centre on the date of the audit. Ultimately, quantitative data collected will supplement those collected by the MOH as a part of the audits and contribute to knowledge gained.

Current Research

The Ministry of Health audit tool was used for quantitative data collection for multiple reasons. First, the Ministry of Health planned on conducting audits on both hypertension and diabetes within all regions and agreed to share the resulting data from the hypertensive portion of the audit. However, the number of patients observed or reviewed was only a total of 10, which would not have had significant power to be meaningful. The number of patient dockets from which data were extracted had to be greater than ten to ensure that the resulting data was generalizable to the entire population of health centres and the populations they serve. Consequently, it was decided that the same methodology would be used to collect data from at minimum 30 additional dockets in each region. A total of 197 dockets were included across all regions. However, due to a non-sampling error in data collection some data were not recorded. Consequently, the non-response rate for certain data points not recorded is approximately 13%. The sample size is therefore reduced accordingly to 171.

For validity and reliability purposes the same audit tool and methodology created and used by the MOH was utilized for this research. The audit tool has been widely disseminated for use by the Regional Health Authorities for external audits as well as health centres for self-audits. Further, the audit tool

and methodology have been tested for appropriateness by the Ministry of Health and used prior to the dissemination and implementation of the 2007 Guide. Consequently, the audit tool used in this research has history and face validity. The only limitation to using the audit tool is that the data collected from the additional docketts were limited to those of patients receiving care related to hypertension within the last year.

3.3 Qualitative Data Collection

Key Informant Interviews

Qualitative data collection included semi-structured interviews with 15 key informants to identify barriers to guideline implementation. Themes were identified in the qualitative data, which aided the creation of recommendations for a plan for change. The population from which key informants were recruited included community health aides, clinicians at the implementation and non-implementation clinics and key leaders within the Ministry of Health(MOH) and Regional Health Authorities(RHAs). A roster of recruited individuals included staff, clinicians, and key leaders from each RHA. The RHAs invited selected individuals to participate as key informants. If they agreed, these individuals were consented upon arrival of onsite to ensure agreement. Further, staff from the MOH was also selected. These individuals were recruited via email, telephone, and in person. Potential respondents contacted via email were

also sent a brief description of the study using a standardized script in English. When participants agreed to be interviewed, an appointment was scheduled at a convenient time. Participants were reminded via email and telephone at least 24 hours in advance of the interview. The attached key informant interview guide (see Appendix C) was administered at a location of the key informants choosing. Interviews took between 25-45 minutes each, and were in most cases audio recorded.

Key informant interviews were recorded and transcribed verbatim. Codes were developed based on themes of responses. The process for developing codes was iterative. The analysis was guided to address implications for policy, programme development, implementation and further evaluation.

The sampling of key informants was purposive and included a variety of stakeholders including community health aides, clinicians at implementation and non-implementation sites, key leaders such as Regional Technical Directors, the outgoing Chief Medical Officer and the national Director of Non-Communicable Diseases within the MOH.

There is still much debate about acceptable methods for establishing validity within qualitative mixed methods research (Creswell & Clark, 2011). However, procedures were undertaken to support and ensure the validity of the findings. Among these steps was ensuring that proper processes were used to develop

the interview tool, including consultation with the field supervisor and dissertation committee. In addition, in instances where permission was granted, audio recordings of participant interviews were conducted to ensure that their perspectives were accurately captured.

3.4 Data Analysis Methodology

Quantitative

In the pre-analysis phase, identification numbers were assigned to each facility and questions were grouped based on the major thrusts of the 2007 Guide: (1) Evaluating the Patient; (2) Treatment of Hypertension; (3) Management of Hypertension in Special Cases; (4) Indications for Referral, and (5) Primary Prevention: Reduction of Risk Factors for Hypertension. Data were then quantified based on the information entered in the dockets correlating to each question asked through the MOH Audit Tool. Particular attention was paid to data documenting risk factors and references to dialogue with the patient on lifestyle factors such as diet and exercise.

Qualitative

A descriptive analysis to search for recurring themes and wording used by participants was used. Various coding techniques were then used to systematically extract data from key informant interview data including: (1) Structural, (2) Evaluative, (3) Magnitude and (4) In Vivo Coding, as described below. It is

important to note that employing these coding techniques required a review of transcripts and notes several times. A structural approach provides answers regarding implementation of the 2007 Guide and reveals some recommendations for future guidelines. Further, evaluation coding which was the most critical for this research includes a review of the transcripts and notes for three major themes. These themes include a description of participatory responses of patterned observation; a comparison of how the 2007 Hypertension Programme measures up to an ideal in light of best clinical practices, and the provision of recommendations for modifications and how these changes might be implemented. This coding methodology further examined shifts in participants' skills, attitudes, feelings, behavior, programme ideology, policy and procedure. Special focus was given to what key informants know and what they think and feel about the 2007 Guide. Magnitude coding was also utilized to make it easier to identify where key informants had positive and negative comments or feedback. Lastly, *In Vivo* coding was utilized to ensure that the direct language of key informants was captured (Saldana, 2016). *In Vivo* coding further adds weight to the opinions of key informants about the 2007 Guide implementation as well as that of future guidelines.

In reviewing the qualitative data, a naturalistic and pragmatic analysis was then employed. Regarding the former, a

naturalistic analysis was useful in determining the extent to which a programme is operating in accordance with legislative/policy intent. This approach further included a detailed description on how programmes operate and what they are accomplishing, which are all goals for this research. To complement this analysis, a pragmatic approach was most useful in that it facilitated finding practical and useful answers that could provide direction in conducting an implementation evaluation. Generally, a pragmatic approach allows the researcher to search via practical questions to attain useful insights to inform action and may include in depth interviews and fieldwork observations to answer straightforward questions without framing the inquiry within an explicit theoretical framework (Bamberger, Ruch & Mabry, 2011). In this research, a pragmatic approach allowed understanding of key research questions including informants' knowledge of the 2007 Guide, current and possible staffing roles, current audit practices, hypertension and current challenges; satisfaction with available resources to treat hypertensive patients and recommendations for implementation of future Hypertension Programme Guidelines.

Triangulation

In addition to the methods used to conduct the study, triangulation was used to analyze key informant perspectives captured during interviews. Consequently, similarities and

differences regarding their knowledge, attitudes and practice about hypertension and the implementation of the 2007 Guide assisted in explaining why some data were not documented in docketts and captured in the quantitative review. As a result, the data collected in the qualitative portion of the study, as a result, was helpful in explaining why the documented management of hypertensive patients may not reflect the stated requirements and ideals outlined in the 2007 Guide. Further, the review of both the quantitative and qualitative data provide multiple viewpoints which contribute to a greater understanding of the implementation process of the 2007 Guide as well as how hypertension is managed in health centres. Ultimately, the mixed-methods and triangulation approach was helpful in increasing the credibility and usefulness of the study.

3.5 Consents & Confidentiality

An application was filed with the University of North Carolina Chapel Hill (UNC-CH) Institutional Review Board (IRB) prior to beginning the proposed research. No recruitment took place until all approvals from the UNC-CH IRB and the local ethics committee were in place. Written consent was obtained from key informants at the time of the face-to-face interview. For those interviewed via telephone the consent was reviewed orally and the participant was invited to ask detailed questions about the study. Study participants were consented and

interviewed in English. All study procedures were described in detail such that the participant was fully informed of the requirements while in the study. During this consent process, the key informant was reminded that participation in the research study was voluntary and there are no negative consequences if they declined to participate. At that point, the potential participant agreed or declined to participate in the study. Those who consented to participate in the study were enrolled. The interviews were held in private rooms and conducted face to face. However, it is noteworthy that not all health centres had floor to ceiling walls separating each room. As a result, noises could be heard outside of the interview room. It was nonetheless possible to conduct private interviews. In all interviews and especially those without complete structural separation, privacy risks and confidentiality were addressed. Further, most sessions were recorded with participant permission. Interviewees were told that they were free to take breaks and/or terminate the interview at anytime. In addition, the following steps were applied:

1. Unless otherwise authorized by participants, identification numbers, rather than names, were used on research materials to identify participants.
2. Hard copies of data and collateral materials such as consent forms were stored separately in a locked cabinet.

Further, all interview data were stored in password-protected files.

3. Once the data were analyzed and the study completed, all recordings were destroyed to ensure that no responses are linked to an individual. The results are presented in the aggregate and the names of the individuals kept confidential. Descriptors of key informants were included, but in order to maintain confidentiality of the respondent, these participants' names were not included.

CHAPTER FOUR: QUANTITATIVE RESULTS

It is important to emphasize that the review of dockets and the data within was conducted to determine whether clinicians evaluated, treated and/or managed hypertensive patients according to the 2007 Hypertension Guidelines. The presence of documentation indicating that certain steps were taken which may indicate the degree to which procedures recommended in the 2007 Hypertension Guide were carried out. However, the absence of such documentation does not necessarily mean that the prescribed methodologies were not followed. This information is helpful to understand clinical practices and may inform and guide the implementation of future programmes.

The results can be broken down into five categories: Evaluation; Treatment; Management of Hypertension in Special Cases; Indications for Referral; and Reduction of Risk Factors. Percentages reflect the number of times the data item was documented in patient charts. A total of 197 patient dockets were reviewed.

4.1 Evaluating the Patient

In evaluating hypertensive patients, the majority were weighed and blood pressure taken prior to being assessed and meeting with the physician (Table 2). However, across all health centres it was rare that the height and waist circumference were measured, which would be necessary to calculate the Body Mass Index (BMI). The measurement of the BMI (especially) along with other risk factors such as family history, is critical in determining obesity, which may contribute to negative health outcomes of the patient. However, it is important to note that family history was only recorded two percent of the time in the patient dockets reviewed.

Table 2. Evaluation of Hypertension

Evaluation of Hypertension	Percentage of times documented
Blood Pressure Reading at last 2 visits	89%
Height	18%
Weight	95%
Waist circumference	6%
Chest X-Ray	13%
ECG ever done	41%
Family History	2%

Evidence of at least one Echocardiogram (ECG) was documented in 41% percent of the dockets reviewed and chest x-rays 13% of the time. Without these exams being performed it would be challenging to not only fully diagnose per the 2007 Hypertension Programme Guide but to also treat hypertensive patients on an ongoing basis.

4.2 Treatment of Hypertension

Eighty-two percent of dockets listed all medications prescribed to patients and of these the degree to which patients were compliant was documented 69% of the time. However, a challenge was that physicians' handwriting were not always legible and it was difficult for the auditor and/or records clerk assisting to accurately note the medications listed. In addition, many physicians often wrote 'continue with medication' which might not have been documented within the last two visits of the patient. One can assume that this partial documentation could make it difficult to ensure continuity of care if another physician, who might be short on time, examines and treats the patient in the future.

Table 3. Treatment of Hypertension

Treatment of Hypertension	Percentage of times documented
Current medication	82%
Compliance with medication	69%
Annual investigations in last 12 months	
Electrolytes, Cholesterol, Triglycerides	39%
CBC	39%
Blood Glucose-	38%
Fundoscopy	3%
Kidney Function	38%

Laboratory tests (investigations) including those for kidney function, electrolytes, triglycerides, complete blood count (CBC) and cholesterol were prescribed annually and documented in thirty-nine percent (39%) of the patient dockets. In contrast, despite the fact that the 2007 Guide recommended that hypertensive patients should be referred for a fundoscopic or ophthalmologic exam annually, only 3% of all dockets had any documentation that this was done. Of all recommended investigations only those for blood glucose were done a majority of the time and documented (45% of the time at each visit and 38% non-routinely) within the dockets reviewed. However, there

is a great deal of variation in consistency from visit to visit, whether it was done in a lab or if the patient was fasting when examined.

4.3 Management of Hypertension in Special Situations

The 2007 Guide very clearly outlined how hypertensive patients with special comorbidities such as diabetes are to be treated. In addition, there are recommendations for the treatment of the elderly, pregnant patients and those with chronic pain along with cardiac or renal failure. None of the dockets reviewed contained data evidencing that hypertensive patients were also being treated for any of these conditions. Despite recommendations in the 2007 Guide regarding cardiac and renal failure, it is significant to note that the dockets are unlikely to have references to care of patients with either condition because these patients would have been referred and transferred for specialized care (Jamaica Information Service, 2007). As a result, these patient dockets would not have been available for inclusion in this study.

4.4 Indications for Referral

Table 4. Indications for Referral

Indications for Referral	Percentage documented
Nutritional Referral Done/Discussion between clinician and patient documented	20%

Of the dockets reviewed only 20% had any referrals to a nutritionist or discussion documented.

4.5 Reduction of Risk Factors for Hypertension

There are risk factors that increase the likelihood of having hypertension and make it more challenging to manage. These risk factors include the presence of hypertension during pregnancy, smoking, drinking alcohol, low levels of physical activities, and obesity along with the presence of occupational hazards or increased levels of stress. Consequently, it is important to reduce the presence of these risk factors overall and especially for those with hypertension to assist in the management and control of blood pressure (2007 Hypertension Programme Guide). In reviewing the dockets, 2% or less of the dockets had any documentation reflecting whether the patients smoked, drank alcohol, had hypertension during pregnancy or worked in an occupation that would increase the risk factor for hypertension. Of these, it is noteworthy that hypertension

during pregnancy might not be captured due to the fact that the age group with the highest incidence of hypertension is not of child bearing age. To further support this finding, advancing age increases the risk of hypertension amongst those 65 to 74 years of age. It is likely that many of these women are elderly and would have had home births as the drive and expansion of antenatal care and child welfare in public facilities took place after independence in 1962 (McCaw-Binns, 2005).

Table 5. Reduction of Risk Factors

Reduction of Risk Factors	Percentage of times documented
Hypertension in pregnancy	Near 0%
Smoking+	Less than 1%
Drinking	2%
Physical Activity	6%
Overweight/Obese	16%
Occupation	2%

Documentation regarding levels of physical activity was present in 6% of dockets and indications of the patient being overweight or obese was reflected in 16%.

CHAPTER FIVE: QUALITATIVE RESULTS

Table 6. Key Informants Interviewed by Primary Role

Key Informant Type/Role	Quantity
Leaders (RHA Technical Directors; CMO and Director of NCDs within MOH)	6
Nurses (Registered/Nurse Practitioners)	4
Doctors	4
Community Health Aide	1

Note: All leaders are medical doctors and most have held roles as Medical Officers of Health.

Qualitative data is broken down by knowledge, practice and attitudes of key informants regarding hypertension management and the 2007 Guide.

5.1 Knowledge

In conducting the key informant interviews, questions related to knowledge focused on the content of the 2007 Guide, dissemination of the Guide, and training provided by both the Ministry of Health (MOH) and Regional Health Authorities (RHAs). Further, questions were asked related to perceived strengths and

weaknesses of the methodologies outlined within the Guide. Questions were also asked regarding knowledge of audits as prescribed by the MOH as well as any other audits conducted at the regional level, which may relate to the management of hypertension.

All but two of the physicians interviewed were employed in the health system at the time the Guide was disseminated. However, all recognized the importance of reviewing the Guide as it is still currently being used to treat hypertensive patients. Of the physicians interviewed, only one actually recalled the content of the Guide. However, two physicians recalled reviewing it at some point in time. Half of the leaders interviewed had knowledge of the Guide. While three out of four nurses recalled specific content, the Community Health Aide interviewed had no knowledge of the Guide. Of the eight interviewed that recalled dissemination of the Guide, five stated that some training was received. The primary strength of the Guide outlined by key informants is that it is in line with international best practices. Further, it was stated that it is not only clear and comprehensive but the pocket guides and algorithms disseminated with the Guide were also helpful. One of the weaknesses identified related to the dissemination of the Guide. At least two key informants stated that the Guide was outdated and should have been updated within five years. Further, concerns regarding

the unavailability of the drugs recommended by the Guide were viewed as a limitation. The last topic covered in the interviews related to knowledge of audits conducted. But for leaders interviewed, only three individuals had knowledge of audits being conducted on a regular basis. Of these individuals, two stated that audits were rarely done. However, when conducted, audits were usually done via docket reviews. Of the leaders who were able to comment on audits, they spoke more from the perspective of the types of audits they expected to take place within certain time parameters and for performance in specific areas. Only two leaders were able to speak directly to audits being conducted directly related to hypertension specifically and Non-Communicable Diseases (NCDs) generally. One of the chief complaints was that the hypertension audit tool was not included as a part of the 2007 Guide, which makes it challenging to meet the expectations of the MOH.

5.2 Practice

Practice includes feedback regarding appropriateness of the Guide for pre-hypertensive and elderly patients; possible role of peer supported programmes; and the role of nurses, community health aides, and pharmacists.

Most interviewees did not sufficiently recall the Guide to speak to the issue of appropriateness for pre-hypertensive patients. Only one person stated that it was not appropriate

because it focused on treatment and not prevention. Almost all interviewees with recollection of the content of the Guide stated that it was appropriate for the elderly. The only concern brought up related directly to the treatment options prescribed by the Guide was that it is not always appropriate for elderly patients. The greatest concern was that many elderly patients could not afford the medication if it is not available in the pharmacy. Further, for those health centres with pharmacies open for limited time periods during the week, many elderly patients were not able to return if visits took place when the pharmacy was closed. Ultimately, these patients were often not able to return to get the medications prescribed because of their dependency on family members for transportation to and from the health centre. At least one nurse stated, "The Guide covers everyone from young to old, but the challenges are economic and directly affect patient compliance." Almost all interviewees responded affirmatively regarding the potential benefit of peer support programmes at health centres to assist patients in managing hypertension.

The remaining practice-related question during the interview centered on the current role of nurses, community health aides, and pharmacists and whether or not the key informants believed there were opportunities present to make greater use of these positions. Almost all interviewees felt the

role of nurses was critical and could not envision how their job descriptions could be further expanded without it creating an undue burden. In direct contrast, all but one interviewee felt that the role of community health aides (CHAs) should be expanded to include additional tasks such as taking vital signs both within the health centre as well as in the communities. One RHA leader noted that the job descriptions for Community Health Aides have been revised and now include tasks such as foot care. However, it was stated that there are still opportunities to utilize CHAs to their full potential. To expand the job responsibilities of CHAs would require further revisions to the job description, which would require approval from the Nursing Council and additional training to ensure that they are equipped.

Regarding the role of pharmacists, all felt that their role was critical to ensure patient compliance with medication. However, at least two interviewees felt that pharmacists could do more by way of patient education. One interviewee in particular stated that there are many patients who do not know why they are taking the medications prescribed or the dosage. The greatest challenge, which was presented regarding the role of the pharmacist, is that the workload is heavy because the Pharmacy Act prohibits the dispensation of drugs from

physicians, nurses, and pharmacy technicians. Further, there is a challenge to recruit pharmacists because of low salary scales.

5.3 Attitudes

Questions centered around attitudes of informants include feedback regarding satisfaction with staffing, materials and training; successes they have experienced managing hypertensive patients; challenges managing hypertensive patients; recommended modifications to the Guide; experience providing feedback regarding possible modifications to the Guide to the RHA and MOH; Wish-list to do their jobs better; and recommendations for the implementation of the next iteration of the hypertensive guidelines. This information is quantified and supported by direct quotes from key informants.

Eleven out of fifteen key informants stated that additional staffing is necessary. For the few that felt that resources were sufficient, they noted that clinicians in their health centres were often sent to other understaffed locations. Interviewees stated that despite adequate resources, shifting of clinical staff made it more challenging for them because it limited time available to meet with patients. All but two interviewees stated that materials and equipment were not sufficient to carry out their duties. It was cited that at minimum each exam room should be fully equipped and have an adequate supply of written materials. All but one leader stated that training about the

guidelines and best practices in treating hypertensive patients was not adequate. The nurses especially stressed that training is critical and that it would be helpful to participate with other clinical team members. One physician in particular recommended the use of teleconferences as a way to increase the number of trainings available.

With regards to successes experienced and what the interviewees felt were positive success factors for the management and control of hypertension, all interviewees spoke about what would be necessary to appropriately treat patients. Positive success factors cited included having sufficient time to meet with hypertensive patients and a robust patient education programme. However, only one nurse and leader spoke specifically about successful experiences managing hypertensive patients. The greatest challenges included having the prescribed medications available; consistency in the medications prescribed; socio-economic challenges where patients may not be able to afford medications if they are not available with the pharmacy, and funding for transportation to and from the health centre; availability of appointments within the prescribed time periods; along with mobility issues for the elderly.

With regards to recommendations for modifications of the Guide, leaders did not discuss whether they made recommendations to the RHAs or the MOH on issues related to the management of

hypertension, which is likely due to the fact that they are more involved with policy making and are able to directly work to improve most limitations. In contrast, half the physicians and nurses interviewed along with the community health aide stated that they have either never been asked their opinion or been given an opportunity. One physician stated, "This is the first time I have been asked what I think." Similarly, a nurse practitioner, stated, "there aren't sufficient opportunities for nurse practitioners to speak on issues of concern in the health centre." It was challenging at first for interviewees to give a wish list. However, it didn't take very long for them to collectively request the following:

- ❖ patient education through greater 1:1 with clinicians;
- ❖ mass education of patients;
- ❖ education for CHAs;
- ❖ financial resources to allow clinic/patients to get sufficient medication;
- ❖ additional conferences and training from experts;
- ❖ guidelines in hard and soft copy;
- ❖ blood pressure machines;
- ❖ more medical officers;
- ❖ more nurses;
- ❖ a fitness person at least once per week to assist patients;

- ❖ more specialists in primary care;
- ❖ an ophthalmologist per health centre;
- ❖ nutritionist or dietician for each health centre;
- ❖ improved nursing orientation;
- ❖ greater efficiencies with HR processes to make it easier to hire clinicians;
- ❖ ECG and ECG follow-up for all patients;
- ❖ proper chairs for nurses and patients;
- ❖ an environment conducive to patient/clinical interactions;
- ❖ increase pharmacy services to more than two days per week;
- ❖ more equipment for CHAs; and
- ❖ more time with patients.

Findings and recommendations suggested by key informants for implementation of the next version of the hypertension guide are summarized in Table 7.

Table 7. Key Findings and Recommendations Provided by Key Informants

Knowledge	
Key Findings	Recommendations
7/15 recalled content of 2007 Guide; 8/15 recalled the dissemination; 5/15 recalled training provided.	Provide easy access to Guides in hard and soft copy. Set implementation date of the next Hypertension Programme and share with RHAs including staff in health centres. Partner with key stakeholders to create both implementation and communication plans.
Those familiar with the Guide believed it followed international best practices.	Provide training quarterly or at minimum annually. Where possible make training available online.
Most found the Guide to be outdated as the last to be disseminated was the 2007 Guide.	Disseminate new guides at least once every 5 years.
Most did not have recommendations to modify the 2007 Guide	Include feedback sessions for each implementation to ensure continued buy-in and support from all staff.
Most were not aware of audits being conducted to assess the status of the programme. Those that were aware of audits did not believe that they occurred on a regular basis. Some complained that the audit tool was not included with the Guide, which would have facilitated more frequent audits.	Create a robust monitoring and evaluation plan. Conduct regular audits as a feedback mechanism. Include the audit tool in each Guide along with an updated risk assessment tool.

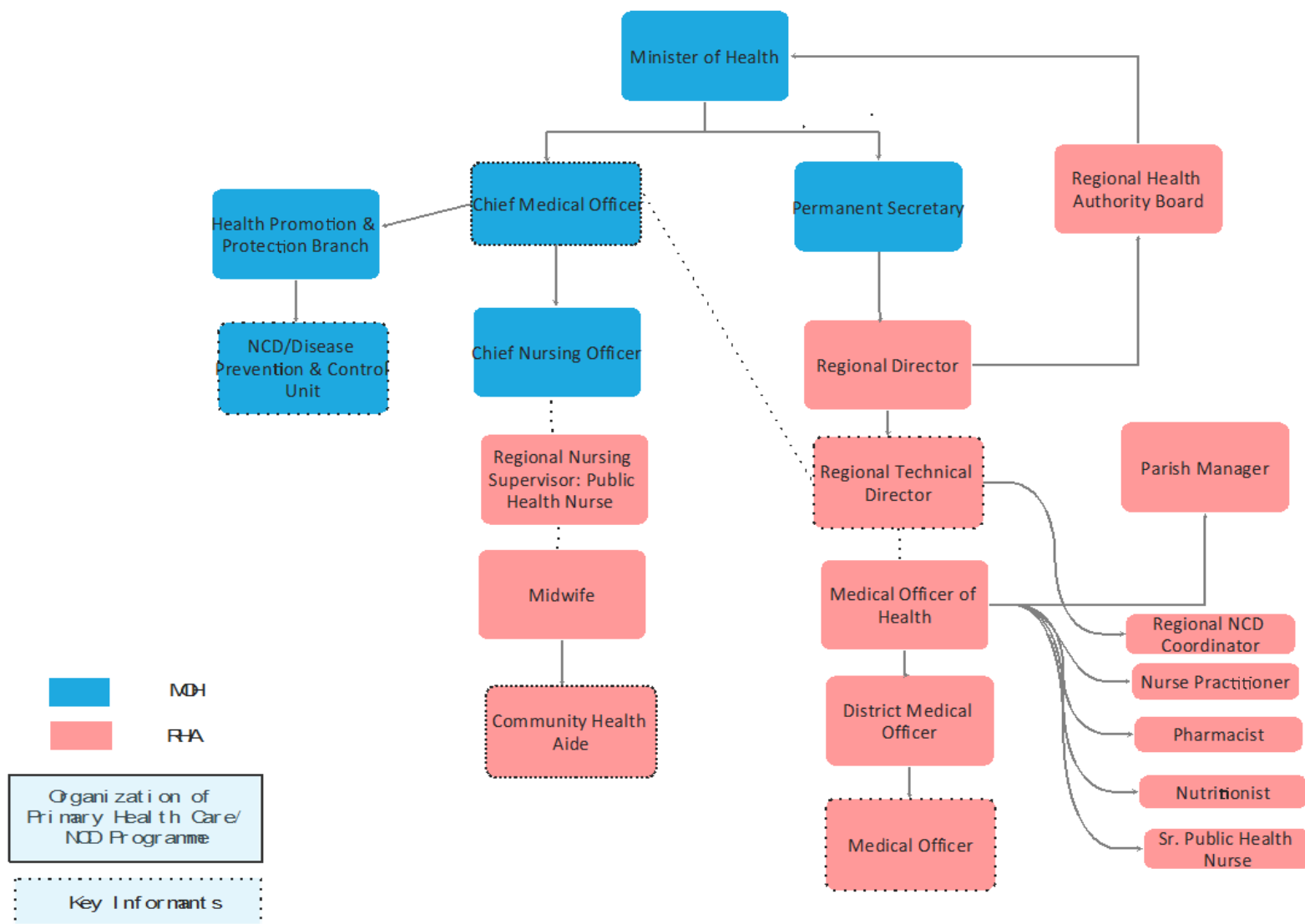
Practice	
Key Findings	Recommendations
Most key informants found the Guide to be appropriate for treating elderly hypertensive patients. Most also found it appropriate for pre-hypertensive patients. The largest concern for those finding the Guide inappropriate for pre-hypertensive patients thought that it focused on treatment as opposed to prevention.	Ensure Guides continue to speak to special populations with updates where appropriate. Periodically provide updates to clinicians regarding the best practices appropriate for the Jamaican population. The Guides must also stress the importance of prevention.
Majority felt that peer support programmes for hypertensive patients would help them manage their illness to better comply with prescribed medications and activities.	Group/Peer support meetings on NCD days at health centres could be helpful. Group peer meetings do not have to be facilitated by a physician or nurse. Some clinicians need to be sensitized to how peer support meetings may result in positive health outcomes for patients. Waiting areas could be better utilized to educate patients while they wait.
Few thought there were opportunities to better utilize nurses. However, all unanimously saw the importance of CHAs and thought they could more greatly assist clinicians in treating NCDs both within the health centres and clinics with additional training.	While the job description of CHA has been recently revised to include tasks such as foot care for diabetics, there could be a more comprehensive review to see how they could assist with all four NCD giants including hypertension. This is especially important in the elderly population. Include CHAs in workshops, training opportunities. If appropriate include representation on the implementation team for the rollout of the Hypertension Programme. Provide additional tools to CHAs where appropriate.
Most thought that pharmacists were critical to educating hypertensive patients regarding medications prescribed along with information on possible side effects. A few thought that pharmacists could be more greatly utilized in assisting clinicians in monitoring hypertensive patients, but conceded that they were often overworked and recruiting pharmacists was challenging due to low pay.	Evaluate role of pharmacists and assess whether technology could facilitate increased communication amongst the clinical team. In this regard their role could be expanded, as this would reaffirm the team-based approach recommended by the Guidelines. Revisit the role of pharmacy technicians and clinicians in prescribing certain medication.

Attitudes	
Key Findings	Recommendations
A few key informants were satisfied with staffing, available materials/tools and training. The majority felt that additional staffing would make it easier to better manage NCDs.	Additional equipment (i.e. diagnostic tools) for exam rooms and staff including ophthalmologists, nutritionists, physiotherapists and nurses along with increased capacity for ECGs and routine tests would have positive outcomes for patients and make their jobs easier.
The greatest challenge identified in treating hypertensive patients was due to lack of an adequate supply of medication, especially those recommended in the Guidelines. Lack of medications provided a significant challenge for the elderly and those with limited mobility.	There should be an adequate supply of medication to assist patients in remaining compliant. Increase pharmacy services in some locations to make it easier for those with limited mobility to receive medication the same day they are treated by the health centre.
Some key informants stated that they have never been asked their opinion or given an opportunity to provide constructive feedback.	Provide a forum for all staff to be trained and discuss ongoing best practices and challenges.
The physical environment is not always conducive to patient/ clinician interaction.	Continuously evaluate each health centre's exam rooms on an ongoing basis and incrementally improve as resources become available.

5.4 Key Findings Regarding Leadership

The primary leadership challenge for programme implementation faced by the Ministry of Health (MOH) goes back to the decentralization of the health care delivery system (National Health Service Act, 1997). It is only through collaboration and good will that the Regional Health Authorities (RHAs) work with the Non-Communicable Disease (NCD) Unit to carry out the implementation of programmes such as the 2007 Guide because there is not a direct reporting relationship between the RHAs and the Non-Communicable Disease Director who is responsible for the implementation of the Guide. In reality, the RHAs are not required to follow through with and implement any technical programme. If in the worst-case scenario, the RHAs fail to implement any programme a Ministerial Directive or similar directive from the Chief Medical Officer or Permanent Secretary would be required to force action. Such a system of accountability makes it challenging to ensure that programmes are implemented as envisioned by the MOH. As can be seen in the abbreviated organizational chart (Figure 3), there are no formal reporting relationships between the NCD Unit and the RHAs.

Figure 3. Abbreviated Organization of Primary Health Care



CHAPTER SIX: PLAN FOR CHANGE

6.1 Part I: Kotter's Eight-Step Process for Leading Change as a Framework for Engaging Leadership

This chapter presents a plan for change for a governmental organization to inform policy makers, primary care providers, consumers and academics on how programme guidelines such as the 2007 Hypertension Programme are currently communicated, administered, and implemented at the regional level within local health centres. This research presented opportunities to tackle issues related to the implementation of the Guide. There are short-term and long-term implications related to leadership and implementations. In the short-term, Kotter's Eight-Step Process for Leading Change would be helpful. In contrast, for the long-term, a legislative/regulatory strategy would be critical for the successful development and implementation of health policy and related programmes. To complement both the short and long-term leadership strategies, the Practical, Robust Implementation and Sustainability Model (PRISM) is helpful to address the operational implementation of the 2014 Hypertension Programme Guide (Kotter, 1995; Feldstein & Glasgow, 2008).

Figure 4. Kotter's Eight-Step Process For Leading Change



Step 1: Establishing a Sense of Urgency

With the high incidence of chronic non-communicable diseases, it is necessary to plan and implement robust programmes such as those supported by the 2007 Hypertension Programme Guide that truly allow for a team-based approach with accountability and responsibility for implementation appropriately aligned between the MOH and the RHAs. In the short term, to accomplish this there has to be a champion within the MOH willing to lead this initiative from a programme implementation standpoint. While it is most ideal to restructure the organization of the MOH and how it relates to the RHAs from an administrative, programmatic, and technical standpoint it

would be difficult to achieve this level of reform in the short term. Consequently, the most ideal champion would be someone such as the Chief Medical Officer who has the technical knowledge and the ability to effectuate change via directives to the RHAs. However, in the long-term it is necessary to gain buy-in from the Minister of Health to mobilize more large-scale reform via an amendment to the National Health Services Act of 1997.

Step 2: Create the Guiding Coalition

A guiding coalition requires the creation of a group to lead the change effort. It is important to include those with a leadership role as well the requisite expertise to effectuate change both at the national and regional levels. In this instance it would be important to include critical stakeholders such as the Chief Medical Officer and Director of the NCD Unit at the Ministry of Health, Regional Technical Directors as well as the Medical Officers of Health within the regions to whom the Senior Public Health Nurses, Nurse Practitioners, Pharmacists, Nutritionists, and ultimately Medical Officers report. It is important to not only include leadership but also those expected to carry out implementation of the programme guides. Further, external stakeholders such as representatives for the elderly, religious organizations and the private sector should be included.

Step 3: Develop A Change Vision

A change vision would include strategies for implementation of the programme and any related efforts to ensure its success. Considering the challenges in ensuring fidelity to the Hypertension Programme Guide in the implementation process, it might be helpful to have the key stakeholders at the regional level participating in the coalition create the first draft to assist in the change effort. The involvement of these individuals is key because together they have a greater understanding of how the Hypertension Programme can be implemented uniformly across the regions. They also know what the challenges to implementation in each region may be. It would then be helpful for stakeholders at the Ministry of Health to then provide input in this very iterative process.

Step 4: Communicate the Vision for Buy-In

Communication is key to ensure buy-in at all levels within the regions as well as the Ministry of Health. Different media should also be used to ensure that all stakeholders are aware of upcoming changes including but not limited to monthly and quarterly meetings, hard copy memoranda, email as well as the MOH and RHA websites. It is important for key stakeholders to regularly discuss the upcoming implementation of the programme including how, when and key staff members involved. A forum for ongoing questions and answers must also be available to get

feedback and possibly address areas where there might be resistance. It might also be helpful to beta test the health communications campaign with staff regarding the benefits of the programme for patients prior to releasing such information to the public.

Step 5: Empower Broad-Based Action

In listening to staff who might have objections, provide resistance or have other concerns regarding implementation key leaders such as the Regional Technical Directors, Medical Officers of Health along with the Director of the NCD Unit and Chief Medical Officer must work to remove barriers to success. At minimum an effort must be made to communicate to staff the steps that are being taken to actively remove or reduce obstacles to implementation. These actions will go a long way in gaining trust and giving a voice to staff that otherwise do not believe that their opinions matter. It is likely that obstacles identified will have financial implications and may be challenging to remove without additional resources including funding. In these instances, it will be necessary for leadership within the regions to create an objective and realistic plan with existing resources and long-term strategies to either increase, secure or reallocate funding.

Step 6: Generate Short-Term Wins

Without short term wins it might be difficult to maintain momentum over the years that a programme might be in place. Locally, for instance, it is important to recognize those staff actively involved in implementation by establishing monthly and quarterly goals for training clinicians and educating patients. Further, success in other similar programmes should be leveraged to gain buy-in and to support the renewed efforts undertaken in the upcoming implementation of the 2014 Hypertension Guide. Successes and barriers that should be revisited include the Caribbean Chronic Care Collaborative to Improve the Quality of Diabetes Care in Jamaica. Despite the fact that this project was focused on the treatment of diabetes, much of what was learned in the research collaborative was similar to findings from this research including limited documentation of patient visits, challenges for patients to attain prescribed medication from the health centres and limited documented interactions with clinicians, which is further exacerbated by illegible physician notes (Ministry of Health, 2012). However, despite these challenges there were successes that could be helpful in paving the way forward. Some of these successes include high participation of patients in peer support programmes even in the absence of clinicians, which demonstrates that training of non-clinical staff as facilitators could be a worthwhile endeavor

(MOH, 2012). Further, it is important to note that the training of facilitators for NCD programmes is not new as The University of the West Indies Ageing Centre currently conducts a peer support training programme for diabetes education. Programmes such as this one are not only proof that peer support programmes can be successful in the Jamaican context, but also that there are existing resources that could be leveraged. While there is room for improvement in engaging and motivating clinical teams and ensuring appropriate systems are in place to support implementation of the Hypertension Programme, the Chronic Care Collaborative to improve the Quality of Diabetes Care showed that these activities can result in incremental improvement in patient outcomes. Most importantly, these positive changes should always be shared with staff as new programmes are developed and implemented.

Step 7: Never Let Up/Consolidating Improvements

Change resulting from the implementation of the Hypertension Guide on an organizational level will take years, which makes it important to maintain momentum over time. Short-term wins will help in identifying key change agents as well as allow leaders within the RHAs and MOH to understand ongoing challenges, which make it difficult to improve health outcomes for patients. The identification of change agents is important because as new crises arise and compete for attention these

individuals can play a key role with their colleagues and other staff to periodically provide reminders of why the Hypertension Programme is critical for the overall health of the population. For instance, change agents such as those who created the Integral Programme within the NRHA and participated in the successful implementation of the Chronic Disease Passport within the WRHA should be included. Without recognition of these individuals, sharing of best practices, ongoing dialogue amongst all regions and the MOH, the short-term wins will wane as key players involved retire or move on to other endeavors. With their departure much information and momentum will be lost.

Step 8: Incorporate Change into the Culture

With successful implementation of the programme it will be necessary to document the process including the articulation of the change and related efforts to senior leaders at the national and regional levels. Documentation of successful implementation of programmes and the necessary changes in the system along the way are important to demonstrate positive and appropriate use of resources. Moreover, measured success should make it easier to get additional resources in the future.

Table 8. Kotter's Steps for Leading Change, Study Findings and Recommendations

Kotter Steps to Leading Change	Research Findings	Recommendations	Success Measures
1. Establish a Sense of Urgency	Port of Spain Declaration regarding NCDS, National Vision 2030, and the PAHO study utilizing the Chronic Care Model fully support programmes such as the Hypertension Programme	Jamaica has made headway compared to peer countries in meeting goals to address and eradicate NCDS. (MOH, 2012) However, there are challenges in consistently rolling out programmes such as the Hypertension Programme. Important to keep this on the agenda.	Highlighted topic at meetings at the MOH & RHA
2. Create a Guiding Coalition	Staff are passionate about improving outcomes for hypertensive patients. There is also a sense of urgency from key stakeholders. However, there is currently not a comprehensive plan with all stakeholders at the table	Identify all stakeholders including private sector. Designate independent public/private monitors to evaluate programme and whether goals are being met.	Monitor(s) identified. Coalition Created
3. Change Vision	Stakeholders are aware of challenges. However, there are no clearly articulated evaluation plans in place to monitor outcomes. Very few key informants were able to respond positively to inquiries regarding successes achieved. They were more accustomed to focusing on barriers and challenges	Use iterative process to identify and articulate a vision addressing challenges and acknowledging successes as a foundation for the future. Tie goals of the 2030 Vision, MOH 5 year plan as well as objectives outlined by the CARICOM heads of state in the Port of Spain Declaration.	Vision statement created and agreed upon amongst coalition members.

Kotter Steps to Leading Change	Research Findings	Recommendations	Success Measures
4. Communicate the Vision	Less than half of key informants had specific recollection of the content of the 2007 Hypertension Programme Guide. Half of those with knowledge recalled when it was disseminated and whether training was provided.	Communicate early, clearly and frequently about the content of the Hypertension Programme Guide. Ensure all stakeholders are fully informed of the implementation, monitoring and evaluation plans. Use all forums and media available to disseminate hard and soft copies of Programme Guide and provide information of upcoming meetings and workshops.	Evidence of communication campaign meetings where key stakeholders have been invited to gather information to relay it to other staff within the health centres.
5. Empower Action	Staff, including medical officers and nurses, stated that they are often disconnected from the implementation process and that they were rarely asked for their opinions. Staff is eager to be included and are passionate about facilitating change.	Initiate interdisciplinary meetings to discuss how best to implement Hypertension Programme in their setting while ensuring fidelity to the programme. Solicit opinion and recommendations from those on the ground.	Change in culture with evidence of staff being empowered to act on suggestions with RHA leadership support. Perceived obstacles removed.
6. Generate Short Term Wins	A few key informants recalled successes including Peer Support, Integral clinician-led support and exercise programme and Chronic Disease Passport Programmes. However, these programmes were short lived due to attrition of staff champions and/or lack of resources to expand.	Record and remind key stakeholders of past successes. Set achievable goals based on what has worked in the past. Share successes amongst staff and other leaders across RHAs. Incorporate success stories in meetings to remind staff what they have done well and why the Hypertension Programme is important.	Established goals met. Documentation of success stories from the patient, clinical and administrative perspectives.

Kotter Steps to Leading Change	Research Findings	Recommendations	Success Measures
7. Never let up	Staff at health centres is working hard to positively support patient outcomes. Great work taking place are not clearly articulated. Only awareness of obstacles appear to be affirmed anecdotally amongst staff.	Remove obstacles in an incremental and planned way and incorporate lessons learned as appropriate.	Report results by region at least annually and ensure availability on the web. Clearly articulate removal of obstacles and remaining challenges.
8. Incorporate Change Culture	There is a dearth of documentation regarding the programme implementation, monitoring and evaluation processes.	As the agenda for change is advanced, focus on a programme implementation that is in line with the established programme. Ensure documentation of not only the implementation but also what processes, actions and behaviors led to change to make it easier to replicate successes in the future.	Clearly articulated reporting on change and key drivers for implementation including lessons learned which could make it easier to design and implement other NCD programmes.

6.2 Plan for Change Part II: Long-term Legislative & Regulatory Strategy to Address Leadership Challenge for Programme Implementation

In assessing the external environment to the direct provision of health care, it is important to look at the regulatory landscape and how it facilitates and/or creates barriers to the implementation of programmes such as the Hypertension Programme. Within the current regulatory environment, it is challenging for non-communicable disease (NCD) programmes to be rolled out due to the reporting structure between the Ministry of Health(MOH) and Regional Health Authorities(RHA's). This structure was created under the Health Services Act of 1997, which decentralized health care and made the Regional Health Authorities, tasked with the implementation of health programmes, semi-autonomous. While this research focuses primarily on programme implementation it would be remiss to not discuss how modifications to the regulatory and/or legislative landscape can further support the short-term and long-term successful implementation of the 2014 Hypertension Programme.

The Jamaican Legislative Process

Jamaica's legal system is based on the Common law with three arms of government: the executive, the legislative and the judiciary. The system of government is a parliamentary democracy based on the British Westminster Model, which is a

constitutional monarchy whereby the queen is the head of state and the executive and is represented locally by the Governor General. The Governor General appoints the Prime Minister who is usually the head of the majority party in the House of Representatives. The Prime Minister in turn selects the Ministers of State and Parliamentary Secretaries to be appointed by the Governor General. It is the Prime Minister who advises the Governor General on the dissolution of Parliament and to name the date of a general election at any time within five years of the life of Parliament. The Prime Minister forms and presides over the cabinet. The cabinet is responsible for the general direction and control of the government and consists of the Prime Minister and no less than 11 Ministers (there is no maximum). All cabinet members must be members of the two Houses of Parliament but no more than 4 from the Senate. The legislative branch of the Jamaican government consists of Parliament, which is bicameral comprising of the House of Representatives (lower house) and the Senate (upper house). There are 63 members of the House of Representatives who are directly elected while there are 21 Senators who are appointed. Thirteen members of the Senate are appointed by the Prime Minister and the remaining eight by the leader of the opposition party. Members of the House are elected and remain for a period of five years. As a result, the effect is that no government can

make any changes to the Constitution unless it has two-thirds support from the Senate and must include at least one opposition Senator. Constitutionally the queen or the Governor General must assent to all laws passed by the legislature. In reality the executive power is vested in the executive or the cabinet, which is headed by the Prime Minister who is the leader of the majority party.

There are multiple pathways for the creation of and promulgation of laws, policies and operational policies. Generally, national laws are introduced via Parliament. In contrast national policies are introduced and approved by the Cabinet. The last major stakeholder, the Ministry, in contrast promulgates policies, guidelines, protocols and norms that interpret and put into effect relevant programmes and services (Acosta & Alleyne, 2006).

Any member of the Parliament can introduce bills. Cabinet ministers usually introduce bills intended to set, revise or implement policy (Griffith, 2001). The Senate reviews legislation submitted by the House and may delay bills for up to seven months and economic bills for up to a month. However, the House may override Senate delays if the majority passes such bills three times in succession.

Laws, national policies and ministerial policies are promulgated at different levels of government. Laws must be

passed through the legislature (Parliament) and have legal sanctions for not being followed. National level policies, while promulgated by government Ministries, also go through the cabinet, but they do not have the same legal status as a law. National policies provide the broad vision and framework for the action of governments. To succeed, those national policies must be translated into programmes to achieve the goals set forth at the national level. Moving from national policies to local programmes require the design and implementation of ministerial policies. Ministerial policies include policies, guidelines, and protocols that channel national laws and policies into programmes and services (Levy, Subaran, & Hardee, 2001). There are several steps to the introduction of bills in Parliament and how bills eventually become law.

1. Approval of Policy by Cabinet
2. Issue of Drafting Instructions/Preparation and Circulation of Bills
3. Approval of Bills by the Cabinet
4. The Minister informs the House of Representatives of his intention to introduce a Bill
5. Introduction of Bills in Parliament
6. The Bill is introduced to the House of Representatives. Each member is given a copy to study. This is called the First Reading.

7. The Bill is fully discussed and the criticisms noted.
This is the Second Reading.
8. The entire House becomes a committee to discuss the
Bill
9. The Bill is accepted. It goes forward as is or with
amendments. This is the Third Reading The Bill is now
referred to as an Act.
10. The Act goes through the same three stages in the
Senate.
11. The Bill is accepted but may go back to draftsmen to
correct errors prior to being sent to the Governor
General for final assent.

*Historical Perspective: A Brief Look at Conditions Prior to the
Establishment of the Current Rhas*

Prior to advocating for change, it is important to understand that the current system did not result by accident. In fact, debate leading up to decentralization via the Health Services Act began in the mid-1970s (Health Task Force, 2007). The purpose of decentralizing the health system was to create greater efficiency, better management at the local level including financial control, and providing practitioners with autonomy to make decisions that are in the best interest of their region. Instead challenges have arisen in appointing human resources and implementation of special projects (Jamaican

Information Services, 2006). Further lessons from decentralization are that there was a gap between recipients of change (staff) and the strategists behind the implementation of the new system where there was high frustration that instead of autonomy a new tier of bureaucracy was being created (Crick, 2002). This frustration was further exacerbated by failure to communicate the vision to gain commitment as opposed to informing staff of pre-determined decisions (Crick, 2002).

Short-term Goals

A short-term regulatory strategy is preferable at this juncture as it may serve as a building block for the long-term and would allow for immediate action. The short-term strategy could, for instance, include leveraging the National Health Fund's (NHF) successes in managing drug benefits and expanding this to include patient care for hypertensive patients. The operational framework of the NHF emphasizes choice of provider by members, competition among providers of services, and shared governance and administration with responsibilities for all the key stakeholders. All of these elements if used would improve accountability in the delivery of primary care to hypertensive patients. These standards of care and treatment applied to prescription drug use are set by the MOH, which can be expanded to incorporate the Hypertensive Programme Guide. To increase access to care and ensure coordination of care for hypertensive

patients, choice, appropriate standards of care, quality control, and competition among licensed and accredited providers will be emphasized. For instance, patients could be allowed to see private clinicians if they cannot be seen within one visit. Funds previously allocated to local health centres can be used to pay private practice clinicians. Further, providers should not be allowed to refuse service and may be reimbursed an amount set by the MOH based on strict adherence to programme guidelines for hypertensive patients. Only providers who meet the appropriate professional and medical standards and are licensed operators would be accredited by the Regional Health Authority and/or the Ministry of Health are allowed to participate. To protect against provider abuse, the MOH and/or the Regional Health Authorities (RHA) could monitor treatment and utilization of services both within the public health centres and participating private practices.

Long-term Goal

The long-term goal is to propose the implementation of a system that is based on a model of care that ensures continuum of care and improved health outcomes for hypertensive patients. Such a model would include defined processes and metrics, which promote and report professional participation; implementation of quality and other reporting requirements; and potentially the determination of payments for shared savings. Planning for the

long term would also provide an opportunity to revisit recommendations previously submitted by the Task Force appointed by the then Minister of Health, The Honorable Rudyard Spencer in 2007. Recommendations for change, included changing the RHAs from semi-autonomous statutory bodies to a regional coordinating and enabling organizational system with direct reporting and supporting functions of implementation residing in technical experts in the MOH (Health Task Force, 2007). Further, recommendations were made to create interdisciplinary decision making teams at the central level, in order to fully integrate policies, norms, standards and support functions for the regional and parish level service delivery (Health Task Force, 2007).

Ultimately, clinicians across the public health system could be held accountable for jointly attaining a set of outcomes for a defined population, such as those suffering from hypertension, over a period of time. To ensure responsiveness to the programme guidelines, the MOH can potentially tie funding of the Regional Health Authorities (RHAs) to performance metrics including the degree to which programme guides are implemented and used consistently within health centres. This would in turn allow the RHA to ensure continuum of quality care between all health facilities. The MOH/RHAs could also provide incentives to clinicians that achieve desired health outcomes for defined

populations. Further, this care model would include the participation of private practices to ensure that patients can avoid long wait times by choosing to receive care in the private sector.

This long-term strategy would require significant investment by the government including human and financial resources. Further, the development of electronic systems would be required to ensure appropriate reporting on performance metrics across the country. To ensure the long-term implementation and success of this reformed system, legislative action would be required to ensure that the policies put in place are supported at all levels of government. It is important to note that such legislative action would include the introduction of a bill in Parliament, which should not be taken lightly as it would require bicameral support including members of the ruling party as well as the opposition.

Table 9. Summary of Policy Options

Policy Options	Type of Strategy	Approval Process	Advantage/ Disadvantage
Maintain the current System	No Action	Process improvements would be done via the RHA responsible for local health centres within their geographic regions.	Advantage: Very few opponents Disadvantage: There are limited mechanisms to ensure fidelity to Programme Guides, and continuously measure, monitor, and evaluate programme and health outcomes for hypertensive patients.
Initiate Health Care Reform(Partial or Full) to change the reporting structure of the health system to build in direct accountability of RHAs to the MOH for NCD programmes including the Hypertension Programme	Legislative	Introduction via a motion by a Member of Parliament	Advantage: Would allow the Ministry of Health(MOH) to allocate resources at the national level allowing it to monitor and ensure accountable care for hypertensive patients as well as those suffering from other chronic non-communicable diseases. Disadvantage: Could take several months or years to introduce and get approved in Parliament; Requires additional financial and other resources. It may be a tough sell with limited resources making it more difficult to gain bi-partisan support.
Leverage lessons learned from other programmes such as the National Health Fund; Implements Programmes strictly through collaboration and partnership of the MOH & RHAs Preferred option	Regulatory/ legislative	Initiated by the MOH and would not require approval by the opposition party currently not in power.	Advantage: Little to no delay in approval. It utilizes current resources and is less expensive than overhauling the current system. Improvements are incremental and support the long-term objective to increase overall accountability. Opportunities to incorporate lessons learned by the National Health Fund(NHF) in rolling out the national prescription benefit, which has been successful in monitoring care and service utilization. Disadvantage: Would require additional resources to monitor and manage the programme.

Regulatory/Legislative Stakeholder Analysis

Table 10. Regulatory/Legislative Stakeholder Analysis

Stakeholder Group	Description / Stake	Likely involvement & Position on Policy Option	Resources stakeholder	Potential to influence stakeholder position
Ministry of Health	Supporter; The MOH is also likely to fully support as it is responsible for population health outcomes.	Involvement would be required; Policy alternative will ensure that MOH guidelines are monitored and measured to ultimately increase accountability and improved health outcomes. Would support the short-term goals as it would not require the proposal of a bill in Parliament yet incrementally builds the infrastructure required for long-term accountability.	Ability to influence the process through regulatory and legislative processes.	Medium to High
Regional Health Authority	Opponents; The majority of the responsibility for rollout of the preferred option would fall to the RHA. Without additional resources it may be difficult to successfully implement. If additional resources are provided it may be possible to gain the support of the RHAs.	They are likely to be involved though will resist any change to the status quo unless additional resources are provided.	The RHA is a functional/operational arm responsible for carrying out policies, programmes and management of health centres and hospitals within their respective regions.	Medium

Stakeholder Group	Description / Stake	Likely involvement & Position on Policy Option	Resources stakeholder	Potential to influence stakeholder position
Non-Profit Community Supporters	Supporters; Interested in programmes that promote the health, social and overall well-being of those suffering from hypertension The policy alternative	They are only likely to get involved if grass root support is sought.	The support of local community groups could present a public face to issues that have traditionally been made public via research publications and the government. Their support could be helpful for the long-term policy alternative, which would require introduction of bill in Parliament.	High
Patients	Supporters; Are directly impacted and stand to gain the most from increased accountability and improved coordination of care	If educated on how their involvement (via advocacy process) could result in increased access via the health centre or potentially private practice if they are not seen within a visit.	As constituents they have the ability to influence their representatives in the long term.	High
Private Practice Clinicians	Supporters; The policy alternative will increase access to hypertensive patients by allowing them to see a private practice clinician if they are not able to receive care in a timely fashion. This presents an opportunity to partner with the government.	There is a strong likelihood for private practitioners to get involved; as their participation would result in an increase in the number of patient. However, reservations may include concerns in how the MOH and RHA carry out monitoring and auditing activities, which may be burdensome.	Participation would be required unless the number of clinicians at health centres is significantly increased. Their involvement would be the means by which the MOH/RHA can improve access.	High

Regulatory & Legislative Strategies

The short-term approach would be regulatory in nature because it would not require the introduction of a bill in Parliament. Most importantly, the MOH has the authority to implement. This short-term approach would allow for some wins that may make it easier to later pursue a legislative strategy. In contrast, the long-term policy alternative would be legislative in nature. The Minister of Health would be the best person to introduce the bill and the report will be the best source of information to help gain the support of the Cabinet prior to the submitting to the Parliament. It would be critical to get support from stakeholders for this long-term policy alternative as bi-partisan support is also needed.

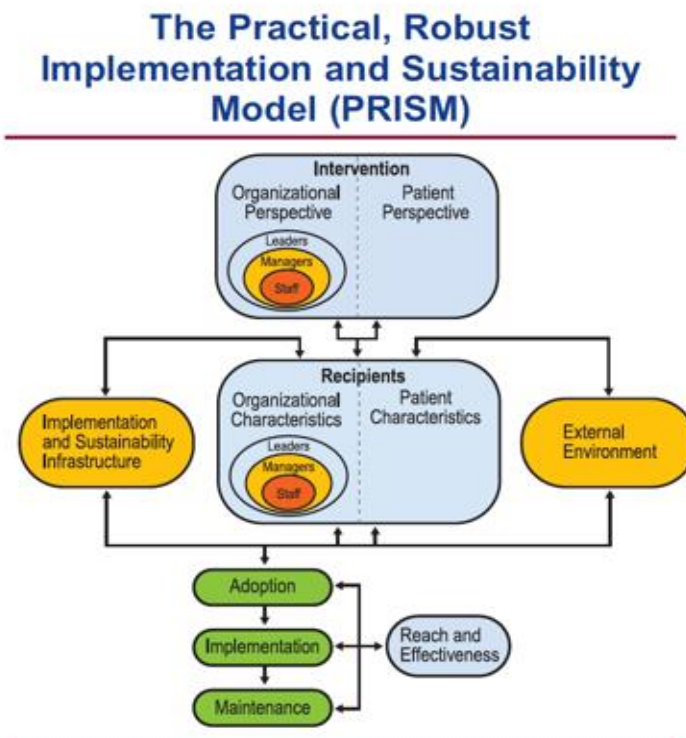
Both short and long-term policy objectives will increase accountability within health centres and private practice and improve the overall health of hypertensive patients. The short-term policy objective is incremental and would garner necessary support for the implementation of the long-term legislative approach. It is more realistic to utilize a regulatory approach in the short term as it requires less resources. However, for more meaningful and impactful change, it is necessary to take a legislative approach, which would reallocate resources to ensure that the MOH and RHA has the means to ensure the standards established are appropriate and the infrastructure sufficient to

monitor, manage, and improve health outcomes for hypertensive patients.

6.3 Plan for Change Part III: Recommendations for Implementation of The 2014 Hypertension Guidelines Utilizing Prism (Practical, Robust Implementation & Sustainability Model)

The PRISM model is founded on the premise that advancements in health care are limited by failure to translate findings into practice (Feldstein & Glasgow, 2008). Further, this model was developed by Feldstein and Glasgow and delineates elements that can help guide evaluation and implementation processes. PRISM, the Practical, Robust Implementation and Sustainability Model, considers domains including, elements of: 1) the programme/intervention design, 2) the external environment, 3) implementation and sustainability infrastructure, and 4) recipient influence on programmes (both organizational and patient characteristics). The focus of the model aims to keep the patient at the center of the processes to influence adoption, implementation, maintenance, reach, and effectiveness.

Figure 5. The Practical, Robust, Implementation and Sustainability Model (PRISM)



This model borrows heavily from the Wagner Chronic Care Model, which has not only been widely tested but has been adopted in other studies here in Jamaica and within the Caribbean (MOH, 2012). The Chronic Care Model supports the need to leverage support from the community, health system leadership, delivery system design, clinical information and clinician decision systems, and patient self-management to maximize outcomes. For an organization to accept an intervention and integrate it into current workflow or practice, the innovation needs to be aligned with the organization's mission and stage of development of translational or change capacity

(Feldstein & Glasgow, 2008). It is for these reasons that the PRISM model presents a unique opportunity to facilitate the implementation of the 2014 Hypertension Programme.

PRISM domains work together to evaluate how the intervention, recipient and organization work together to influence a programme's adoption, implementation, maintenance and sustainability. Certain elements within the PRISM model are especially important to a programme during the development, implementation and/or maintenance phases. Recommendations for implementation of the 2014 Programme Guidelines are separated by phase while at the same time taking into consideration the various stakeholders within the health centres where the programme would be implemented and those working with the MOH and RHAs who may be key players and influencers during all phases of a programme's life cycle.

Characteristics of organizational (health system) and patient recipients/intervention and patient perspectives are important in developing a strategy that is appropriate for the organization, staff and patients as well. As Feldstein noted, in order for an intervention to be integrated into a current workflow the innovation has to be aligned with the organization's stage of development of translational or change capacity.

Organizational/Intervention Perspective

This research along with findings of prior research demonstrates that the Hypertension Programme has received support from key managers and clinicians within the Ministry of Health and Regional Health Authorities (PAHO, 2012; PIOJ, 2007). As reported by key informants the challenge however, relates to the communication about the Programme Guide along with the coordination of implementation of the hypertension programme. Key informants believe that the programme should be sustainable because of the importance of the programme not only for patient outcomes but hypertension may also increase the risk of other NCDs. To this end, resources have to be prioritized to address the development and implementation of new guidelines. Ongoing concerns regarding sustainability and effectiveness are availability of systems to support the management of the hypertension programme along with sufficient staffing. While systems would facilitate information gathering and uniform implementation of the programme across regions, inadequate staffing levels could ultimately derail the programme if it is perceived that there aren't enough individuals to carry out daily tasks. Further increasing the burden of existing staff may make it challenging to successfully implement the programme. If possible it may be necessary to scale rollout of the programme

over time to allow for the use of existing staff to ease implementation.

The majority of the key informants with in depth knowledge of the 2007 Guide indicated that the programme follows international best practices for the treatment and management of hypertension and is well supported by clinical evidence. Further, it has been stated that the 2007 Guide is clear and not difficult to follow. Key informants are ready to implement the new Hypertension Programme with some indicating that too much time has elapsed since the last Guide was disseminated. Having staff that are ready and willing to implement a programme are key to success so long as a few things can be met such as 1) coordination between the MOH, RHA and health centres along with involvement of key staff such as Medical Officers, Nurses, CHAs, Pharmacists, and Nutritionist; 2) ensuring the programme is modifiable without threatening essential elements of the programme; and 3) embedding tools in the work flow without creating too many additional tasks.

In creating a guiding coalition and involving representatives for each region, the MOH, community, and staff within health centres coordination should be easier as potential barriers to adoption and implementation would be identified and addressed upfront. In implementing the 2014 Programme Guide it may be most helpful to address deficiencies identified in the

rollout and maintenance of the 2007 Hypertension Programme. It would also be helpful to assess elements that were not consistently followed in the 2007 Guide and determine the cause of poor performance. It would have to be first ascertained whether clinical performance or patient compliance are the root cause of poor documentation. For instance, it was found that height was not consistently measured during the patient intake process. It needs to be determined why height was only documented in only 18% of the dockets reviewed and address barriers. Since responsibility for measurement lies with the clinicians within the health centre it stands to reason that poor documentation is due to some other reason. If it is found that most scales do not have height measurement instrumentation, then this would have to be rectified at each health centre if they are to improve. In contrast, another area with limited documentation related to annual investigations in the last year. In this instance, it is possible that clinicians prescribed the investigations but patients failed to follow through and have them completed thereby making it impossible to document. Ultimately, tools used to assess performance should separate those tasks or elements for which clinicians are solely responsible from those where patients and clinicians are jointly responsible for performance and outcomes.

Suggested action steps by phase:

Development

- ☐ Simplify programme where possible.
- ☐ Embed tools (process & equipment as appropriate, which may include equipment such as blood pressure machines, height instrumentations, and checklists where appropriate.

Implementation

- ☐ Ensure coordination between MOH, RHA and Health Centres are clearly articulated in implementation plan so that all stakeholders fully understand the process, milestones and objectives of the Programme.
- ☐ Conduct a beta test within the health centres and include a few key staff to ensure the usability of Programme to ensure that that limitations and barriers are addressed early.

Maintenance

- ☐ To ensure successful implementation throughout all phases clinical leaders within MOH, RHA and health centres should be engaged during all phases from development and implementation to maintenance
- ☐ Create incentives for continued staff involvement by tying participation to performance of the health centre and region.

Patient Characteristics/Perspective

The prevailing barriers and characteristics of hypertensive patients in Jamaica are fairly well known (Bourne et.al, 2010; Eldemire-Shearer, 2009). However, there is a dearth of readily available data pertaining specifically to patient knowledge, beliefs and attitudes, which provide an opportunity for future research.

This research did not focus on patient perspectives or barriers per se but data collected from the audit process included interviews with both hypertensive and diabetic patients that agreed to participate. Patients were generally asked about their experience being treated at the health centres. All patients from one health centre stated general satisfaction in being treated by the nurses and physician (MOH, 2016). In soliciting spontaneous responses from participants as to what advice had been provided to them by clinicians, the results showed that all patients recalled being advised about their diet by the nurse and/or doctor. There was consensus from all patients that they would return to the facility to receive care for their condition. In response to why they would return, fifty percent of the patients interviewed stated that they were interested in knowing their health status. Others wanted to continue their regular checks, and the others indicated that he wanted to continue with treatment. The major difficulties

highlighted were the extended waiting periods, over-crowding and the long period sitting on the hard benches. In soliciting suggestions for improvements, 67% percent had no comment/suggestions, while others recommended that the availability of more nurses and doctors would improve the process flow (Ministry of Health, March 2016).

Of the key informants interviewed, patient barriers that were most frequently identified included those related to low socio-economic status and the inability of patients to afford transportation to and from the health centres. Key informants also identified the low availability of prescribed medications as another barrier to care and patient compliance as many patients could not afford medications if they were not available within the pharmacy. Key informants also cited mobility as a barrier for patients with physical challenges including the elderly. As a result, there were concerns the 2007 Hypertension Programme did not address the issue of medication availability, which most informants felt needed to be addressed in future Programme Guides. With medication availability being the greatest concern to ensure that the 2014 Hypertension Programme is patient centered it is critical that this issue is addressed as it greatly impacts patient compliance. Further, all efforts should be made to minimize costs to patients including, but not limited to, 1) decreasing the number of drugs prescribed; 2)

paying for drugs at private pharmacies if they are not available at the health centre; and 3) decreasing transportation costs if pharmacy at health centres are open for limited time periods or if health centres are so overcrowded that it necessitates repeat visits to be seen by clinicians.

Suggested action steps by phase:

Development

- ☐ Provide opportunities for patients to make positive steps in addressing lifestyle choices impacting management of hypertension including providing direct (1:1 with clinicians) and indirect (utilizing staff such as CHA and televisions in waiting areas) patient education.

Implementation

- ☐ Reduce patient out-of-pocket costs as much as possible

Maintenance

- ☐ Integrate patient feedback throughout the programme by using anonymous patient satisfaction surveys, which may appear less punitive than the collection of feedback only during audits.

Implementation & Sustainability

To ensure the continued success of the Hypertension Programme, it is essential that sustainability be planned from the very beginning (Klesges et al, 2005). At the start of the programme, implementation training and support are critical

success factors (Hagedorn H. et al., 2006). If possible, a dedicated implementation team should be created rather than expect staff at health centres to carry out the programme clinically and administratively (Solberg et al., 2000). Ultimately, measurement and feedback are important to long-term success of the programme (Wagner, 1998). To ensure that there is adequate data to support the continued implementation and long-term success of the programme, systems need to be put in place to ease communication within and between health centres, the RHAs and the MOH. Data to be shared should include not only performance data but also successes along with documentation of standard operating procedures to ensure continuation of the programme regardless of attrition, competing priorities and at times changes in the political and regulatory landscape.

Suggested action steps by phase:

Development

- ☐ Identify dedicated individuals to implement Hypertension Programme
- ☐ Identify tasks to be completed during all phases including implementation and maintenance

Implementation

- ☐ Implement training and support
- ☐ Provide forums for sharing of best practices and ongoing challenges

Post-Implementation/Maintenance

- ☐ Utilize and create (as appropriate) systems to facilitate data sharing and collect performance measurements
- ☐ Plan for periodic review and adjustments based on feedback and data provided during implementation

Table 11. PRISM Tasks by Element & Phase

Phase	Organizational/Intervention Perspective	Patient Characteristics/ Perspective	Implementation & Sustainability
Development	Simplify programme where possible. Embed tools (process & equipment as appropriate, which may include equipment such as blood pressure machines, height instrumentations, and checklists where appropriate.	Provide opportunities for patients to make positive steps in addressing lifestyle choices impacting management of hypertension including providing direct (1:1 with clinicians) and indirect	Identify dedicated individuals to implement Hypertension Programme. Identify tasks to be completed during all phases including implementation and maintenance.
Implementation	Ensure coordination between MOH, RHA and Health Centres are clearly articulated in implementation plan so that all stakeholders fully understand the process, milestones and objectives of the Programme. Conduct a beta test within the health centres and include a few key staff to ensure the usability	Reduce patient out-of-pocket costs as much as possible.	Implement training and support. Provide forums for sharing of best practices and ongoing challenges.
Maintenance	To ensure successful implementation throughout all phases clinical leaders within MOH, RHA and health centres should be engaged during all phases from development and implementation to maintenance. Create incentives for continued staff involvement by tying	Integrate patient feedback throughout the programme by using anonymous patient satisfaction surveys which may appear less punitive than the collection of feedback only during audits.	Utilize and create (as appropriate) systems to facilitate data sharing and collect performance measurements. Plan for periodic review and adjustments based on feedback and data provided during implementation.

CHAPTER SEVEN: CONCLUSION

With a dearth of research and data on the implementation process of programmes, the 2007 Guide presented an opportunity to utilize a pragmatic philosophical approach. A mixed methods design shed light on the opportunities and constraints around implementing NCD programmes generally and the Hypertension Programme specifically. The MOH audit process was used to collect quantitative data and assisted in determining the degree to which there was fidelity to the Hypertension Programme as designed. It was especially important to see how it was carried out in health centres. To complement the quantitative data collected, qualitative data was collected to further understand how the Hypertension Programme was created, disseminated and implemented throughout the regions. Key Informants were selected from the MOH, RHAs as well as health centres to gain insight into their knowledge, practices and attitudes towards the Hypertension Programme, their role in implementing the programme and ultimately caring for hypertensive patients. There were some challenges and delays in coordinating, getting the appropriate permissions to go onsite to collect quantitative data and attaining consents from key informants. As a result, data

collection was exceptionally cumbersome and took a lot of time. Despite these challenges, however, it was encouraging to interview key informants as the overwhelming majority were passionate about their work to help improve health outcomes for their patients. It was evident that while there were challenges and barriers to implementing the Hypertension Programme, there were also successes deserving of recognition. For instance, it was found that clinicians documented many things well including blood pressure and the degree to which patients were compliant in taking prescribed medications. It is important to note that Appreciative Inquiry was used in designing some key informant questions with the aim of soliciting success stories upon which future implementation could be built (Catsambas & Webb, 2003). What was clear, however, was that most key informants were so used to focusing on barriers and constraints that there was some delay in providing personal success stories in treating hypertensive patients. This was an interesting discovery and one that would be a good place to start when designing the next Hypertension Programme. Ultimately, success breeds success and helps to increase buy-in and support from staff (Kotter, 2007).






The data revealed that the 2007 Hypertension Programme has leadership as well as implementation challenges, which require the application of different approaches to ensure success in the short and long-term. First, Kotter's Eight Steps to Leading

Change could be used to continue to build a sense of urgency and to motivate leadership within the MOH and RHAs to not only support NCD programmes but to create strategy to facilitate the implementation of the next Hypertension Programme. Given the magnitude of the problem facing the island in reducing the prevalence of hypertension and the challenges in treating patients; time is of the essence. While Kotter's Steps to Leading Change would be helpful to tackle the leadership challenge the PRISM model, a derivative of the Chronic Care Model, could be equally helpful in crafting a robust implementation plan. While these latter two frameworks can facilitate programme implementation in the short-term, it is also important to recognize that some challenges, especially those pertaining to leadership, should incorporate long-term strategies such as health care reform. Ultimately, reform would be necessary only to the extent that it would ease the implementation of key programmes.

APPENDIX A: MINISTRY OF HEALTH AUDIT TOOL

Name of Health Centre _____

MINISTRY OF HEALTH CLINIC AUDIT FORM FOR THE CASE MANAGEMENT OF HYPERTENSION AND DIABETES

CATEGORY	METHOD OF ASSESSMENT*	CODING	SCORE**										TOTAL	COMMENTS
			D1	D2	D3	D4	D5	D6	D7	D8	D9	D10		
A. Blood Pressure Measurement is Carried Out at Every Visit on Diabetic and Hypertensive Patients														
1. Blood is pressure measured after the patient is quietly seated for 5 minutes.		Yes = 1 No = 0												
2. Blood Pressure Reading (mm Hg)														
3. The right arm (on which blood pressure is measured) is supported at heart level.		Yes = 1 No = 0												
4. The appropriate size cuff is used.		Yes = 1 No = 0												
5. The blood pressure reading taken at the last two visits are recorded in docket		Yes = 1 NR = 0												

[illegible]

[illegible]






[illegible]

[illegible]

[illegible]

[illegible]

H. Ven List Drugs should Be Available and Accessible to Diabetic Patients				
1.	No. of VEN List Drugs _____	2.	No. of VEN List Drugs Available at	TOTAL
	Clinic _____			
Percentage of Ven list drugs available $[(2/1 \times 100) > 80\%$ VEN list drugs available = 1, < 80% VEN list drugs available = 0]				
I. Ven List Drugs should Be Available and Accessible to Hypertensive Patients				
1.	No. of VEN List Drugs _____	2.	No. of VEN List Drugs Available at	
	Clinic _____			
Percentage of Ven list drugs available $[(2/1 \times 100) > 80\%$ VEN list drugs available = 1, < 80% VEN list drugs available = 0]				
J. An Inventory List is Available for the Health Centre being Audited				
Inventory List Present = 1 Inventory List Absent = 0				

K. Proper Equipment is Available at Each Clinic 	Ophth	Sphyg	Scale	Stadmtr/Meter Rule	Tape Meas	Gluc
Equipment: Present, and Belonging to the Clinic = 1 Absent = 0						
L. A Maintenance Schedule is Available for Each Item of Equipment 						
Maintenance Schedule: Present = 1 Absent = 0						
M. A Calibration Schedule is Available for Each Item of Equipment 						
Calibration Schedule: Present = 1 Absent = 0						
N. Uristix are Available for Use in the Clinic 						
1. Uristix available (Yes = 1 No = 0) Yes [] No []						
O. Glucometer Strips are Available for Use in the Clinic 	TOTAL			COMMENTS		
Glucometer Strips Available (Yes = 1 No = 0) Yes [] No []						
<u><i>TOTAL B</i></u>						
<i>AUDIT TOTAL = TOTAL A + TOTAL B = _____</i>						

BACKGROUND DATA

1. Type of Clinic _____

2. Staff Complement

	<u>Present</u>	<u>Ideal</u>
Physician	[]	[]
Family Nurse Practitioner	[]	[]
Staff Nurse/Registered Nurse	[]	[]
Pharmacist	[]	[]
Pharmacy Technician	[]	[]
Nutritionist	[]	[]
Nutrition Assistant	[]	[]

3. Number of patients in attendance _____

4. Present staff to patient ratio

Physician/Patient _____ FNP/Patient _____

RN/Patient _____ Pharmacist/Patient _____ Pharmacy

Technician _____ Nutritionist _____ Nutrition Assistant _____

5. Pharmacy present on clinic site Yes [] No []

<u>RECORD OF DRUGS PRESCRIBED AT LAST VISIT:</u>										
1. <u>Medical Record Number</u>										
2. <u>List of Drugs Prescribed</u>										
<u>COMMENTS</u>										

Time Taken to Complete Form

Start: _____

End: _____

Signature

Date

APPENDIX B: MINISTRY OF HEALTH AUDIT METHODOLOGY

Arrival at the Health Centre

- Inform staff beforehand of the date of the audit and what will be required of them: The care of twenty (ten diabetic and ten hypertensive) individuals will be observed/followed. Auditors will observe measurement of blood pressure and weight. Patients will be interviewed on exit from the doctor's consultation room to ascertain their opinion on their experience at the health centre on the date of the audit.
- Request the use of a private area or empty room to conduct the exit interviews. This should ideally be in close proximity to the doctor's/nurse practitioner's consultation room.
- Introduce yourself to the staff on the morning of the audit reinforcing what is required of them and outlining the chronological order of the audit activities (the audit will take an average of two days to be completed). If records are required on the first day of the audit then Medical Records staff should be informed to prevent them from re-filing the records after they are received from the Doctor/Family Nurse Practitioner.
- Make appointments with the Pharmacist/Pharmacy Technician to complete the Drug Supply Checklist and with the Staff Nurse to complete Sections I - N and Background Data of the Audit Form.
- Introduce yourself to the patients explaining the purpose of the audit and asking them to remain behind for approximately ten minutes to participate in the exit interviews.

Beginning the Audit

Patients will be registered according to the order in which they present at the Medical Records window. Use the Diagnosis Sheet to fill in the names and diagnosis of each of the 20 patients observed. This sheet will be used to ensure that the numbers D1 - D10 or H1-H10 correspond to a patient's medical record number.

Observation of Care

Sample Size and Instructions for Form Completion

- The 1st ten hypertensive and 1st ten diabetic clients (20 patients in total) are to be observed to conduct an assessment of the correct measurement techniques for weight and blood pressure. Patients who have both diabetes and hypertension may be used to fill the required quota.
- The audit form is to be filled out in a vertical fashion, where D1/H1 represents the first patient observed, and D2/H2 the second patient observed. A score of 1 would be entered for all patients where blood pressure measurement or weights are taken correctly.

e.g. Section A.1 - If you observe that the blood pressure of patient D1 is taken after he/she is quietly seated for five minutes then a score of '1' would be entered in column D1 row A.1.

Protocol for Correct Measurement

Blood Pressure Measurement

- Blood pressure should be measured after the patient is seated quietly for at least five minutes
- Blood pressure should be measured on the client's right arm which should be resting comfortably at heart level.

- Patients' legs should not be crossed
- The correct size cuff should be used (ascertain whether the health centre has a large size cuff to use on obese clients)

Weight Measurement

Who should be exempted/excluded

- Chair-bound clients
- Clients who are unsteady on their feet

Correct measurement procedure

- Clients should be asked to remove their shoes (where possible) and any other heavy outer garment
- Clients should stand with their feet flat on the centre of the baseplate, feet together and facing forwards
- Patients should be standing freely, arms hanging loosely at the sides and should not be holding on to any support (e.g. an adjacent wall etc.)
- The scale should be zeroed between the measurement of each patient (if a balance is used)
- The exact measurement should be recorded.

Exit Interviews

- Ideally the interview room/area should be stationed as close to the consultation room as possible

Who should be exempted/excluded

- Clients who are hard of hearing.
- Clients who suffer from dementia/memory loss.
- Clients in obvious signs of distress

Interview instructions

- Use, as your sample for the exit interviews, the 1st ten hypertensive and the 1st ten diabetic clients (20 patients overall) who agree to be interviewed on exit from the doctor's examination room. **As not all patients will agree to be interviewed, the patients who are observed may not necessarily be the same patients who are interviewed.** Patients who have both diabetes and hypertension may be used to fill the quota.

Clarifications on the Consultation Exit Interview Form

- Question 5. - *Education level* - if clients cannot remember the last level of education attained try to ascertain their approximate school-leaving age and the type of school they graduated from (Primary, All-Age, Secondary etc.)
- Question 9. *How many times, apart from the present visit, have you visited this health centre in the last 12 months?* - if the client cannot remember the number of times he/she has visited the health centre ask to see their appointment card and verify whether or not he/she has attended clinic on each appointment date. Count the number of appointments within the last year (minus the present visit) and tick the appropriate response which corresponds to the number calculated.
- Questions 14 and 15 - *What did the doctor/family nurse practitioner advise?* - reinforce that this question refers to the **present** visit to the health centre.
- Question 18 - *How much did you pay today at this facility, everything included, to get care for your disease/condition?* - probe to get this data. Ask whether the client took any additional tests (e.g. blood sugar) and how much they paid for them.

- Question 21 - *Do you have any other comments/suggestion for improvement of care?* - clarify that the improvements may refer to the infrastructure, the level of care that they are receiving or to the clinic process (registration to consultation).

Data Abstraction

- The second day of the audit is to be used primarily for data abstraction from patient medical records. **Data abstraction is to be carried out on the 20 patients for whom blood pressure measurement and weights were observed.** The audit form is filled out in a vertical fashion, where D1 represents the first patient observed, D2 the second patient observed and so forth. Sections A - G of the Clinic Audit Form are used to assess whether certain key areas are being recorded in individual patient medical records. The 'Coding' column is used as a guideline for assigning a score depending on whether the variable/test is recorded in or absent from a patient's medical record.

e.g. Section A.4. - if the blood pressure taken at the last two visits to the health centre are recorded in the medical record of patient D1 then a score of 1 would be entered in column D1 row A.4.

At the end of the audit individual scores for each row may be tallied to obtain a total score for each health centre.

Acceptable Medical Record Entries

Foot Examination

An example of an acceptable entry for foot examination is given in Table 1 below.

Table 1 Sample Medical Record Entry for Foot Examination

	Left (Y/N)	Right (Y/N)	Bilater al (Y/N)
Normal vibration sensitivity			
Normal pin prick sensitivity			
Foot pulse present			
Healed Ulcer			
Acute Ulcer			
Gangrene			
Bypass/Angioplasty			

Fundoscopy

Examples of acceptable entries for foot examination for hypertensive and diabetic patients are given in Tables 2 and 3.

Table 2 Sample Medical Record Entry for Fundoscopy on a Hypertensive Patient

Exam in the last year:	Y []
N []	

		L	R
Bilat	No		
Photocoagulation		[]	[]
[]		[]	
Virectomy	[]		[]
[]		[]	
Cataracts	[]		[]
[]		[]	
Retina Exam		[]	[]
[]		[]	
Maculopathy		[]	[]
[]		[]	
<u>Retinopathy</u>		[]	[]
[]		[]	
Non proliferative		[]	[]
[]		[]	
Preproliferative		[]	[]
[]		[]	
Proliferative		[]	[]
[]		[]	

Table 3 Sample Medical Record Entry for Fundoscopy for a Diabetic Patient

Exam in the last year: Y [] N []

		L	R
Bilat	No		
Photocoagulation	[]	[]	[]
Virectomy	[]	[]	[]
Cataracts	[]	[]	[]
Retina Exam	[]	[]	[]
Maculopathy	[]	[]	[]
<u>Retinopathy</u>	[]	[]	[]
Stage 1	[]	[]	[]
Stage 2	[]	[]	[]
Stage 3	[]	[]	[]
Stage 4	[]	[]	[]
Stage 5	[]	[]	[]

Nutrition/Diet Review

Nutritional Information found in the medical record are: (1) Nutrition Screen (2) Nutrition Assessment - if performed (3) Nutrition Care Plan, including Meal Plan (4) Diet Education (5) Tolerance.

Nutrition Screen: Information which might be included in the nutrition screen

- ☐ Height and Weight data
- ☐ Diet History (24 hour/3 day recall)
- ☐ Laboratory results
- ☐ Food allergies
- ☐ Nutrient needs
- ☐ Nutrition education needs

The ABCD's of *Nutrition Assessments*

- A - Anthropometric Data
- B - Biochemical Data
- C - Clinical Data
- D - Dietary Data
- O - Other medical conditions which may be of importance

Nutrition Care Plan

SAMPLE NUTRITION CARE PLAN

Client: John Doe

Diet Order:

Problem List

1. Unintentional weight gain of 20 lbs. in 3 months;
2. High cholesterol.

Goals

1. Weight loss of 0.5-1.0 lb. per week until goal is achieved. Maintain weight thereafter
2. Increase fibre intake
3. Decrease fat intake (fried foods, butter, ackee, pear, nuts, cake)
4. Decrease sodium intake, seasoning salt, soya sauce, ketchup, chips
5. Experiment with condiments (onion, scallion, thyme, garlic)/lime
6. Increase exercise. Walk 3 times a week for a minimum of 30 minutes.
7. Eat a variety of foods

Risk Factor History

The recording of 'Compliance with Medication' or 'Occupation' is not sufficient to assign a score of 1 for 'Risk Factor History'. These variables would have to be combined at least one of the other listed variables (*hypertension in pregnancy, gestational diabetes, smoking, drinking, physical activity, overweight/obesity, current medication*) to assign a score of 1. However, if any other of the listed variables are present on their own then a score of 1 may be assigned.

Drug Supply Checklist

- If the storeroom is not air-conditioned or adequately ventilated tick the 'No' response of questions 11 and 16: *Are diabetes/hypertension drugs stored such that they are protected from sun and adverse temperatures?*
- On page four of the checklist - for each of the medications listed tick 'Yes' if the Pharmacist/Pharmacy Technician reports that the listed drug is available (No. 1) and/or if the health centre has run out of the particular medication within the last 12 months (No. 2). **Tick 'Observed' if the auditor observes at least one bottle/box/vial of the medication with a valid expiration date on the pharmacy shelf.**

Important Points to Note

Before you leave the Health Centre ensure that:

- All medical record numbers of patients participating in the exit interviews have been filled in
- All documents have the required information completed.

Note:

- Any queries/unusual occurrences may be recorded in the 'Comments' section of each row or in the longer 'Comments' section at the end of the Audit Form (p. 9).
- **The inclusion of *Family History* or *Height* on external reports (e.g. ECG reports from Heart Foundation of Jamaica) should NOT be used as a substitute for recording the data in patients' medical records. Variables found exclusively on these reports should therefore be treated as 'Not Recorded'.**

- Only visits for Diabetes/Hypertension Review should be included in the assessment and **NOT** visits for dressings/other illnesses.

After the Audit

The Audit Cycle

The nine steps of the audit cycle are given in figure 1

These are:

- Step 1: Selection of the audit topic
- Step 2: Planning the audit. *What audit instrument will be used? Who will be audited? What sample size will be needed?*
- Step 3: Pretest the Audit. *Are there any areas on the instrument which were unclear/need improvement?*
- Step 4: Conduct the Audit
- Step 5: Analyze the Data. *What were the findings? Were there areas for improvement?*
- Step 6: Review the Results. *Feedback data to key stakeholders*
- Step 7: Develop Solutions at Health Region, Health Department and Health Centre levels *(if conducting an in-house audit the solutions developed would be specific to the health centre audited).*
- Step 8: Implement Solutions
- Step 9: Re-audit the Health centre to ensure that *recommendations are adopted and improvements observed in service delivery.*



Figure 1 The Audit Cycle

Analysis of Audit Data

Once all relevant data has been collected and recorded on the audit instrument the data should be analyzed and a report generated. Elements to be included in the report are listed below:

- Introduction: Give reasons for conducting the audit
- Materials and Methods: List the instruments used in the audit exercise
- Data Collection Team: Document/list who (with job title) conducted the audit
- Site Selection: If more than one health centre/institution was audited give an explanation of how the audit sites were selected.
- Sampling: Give a detailed description of sampling methods utilized
- Observation Dates: List the dates of the audits (if more than one health centre/institution audited)
- Data Collection Schedule: Document what type of data was collected on each day of the audit (if the audit required more than one day for completion).

- Problems with Data Collection: (if any) Record any incident which may compromise results
- Data Analysis: List the software used for Data Analysis
- Results: (Use report on pretest of audit instruments as a guide)
- Discussion: Include - *Which areas require improvement? Which areas are worthy of praise? Are clients satisfied with the service given? Do external conditions impact upon service given (low staff to patient ratios, lack of equipment)?*
- Recommendations

Completion of the Audit Cycle

Once the Report is prepared:

- Distribute the report to stakeholders at the regional, health department and health centre level.
- Meet with stakeholders to discuss report recommendations and agree upon a way forward
- Plan a strategy for health centre improvements and implement proposed solutions
- Re-audit the health centre **using the same methodology** and compare with baseline findings (your first audit) to ascertain whether there have been improvements to service delivery.

All steps described above are necessary to complete the audit cycle given in Figure 1. Without the completion of these steps the cycle is broken which diminishes the likelihood of improvements being made.

APPENDIX C: KEY INFORMANT INTERVIEW GUIDE

(1) Welcome & Introduction (2) Overview of the topic (3) First question.

Thank you for taking the time to speak with me about hypertension, hypertension management and the 2014 Hypertension Management Guide. My name is Stacy-Ann Christian. I am with the University of North Carolina Chapel Hill. This project is required for completion of my dissertation. I want to know more about your knowledge, attitudes, and practices related to hypertension, and how the National Hypertension Management Programmes might be improved. I am having discussions like this with 18-20 Key Informants.

Duration: Approximately 45-60 minutes

1. What comes to mind when you hear the words hypertension?
2. Have you read the hypertension guide?

[If the answer is no, proceed to question 7]

3. When did you receive the guide?
4. What are the strengths of the prescribed methods for treating hypertension?
5. What are the weaknesses of the prescribed methods for treating hypertension?
6. Suppose that you could make one change that would make the programme better. What would you do?

7. What are positive success factors to adequately treat hypertension?
8. What are the greatest challenges in treating hypertensive patients?
9. Excluding additional staff, if you could request and gain one additional resource to improve health outcomes for hypertensive patients, what would it be?
10. What does successful treatment of hypertensive elderly look like?
11. How would you measure success?
12. What are your thoughts on peer support programmes for managing chronic non-communicable diseases such as hypertension?
13. What is/ or should be the role of the following personnel caring for hypertensive patients? If you currently have no knowledge of their participation in providing clinical care and support of hypertensive patients, should these roles be utilized to improve treatment and care of hypertensive patients?
- a) Community Health Aide
 - b) Pharmacist
 - c) Nurse
14. Is there anything else you wish to share or think is important to the ongoing dialogue on screening, treating, monitoring, and/or supporting patients with hypertension?

Thank you for your time. Should there be a need to follow-up with a few brief questions, would you be willing to meet with me at your convenience?

APPENDIX D: LITERATURE REVIEW SUMMARY

	Author	Year	Title	Journal	Theme	Sample size	Brief Description
1	Denise Eldemire-Shearer	2008	Ageing: The Response Yesterday, Today and Tomorrow	West Indian Medical Journal	Ageing; Jamaica; Caribbean	Not clearly defined	Population Ageing in Jamaica. Documents policy achievements and responses to population ageing and analyses related to social, economic, health implications, challenges and opportunities.
2	Kenneth James et. Al	2012	Ageing in Place: Implications for Morbidity patterns among older persons-- findings from a cross-sectional study in developing country(Jamaica)	Australasian Journal on Ageing	Ageing in Place; Jamaica; developing countries	Not clear, but was a cross-sectional study of record searches at major hospitals within 1 parish	Description of morbidity patterns among older people, health care resources in a localized population and implications for ageing in place. Results showed that 50% of diagnoses related to cardiovascular disorders and diabetes. Staff to population ratios was low. High prevalence of non-communicable disease coupled with inadequate staffing threatens the likelihood of ageing in place. Secondary prevention and social support services are needed to enhance ageing in place.
3	Denise Eldemire-Shearer, D. Holder-Nevins et al.	2009	Prevention for Better Health among Older Persons Are Primary Healthcare Clinics in Jamaica Meeting the Challenge	West Indian Medical Journal	Ageing	738 older persons; qualitative and quantitative methods; 86 health center staff	Study to determine the level and type of preventive care offered to older persons in primary health care system and to identify barriers to prevention related active. The findings showed that clinical practice was good, there were relatively inadequate levels of prevention care practices and there were barriers to prevention related activities for older person in the primary health care system. Barriers identified include inadequate numbers of staff, overcrowded clinics, rapid staff turnover, high cost of investigations and medication and poor perception of older adults' ability to care for themselves.
4	Denise Eldemire-Shearer, K James, , C. Morris et al	2011	Chronic Disease and Ageing in the Caribbean: Opportunity Knocks at the Door	West Indian Medical Journal	Chronic non-communicable diseases; Caribbean	Qualitative, descriptive; ageing chronic disease	Review of the burden of chronic diseases in the Caribbean and its relationship to ageing and demographic transition, Inter-linkages between the social determinants of health, poverty, ageing and chronic disease are illustrates.
5	Nicholas Banatvala, Liam Donaldson	2007	Chronic Disease in developing countries	Lancet	Chronic Diseases; developing countries	Not specific	Prevention and treatment of chronic disease require strong and sustainable health systems. A new Millennium Development Goal is more likely to lead to more disease specific programming

	Author	Year	Title	Journal	Theme	Sample size	Brief Description
							than to the stronger health systems that are needed. Building advocacy for action through an enhanced chronic disease action group is a better way forward. Epidemiological research is needed to see if programmes will work in the real world. Testing of interventions in 2-3 small countries or regions of larger countries are needed to clarify issues around cost, effectiveness and the multidrug regimen and its safety. 3 cost models for delivering public health intervention in 23 middle income and low income countries to reduce impact of dying early from chronic diseases is under review.
6	Denise Eldemire-Shearer	2008	Health Information Systems in the Caribbean Time for Attention	West Indian Medical Journal	Demographics and need for health informatics	Not specific	There is a need for IT in the Caribbean to facilitate cyberspace links and exchange between institutions. There is not universal formula for the combination a country should use though best should be based on existing data sources and available resources. Basic systems such as registration of births, deaths and causes of death are not sufficient. There are issues of the links within countries and between countries at PAHO and CARICOM level. Improvement of the system is necessary but challenging.
7	TA Samuels; CJ Hospedales	2011	From Port of Spain Summit to United Nations High Level Meeting; CARICOM and the Global NCD Agenda	West Indian Medical Journal	Shifting demographics chronic non-communicable diseases; Caribbean	Not specific	The English speaking Caribbean has the highest per capita burden of chronic non-communicable diseases in the Americas. The Port of Spain NCD Summit Declaration Uniting to stop the epidemic of NCD calls on all governments, civil society and private sector to jointly tackle risk factors.
8	Serow W, Cowart M	1998	Demographic transition and population ageing with Caribbean Nation States	Journal of Cross-Cultural Gerontology	Demographic Shift; Ageing in Caribbean	Not specific	Review and analysis of the role which demographic parameters of fertility and mortality and migration will play on the pace and concentration of ageing within the context of a developing region.
9	Abdulkadri, et al	2009	Economic burden of diabetes and hypertension in CARICOM states	Social and Economic Studies	Shifting demographics chronic non-communicable diseases; Caribbean	4 Caribbean Countries	This paper provides estimates of the economic burden of diabetes and hypertension for 2001 in four Caribbean countries using the Cost of Illness approach. Our findings show that hypertension posed a greater burden than diabetes in the Bahamas, Barbados

	Author	Year	Title	Journal	Theme	Sample size	Brief Description
							and Jamaica while diabetes posed a greater burden in Trinidad and Tobago when absolute costs are considered. When costs are calculated on a per person basis, diabetes represented a higher economic burden across the four countries.
10	Muharaj SR	2011	Healthcare for the Poor and Dispossessed From Alma-Ata to the Millennium Development Goals	West Indian Medical Journal	Jamaican Demographics	Not specific	Health care models recognizing the principle of equity confront the challenge of providing health care for the poor and dispossessed. Alma-Ata is a model of providing health care in a holistic fashion. Refocusing the Millennium Development Goals can accommodate the innovations required to overcome challenges posed by technological, financial, cultural and geographical factors to provide better quality of life for all. In Jamaica the medically indigent lack access to care, are underinsured and impoverished further exacerbated by poor housing, lack of food and clothing.
11	Abegunde,D. , Mathers, C et al	2007	Chronic diseases- The Burden and costs of chronic diseases in low-income and middle income countries	Lancet	Chronic Disease Management; developing countries	23 Countries	This paper estimates the disease burden and loss of economic output associated with chronic diseases—mainly cardiovascular diseases, cancer, chronic respiratory diseases, and diabetes—in 23 selected countries which account for around 80% of the total burden of chronic disease mortality in developing countries. In these 23 selected low-income and middle-income countries, chronic diseases were responsible for 50% of the total disease burden in 2005.
12	Ferguson, T, Tulloch-Reid, M. et al.	2011	Chronic Disease in the Caribbean: Strategies to respond to the public health challenge of the region. What we can learn from Jamaica's experience	West Indian Medical Journal	Chronic Disease Management; Jamaica	Not specific	A Review of the burden of CNCDs in Jamaica reveal that while Jamaica has implemented several policy initiatives aimed at stemming the tide of CNCD epidemic, a comparison of data from two national health and lifestyle surveys 2000/2001 and 2007/2008 revealed an increase in the prevalence of Intermediate hypertension and obesity. Recommended increased funding, continue documentation of CNCDs & risk factors, better assessments of CNCD morbidity and mortality, improve evidence based policy development & structured programmes, make routine

	Author	Year	Title	Journal	Theme	Sample size	Brief Description
							data publicly available and accessible, develop clinical practice guidelines based on local evidence with training and re-orientation of health care providers, aggressive social marketing promotion for healthy lifestyle and healthy behaviors needed, integrate private sector providers and academia in prevention and control programmes, and increase involvement of NGOs, faith based orgs and community groups.
13	T. Ostbyte et al	2005	"Is there Time for Management of Patients with Chronic Diseases in Primary Care?"	Annals of Family Medicine	Chronic Disease Management in Primary Care	Applied guideline recommendations for 10 common chronic diseases of a panel of 2,500 primary care patients with an age-sex distribution and chronic disease prevalence similar to those of the general population	Despite the availability of national practice guidelines, many patients fail to receive recommended chronic disease care. Physician time constraints in primary care are likely one cause. Current practice guidelines for only 10 chronic illnesses require more time than primary care physicians have available for patient care overall. Streamlined guidelines and alternative methods of service delivery are needed to meet recommended standards for quality health care.
14	Shigaki C, Moore C, Wakefield B et al	2010	Nurse partners in chronic illness: Patients' perceptions and their implication for nursing leadership.	Nursing Administration Quarterly	Workforce Development; Use of Nurses in Chronic Care	13 patients ages of 56 -88 years from an outpatient family practice clinic. All had type 2 diabetes & at least 1 chronic comorbid condition using a semi structured interview protocol and analyzed using an iterative process.	To examine how patients with multiple chronic conditions perceive the role of nurses who function in a care management role in a primary health care setting. Three themes emerged: (1) an overwhelming positive regard for the nurse partner, both as a person and a professional; (2) appreciation for the availability of the nurse partner; and (3) a perceived partnership with health care providers. Results provide evidence that the role is appreciated and that nurses provide care that is commensurate with patients' expectations and desires for health care.
15	Resell S., Stokes T, Jackson C et al	2006	Patients' accounts of the differences in nurses' and general practitioners' roles in primary care	Journal of Advanced Nursing	Workforce Development; Nurses in Primary care	28 semi-structured interviews	Participants' views reflected traditional hierarchies in primary care. They preferred to consult with general medical practitioners if they perceived their symptoms to be serious and with nurses for minor symptoms and reassurance. They thought that nurses had more time for them and were more compassionate

	Author	Year	Title	Journal	Theme	Sample size	Brief Description
16	Harris MF, Zwar NA	2007	Care of patients with chronic disease: The challenge for general practice	Medical Journal of Australia	Chronic Disease Management in Primary Care	Review of what has been done thus far in Australia	General practice can provide good quality care for a range of high-prevalence chronic diseases, at the same time providing continuity of care and management of comorbidity. Although the quality of care for patients with chronic disease is improving in general practice, about half of patient care does not meet optimal standards. Factors contributing to the gap between optimal and current practice include the method of financing, the availability of other disciplines to participate in team care, limited engagement with self-management education, and lack of information and decision support systems.
17	Lukewich J, Edge D, et al		Nursing Contributions to Chronic Disease Management in Primary Care.	The Journal of Nursing Administration	Workforce Development; Use of Nurses in Chronic Care	Not specific	Nurses in primary care reported engaging in chronic disease management activities but to different extents depending on licensure. Chronic disease management strategy implementation was not uniform across primary care practices. However, there is potential to optimize and standardize the nursing role within primary care and improve implementation of chronic disease management strategies.
18	Hegeny D., Paterson E. et al	2013	The Feasibility, acceptability and sustainability of nurse-led chronic disease management in Australian general practice: The perspective of key stakeholders	The International Journal of Nursing Practice	Chronic Disease Management in Primary Care	Not specific	Nurses provide chronic disease management that was acceptable, feasible and sustainable. The collaborative involvement of doctors was intrinsic to patient acceptability of nurse-led care that facilitated job satisfaction and therefore retention and growth within this nursing specialty
19	Halcomb EJ, Davidson PM et al	2008	Nurses in Australian general practice; implications for chronic disease management	Journal of Clinical Nursing	Workforce Development; Use of Nurses	284 practice nurses completed a postal survey during 2003-2004.	Practice nurses are a clinically experienced workforce whose skills are not optimally harnessed to improve the care of the growing number of people with chronic and complex conditions. Relevance to clinical practice. Study data reveal a need to overcome the funding, regulatory and inter-professional barriers that currently constrain the practice nurse role. Expansion of the practice nurse role is clearly a useful adjunct to

	Author	Year	Title	Journal	Theme	Sample size	Brief Description
							specialist management of chronic and complex disease, particularly within the context of contemporary policy initiatives.
20	Higgenbottom G	2008	"I didn't tell them. Well, they never asked". Lay understandings of hypertension and their impact on chronic disease management: implications for nursing practice in primary care.	Journal of Research in Nursing,	Chronic Disease Management in Primary Care	Not specific	With an increased research focus on ethnicity and mediation of ethnicity on health and illness experience this paper examined the lay understanding that may affect chronic disease management and the steps primary care nurses may take to optimize care delivery. The African-Caribbean population in particular was examined. Concluded that primary care nurses must recognize and take account of the lay explanations of health illness that patients hold. Failure to do so may compromise effective care giving.
21	Kennedy Cruickshank, J, Mbanya, JC et al	2001	Hypertension in four African-origin populations: current 'rule of Halves' quality of blood pressure control and attributable risk of cardio-vascular disease.	Journal of Hypertension	Chronic Disease Management; Minority populations	Assessment of the burden from high blood pressure and the current status of its detection and management in 4 African-origin populations at emerging or high cardiovascular risk.	With mortality risk now higher from non-communicable than communicable diseases in sub-Saharan Africa and elsewhere, systematic measurement, detection and genuine control of hypertension once treated can go hand-in-hand with other adult health programmes in primary care. Cost implications are not great. The data from this collaborative study suggest that such efforts should be well rewarded.
22	Brown Morris J	2006	Hypertension and Ethnic Group	BMJ	Chronic Disease Management; Minority populations	Not specific	Are there ethnic differences in the pathogenesis of hypertension and are these sufficient to influence choice of treatment? There are two types of hypertension. Until recently, however, the only hypertension guidelines recognizing the need to tailor initial treatment according to type of hypertension was from the British Hypertension Society. Author covered known differences in risks and outcomes between ethnic groups. But here the similarities should be emphasized more than the differences. In all groups, the message of what matters is simple—"the blood pressure, stupid." Differences in the responses of blood pressure to treatment have yet to be studied in most ethnic groups.

	Author	Year	Title	Journal	Theme	Sample size	Brief Description
23	White J, Brewer D, Stockton D et al		Nutrition in Chronic Disease Management of the Elderly	Nutrition in Clinical Practice	Chronic Disease Management; elderly	Not specific	Older American experience chronic disease at rates well about other segments of society. Rates of health service use is 2-3 time that of younger population. The routine incorporation of nutrition screening and intervention into chronic disease management protocols will lower health care services usage, decrease health care costs and help relieve the burden of human suffering experienced by older Americans with chronic disease and improve quality of life for seniors.
24	Lee JS, Frongillo EA Jr.	2001	Understanding needs is important for assessing the impact of food assistance programme participation on nutritional and health status in US elderly person.	Journal of Nutrition	Chronic Disease Management; elderly	Two cross-sectional and one longitudinal data sets were used: Third National Health and Nutrition Examination Survey (1988–94), Nutrition Survey of the Elderly in New York State (1994) and Longitudinal Study of Ageing (1984–1990).	This study aimed to assess the impact of food assistance programs on nutritional and health status of nutritionally needy elderly persons. Across three data sets, food insecure elderly persons had poorer nutritional and health status than food secure elderly persons. Contrary to the hypotheses, among food insecure elderly persons, food assistance participants had similar or poorer nutrient intakes, skinfold thickness, nutritional risk, self-reported health status, hospitalization and mortality than nonparticipants. Food secure participants had similar nutritional and health status as food secure nonparticipants. Lack of information on the dynamic nature and changes in needs with program participation in the three data sets likely did not allow accurate estimation of the impact of food assistance participation. Different study designs, as well as theory and knowledge of needs that clarifies need status and its change within each older individual across an appropriate time interval, are necessary to accurately assess impacts of food assistance programmes.
25	Erdem E, Korda H.		Self-Management Programme Participation by Older Adults with Diabetes, Chronic Disease Self-Management Programme and Diabetes Self-	Family Community Health	Chronic Disease Management; Elderly	Not specific	Participation and completion of diabetes self-management programmes were examined. It was found that completion is more likely in diabetes management programmes than general chronic disease self-management programmes coupled with diabetes self-management. Small class sizes were important. Also

	Author	Year	Title	Journal	Theme	Sample size	Brief Description
			Management Programme.				found that those suffering depression were less likely to complete programme. More research is needed on workshop availability, selection, health and behavioral outcomes and participant complete experience.
26	Lorig K, Ritter PL, Villa F, Piette JD	2001	Chronic Disease Self-Management Programme: 2-Year Health Status and Health Care Utilization Outcomes	Medical Care	Chronic Disease Management		Assessment of the 1- and 2-year health status, health care utilization and self-efficacy outcomes for the Chronic Disease Self-Management Programme (CDSMP). Compared with baseline for each of the 2 years, ER/outpatient visits and health distress were reduced. Self-efficacy improved. The rate of increase is that which is expected in 1 year. There were no other significant changes. A low-cost programme for promoting health self-management can improve elements of health status while reducing health care costs in populations with diverse chronic diseases.
27	Lorig K et al	2008	Spanish diabetes self-management with and without telephone reinforcement	Diabetes Care	Chronic Disease Management	A total of 567 Spanish-speaking adults with type 2 diabetes were randomized to a usual-care control group or 6-week community-based, peer-led SDSMP.(Spanish Diabetic Self-Management Programme)	Purpose was to determine 1) whether participants in the Spanish Diabetes Self-Management Programme (SDSMP), when compared at 6 months to randomized control subjects, would demonstrate improvements in health status, health behaviors, and self-efficacy; and 2) whether SDSMP participants receiving monthly automated telephone reinforcement would maintain improvements at 18 months better than those not receiving reinforcement. The SDSMP demonstrated effectiveness in lowering A1C and improving health status. Reinforcement did not add to its effectiveness. Given the high needs of the Spanish-speaking population, the SDSMP deserves consideration for implementation.

	Author	Year	Title	Journal	Theme	Sample size	Brief Description
28	Bodenheimer T, Wagner E. Grumbach K.	2002	Improving Primary Care for Patients with Chronic Illness: The Chronic Care Model, Part 2	JAMA	Chronic Disease Management	Literature review of 39 studies	Review of research showing the extent chronic care model can improve the management of chronic conditions. Majority of studies showed improvement in outcome measures, reduced cost and lower use of health care services. Chronic care model has potential to improve care and reduce costs but there are obstacles.
29	Swaby P, Wilson E, Sue-Ho R, Pierre R.	2001	Chronic Disease management in the Jamaican Setting: Hope worldwide Jamaica's experience	Papua New Guinea Medical Journal		1091	The prevalence of hypertension and diabetes in Jamaica is very high. Hypertension is present in 3 out of 10 Jamaicans over the age of 30 years. The records between January 1999 and December 1999 of 1091 chronic disease patients aged >30 years were reviewed. The average recorded age of the patients was 64 years and 82% among them were females. 60% had hypertension, 16% had diabetes and 24% had both diabetes and hypertension. The level of blood pressure and blood glucose control was inadequate despite the provision of regular monitoring, surveillance and improved access to medication. It is perceived that poor socioeconomic conditions, lack of education, cultural beliefs and some other factors continue to militate against improved compliance and control.
30	Bourne P, McGrowder D	2009	Health status of patients with self- reported chronic diseases in Jamaica	North American journal of Medical Science		Sub-sample of 714 from cross-sectional survey of 6789 Jamaicans	Approximately one-quarter 25.3%) of the sample reported that they had poor health status. Thirty-three percent of the sample indicated unspecified chronic diseases: 7.8% arthritis, 28.9% hypertension, 17.2% diabetes mellitus and 13.3% asthma. Significant predictors of poor health status of Jamaicans who reported being diagnosed with chronic diseases were: age of respondents, area of residence and inability to work. Majority of the respondents in the sample had good health, and adults with poor health status were more likely to report having hypertension followed by diabetes mellitus and arthritis. Improvement in chronic disease control and health status can be achieved with improved patient education on the importance of compliance, access to more effective

	Author	Year	Title	Journal	Theme	Sample size	Brief Description
							medication and development of support groups among chronic disease patients.
31	Bourne P, McDaniel S, Williams M, Francis C, Kerr-Campbell M, Beckford O.	2010	The Changing faces of diabetes, hypertension and arthritis in a Caribbean population	North American Journal of Medical Science	Ageing; NCD	Sample of 592 respondents from 2002-2007 Jamaica Survey of Living Conditions	The prevalence of particular chronic diseases increased from 8 per 1,000 in 2002 to 56 per 1,000 in 2007. The average annual increase in particular chronic diseases was 17.2%. Diabetes mellitus showed an exponential average annual increase of 185% compared to hypertension (+ 12.7%). The demographic transition in particular chronic conditions now demands that data collection on those illnesses be lowered to < 15 years. This research highlights the urgent need for a diabetes campaign that extends beyond parents to include vendors, confectionary manufacturers and government, in order to address the tsunami of chronic diseases facing the nation.
32	Palloni A., Pinto-Aguirre G, Pelaez M	2002	Demographic and health conditions of ageing in Latin America and the Caribbean	International Journal of Epidemiology	Caribbean; Ageing	Historical Population Study of the Caribbean & Latin America	The region is ageing prematurely, the composition by health and disability status may take a turn for the worse and become unfavorable sooner rather than later and family and kin networks are losing ground before societal mechanism to effect institutional transfers are securely in place.
33	Adams P, Carter A.	2010	Diabetes and hypertension guidelines and the primary health care practitioner in Barbados; knowledge attitudes, practices and barriers-a focus group study	BioMed Central	Caribbean; NCD	8 public sector polyclinics attended by 63 persons	Practitioners generally thought they gave a good quality of care. Current guidelines were considered by some to be outdated, unavailable, difficult to remember and lacking in advice to tackle barriers. Practitioners thought that guidelines should be circulated widely, promoted with repeated educational sessions, and kept short. Patient oriented versions of the guidelines were welcomed. Patient factors causing barriers to ideal outcome included denial and fear of stigma; financial resources to access an appropriate diet, exercise and monitoring equipment; confusion over medication regimens, not valuing free medication, belief in alternative medicines, and being unable to change habits. System barriers included lack of access to blood investigations, clinic

	Author	Year	Title	Journal	Theme	Sample size	Brief Description
							equipment and medication; the lack of human resources in polyclinics; and an uncoordinated team approach. Guidelines need to be promoted repeatedly, and implemented with strategies to overcome barriers. Their development and implementation must be guided by input from all providers on the primary health care team.
34	Connel P, McKevitt C, and Wolfe C	2004	Strategies to manage hypertension: a qualitative study with black Caribbean patients	British Journal of General Practice	NDC; Minority Health	19 black Caribbean patients in inner city London	19 black Caribbean patients with hypertension were interviewed. Participants reported physical symptoms for elevated blood pressure; a minority relied on symptoms to determine their medicine use. A majority of participants equated 'normal' blood pressure readings with being cured and with no need for prescribed medicine. All participants had been prescribed anti-hypertension medication, and seven reported taking medication as prescribed. Those who did not reported diverse and dynamic patterns of medication consumption. Some who had achieved normal blood pressure equated this with being cured and stopped medication, resuming when diagnosed with high blood pressure. Some modified their use of tablets according to bodily symptoms that they felt indicated higher or lower blood pressure. Some stopped or reduced medication because of unwanted effects and almost half of the participants used Caribbean 'bush' remedies. These findings suggest that some patients are making reasoned decisions about blood pressure management, drawing on medical information, their own bodily experiences of illness and sociocultural notions and practices. However, this may lead to medication use that diverges from that which is recommended. This study indicates a continued need to address these patients' perspectives and develop and evaluate new strategies to achieve hypertension control in this group.

	Author	Year	Title	Journal	Theme	Sample size	Brief Description
35	Eldemire-Shearer D	2012	From Ageing Research to Policy & Practice	West Indian Journal of Medicine	Caribbean; Ageing	Policy Paper	<p>Policy research has been recognized as being able to provide decision-makers with recommendations and possible actions for solving issues. Several types of research have emerged involving both primary and secondary sources of data. Several skill sets are needed if policy research is to be effective ie result in a policy. Policy researchers need to be able to transcribe the findings into simple messages, to be able to suggest programmes and interventions and to be effective communicators. Ensuring the acceptance and transfer of research into policy is a complex one involving political awareness and close engagement with policy-makers (6, 7). Policy research facilitates the understanding of age-specific key issues especially around determinants and community-specific potential strategies to address them. Involving the communities in the research sensitizes them to possible interventions; community, in this regard, is not restricted to geographical areas. This paper examines the contribution of The University of the West Indies (UWI) driven research to ageing policy in Jamaica. Two aspects of research have played significant roles: the research findings themselves but equally the exposure that came from presenting at international meetings, which, in time, influenced the research.</p>
36	Kearney P, Whelton M, Reynolds K, Whelton P, He J	2004	Worldwide prevalence of hypertension: a systematic review	Journal of Hypertension	Hypertension	Literature published between 1980-2003	<p>Overall, 26·4% of the adult population in 2000 had hypertension (26·6% of men and 26·1% of women and 29·2% were projected to have this condition by 2025. The estimated total number of adults with hypertension in 2000 was 972 million; 333 million in economically developed countries and 639 million in economically developing countries. The number of adults with hypertension in 2025 was predicted to increase by about 60% to a total of 1·56 billion</p>

	Author	Year	Title	Journal	Theme	Sample size	Brief Description
37	Powell D, Price A, Burns F, McConnell E, Hendrix C, McWhinney-Dehaney, Lombardi M	2011	Pillars for the Care of Older Persons in the Caribbean	Public Health Nursing	Caribbean; Ageing;		Health and social service professionals, governmental organizations, elderly persons, and others from across the English-speaking Caribbean countries developed the Pillars framework to address the growing elderly population and with an aim to increase the number of healthy and active years of life. The Pillars framework consists of four interrelated pillars organized across multiple sectors of society: primary care with care management; integrated services coordination; population-based health promotion and disease prevention; and planning and accountability. Pillars is an envisioned integrated system of information technology that will increase community-based services delivery, inter-professional communication and coordination, and will aggregate data with all identifiers removed for surveillance, planning, forecasting, policy making, evaluation, and research. The framework facilitates communication and feedback among care providers; making health management more efficient and effective, while encouraging diversity of primary care providers.

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