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## Primary health care in Dominica

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## SUMMARY

This thesis aims to celebrate the successes and to explore ways forward of the primary health care services in Dominica, a small developing island state in the Eastern Caribbean.

Before amplifying the general aims of the studies, *chapter 1* introduces the reader to the concept of primary health care (PHC), defined at the Alma Ata international conference on PHC in 1978, and the developments in respect to the concept of PHC since. In the early 1980s the existing basic health care services in Dominica were successfully restructured into primary health care services. The general aims of this thesis are to assess both key elements essential for this success, as well as shortcomings and limitations of the present primary health care services. The use of the International Classification of Primary Care (ICPC) allows to assess the morbidity patterns encountered at the different levels of the health care services. The studies presented in the thesis examine the status of the health care services within the epidemiologic and socio-economic transition. Future challenges for the primary health care services in Dominica are examined and ways forward explored.

**Part I** introduces Dominica, the Dominican health care services and the Marigot health district, where the studies presented in this thesis were conducted. *Chapter 2* illustrates the impressive beauty of the island in the words written by dr. John Imray in 1848. Approximately 45 by 25 kilometers, Dominica has two central mountain ranges up to 1500 m high, with steep cliffs and deep valleys criss-crossed by countless rivers and streams and covered with a dense lush vegetation, displaying all varieties of green.

The history of the island is briefly reviewed in *chapter 3*. Nature has always played a major role in the history of the island. Its ruggedness made Dominica one of the last strongholds for the Carib indians in their struggle against the colonizing forces from Europe. After the British colonized the island at the 18th century, the number of West Africans, forced to work as slaves on the plantations, increased rapidly. Following the abolition of slavery, Dominica developed in a largely agricultural society of independent small farmers. Over the last decades, bananas have become the mainstay of agriculture. International banana trade wars, fought over the heads of small and vulnerable banana producing countries like Dominica, threaten the continued existence of the banana industry. The 1991 census in Dominica counted a total population of 71.800. Life expectancy at birth is 74 years for men, and 80 for women. *Chapter 4* describes the structure of the health care services in Dominica. Four levels of care are identified: type I health centres, type III health centres, the polyclinic and the national referral hospital.

Primary health care is delivered at the first two levels. Dominica has been divided into seven health districts, each serving 5-10 villages. Every village in the district has a type I health centre, staffed by a district nurse, a trained nurse/midwife. The district nurse provides a range of primary care services to the villagers, from maternal and child health care to wound suturing. The district nurses liaise with the type III health centre in the district, where a medical officer and supervisory staff is based. The district is staffed by a multidisciplinary district health team, which constitutes of district nurses, health visitor, district medical officer (DMO), family nurse practitioner (FNP), dental therapist, pharmacist, environmental health officer (EHO), driver, cleaners, caretakers and yardmen. Secondary health care is provided

at the outpatient clinics of the polyclinic at the national referral hospital, the Princess Margaret Hospital in Goodwill. Some specialists, notably the psychiatrist and the ophthalmologist, conduct outpatient services in the district. In addition to these public health care services, there is a number of private practices, most of which are in Roseau.

*Chapter 5* describes the Marigot health district. The population of the district numbers about 8,500. The type III health centre in Marigot is a small district hospital, with 26 beds and a 24 hour casualty service. The district runs five health centres, serving Calibishie, Woodford Hill, Wesley, Marigot, Concord, Atkinson, Bataca and Crayfish River. The latter three villages are part of the Carib Reserve.

*Chapter 6* illustrates the setting of the thesis by a description of a day's work of the district medical officer.

**Part II** deals with the health care services utilization as well as the morbidity patterns encountered at the different levels of the health care services in the Marigot health district.

*Chapter 7* gives an overview of the utilization rate of health care services by the population of the Marigot district in 1991-1992. Figure 7.1 shows that the individual levels of the health care pyramid deal with the majority of cases presented to them, referring only a minor percentage to the next higher level of care. Of all cases presented to the nurses at the base of the pyramid, 3% is referred to secondary care. Private health care services are used by a considerable proportion of the population.

*Chapter 8* illustrates some of the popular medical beliefs and practices in Dominica. The longstanding tradition of self care in Dominica effectively results in the use of a variety of home remedies of most non-acute conditions, rather than consulting a doctor. The chapter argues that, like other aspects of Dominican cultures, the present day popular practices and beliefs originate from the blend of West African, European and local Carib practices and beliefs in the 17th and 18th century. Existing popular medical practices and beliefs vary per individual and are not static, but alter subject to the influences of, amongst others, information from the mass media, education by health care workers and rumours spreading in the community.

The work of the district nurses, which constitutes the base of the primary health care services, is described in *chapter 9*. Prevention constitutes the lions' share of their work: 40% of their encounters were check-ups for hypertension, diabetes, immunization and pregnancy. The district nurses dealt independently with the vast majority of all contacts, only 20% were referred to the DMO. In addition to being a nurse, every nurse had family and other obligations. Several measures to counteract the discouragements to the motivation and job satisfaction of the nurses are suggested, like intensified post-graduate training with diversified certification and upgrading of wages.

*Chapter 10* assesses the utilization and morbidity patterns encountered at the casualty department of the Marigot Hospital, which operates on 24-hour basis. Main reasons to attend the casualty were skin injuries and dressings, abdominal pain, diarrhoea and vomiting. In addition to care for various major and minor conditions, the casualty department is also used as health centre, for dressings and the weekly clinics of the DMO.

*Chapter 11* analyses the encounters of the district medical officer. In this chapter, the use of the ICPC facilitates the analysis of episodes of care. During the study year, the DMO attended to 40% of the district population, at an average rate of 0.9 encounter per capita per year. The

attendance rate was highest in the elderly population, 63% of the age group 65-74 years, and 77% of those aged 75 years and over. The more distant the people lived from Marigot, the less likely they visited the DMO. More women than men were attended to, especially in the age groups over 15 years of age. About 60% of the encounters were at regular clinics, the remaining 40% were after hours or "emergency" encounters. Follow-up visits for diabetes and hypertension were the most common reasons for encounter. The most frequently registered episodes were hypertension, gastritis, upper respiratory tract infections, type 2 diabetes and "no disease". The latter refers to administrative encounters. Compared to other studies on morbidity in primary care in the Caribbean, the morbidity pattern is largely similar; the differences are mainly attributable to the different structure of the different health care services.

*Chapter 12* deals with the admissions to the Marigot hospital, a 23-bed district hospital with little more facilities than beds and nursing care. The 608 registered admissions were mainly for paediatric and medical conditions: hypertension, diabetes mellitus, asthma, seizure disorders and skin infections, gastro-enteritis and respiratory tract infections. Surgical and gynaecological conditions were generally referred directly to the PMH. The strong points of the Marigot Hospital include adequate care for most common medical and paediatric conditions, terminal care and post-operative care and rehabilitation.

*Chapter 13* reviews the referrals from the district to secondary care. Of all referrals, 260 were directly admitted to the wards of PMH, 68 referred to the casualty department, and 229 were given an appointment at the outpatient department. Surgical cases, especially fractures and acute abdomen, were the most common reasons for referral to the wards. Few referral notes arrived back in the district. Half of the records of patients referred to the outpatient department could not be traced. Probably a substantial number of patients referred to the outpatient department did not keep their appointment. A lance is broken for the expansion of the existing district outreach program of specialist care, which would benefit both the continuity of care for less mobile population, like the elderly as well as the integration of primary and secondary care.

**Part III** deals with the primary health care programs. In *chapter 14*, the backbone of the primary health care services, the *maternal and child health program* (MCH) is discussed. The most significant improvements in health status of the population of Dominica in recent decades were the dramatic reduction in infant and 1-4 years mortality, and to a lesser extent, the reduction in perinatal mortality. Gastro-enteritis, once responsible for many deaths in young children, has become a condition of minor importance, which is generally treated at home. Malnutrition has changed from undernutrition to obesity.

The MCH was introduced in the early 1980s, and constitutes of several components: prenatal care, deliveries, puerperal care, child care, including immunizations, school health, family planning, Pap smears and a home-visiting program. The MCH is supported by a health information system (HIS) and two manuals on administrative and technical management of the program. The HIS allows for a annual cycle of assessment, planning, program delivery, monitoring and evaluation of the programs.

The MCH aims to provide prenatal care from a gestational period of 16 weeks or less, and to identify high risk cases for specialist care. Less than half of pregnancies are attended to below 16 weeks. This has been attributed to a desire of the pregnant women to conceal their



pregnancy to the community until a later date. Over the last years, more and more deliveries are taking place at the labour ward of the Princess Margaret Hospital. This no-risk approach has been largely consumer driven. Presently, the rate of deliveries conducted by the district nurses averages 7 per year. If this trend continues, the orientation of the work of the district nurses might shift to include care of chronic diseases, the elderly and other vulnerable groups in society.

Coverage for puerperal care is nearly 100% with an average of three puerperal visits per client. The child care program is supported by the child health passport, a patient held medical record, which has been introduced in 1980. Whenever a child is brought to medical attention, whether at the health centre, at the DMO's clinic, at PMH or at a private doctor, the CHP is brought along for completion by the attending professional. In this way, the CHP facilitates continuity of care between primary, secondary and private health care. Following the introduction of the MCH, immunization coverage (Diphtheria, Pertussis, Tetanus, Oral Polio Vaccine, Bacille Calmette-Guérin, Measles, Mumps and Rubella) has been constantly just below 100% over the years.

In the Marigot district, the school health program had been dormant for a few years when there was no FNP working in the district. The program aims to provide check-up and screening of children entering primary school, in the middle classes and school leavers. An adolescent health program, especially focusing on education, is being developed.

The district nurses provide some thirty to forty percent of the women in the district with family planning methods. Contraceptive pills are used mostly, closely followed by condoms and injectables. The use of condoms is also promoted as a way to prevent the transmission of AIDS and other sexually transmitted diseases. Supply of contraceptives like the pill and injectables are vulnerable as they largely depend on external funding.

*Chapter 15* demonstrates that effective psychiatric care can be provided to the community by utilizing and tapping into the existing primary care services. In this framework of care, islandwide some 400 chronic psychiatric patients can be monitored and cared for in the community and the admission rate to the Acute Psychiatry Unit remains low.

*Chapter 16* deals with the primary dental health program, which was introduced in the early 1990s, and serves as another example of how the structure of the primary health care services facilitates the development of other population oriented health programs. This program is carried out by dental therapists, with the support of visiting dentists from Roseau. It focuses on preventive and comprehensive dental care of especially children.

*Chapter 17* addresses issues related to environmental health, another program integrated within the primary health care services. The EHO's have a role in monitoring drinking water quality, liquid and solid waste management, vector control, food safety, occupational health and disaster preparedness. One of the major achievements of the environmental health department has been the ongoing islandwide distribution of pit latrines. This pit latrine consists of a concrete slab and seat, which are to be erected on a pit dug out by those applying for the latrines on the directions of an EHO. Newly developed latrines even allow for upgrading to a septic tank. Increasing amounts of solid waste pose a problem, with only one sanitary landfill available. The vector control program, supported by the vector control unit in Roseau, concentrates on mosquitoes, vectors of amongst others dengue. The food safety program was introduced in the 1990s and focuses on education of registered food handlers. A comprehensive occupational health program has not been developed. Safety procedures in

handling pesticides by farmers should be a major focus of such a program. Disaster preparedness is a perpetual issue in the Caribbean, which is prone to many possible disasters, for example hurricanes, earthquakes and volcanic eruptions.

**Part IV** assesses the health status of the elderly and "shut-ins". Presently, about 8% of the population in Dominica is over 65 years of age. Population forecasts expect a significant increase of the number of elderly in the next decades. In *chapter 18* the health status of a representative sample of elderly in the Marigot district is described. Most elderly were well and took care of themselves, those who were dependent on care were mostly looked after by female relatives. Increased female employment and migration might put increasing pressure on limited available professional and institutional care. In the elderly over 75 years of age, the health status decreased considerably. Almost 40% of the study population were known with hypertension, another 15% had an elevated blood pressure on examination. Diabetes mellitus was present in 15%. A fifth of the study population had a visual acuity of 0.1 or lower, and 10% an elevated intraocular pressure (IOP). Fifty percent of the study population who were on medication, used this in another way than prescribed. Education, diagnosis at an early stage and accurate treatment at an early stage of hypertension, diabetes and glaucoma may prevent or at least delay the development of complications of these conditions. The disabilities resulting from those complications confine the elderly to their homes, to become "shut-in". About 10% of the elderly were shut-in. *Chapter 19* describes the health status of the shut-ins in the Marigot district. About 80% of this group is aged over 65 years, about 10% were in their childhood. Most shut-ins were more or less independent in self care, but limited in general activities. Over 80% of the shut-ins lived with their families, about 90% were taken care of by mostly female relatives. Basic necessities of life, like clean clothes, meals and sleeping accommodation was taken care of for two-thirds of the shut-ins. Most of the elderly were shut-in because of musculo-skeletal disorders (especially osteo-arthritis), blindness, neurological and mental disorders, stroke and combinations of these. Other than basic activities of daily living, the elderly shut-ins were at a low level of activity. A considerable number was bothered by emotional problems. The younger group were mostly shut-in because of cerebral palsy and convulsive disorders with or without mental retardation. They form a special group, especially as little was done to encourage them to develop at least some degree of independence. In order to optimize care and quality of life for both the elderly as well the young shut-ins, we suggest the introduction of a special primary health care program aiming to ensure that "shut-in" in one's home does not automatically imply "shut-out" of daily life.

**Part V** deals with some medical conditions and problems commonly encountered in primary health care.

*Chapter 20* assesses the care and co-morbidity of hypertension in the Marigot district. Population based studies estimate the prevalence of hypertension in the adult population at 20%, and to be more common in women. At the clinics of the DMO/FNP 7% of the adult district population is known with hypertension. A considerable number of people with hypertension remain undiagnosed. In this study, the management of hypertension takes up 15% of the workload of both the district nurses and the DMO/FNP. The development of hypertension is determined by a complex mixture of genetic and environmental influences.

The results of this study confirm that cardiomegaly, heart failure, renal failure and stroke are the most frequent complications of hypertension in West Indians of African descent, and that myocardial infarction is rather uncommon. In order to decrease the rate of complications of hypertension, primary health care needs to be actively engaged in screening, diagnosis and treatment of hypertension.

*Chapter 21* assesses care and co-morbidity of type 2 diabetes, which has become one of the most common chronic diseases in the Caribbean over the past decades. This study used both the data registered at the individual levels of care as well as the results from a survey of known diabetic patients in the district. Type 2 diabetes accounted for 7% of all contacts at the clinics of the district nurses, 8% of the clinics of the DMO/FNP and 3% of referrals to secondary care. Including co-morbidity, these figures were 20% for the DMO/FNP clinics and 10% for referrals to secondary care. Obesity and insidiously developing complications like ophthalmological complications and factors favouring the development of diabetic foot were common in the known diabetic patients, but underregistered in daily practice. The prevalence of cardiovascular complications of diabetes was relatively low. It is concluded that primary health care is the most appropriate level of the health care services for the management of diabetes. The management of diabetes should primarily aim to prevent the development of complications. Quality of care could improve with the introduction of a protocol for the management of diabetes, emphasizing a systematic approach to prevention, diagnosis, treatment and follow-up.

*Chapter 22* with sickle cell disease (SCD), a chronic condition of increasing importance. It has become clear that the clinical expression of SCD varies from repeated severe complications and early death to very mild courses with survival beyond the age of 70 years. Neonatal diagnosis of SCD by cord blood screening followed by a structured follow-up program has proven to significantly reduce early mortality because of infection, aplastic crisis and acute splenic sequestration. The incidence of SCD in Dominica is estimated at 1 in every 200 newborns. Due to the absence of a neonatal screening program, not all SCD patients are known at the health services. Optimal management of SCD requires an integrated approach which joins the qualities of primary and secondary levels of care.

*Chapter 23* analyzes one of the most frequent registered condition in primary care: symptoms and complaints related to the upper gastro-intestinal tract. Here, the difficulty for the health care provider lies in distinguishing serious pathology from harmless, usually self-limiting conditions, which are commonly referred to as "gas". The results of this study suggest that a patient presenting with upper abdominal symptoms and complaints, and suggesting that these symptoms are caused by a "gas", may be reassured that this indeed may very well be the case, provided that alarming symptoms, indicating the presence of serious disease are absent.

*Chapter 24* describes the slowly decreasing importance of geohelminthiasis in Dominica. Especially hookworm and trichuris are associated with severe disease. The geographic distribution of geohelminthiasis is patchy. Control at community level requires five elements: chemotherapy, sanitation, health education, community participation, and monitoring and evaluation. Cyclical chemotherapy targeted at children, who are not only at greatest risk of morbidity from helminth infections, but also a major source of contamination, has been proven to reduce the prevalence of geohelminthiasis in the whole population.

*Chapter 25* demonstrates that gastro-enteritis, from being a major cause of morbidity and mortality, has become a minor condition, which can generally be treated at primary care level.

The development of oral rehydration therapy (ORT) in the 1970s has proven to be a revolution in the treatment of diarrhoeal diseases. The mortality rates of gastro-enteritis dropped from 260 in 1952 to 0 in 1986. The data suggest that in addition to general socio-economic improvements, the combination of ORT with the development of the primary health care services in Dominica has contributed to this enormous improvement. In the one year registration period, 296 cases of gastro enteritis presented at the primary care nurses and the casualty of the Marigot Hospital, of whom 143 were assessed by the DMO/FNP, 44 admitted to Marigot Hospital to commence ORT and only 1 referred to PMH.

*Chapter 26* deals with the impact of accidents and injuries on primary health care. Skin injuries, mostly received while working in agriculture, made up 11% of the encounters of the district nurses and 17% of the nurses at the casualty department. Only 5% of these were seen and treated by the DMO. Of the 108 more serious cases, 65% resulted from traffic accidents, 17% from fights and 15% from falls. Of those involved in traffic accidents, 20% fell of a moving vehicle and 17% were pedestrians. Of the 108 more serious injuries, 30% were referred to the PMH. Forty percent of the people attended to for conditions related to accidents and injuries were males aged 15-44 years. The high rate of minor skin injuries presented suggests that self-care of simple injuries should be encouraged. The nature of severe injuries presented suggests that the most effective ways to prevent accidents and injuries may be safety measures at work, and legislation mandating the use of seat belts, regulating the practice of *riders* in the unprotected open back of pick-ups and trucks, the use of breathalysers and further improvements in road structure and lay-out.

*Chapter 27* discusses the overall results of the studies presented in this thesis. The primary health care services successfully combine easily accessible comprehensive health care services with a number of programs directed to the needs of selected groups of the population. Some key elements of a successful primary health care delivery system are formulated: unanimity of all participants on the direction of the services, integration of PHC in the community, orientation on the community, a comprehensive health information system, decentralization and integration of services at district as well as at central level and finally idealism, commitment and leadership.

Some shortcomings of Dominica's PHC services are the fact that many take PHC for granted, the marginality of community participation and the perceived pressure from above to implement yet again another new program. Decentralization of the services is limited to executing programs, the district teams have little or no administrative responsibilities. There is a lack of integration between primary and secondary care as well as between public and private health care. Finally, the manuals supporting PHC need to be upgraded and expanded. The socio-economic and epidemiological transition will result in an increase of elderly, while the number of caretakers will decrease, the latter largely because of female migration. A reduced demand for maternal and child health care may make room for the increasing demand for care of chronic diseases. The challenge in addressing obesity, hypertension and diabetes lies in reducing the number of complications of these conditions, such as stroke, renal failure and heart failure, while maintaining a low rate of myocardial infarctions.

The integration of primary and secondary care will be facilitated by the development of manuals for the management of chronic diseases, prepared by committees with members of all disciplines and health care levels involved.



In conclusion, the primary health care services have been instrumental in many improvements in health care in Dominica. Strengthening primary health care will prove the most effective way to address the many health care challenges facing Dominica, and to further develop a vital and vibrant health care delivery services, which can meet the health care needs of the nation well into the 21st century.