A PREVENTATIVE APPROACH TO HEALTHCARE (CHRONIC NON-COMMUNICABLE DISEASES) IN TRINIDAD AND TOBAGO

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Abstract: *Purpose*: To present a descriptive framework that will provide the foundation for future exploratory research on the socioeconomic impact of Chronic Non-Communicable Diseases (CNCDs) in Trinidad and Tobago. The paper also attempts to initiate discussions regarding the placement of greater emphasis on preventative health care.
Methodology: Time series data was used to paint a picture of the changing epidemiological profile within the country. Secondary data was also utilised to illustrate changes in policy within the country. Data was obtained from various key stakeholders inclusive of Government Ministries and the Central Statistical Office of Trinidad and Tobago.
Findings: CNCDs are the leading cause of death in Trinidad and Tobago and attempts have been made to address these issues. Recurrent expenditure continues to constitute the majority of health sector spending with programmes like the Chronic Disease Assistance Programme (CDAP) directly targeting the rise of CNCDs. However, at the time of writing, there appeared to be very few linkages between the various relevant stakeholders to facilitate the combination of their expertise which would undoubtedly aid in reducing the impact of CNCDs on the economic earning potential and social fabric of Trinidad and Tobago.

Keywords: *Preventative; Healthcare; Chronic Non-communicable; Trinidad and Tobago; Transition; Human Capital.*

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INTRODUCTION

This paper seeks to address an issue that has become relevant in the provision of any type of healthcare. When one analyses the basic dynamics of the provision of modern day healthcare, the concept of preventative healthcare is most apparent. Care and treatment as the primary form of healthcare is now being modified to suit the changing demographics of the health system. The realisation of the increased impacts of chronic diseases on the population has now increased the focus on a healthy population.

Many will argue that due to the evolving nature of the world economies, differing threats have been realised across generations A timeline of major diseases occurring at various time periods include incidents such as the outbreaks of scurvy in the 1800s, the 1900s had outbreaks of rickets and cholera, 1930s and 1940s fell prey to the West Nile virus and malaria, the 1960s saw the re-emergence of cholera and the 1980s and onwards are characterised by HIV/AIDS and various chronic diseases (Alleyne, 2010).

The transition from one form of disease to another has characterised the various economies over time. The sailors and merchants of the 1800s contracted diseases related to their hygiene and nature of work. The environment and basic hygiene practices also led to mosquito-borne diseases and infectious diseases such as cholera. While these diseases were highly contagious, diseases such as diabetes, HIV/AIDS and hypertension are non-communicable but have the same far-reaching consequences.

In a strict sense, preventative healthcare focuses on altering one's diet, maintaining adequate levels of physical activity and restricting the intake of harmful substances such as

alcohol and tobacco. However, one must remember that due to the increasing levels of pollution in the atmosphere, larger amounts of toxins in our water supply and chemical alteration of food produced, there are increasing unnatural additives to our 'natural body and operational system'. The act of reducing the intake of some of these unnatural substances should also count as preventative healthcare.

The United States (US) Environmental Protection Agency (EPA) focuses on health risk as being equal to the product of hazard and exposure (EPA, 2010). In fact, if there were a reduction of either factor, there would be a reduction of health risk, thus engaging in preventative healthcare. It is with this assumption in mind that leads the paper to focus on preventative healthcare across the board. Arguably, a major, unclassified aspect of cancer causation and other medical ills is the levels of pollution of various types (Ui, 1992). The case of Japan and various health complications arising out of the coal mining industry has been well documented (Ui, 1992).

Preventative healthcare must be viewed as any action that attempts to mitigate, if not negate, any adverse health conditions. Under this definition, even the impacts of diseases such as cholera, malaria and scurvy (to name a few) would have been ultimately reduced through preventative healthcare. In this regard, this is not a new concept by any means but it is a concept that must be altered to address the particular disease category of concern, as each disease category would require a different approach to fighting against it.

DEVELOPMENT AND CHANGING HEALTH PATTERNS

Over time, the world has witnessed a variety of changes in the ailments that affect various populations. The Caribbean has witnessed a changing of its healthcare patterns and social

situations over time. The Caribbean faced poverty related infections and malnutrition in the 1930s. The 1960s saw the growth of public health policy in the region and the 1970s saw a reduction of infectious diseases (Alleyne, 2010).

While these positive strides were made, the 1980s and 1990s were characterised by the region battling the onset of HIV/AIDS and chronic non-communicable diseases (CNCDs) (Alleyne, 2010). There are development associated links to the changes in the lifestyles of persons and an increase in the cases of cardiovascular diseases (CVDs) and cancer. These links are illustrated through the data that indicates in the more advanced, industrialised countries, CVDs and cancer account for just under two-thirds of all deaths (Alleyne, 2010).

It is under this consideration that the changing epidemiological pattern may warrant a new way of thinking. The change from infectious communicable diseases to CNCDs and lifestyle diseases means that health systems must now attempt to develop a mechanism that encourages persons to be continuously aware of their health. The conditions under which persons now operate on a daily basis are leading to diseases that reflect our choice of lifestyle. Another worrying point is that a lot of the present day conditions are irreversible/chronic, such that once present their impacts remain for life and we can only attempt to mitigate the negative results.

The health of a country's population is impacted upon by various factors, such as the environment in which the people live, the level of education and the state of economic growth. It must be noted that this is a two-way relationship with the health of the individual also impacting upon these factors (Over, 1992). The UN Millennium Development Goals (MDGs) have placed focus on particular health concerns and their reduction within a particular time frame.

The Report of the Caribbean Commission on Health and Development (CCHD, 2006) brought forward many of the issues that are mostly present in the societies of the Caribbean region today. The report identified the fact that the region has seen a decline in the total fertility rate over the past two decades, which is thus expected to lead to an increased dependency ratio. It is estimated that the region will witness an elderly population (greater than 60 years old) of approximately 18% by the year 2025.

While the report suggests that this would lead to an increased dependent population, it must be noted that there exists the opportunity for persons to work post-retirement on a contractual basis. This ability is dependent on many factors, one of which is the health of the individual in question.

The CCHD (2006) also conducted a mortality analysis at 5 year intervals, for the period 1985-2000. This analysis painted a picture of CNCDs being the leading cause of death in the region. The CCHD (2006) further attributed these causes of death to common factors across the region such as those identified earlier (eating habits, physical inactivity, obesity, tobacco and alcohol use). The CCHD (2006) report also makes mention of ethnic considerations; gender aspects and socio-economic impacts when considering the impacts of certain diseases in particular countries.

The American Heart Association, 2010 (AHA, 2010) has estimated that 516,000 coronary artery bypasses were performed in 2001 in the United States. These prohibitive procedures can greatly reduce the numbers of heart attacks affecting the world's population today. This is just one measure of attempting to mitigate the various mortality and morbidity aspects of such diseases. The nature of the diseases worldwide speaks to a need to counter the effects before they occur.

The AHA (2010) continues by referring to the decline in death rates from CVDs being due, in large measure, to the public's adaptation of more healthy behaviors and lifestyles. The AHA continues to advocate the adoption of preventative strategies that will alleviate a lot of the hefty final costs of treatment.

The World Health Organization (WHO, 2010) has forecasted that chronic conditions will be the leading cause of disability by the year 2020. The long run cost of this will only serve to place great strains on the health care systems of the world. The report continues by focusing on the fact that, 'the costs of lost production due to diabetes are five times the direct health care costs'. In this regard, the indicators point to expenditure on prevention serving to save a lot more than curative measures.

The WHO also makes a mention of a current deficiency in healthcare systems

(WHO, 2010). The fact that current systems are responsive in nature, responding to symptoms and not attempting to prevent is the mould in which we currently operate. The report continues by outlining systems in the United States, Brazil and India that focus on providing chronic disease treatment to a degree of success. The U.S. example actually provided a system that had an almost identical cost per capita as the prevailing systems but was more effective in terms of access, treatment and waiting times.

The report closed by advocating systems aimed at early detections, increasing physical activity and focusing on diet, nutrition and curtailing adverse habits. The argument is made that any reduction in risky behaviours, improper diet and physical activity can have a large degree of positive long term

impacts. This would occur through the reduction in demand for healthcare and by extension, the cost of healthcare.

THE SITUATION AT HAND FOR TRINIDAD AND TOBAGO

Trinidad and Tobago benefits from a wealth of natural resources and a strong, developing economy. The country has made great strides over the years in achieving all time low rates of unemployment and the increased levels of economic growth (Budget Statement, 2007). However, due to the global financial crisis the growth rate has slowed and is expected to fall into negative, occurring alongside a higher unemployment rate; but it was noted that the country continued to operate at full employment even with the increased unemployment rate (Budget Statement, 2010).

In this time of developmental changes and increased impact of globalization within the country, there have been various health related changes that have taken place. The annual data shows various changes that have taken place within the population.

Table 1 shows that over the 30-year period, 1973-2003 there have been reductions in the percentage of deaths caused by heart disease, cerebrovascular diseases, pneumonia and bronchitis, emphysema and asthma. However, the deaths caused by malignant neoplasm (cancer), diabetes mellitus and AIDS have shown increases. The percentage of deaths caused by diabetes mellitus has more than doubled overtime. AIDS only became a reality for Trinidad and Tobago in 1983, with its associated rate more than tripling in a 20-year period.

The data speaks to vast increases with the traditionally considered forms of lifestyle diseases, with the exception of diseases of the heart, as a percent of total deaths. The

Cause of death	Percentage of total deaths			
	1973	1983	1993	2003
Malignant neoplasm	8.7	10.9	12.3	13.0
Diabetes mellitus	6.2	9.6	11.9	14.0
Heart diseases	39.2	26.6	25.5	24.9
Cerebrovascular diseases	13.6	12.5	11.6	10.0
Pneumonia	5.0	3.8	3.4	2.6
Bronchitis, emphysema and asthma	2.4	1.9	1.5	0.7
Cirrhosis of liver	1.9	1.6	0.9	1.2
Motor vehicle accidents	3.0	2.5	1.8	2.1
Suicide	1.4	1.3	2.0	1.4
AIDS	0	0	2.4	4.0
Homicides	...	0.8	1.4	2.5

Note: ... not available
Source: The Central Statistical Office (CSO) of Trinidad and Tobago, 2010

Table 1: Mortality profile of Trinidad and Tobago for the period 1973-2003

Year	Malignant neoplasms	Diabetes mellitus	Heart disease	Cerebrovascular disease	Pneumonia
1960	57.66	15.81	95.94	73.47	47.67
1965	62.22	19.00	80.19	93.44	32.14
1970	65.62	27.17	87.36	92.52	62.12
1975	65.37	42.81	84.79	78.50	33.47
1980	69.79	31.15	106.68	79.50	33.93
1985	77.48	72.90	83.76	83.76	25.72
1990	83.94	81.30	76.70	76.70	25.67
1995	97.38	86.83	83.73	83.73	23.81
2000	95.45	101.87	75.49	75.49	13.70
2005	105.68	107.53	69.52	69.52	18.23

Source: The Central Statistical Office (CSO) of Trinidad and Tobago, 2010

Table 2: Deaths by major causes per 100,000 population, Trinidad and Tobago, 1960-2005

increasing percentage of deaths attributed to these diseases is showing a change in the nature of diseases with which hospitals have to deal.

A major positive factor is the fact that the percentage of deaths caused by heart disease has fallen by close to 50%. The advent in preventative technologies has helped in this along with the increased awareness of preventative health measures such as diet and exercise. This goes to show that with the right

approach to lifestyle diseases, one can counter its impact over time (Table 2).

The major diseases of the day now have to deal with a person's lifestyle, eating habits and choices. Major causes of deaths have seen changes from infectious diseases such as pneumonia and bronchitis to more lifestyle, non-contagious diseases such as diabetes mellitus and malignant neoplasm. This changing epidemiologi-cal pattern within Trinidad and Tobago will have some impact upon the country's human resource. The Medical Research Centre of Trinidad and Tobago has provided statistics which shows 37% of the first time HIV/AIDS visitors to the centre have the late stage disease (Bartholomew, 2010). This goes to show that there is a need to communicate to the population the need to be more proactive in treating with health concerns.

Table 3 provides a breakdown of the spending by sector. It can be seen that a large proportion of the spending on the health sector is focused on recurrent expenditure (approximately 80%). Recurrent expenditure includes programmes such as Chronic Disease Assistance Programme (CDAP). Issues, such as lack of hospital beds and access to required facilities could also receive increased attention should the preventative measures be successful.

Furthermore, preventative measures and increased awareness initiatives at an early stage allow for a greater spread of persons who are informed about the causes of diseases. In focusing attempts on education drives, advertising and public forums, one is able to reach a wider cross section of persons with the same types of activities.

The health sector is given a large portion of total government spending within the social sector. The health sector receives 23% of the total allocation, which is second only

Core social sector ministries and tobago house of assembly	Development programmes ($)	Recurrent expenditures ($)	Total ($)
Social development	68,500,000.00	2,429,000,000.00	2,497,500,000.00
Community development, culture and gender affairs	623,450,000.00	328,000,000.00	951,450,000.00
Education	738,370,000.00	3,232,000,000.00	3,970,370,000.00
Health	677,000,000.00	2,965,000,000.00	3,642,000,000.00
Planning, housing and the environment	1,049,450,000.00	322,900,000.00	1,372,350,000.00
Science, technology and tertiary education	428,270,000.00	1,728,500,000.00	2,156,770,000.00
Sport and youth affairs	131,000,000.00	324,600,000.00	455,600,000.00
Tobago House Of Assembly (THA)*	212,655,000.00	737,456,342.00	950,111,342.00
			15,996,151,342.00
***Social services divisions of THA:**			
Settlements and labour		17,985,091.00	
Education, youth affairs and sports		332,277,286.00	
Community development and culture		68,416,058.00	
Health and social services		318,677,907.00	
Central administrative services (allocations to NGOs)		100,000.00	
	212,655,000.00	737,456,342.00	950,111,342.00

Source: The Social Sector Investment Programme (SSIP) of Trinidad and Tobago, 2010

Table 3:
Budgeted allocations for the core social sector ministries and the social sector divisions of the Tobago house of assembly for fiscal year 2008/2009

to education, a sector that receives a quarter of social sector spending. This shows the priority placed on the health sector as a component of social security.

There exists a situation within the country whereby the health sector is allocated a major portion of government spending, thus, any attempts to create a health sector that is efficient and responsive to the population will be of importance to the country. This spending on the health sector justifies the need for a focused and efficient mode of service delivery.

The programmes of the Ministry of Health also include the provision of CDAP. This programme provides free

prescription drugs and 53 pharmaceutical items for 12 diseases inclusive of diabetes, hypertension and cardiac conditions. The spending on these conditions in the form of medication places a responsive cost on the society. These provisions are made to persons suffering from some form of ailment, however, programs aimed at preventing or mitigating the presence of these diseases could greatly reduce these end costs and at the same time benefit other social sector initiatives as more allocations would then be available for other areas of need.

In addition, some measures would facilitate a collaborative effort between various national ministries. This would serve as an ability to achieve various goals of development at the same time and thus allow for more effective spending. For example, a planned daily exercise initiative at various recreational parks could meet both the mandates of Ministry of Sport and Youth Affairs and the Ministry of Health in the fight against chronic diseases. A walk rather than drive initiative will aid in the fight against some types of diseases and the protection of the environment and at the same time reduce individuals' expenditure on fuel.

From the information presented Trinidad and Tobago should focus some of its energies on the incorporation of preventative healthcare into its planning. Initiatives that have previously been used have attempted to reform the health sector in a manner that allows for the streamlining and modernisation of its operations. The country has focused initiatives towards the levels of primary and secondary schooling.

The country has incorporated the preven-tative health care strategy, to some extent, with some of the policies that have already been implemented. These include:

- Expansion of services offered under CDAP

- Implementation of policies on ageing, national youth policy, policy on persons with disabilities and the national workplace policy on HIV/AID

- Passage of Tobacco Control Act 2009

- Implementation of breathalyzer testing on the nation's roadways (possible prevention of accidents, which is one cause of morbidity and mortality)

- Various initiatives under the Ministry of Sport and Youth Affairs and Civil Society Groups (for example Health Walks) to encourage a spirit of physical activity.

The country has an estimated figure of 13.3 physicians and 20.4 nursing professionals per 10,000 population as at 2008 (Vision 2020: Operational Plan 20072010). This works out to approximately 1 physician for every 750 persons and 1 nursing professional for every 490 persons. This stretch of the country's medical profession also means that any measure that can aid in reducing the demands on the health sector would be beneficial to the country as a whole.

The CDAP has been used as a major instrument in mitigating the impacts of chronic diseases upon the population of the country. It was started in 2003 and from then until 2008, the programme has benefitted 582,829 patients accessing its benefits for 12 chronic diseases (Vision 2020: Operational Plan 2007-2010). This continues to verify the pressing need for a method of preventative healthcare that will attempt to reduce the future the strain on the sector.

HUMAN CAPITAL CONCERNS FOR T&T

Over (1992) has presented the case that the economy is

comprised of various links between the various sectors that makes up its operations. Figure 1 shows that the health and population module directly impacts on the production of goods and services, in addition to directly impacting upon the welfare module (dual impact). The impact on welfare is both direct and indirect.

Under this model, health and population includes mortality and fertility; debility and morbidity and level of sickness. It is recognised that the health of the population affects national income through the impacts on the size of the labour force and the number of healthy life days. Health plays a key role in ensuring that the output of a country is at an optimal level and as such the level of expenditure is important in ensuring that decision makers are able to maximise the full potential of the workforce.

When the work of Over (1992) is considered the importance of maintaining a healthy workforce is evident. The need to ensure that a country maintains a level of productivity that maximises the factors of production being used cannot be understated. It is this impact on the level of productivity and

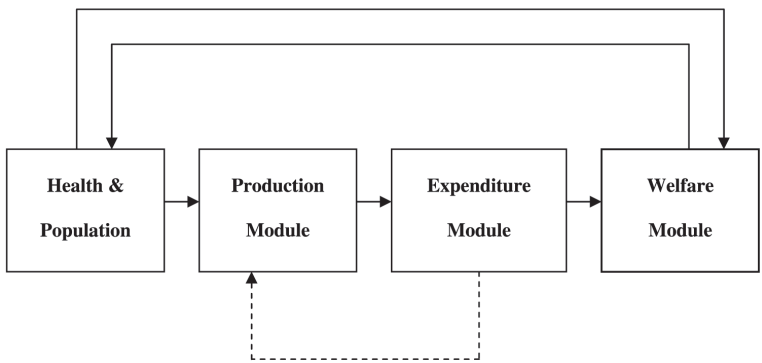

Figure 1:
Schematic model of the relationship between the health sector and the rest of the economy
Source: Over (1992)

by extension, the Gross National Product (GNP) that forms one of the major arguments for state provision of healthcare. These impacts have served to strengthen the case that the fall-out of revenue and even increased welfare payments due to morbidity or mortality is often a major reminder of the importance of investing in the health of a country.

However, when a decision is taken to spend the public funds on healthcare, it must be managed equitably and efficiently. Baker and van der Gaag (1993) place particular emphasis on mentioning that the level of one's national economic development does not necessarily correlate positively to improvements within the health system of a country. They alluded to the need for policies that directly or indirectly impact on the population's health. Further, their work mentions the need to channel resources into the provision of basic services and treat and prevent diseases at an earlier stage.

There are many distortions within the provision of healthcare that various authors have articulated. The differences between urban and rural healthcare formed an integral part of the early literature on the health systems around the world. Authors have argued that there are many barriers to accessing these services, if and when provided, within the rural communities and poorer regions of many countries. Barriers include the cost of travel to and from health facilities; loss of earnings when seeking and receiving healthcare; and various cultural perceptions with regards to health practices.

Further, arising out of the CCHD (2006) report, it was previously mentioned that the expected percentage of the population over 60 within the region is expected to hover around an estimated 18% by 2025. This suggests that the additional pressures on economies to facilitate the health needs of this population segment. However, it must be recognised

that these persons form a cadre of knowledge and skills that could suitably be tapped to ensure the effective development of their respective fields.

For this to take place, these persons must be in sound health and should be able to continue functioning in a working environment. The availability of suitable preventative health practices in their earlier years would lead to their ability to remain in good health/physical standing with fewer requirements for care and treatment. An effective health system would not only lead to an increase in life expectancy but also an increase in the productive years of the country's workforce. Using the same argument, any prevention in new cases of morbidity and/or disability (preventing ability to work) allows for a maximization of the productive capacity of the workforce.

This increase in the output of the factors of production, i.e., labour could help to push the economy's production possibility curve outwards. This would because of the fact that a factor of production is now able to continue producing beyond its expected duration. In this regard, proper preventative health systems mixed with efficient care and treatment allows for an expansion of the country's output.

Furthermore, reductions in the cases of disability and retirement also reduce the amount of welfare payments that the state is required to provide. This reduced expenditure could be reinvested, thus ensuring that the health system continues to meet the population's changing requirements. The ability of these persons to continue working will potentially lead to increases in revenue through the capturing of income taxes and further injections into the flow of income, through the spending power of the additional workers.

The fight against poverty will also be aided as preventative measures that reduce cases of mortality, morbidity and disability of heads of households will allow for persons to continue sustaining their families. In addition, in the cases where the person benefiting from the prevention is not the head of the household, there is also an economic benefit. In both outlined cases, the disposable income of the family is greater than if they had cause to pursue medical treatment. Money that would have been previously utilised in treatment and care programmes can now be channeled to various other needs. Medical expenses; medical supplies and loss of earnings all contribute to a considerable portion of a family's income, especially a family/household at the lower socioeconomic level. If the state were to aid in provision of medical needs, it would be losing resources that could have been channeled in different areas.

This paper is in no way arguing against state provision of welfare grants and required medical needs for the vulnerable. On the contrary, it seeks to argue that policies and cases of prevention that are delivered to a wider cross section of the public are more effective than dealing with individual cases of treatment and care.

The human capital of any country is vital to its sustainability. Trinidad and Tobago depends highly on the supplies of oil and natural gas that exist, in addition to the services and agricultural sectors that form part of its economy. T&T's significant dependence on the "people aspect" of its economy makes the need for a healthy and responsive workforce all the more critical. A health system that treats with afflictions before they are able to impact negatively on the production process is therefore a vital component for the country's growth and development.

CONCLUSION

The country must now seek to ensure that the health sector is monitored as a dynamic system that needs to be mindful of the changing nature of its operations. The preventative aspects of its service provision must be incorporated across social sectors. The operations of the various arms of government must utilise the collaborative approach in ensuring that the goals of the various sectors are not treated in isolation.

Various awareness and activity programs should be used to translate the message to the populace that the fight against the diseases of the day is everyone's business, everyday and everywhere. These initiatives must suit the desired target group and should appeal to them in some form or fashion. Health walks/fairs, educational advertising, school engagement and even legislature forms part and parcel of the preventative fight against diseases (Buddelmeyer and Cai, 2009).

The health sector has been identified as having strong relations with other social concerns. Poverty, productivity and good family functioning can all be affected by the status of a person's health. There exists a dual causality between these factors and as such the health of the population can also be affected by these factors. It is with this in mind that the need for full and effective collaboration is required.

There are various resource constraints placed on the health sector and it is recognised that treating with prevention could ease some of these constraints. Therefore, there should be some monitoring of the changes overtime attributable to the implementation of a preventative strategy to ensure that its goals are being met in a cost effective manner. The nation's population deserves a health system of the highest standard but at the same time must be informed enough to make choices that will lessen

their demands on such a resource constrained system. To facilitate optimal functioning of the health sector, all stakeholders must recognise the role that they have to play, and meet their obligations in a timely and effective manner.

BIOGRAPHY

Dindial Ramrattan is currently pursuing a postgraduate degree in Development Statistics at the Sir Arthur Lewis Institute of Social and Economic Studies (SALISES) at the University of the West Indies (UWI), St. Augustine Campus in Trinidad and Tobago. He also obtained an undergraduate degree in Economics with a minor in International Relations from this institution in 2007. He has gained vital experience from working at various public and private sector organisations in Trinidad and Tobago over the last five years, with specific training and experience in the areas of research; data collection; data analysis and dissemination; and monitoring and evaluation. He has also been actively involved in various social policy, research and programming initiatives with emphasis on a range of topics inclusive of poverty, labour, agriculture and healthcare. In addition, he has assisted in the education of secondary school students at both the Ordinary and Advanced levels in the subject areas of Principles of Accounts and Economics.

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