The Changing Face of Death in Trinidad and Tobago, before and after Independence

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ABSTRACT

Objectives: *The aim of this study is to compare the changing patterns of mortality in adults and infants during the pre-independence period 1953–1962 with the post-independence period 1962–2006 thus providing evidence for the burden of disease and the impact of independence on the state of health of the nation.*

Methods: *The study examined data from 1953–2006, collected under statutory regulations by the Central Statistical Office.*

Results: *While the population doubled during the study period, the standardized death rate improved from 16.4 to 4.5, infant mortality also declined from 70 per 1000 live births to 10.5 per 1000 live births. Mortality from selected infectious diseases also declined, however, mortality from chronic diseases continued to increase. Deaths associated with HIV increased during the 1990s, reaching a peak of 42 per 100 000 population in 2001 before declining.*

Conclusion: *Like the developed world, some developing countries have experienced similar transitions in the patterns of disease occurrence and thus will need to develop strategies to effectively cope with these new challenges.*

Keywords: Burden of disease, epidemiological transition, GDP, infant mortality, mortality

La Faz Cambiante de la Muerte en Trinidad y Tobago, antes y después de la Independencia

K Mungrue

RESUMEN

Objetivos: *El objetivo de este estudio es comparar los patrones cambiantes de mortalidad en adultos y niños durante el periodo de pre-independencia de 1953–1962 y el periodo de la post-independencia de 1962–2006, y brindar así evidencia en relación con la carga de enfermedades y el impacto de la independencia sobre el estado de salud de la nación.*

Métodos: *El estudio examinó los datos de 1953–2006, recogidos bajo regulaciones obligatorias por la Oficina Central de Estadísticas.*

Resultados: *Aunque la población se duplicó durante el periodo de estudio, la tasa de mortalidad estandarizada mejoró de 16.4 a 4.5, la mortalidad infantil también disminuyó de 70 por 1000 nacidos vivos a 10.5 por 1000 nacidos vivos. La mortalidad por enfermedades infecciosas seleccionadas también disminuyó. Sin embargo, la mortalidad de las enfermedades crónicas continuó aumentando. Las muertes asociadas con el VIH aumentaron durante los años 90, alcanzando un pico de 42 por 100 000 de población en 2001 antes de disminuir.*

Conclusión: *Al igual que el mundo desarrollado, algunos países en desarrollo han experimentado transiciones similares en los patrones de manifestación de las enfermedades, y por ende necesitarán desarrollar estrategias para hacer frente a estos nuevos desafíos de manera efectiva.*

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Palabras claves: carga de enfermedad, transición epidemiológica, producto interno bruto (PIB), mortalidad infantil, mortalidad

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INTRODUCTION

Trinidad and Tobago (T&T) was a colony of the British Empire until August 31, 1962. Under British rule, the registration of births and deaths was a statutory requirement mandated by the Births and Deaths Registration Ordinance (Ch 29 No 1) passed on December 16, 1847. The legislation was primarily designed to provide for official registration rather than for the preparation of statistics: a by-product of the administration of the ordinance. Notwithstanding, the legislation resulted in published data on vital statistics from 1883 onwards in the Annual Administrative Report of the Registrar General. The report continued unbroken from 1883 to 1952. New legislation, the Statistical Ordinance (Ch 42 No 11) passed in 1953 and still existing today unchanged, mandated the Central Statistical Office (CSO) to prepare vital statistics for the first time. In addition, it incorporated the collection of information purely for statistical purposes.

The development of a uniform or standard classification of the cause of death began in 1853 with the first Statistical Conference held in Brussels (1). William Farr of England and Marc d'Espine of Switzerland prepared lists of diseases suitable for classification, *une nomenclature uniforme des causes de dècés applicable à tous les pays* (2), which further facilitated the use of births and deaths certification, a role subsequently adopted by the World Health Organization (WHO). With the advent of the new legislation in 1953, T&T also began using the WHO Classification of diseases for the purpose of compiling mortality statistics. Therefore, the sixth revision and all other revisions (seventh 1955, eighth 1965, ninth 1975, tenth 1990) were used for the purpose of the classification of the cause of death during the period 1953–2006 (3, 4).

The aim of this study is to compare the changing patterns of mortality in adults and infants during the pre-independence period 1953–1962 with the post-independence period 1962–2006, the most recent available data. Thus, assessing the new burden of disease which aims to provide the best evidence-based description of health, causes of loss of health and likely future trends in health.

METHODS

The data for this study were derived from the published population and vital statistics reports of the Central Statistical Office for the period 1953–2006. Currently there are no published data for the period 2007–2011. Data were also collected from the published reports of the annul report of the registrar general for the period 1944–1952. Codes for all diseases reported are those listed in the International Classification of Disease (ICD), revisions six to ten (ICD-6, ICD-7, ICD-8, ICD-9 and ICD-10). Changes in the ICD relevant to this study include, (i) the sixth revision: gastritis and duodenitis were combined to form a new category in diarrhoeal diseases, (ii) eighth revision: diarrhoeal diseases were moved from the alimentary to the infectious disease chapter, and (iii) the ninth revision: cerebrovascular disease was transferred from diseases of the nervous system to diseases of the circulatory system.

The code B440 which previously included both spina bifida and hydrocephalus is now coded in ICD-6, ICD-7 and ICD-8 as spina bifida alone. All crude death rates were standardized using the World Health Organization's standard population for age adjustment for international comparisons, and the method suggested by Armitage and Berry (4–6). Diseases were categorized into two groups: infectious diseases and chronic diseases. Deaths resulting from these two groups are reported as a percentage of the total deaths for each year from 1944–2012.

For the purposes of this study, the following diseases were categorized as infectious diseases: tuberculosis, typhoid fever, the vaccine preventable diseases such as diphtheria, whooping cough and tetanus, and malaria. While arteriosclerotic heart disease, ischaemic heart disease, acute myocardial infarction, hypertensive heart disease, malignant neoplasms, diabetes mellitus (DM) and cerebrovascular disease were considered chronic diseases. Trends in the distribution of deaths due to human immunodeficiency virus (HIV) disease (diseases directly or indirectly attributed to HIV, including acquired immunodeficiency syndrome (AIDS)) were collected for the interval 1990–2006. In addition, we examined available causes of death, in particular, tuberculosis, breast cancer and lung cancer. In order to interpret any changes in mortality, the population growth rate is also reported. The growth rate is defined as the rate at which the population is increasing (or decreasing) in a given year considering natural increase and net migration, and expressed as a percentage of the base population.

RESULTS

The average number of deaths per year over the 54-year period 1953–2006 was 7814 (SD ± 1075) with a range of 6465 to 10 206. The population almost doubled from 678 300 to 1 239 908 during the same period, while the standardized death rate (SDR) improved from 16.4 to 3.8 per 1000 (Fig. 1). The average number of births per year was 27 776 (SD ± 3787) and ranged from 20 944 to 34 107. The population growth rate ranged from 3.4% to -0.08%. The period 1958–1963 had the highest sustained growth rate, averaging 3.22%. In 1988, the only negative growth rate

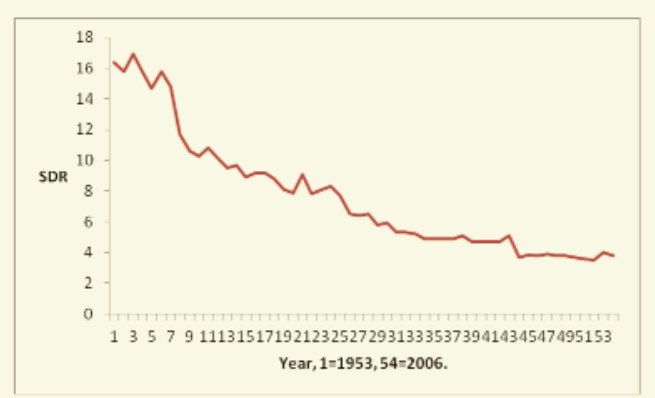

Fig. 1: Standardized death rate (SDR) by year 1953–2006.

(-0.08) recorded occurred because net migration equalled 19 881. Infant mortality rate (IMR), reflective of medical care interventions and socio-economic conditions, declined steadily from 70 per 1000 live births in 1953, or 24.6% of all deaths, to its lowest ever value, 10.5 per 1000 live births or 2.8% of all deaths in 1992 (Table 1, Fig. 2). Thereafter, it

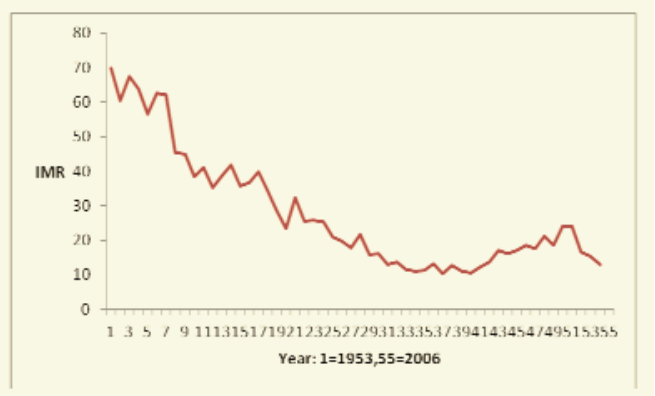

Fig. 2: Infant mortality rate (IMR) 1953–2006.

began rising steadily to 24.2 per 1000 live births in 2002 and again started to decline. Notwithstanding, most industrialized countries have an IMR of < 10 (7). The main contributions to the decline in the IMR were reductions in deaths due to enteritis/diarrhoeal disease and pneumonia. Congenital anomalies, particularly deaths from congenital heart disease, continue to be the main contributors to IMR. There was a significantly strong correlation between rising gross domestic product (GDP) per capita and declining IMR (Pearson's correlation coefficient = -0.8, $p < 0.01$). Life expectancy at birth is higher in women than men for every decade between 1950–2000 (Table 1, Fig. 3). The largest increase – 5.84 years for men and 7.88 years for women – occurred in the decade 1950–1960, with marginal changes in the 1990–2000 decade.

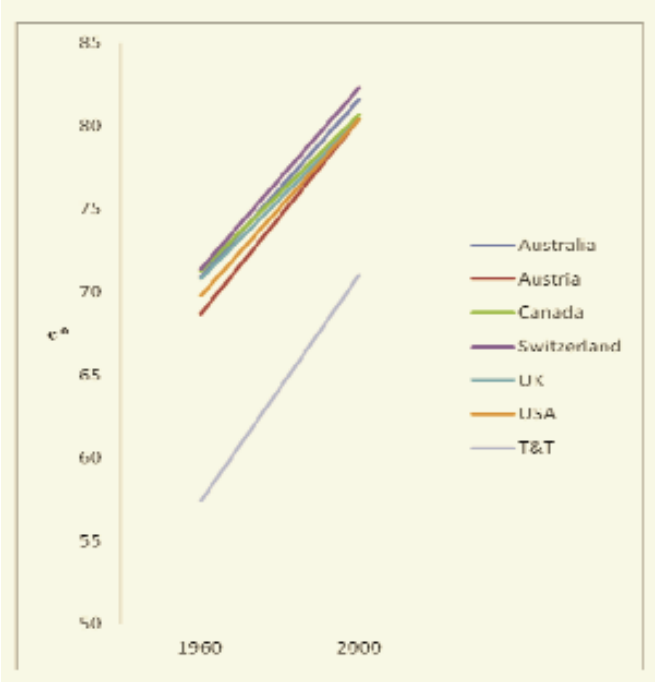

Fig.3: Life expectancy in Organization for Economic Co-operation and Development (OECD) countries and Trinidad and Tobago at birth (e^o) in 1960 and 2000.

Mortality from the selected infectious diseases progressively declined from 14% in 1945 to 0.2% by 1992, however over the same period, mortality from selected chronic diseases rose from 16.6% to 55.9% (Table 2). The two major infectious diseases contributing to mortality were malaria and tuberculosis. In 1945, there were 424 deaths from malaria while tuberculosis contributed 556. Deaths from malaria had completely vanished by 1961 and in 1964 the World Health Organization declared T&T free of malaria. On the other hand, while tuberculosis declined similarly from 556 deaths in 1945 to eight in 1981, deaths from tuberculosis began to rise again, averaging 20 per year from 1982–1992, concurrent with the early phase of the HIV/AIDS epidemic. Of the vaccine preventable diseases, diphtheria averaged eight (SD ± 4) deaths per year from 1945–1967 and, apart from sporadic cases between 1968 and 1978, there were no deaths subsequently. Whooping cough also averaged eight (SD ± 7) deaths per year for the same period and there were no deaths after 1979. Tetanus averaged 42 (SD ± 7) deaths per year from 1945–1968 and continued to occur from 1968–1992 in small numbers. Further analysis of the decline among selected infectious diseases during the period 1945–1955 revealed the data fitted a very smooth linear model ($r^2 = 0.983$, significant at $p = 0.01$ level). In regard to selected chronic diseases, while malignant neoplasms quadrupled and ischaemic heart disease/acute myocardial infarction tripled, DM increased 12.5-fold. Strokes, however, averaged 900 (SD ± 101) deaths per year ranging from 680–1154. When deaths due to infectious diseases are super-

Table 1: Changes in IMR, GDP (per capita $US), SDR, growth rate of the population and life expectancy at birth, 1953–2006

Year	IMR	GDP per capita (US$)	IM as % total mortality	SDR per 1000 population	Growth rate	e^0_x m	e^0_x f
1953	69.9	–	24.6	16.4	2.71	56.31	58.45
1954	60.5	–	26	15.8	3.2		
1955	67.5	407.8	27.5	16.9	3.13	59.81	63.13
1956	63.9	461.9	24.6	15.8	2.82		
1957	56.5	528.4	22.4	14.7	2.93		
1958	62.7	566.2	25.5	15.8	3.31		
1959	62.1	605.7	25.4	14.75	3.42		
1960	45.4	646.1	22.5	11.71	3.14	62.15	66.33
1961	45	675.9	23	10.57	3.04		
1962	38.5	689.5	20.3	10.27	3.36		
1963	41	735.7	20.2	10.8	3.09		
1964	35.3	746.1	17.4	10.1	2.54		
1965	38.6	753.8	18.1	9.45	2.28		
1966	41.8	725.1	17.8	9.67	1.8		
1967	35.8	749.2	15	8.9	1.26		
1968	36.6	739.4	14.5	9.22	1.17		
1969	39.8	754.4	14.1	9.21	0.24		
1970	34.4	846.5	12.5	8.8	0.08	64.08	68.11
1971	28.5	923.8	10.6	8.12	1.15		
1972	23.5	1097.2	9.5	7.9	1.34		
1973	32.4	1312.2	11.3	9.12	0.86		
1974	25.6	2036.8	9.9	7.87	1.19		
1975	25.8	2413.7	9.6	8.1	1.01		
1976	25.4	2480.9	9.4	8.3	1.6		
1977	21	3032.0	8.0	7.7	1.61		
1978	19.7	3397.1	8.2	6.5	2.3		
1979	17.8	4327.5	7.5	6.4	1.16		
1980	21.7	5764.5	8.6	6.5	1.7	66.88	71.62
1981	15.9	6369.3	7	5.8	1.1		
1982	16.1	7296.1	6.8	5.9	2.43		
1983	13	6819.4	5.6	5.3	2.35		
1984	13.7	6632.2	5.6	5.32	1.02		
1985	11.5	6390.3	4.8	5.2	1.55		
1986	11.1	5888.3	4.6	4.89	0.74		
1987	11.3	3959.5	4.1	4.91	0.86		
1988	13.2	3963.1	4.4	4.93	-0.08		
1989	10.2	3943.8	3.1	4.9	0.07		
1990	12.7	4129.1	3.7	5.05	1.21	68.41	73.21
1991	11.04	4332.6	3	4.73	0.87		
1992	10.5	4387.2	2.8	4.75	1.21		
1993	12.2	3492.7	2.9	4.76	0.98		
1994	13.8	3805.5	2.9	4.02	0.83		
1995	17.1	4099.4	2.7	4.12	0.81		
1996	16.2	4430.5	2.8	3.91	0.69		
1997	17.1	4414.0	2.8	3.85	0.67		
1998	18.6	4649.0	2.7	3.8	0. 65		
1999	17.6	8500.0	2.9	3.9	0. 66		
2000	21.1	9000.0	2.6	3.8	0. 69	68.2	73.6
2001	18.5	9000.0	2.8	3.8	0.61		
2002	24.2	9500.0	2.5	3.7	0.6		
2003	24	9500.0	2.8	3.6	0.57		
2004	16.5	10500.0	2.7	3.5	0.61		
2005	15.4	16800.0	2.4	4.0	0.61		
2006	13.1	19800.0	2.3	3.8	0.69		

IMR = infant mortality rate, GDP = gross domestic product, IM = infant mortality, SDR = standardized death rate, Growth rate = live births – total deaths ± net migration/mid-year population x 100, e^o = life expectancy for x = 0 (birth).

Table 2: Deaths by selected causes 1944–2006, and HIV/AIDS 1990–2006

Year	Total deaths All causes	No of cases (n) of selected infectious diseases (%) of total deaths	No of cases (n) of selected chronic diseases (%) of total deaths	Death HIV/AIDS Total (m, f)
1944	8055	1163 (14.4)	1335 (16.6)	–
1945	7959	1162 (14.5)	1136 (14.3)	–
1946	7734	1075 (13.9)	1189 (15.4)	–
1947	7828	947 (12.1)	1177 (15.0)	–
1948	7293	883 (12.1)	1144 (15.7)	–
1949	7487	815 (10.9)	1263 (16.9)	–
1950	7665	725 (9.5)	1349 (17.6)	–
1951	7815	668 (8.5)	1652 (21.1)	–
1952	8000	538 (6.7)	1948 (24.4)	–
1953	7262	465 (6.4)	1623 (22.5)	–
1954	6807	444 (6.5)	1676 (24.6)	–
1955	7462	420 (5.6)	2158 (29.9)	–
1956	7136	248 (3.47)	2141 (30.0)	–
1957	7283	201 (2.8)	2335 (32.1)	–
1958	7476	208 (2.9)	2365 (32.5)	–
1959	6608	200 (2.7)	2454 (32.8)	–
1960	6891	170 (2.6)	2298 (34.8)	–
1961	6891	153 (2.2)	2370 (34.4)	–
1962	6465	104 (1.6)	2419 (37.4)	–
1963	6668	129 (1.9)	2589 (38.8)	–
1964	6675	127 (1.9)	2858 (42.8)	–
1965	6731	107 (1.6)	2761 (41.0)	–
1966	7060	98 (1.4)	2860 (40.5)	–
1967	6775	99 (1.5)	2887 (42.6)	–
1968	7116	48 (0.67)	3053 (42.9)	–
1969	7068	55 (0.78)	2930 (41.5)	–
1970	6956	49 (0.7)	3140 (45.1)	–
1971	7044	57 (0.81)	2819 (40.0)	–
1972	6955	60 (0.86)	3321 (47.7)	–
1973	7517	65 (0.86)	3449 (45.9)	–
1974	6716	57 (0.85)	3208 (47.8)	–
1975	6899	55 (0.8)	3350 (48.6)	–
1976	7388	40 (0.54)	3688 (49.9)	–
1977	7311	35 (0.47)	3581 (49.0)	–
1978	6824	34 (0.49)	3509 (51.4)	–
1979	7060	24 (0.33)	3621 (51.3)	–
1980	7506	20 (0.27)	3455 (46.0)	–
1981	7355	10 (0.35)	3167 (43.0)	–
1982	7641	15 (0.2)	3790 (49.6)	–
1983	7546	16 (0.21)	4030 (53.4)	–
1984	7819	27 (0.35)	4005 (51.5)	–
1985	8026	45 (0.56)	4378 (54.5)	–
1986	7699	33 (0.42)	4348 (55.0)	–
1987	8054	30 (0.37)	4348 (54.0)	–
1988	8036	26 (0.32)	4590 (57.1)	–
1989	8213	17 (0.21)	4428 (53.9)	–
1990	8196	33 (0.4)	4604 (56.2)	98 (66, 32)
1991	8192	27 (0.3)	4611 (56.3)	120 (88, 32)
1992	8533	16 (0.2)	4766 (55.9)	185 (143, 42)
1993	8807	21 (0.2)	5070 (57.6)	210 (159, 51)
1994	9265	8 (.08)	5715 (61.7)	255 (187, 68)
1995	9042	28 (0.3)	5495 (60.8)	261 (187, 74)
1996	9376	24 (0.26)	5822 (62.1)	396 (281, 115)
1997	9157	31 (0.34)	5843 (63.8)	409 (276, 133)
1998	9635	27 (0.28)	6069 (63)	439 (286, 153)
1999	10014	30 (0.3)	6302 (63)	519 (335, 184)
2000	9498	25 (0.26)	5844 (61.5)	535 (349, 186)
2001	9753	17 (0.17)	5942 (61)	541 (342, 199)
2002	9797	23 (0.23)	6028 (61.5)	509 (316, 193)
2003	10206	21 (0.21)	6313 (62)	410 (253, 157)
2004	9872	20 (0.2)	6123 (62)	311 (207, 104)
2005	9885	19 (0.19)	6055 (61.3)	318 (196, 122)
2006	9668	44 (0.46)	5882 (60.8)	295 (185, 110)

imposed on deaths due to chronic diseases (Fig. 4), it is evident that as early as 1947 the transition from infectious to

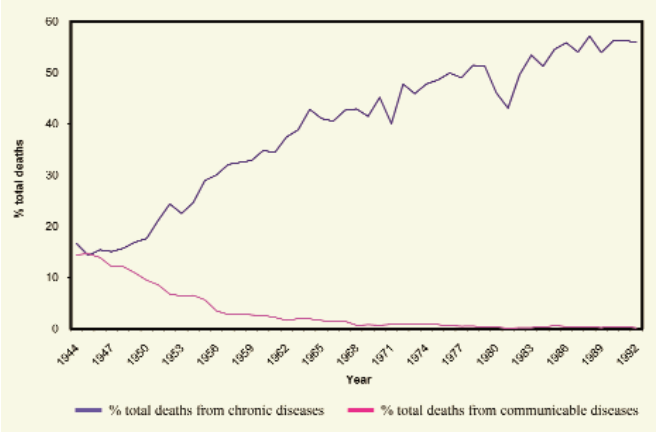

Fig. 4: Percentage of total deaths attributable to selected communicable diseases and chronic non-communicable diseases plotted for the period 1944–1992 only.

chronic diseases began to take root. Deaths due to HIV increased progressively from 1990, peaking in 2001 and thereafter declined. In every instance during this period there were more male deaths than females. The highest percentage mortality on average (40–45%) occurred in the age group 30–39 years, with the next highest mortality in the age group 20–29 years.

DISCUSSION

The study establishes that the rate of mortality – considered the tip of the "iceberg" of health status – began declining well before independence. The two-period moving average exhibits a pronounced gradient tapering off in the 1990s. This is against a background of extensions in the life expectancy at birth supporting the concept of compression of morbidity first introduced by Fries in 1980 and updated in 1989 (8–10). This also underscores ageing of the population which has important consequences for future demands of healthcare services and old age benefit systems. In addition, life expectancy at birth, a measure of health system performance, was 57.4 years in 1960 – putting us significantly below the countries in the Organization for Economic Cooperation and Development (OECD), all of which had a longer life expectancy (Fig. 3). By 2000, life expectancy at birth in T&T had increased to 71 years or by a margin of 13.6 years – an increase of approximately 3.3 months per year over five decades. This progress still leaves T&T in the lowest quartile of the OECD countries; however, the gap from the developed world has been reduced from 23 years in 1960 to nine years in 2000 (11). The achieved gains in life expectancy at birth met the projections of the United Nations Population Division (12, 13). According to the three groupings of national life expectancy suggested by Caselli and colleagues (14), T&T belongs to the group which continues to achieve gains in life expectancy. Declining mortality with increased life expectancy cannot be easily attributed to any particular cause, particularly the delivery of medical care, but may be the result of a constellation of factors (15). On the other hand, avoidable causes of death based on the European Commission (EC) working group list (16), demonstrated a mixed pattern. In absolute numbers, there was a significant ($p < 0.001$) decline in tuberculosis from the pre-independence period with the post-independence period, while breast cancer and lung cancer increased. However, the average number of deaths aggregated from avoidable causes was 350 per annum in the pre-independence period compared to 34 deaths per annum in the post-independence period. Avoidable cause of death is a more valid indicator of prevention and medical care.

An important finding of the study was the demonstration of the decline in IMR from a very high 70 per 1000 live births to 13.1 in 2006 (Fig. 2). The infant mortality rate, previously regarded as a highly sensitive measure of population health, has been challenged over the previous decade. In point of fact, the World Health Report 2000 makes no reference to the measure (17). However, Reidpath and colleagues showed a strong correlation (0.91) between IMR and the disability adjusted life expectancy (DALE), thought to be a more comprehensive measure of population health (18, 19); thus justifying IMR as a good indicator of structural factors such as economic development, general living conditions, social well-being and the quality of the environment, which affects the health of entire populations. Infectious diseases, particularly enteritis/diarrhoeal diseases and pneumonia, were the main underlying causes until 1982; thereafter congenital anomalies, especially congenital heart diseases, predominated. The decline in IMR was significantly correlated with rise in GDP, a finding similarly reported in other studies (20, 21). One of the goals of the nations of the hemisphere in the charter of Punta del Este (1961) was to reduce mortality in children under five years of age by one-half in a ten-year period (22). This goal was partially achieved, from 11.43% (age-specific mortality rate in < 5) in 1961 to 7.5% in 1971. An extensive study under the sponsorship of the Pan American Health Organization between 1968 and 1972 among selected countries, which included Jamaica but not T&T, reported similar patterns of mortality (23). During the post-independence period, T&T faced two major international commitments: Health for All by the year 2000 (HFA 2000) and the more recent Millennium Development Goals which may be too early to evaluate. Reducing IMR and under five mortality as well as increasing life expectancy at birth were some of the agreed targets, in all of which substantial gains were made. In addition, in order to make primary healthcare assessable, comprehensive and coordinated, a major component of HFA 2000, T&T built 105 health centres on the principle that no health centre should be greater than five miles from any community. Breastfeeding, immunization and oral rehydration therapy were institution-

alized. This has resulted in high immunization rates (98%) and deaths from diarrhoeal diseases in children have declined from approximately 250 per annum in the pre-independence period to single digits at present.

Another important finding of the study was the shifting burden of disease. The study showed that from 1944 to 1953, the gap between deaths due to infectious diseases and chronic non-communicable diseases (NCD) progressively narrowed and eventually disappeared by 1947. Thereafter, deaths from NCD continued to rise, particularly from DM, neoplasms and cardiovascular disease, establishing that the epidemiological transition from a predominantly infectious disease pattern to NCD diseases took place during this time. The leading cause of death in T&T from 1953 through 2006 continues to be heart disease. Further, the smooth linear decline in the number of deaths due to selected infectious diseases during the period 1944–1953 suggests a multiplicity of factors, such as the interaction of social modernization, infrastructural investment, environmental improvements, safe water and food and medical interventions, as opposed to any single factor being attributable, for example immunization, which is likely to give a saw-tooth pattern or more precipitous declines.

HIV prevalence among adults in the Caribbean is estimated at 1.0% which is second to Sub-Saharan Africa (23). At the end of 2009, the prevalence of HIV in adults aged 15-49 years was 1.5% in T&T, which translates to approximately 19 500 people out of a population of 1.3 million who are HIV^+ (24). Deaths as a result of HIV infection increased six fold from 7.5 per 100 000 in 1990 to 41.6 per 100 000 in 2001 before gradually declining. This is against a background in which the introduction of highly active antiretroviral therapy (HAART) during 1996 and 1997 led to a well-documented reduction in mortality and risk of AIDS-defining illnesses (25–28). Faced with increasing incidence and mortality of HIV, the Heads of State of the Caribbean, meeting in February 2001, established the Caribbean Partnership Commitment, and the launch of the Pan-Caribbean Partnership against HIV/AIDS. This became the Caribbean's platform on AIDS, bringing together resources from Governments, civil society, the private sector, regional institutions and the international community. During the first decade of the new millennium, the Caribbean received more than 1.8 billion (US$) in external funding for HIV. However, as international assistance is diminishing, national investments must increase in order to sustain critical activities to prevent resurgence in HIV/AIDS.

National data on causes of death provide a view of the overall health status of a population. They suggest what diseases and conditions should be of major concern and where a country stands in relation to others and in relation to the epidemiological transition. (29). As originally proposed, epidemiological transition was regarded as a way of providing a general picture of the major determinants of death and the way these were interlinked with population change. The model has three main components: changes in the pattern of the cause of death, the relative experience of mortality transitions of different subgroups of the population defined by age and gender and the ways in which changes in the cause of death affected survival and increased life expectancy (30). Changes in mortality structure are the principal outcome indicator by which the epidemiological transition is assessed. The study therefore demonstrates the shifting burden of disease.

In this study, routinely collected mortality data were used. There are some inherent problems with the use of secondary data as they are not primarily assessed for the study purpose and often have lower data quality. Inaccuracies in the data may be best identified in the chain of steps leading to the production of mortality statistics, which are all relevant to this study. Patient information, diagnosis by the clinician, accurate completion of the death certificate, classification and coding of the cause of death are the major limitations.

In conclusion, the main challenges in the pre-independence period arose predominantly from infectious diseases and in the post-independence period from NCDs. This rising tide of NCD is the most important challenge in the new millennium for the structure and delivery of healthcare services. The study not only described the changing patterns of death in Trinidad and Tobago but also identified the period of the epidemiological transition.

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