HIV/AIDS in the Caribbean:
Small Islands, Large Epidemic

Draft Prepared for Oral Presentation
Caribbean Studies Association Annual Meeting
St. Martin, May 2001

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March 2001
Introduction

The first AIDS case was identified in the United States in 1981 and since then, the entire world has been increasingly affected by the HIV/AIDS epidemic. It is estimated that more than 36 million persons are living with HIV/AIDS worldwide with more than 21 million deaths reported to date. The Caribbean region has not been spared from the wrath of the disease. Currently, more than 390,000 people in the region are estimated to be living with HIV/AIDS (UNAIDS 2000).

Incidence and Prevalence of HIV/AIDS

The first reported AIDS case in the Caribbean was reported in Jamaica in 1982 and by the end of 1985, all of the Caribbean countries had reported at least one AIDS case (Narian 1989). Since then, the reported number of new AIDS cases per million population has been increasing every year. Currently, the Caribbean region has the highest incidence of reported AIDS cases in the Americas and the trend is not encouraging.

AIDS incidence rates have been increasing significantly in the English-speaking Caribbean, with rates increasing from 142.3 AIDS cases per million in 1991 to 246.2 per million in 1996. In the Latin Caribbean countries, with the exception of Cuba, data from Haiti and the Dominican Republic show a similar upward trend. If Puerto Rico is included in the Latin Caribbean figures, the observed trend becomes even more pronounced. The growing importance of the epidemic in most Caribbean countries can be better appreciated if one compares the incidence figures in these countries with the steady downward trend
in AIDS incidence rates that has been observed in North America (United States and Canada) since 1992.

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Figure 1 provides a comparative illustration of the incidence rates in the Americas. Rates in the United States and Canada decreased from 280.9 cases per million in 1992 to 126.9 per million in 1996. Therefore, while incidence rates have decreased in North America, they have continued to increase in both the Caribbean and Latin America regions.

Official AIDS incidence rates among the Caribbean Epidemiology Center (CAREC) member countries\(^2\) have steadily increased since the 1980s.

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In the Caribbean region, in terms of cumulative AIDS cases per 100,000 population in select Caribbean countries as of 1999, the country with the highest number was the Bahamas with 1058 AIDS cases per 100,000 population followed by Barbados (388), Trinidad and Tobago (203), Jamaica (155), Haiti (110), Dominican Republic (59) and Cuba (8) (PAHO 2000).

In addition to increasingly large incidence rates, the Caribbean region has the second highest prevalence rates in the world, following Sub-Saharan African. Currently, it is estimated that approximately 2.3 percent of the adult population (aged 15-49) is infected with HIV. Within the Caribbean region, the rates vary significantly by country. Figure 3 illustrates the adult prevalence rates for several Caribbean and Latin American countries.

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Of the ten countries with the highest prevalence rates in Latin America and the Caribbean, nine are in the Caribbean (PAHO 2000). Among those nine countries, the rates ranged from 5.17 percent for Haiti to 0.94 percent for Trinidad and Tobago. The one exception, Cuba, has the lowest prevalence rate in the entire region at 0.03 percent.

While reported AIDS cases and reports of HIV tests do give an idea of the incidence and prevalence of HIV/AIDS within the region, widespread under-reporting, which is estimated to vary between 30 and 75 percent (UNAIDS 2000), and absent widespread screening for HIV, most cases of HIV/AIDS are only detected when individuals develop and begin to exhibit symptoms of AIDS. For this reason, statistics on the incidence and prevalence of AIDS cases may be thought of as only the "tip of the iceberg," because many people who are infected with HIV in the population have not yet developed visible signs of AIDS. This can best be illustrated by what is termed the "HIV/AIDS" pyramid, as seen in Figure 4.

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The reported AIDS cases are only the tip of the pyramid and represent the visible part of the epidemic. We know that a significant proportion of HIV/AIDS cases are not reported due to various reasons such as failure to seek treatment, doctors' failure to report cases and lack of HIV testing in some areas. Those persons whose HIV infection has progressed to AIDS but has not been reported represent the second tier of the pyramid. The base of the pyramid represents those who are HIV-infected but do not have AIDS. While some persons do know their serostatus, many persons in this population are unaware that they are infected with the virus. Hence, it is easy to see the potential for
continued spread of the virus, especially in areas where HIV testing is limited. If persons are unaware that they are at risk for transmitting the virus, they may be less likely to engage in protective behaviours. A person may unknowingly be infected for several years before progressing to AIDS. The average incubation period for HIV to develop into AIDS is about eight to ten years (CDC 1998). Therefore, it is not difficult to see why incidence and prevalence rates are so high in the Caribbean region.

The HIV/AIDS epidemic in the Caribbean has been moving into younger populations and rates among females are increasing. More than 80 percent of AIDS cases in the region are diagnosed in persons between the ages of 15 and 54, with almost half of those being diagnosed in people ages 25 to 34 (CAREC 2000). These figures suggest, given the average incubation period from HIV infection to the development of AIDS, that about half of new HIV infections are occurring among young persons ages 15 to 24. In addition to younger persons being at increased risk, females are becoming increasingly at risk as well. This is evidenced by the shift of prevalence rates by age and gender.

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When examining the data by gender and age for the region, one can easily see the shift in the trends. Among older persons, for example, those 35 years of age and older, the proportion of cases attributed to males are two to almost three times that of females. Since the beginning of the epidemic, males have constituted a larger proportion of reported AIDS cases. However, this trend is changing. One can see when looking at the proportion of cases by gender for the younger ages, for example, less than 35 years of age, that the proportion for males and females are very similar; however, for those under the age of 24,
females make up a larger proportion of reported cases, with the exception of those less than five years of age.

While biological factors make females more susceptible to contracting HIV, cultural and economic factors are in play as well. The machismo culture, one that supports early and frequent sex with multiple partners, contributes to high-risk behaviours for both males and females. Men are expected to prove they are “macho” while women are expected to defer to male demands and decision making even when they know their partner may be infected through outside relationships. This emotional, and many times economic, dependency contributes to the increase in the number of females becoming infected. In addition, a mixing of ages is common in the Caribbean, which has also contributed to the increase in HIV among young women. Many young girls have sex with older men for various reasons, and as a result, rates are disproportionately higher among young girls when compared to young men. For example, HIV rates are five times higher in girls than boys aged 15-19 in Trinidad and Tobago, and at one surveillance centre for pregnant women in Jamaica, girls in their late teens had almost twice the prevalence rate of older women (UNAIDS 2000).

**Modes of Transmission**

While there are varying modes of HIV transmission, the primary mode reported in the Caribbean is heterosexual transmission. Figures 6 and 7 illustrates the distribution of reported AIDS cases in the English-speaking and Spanish-speaking Caribbean.

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More than half of all reported AIDS cases in the English-speaking region have been attributed to heterosexual transmission, which is slightly higher (62% vs. 45%) than reported in the Spanish-speaking Caribbean (PAHO 2000). One should note that the second largest mode of transmission is unknown, constituting approximately one-quarter of the reported cases in the English-speaking Caribbean and two-fifths in the Spanish-speaking Caribbean. Less than ten percent of the cases are attributed to homosexual and bisexual behaviour among men.

While the majority of reported AIDS cases have been attributed to heterosexual transmission, there is a significant number attributed to other modes included injecting drug use, male homosexual and bisexual activity, contaminated blood products and mother-to-child transmission. Among CAREC countries, HIV transmission by injecting drug use ranges from zero to two percent with the exception of Bermuda, where it represents 43 percent of the total reported cases (Howe & Cobley 2000). When examining male-to-male transmission, approximately 12 percent of the total reported AIDS cases are attributed to this mode. However, due to the strong social, cultural and legal discrimination against this group, it is likely that under-reporting may be a common practice, attributing the infection to either heterosexual or unspecified modes.

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From Figure 8, one can see that when compared to other Caribbean countries, the proportion of cases attributed to unknown modes in Jamaica is significantly higher and the proportion attributed to same-sex male activity is low. While homosexual activity is a criminal offense in all four countries, the response to this activity is much more violent in
Jamaica, many times resulting in physical violence. Therefore, it not surprising that these cases could be severely under-reported.

When examining the risk of contaminated blood products, less than one percent of total reported AIDS cases are attributed to this mode. This is most likely a result of increased efforts of screening blood donors and actual blood products. When looking at mother-to-child transmission, known as perinatal or vertical transmission, the number of cases attributed to this mode continues to rise. As of May 1999, approximately six percent of cumulative reported AIDS cases in the English-speaking region were a result of perinatal transmission compared to approximately one percent in the Spanish-speaking region (PAHO 2000).

One would be remiss not to highlight that a significant proportion of cases are attributed to unknown modes of transmission. Approximately 18 percent of reported cases from CAREC countries have no specified mode of transmission. However, this varies by country; there are countries where this represents 50 percent of the reported AIDS cases (CAREC 2000). This could seriously impact on the accuracy of the risk factors associated with HIV transmission and could mislead the planning process for better public health interventions.

When examining modes of transmission by gender, heterosexual transmission still constitutes the largest proportion for both males and females. Figures 9 and 10 display the proportion of reported AIDS cases in 1999 in select CAREC member countries attributed to the various modes for males and females separately.

--Insert Figures 9 & 10 here--
Heterosexual transmission represents approximately 86 percent of cases in the female population and 63 percent in the male cases. Another striking difference is that while only eight percent of reported cases of AIDS is attributed to unknown modes of transmission for females, for males, 23 percent of the reported cases are attributed to unknown sources. However, for reasons discussed above, it is quite likely that the reported data severely underestimate the true percentage of AIDS cases attributable to same-sex activity for males while overestimating the percentage attributable to unknown modes.

It is important to mention pediatric AIDS cases in the region. The percentage of AIDS cases where children are infected by HIV-positive mothers is higher in the Caribbean region than in any other part of the Americas. (CAREC 2000). As prevalence rates among women, especially pregnant women, increase, pediatric cases will continue to increase as well. Survey research has found prevalence rates ranging from zero percent in the Cayman Islands to as much as eight percent in certain areas of the Dominican Republic (Carara 1997; Ramirez 1998). Given these rates and the estimates that up to one third of infants born to HIV-infected mothers will acquire and succumb to the infection, the proportion of infants born with HIV infection will continue to increase.

**Impact of HIV and AIDS in the Caribbean**

In the Caribbean region as a whole, no country or territory has been spared from HIV and AIDS or from the impact of the epidemic. The epidemic impacts demographically, economically and socially, which may undermine development in countries badly affected
by the virus. Its social and economic consequences are felt widely not only in health but in education, industry, agriculture and the economy in general. The extent of the impact varies by country depending primarily on prevalence rates but is also affected by social and economic climates. Therefore, the varying impacts will be examined.

**Demographic Impacts**

The primary demographic impact of the HIV/AIDS epidemic has been increasing mortality rates which result in both falling life expectancy and increasing number of orphans. As prevalence rates increase and exceed five percent, these demographic impacts become more pronounced. Levels of HIV infection of ten percent can result in a doubling in the number of deaths and death rates as well as a reduction of 20 years in life expectancy (Way & Stover 1998).

When examining AIDS-related mortality in the Caribbean, rates vary tremendously by country.

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For the year ending 1999, the number of deaths per 100,000 population ranged from zero deaths in Montserrat (not shown in graph) to almost 100 in the Bahamas. In the terms of cumulative AIDS-related deaths per 100,000 population in select Caribbean countries as of 1999, the country with the highest number was the Bahamas with 652 AIDS related deaths per 100,000 population followed by Barbados (318), Trinidad and Tobago (136), Jamaica (64), Haiti (16), Dominican Republic (12) and Cuba (5) (PAHO 2000).
Figure 12 provides the ratio of AIDS-related deaths to reported AIDS cases for select countries.

Data indicate that ratios ranged from very high (Bahamas at .82) to very low (Haiti at .14).

When examining the leading causes of death, in 1995, for both males and females ages 25 to 44, AIDS was the leading cause of death and the third leading of cause for persons ages 15 to 24 (CAREC 2000). Projections indicate that by the year 2010, AIDS will be the leading cause of death for both males and females now aged 15 to 24 (CAREC 2000).

The probability of dying during the productive adult years (ages 15 to 45) and resulting decreases in life expectancy are probably the most sensitive demographic indicators of increased AIDS mortality. In addition, as more women become infected, levels of infant and child mortality will increase as a result of vertical transmission.

Increases in mortality among the younger members of the population have resulted in what is termed the “population chimney” (UNAIDS 2000). In developing countries, the population structure is generally described as a pyramid, the shape of which is determined by both birth and death rates. When both are high, the pyramid has a wide base and tapers off steadily with increasing age. As health improves and fertility declines, the older age groups grow larger than the younger age groups, and the pyramid becomes more of a column. With the population chimney, the base of the pyramid is less broad. Many HIV-infected women die or become infertile long before the end of their reproductive years,
which means that fewer babies are being born. Many infants born to HIV-infected mothers will become infected and die as a result. However, the dramatic change in the population pyramid comes around ten to 15 years after the age at which people first become sexually active – when those infected with HIV early in their sexual lives begin to die off. The populations of women above their early 20s and men above their early 30s shrink radically. As only those who have not been infected survive to older ages, the pyramid becomes a chimney.

The result of this change in population structure is that there will be more adults in their 60s and 70s than there will be adults in their 40s and 50s. What this means for society is hard to predict, since the world has never before experienced death rates of this magnitude among young adults of both sexes across all social strata. But there is one certainty: a small number of young adults – the group that has traditionally provided care for both children and the elderly – will have to support large numbers of young and old people. Many of these young adults will themselves be debilitated by AIDS and may even require care from their children or elderly parents rather than providing it.

With respect to child mortality, predictions are that the HIV/AIDS epidemic will reverse the gains made in this area. Estimates suggest that as many as one third of infants born to HIV-infected mothers develop viral infections within one year after birth and up to 20 percent of these die within a 18-month period. Death rates among Caribbean infants less than five years of age are expected to rise by at least 65 percent by the year 2010 and the death rate in children aged five to ten is predicted to double in the best case scenario and quadruple in the worst during the same time (Howe and Cobley 2000).
One result of the change in population structure has been the increased number of orphans, both infected and uninfected with HIV. As mentioned earlier, as prevalence rates increase in women of reproductive ages, the number of infants born with HIV will also increase, increasing infant and child mortality. However, uninfected children also are affected by this change as well due to their parents' illness and death. One study modeling the epidemic in the English-speaking Caribbean estimates that up to one in five children in the region is at such risk with the number of orphans tripling as a result (Newton et al. 1994). The most recent figures for seven countries in the Caribbean (Bahamas, Barbados, Cuba, Dominican Republic, Haiti, Jamaica and Trinidad and Tobago) estimated that by 1999, there were more than 85,000 orphans as a result of HIV with 87 percent of these orphans being in Haiti (UNAIDS 2000). Since Haiti has prevalence rates in excess of five percent, one can now begin seeing the harsh demographic impact that can result when prevalence rates reach or exceed this level.

While the major demographic impacts of the HIV/AIDS epidemic have been related to mortality, the epidemic has impacted on reproduction as well. Reproductive health, sex and sexuality are inextricably bound up with the HIV/AIDS epidemic. Fertility can be affected by the epidemic. One of the grimmest realities is that the long incubation period of the HIV virus allows men and women to parent children for many years after becoming infected, again increasing the risk of vertical transmission.

Lastly, the combination of mortality and fertility impacts may, in turn, have an impact on the population growth. Projections of the population impacts of AIDS through the year 2050 in 15 less-developed countries indicate that life expectancy will be reduced
from one to more than ten years, compared to levels expected in the absence of AIDS. In addition, AIDS will trim population growth rates by up to one percentage point, but will not result in absolute population declines (Way & Stanecki 1993). Population growth in most countries is expected to continue positive, despite large-scale epidemics. Negative growth will result only with a country wide epidemic two to three times as severe as the worst urban situation in Africa today (Way & Stanecki 1992). Modeling results suggest that such an epidemic is only possible with implausible behavioural and /or transmission parameters. Therefore, while negative population growth due to increased mortality from AIDS is possible, it is not probable.

**Economic and Social Impacts**

The premature death of a large proportion of the adult population, typically at ages when they have already started to form their own families and have become economically productive, can be expected to have a radical effect on virtually every aspect of economic and social life.

HIV/AIDS undermines the basis of the most productive band of our society – those workers between the ages of 25 and 44. It is among this group that the highest number of HIV and AIDS cases and deaths have been recorded in the Caribbean region. Therefore, these persons are at particular risk from HIV/AIDS: most other diseases take their heaviest tolls amongst the weakest segments of society, especially the young and old. However, HIV/AIDS primarily affects young adults in their productive and reproductive prime, those on whom households and communities have the greatest social and economic
dependence. In addition, unlike many of diseases affecting adults, AIDS is generally fatal. Therefore, this disease will undermine the social and economic base of more and more communities, regions, and countries. Important sectors of the economy and national capacity-building efforts may be undermined as prevalence rates continue to increase in the region. HIV/AIDS impacts negatively on the business sector by contributing to increased costs associated with absenteeism, lower productivity and higher costs for workers obliged to work longer hours to fill in for sick co-workers.

As an infected person becomes sicker and unable to work consistently, the household is affected tremendously. Decreased household income inevitably means fewer purchases and diminishing savings. One common strategy in AIDS-affected households is to send one or more children away to extended family members to ensure that they are fed and cared for. Such extended family structures have been able to absorb some of the stress of the increasing number of orphans. However, as the number of orphans grows and the number of potential caregivers shrinks, traditional coping mechanisms are pushed to the limits. Households headed by orphans are becoming common in high-prevalence countries and these orphans face a future even more difficult than that of other orphans, including increased risk of malnutrition, illness, abuse and sexual exploitation (UNAIDS 2000).

The HIV/AIDS epidemic has also had a detrimental effect on the health sector, especially in the developing world. The increased demand for health care from people with HIV-related illnesses is heavily taxing overstretched public health services. Health systems become overburdened due to significant fiscal costs of HIV/AIDS. The establishment of
health services for a new disease is always difficult and expensive, considering both medical costs and the costs of providing support services. This is even more apparent with the HIV/AIDS epidemic because of the number of support services required, including education, counseling, nutrition and community services. Therefore, it is not difficult to see the extensive costs associated with health care services required for persons infected with HIV/AIDS.

In many countries of the developing world, one year of basic treatment for a person with AIDS costs an estimated two to three times the per capita gross domestic product (GDP) in medical costs alone. Most of these costs are typically borne by the public sector. As the number of AIDS cases increases, so do the costs. For example, in a country with HIV prevalence of 15 percent, the estimated budgetary cost could rise from 2.5 percent of GDP today to six percent by 2010 (CAREC 2000).

Recent World Bank research suggests that HIV/AIDS has a substantial negative impact on economic growth. This relationship was difficult to discern when HIV prevalence rates were lower, but it now appears that the economic impact grows as the epidemic advances. As long as prevalence rates remain below five percent, per capita growth is minimally affected. As prevalence rises, per capita growth begins to decline, as shown in Figure 13.

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When prevalence reaches eight percent, the cost in per capita growth is about 0.4 percentage points per year. In countries where HIV prevalence rates exceed 25 percent,
annual per capital growth is probably a full percentage point lower than it otherwise would be (World Bank 2000).

The development of new therapies for HIV-infected persons and of vaccines will further raise health sector costs in infrastructure, drugs, training and personnel expenditures. At the same time, HIV-related illness and premature death among health care workers themselves will continue to create costs of another kind for the health sector. Sickness and death due to AIDS are growing rapidly among health care personnel. For example, a study in Zambia showed than in one hospital, deaths in health care workers increased 13-fold over the ten year period from 1980 to 1990, largely due to HIV (UNAIDS 2000). As in other sectors of the economy, rising rates of HIV infection in health care workers will increase rates of absenteeism, reduce productivity, and lead to higher levels of spending for treatment, death benefits, additional staff recruitment and training of new health personnel.

It is also important to examine the impact of HIV/AIDS on agriculture in the region. Agriculture is an important sector in many developing countries. Although the sector may produce only 20 percent of a country’s wealth (measured as a percentage of gross national product), it might provide a living or survival for as much as 80 percent of the country’s population. As an infected farmer becomes increasingly ill, he and the family members looking after him spend less and less time working on the crops, resulting in a loss of income, which will affect household survival. This is compounded by the high costs of health care. One study found that the costs for care of a male AIDS patient represented
anywhere from one-quarter to one-half of the net annual income of most small-scale farms (UNAIDS 2000).

While we know that the economic costs of the HIV/AIDS epidemic are tremendous, the social costs are also significant. Fear, isolation, stigmatization and discrimination are some of the major social impacts of the epidemic. A country in which denial flourishes is a country whose citizens are vulnerable to the silent spread of HIV. In many places, however, ordinary citizens are still reluctant to acknowledge the relevance of AIDS to their own lives because of the same fear that surround this fatal disease, and the discrimination of those affected. People with or suspected of having HIV may be turned away by health care providers, denied jobs and housing, refused insurance and entry to foreign countries, thrown out by their spouse or family and even murdered. Research conducted with HIV-infected persons in Jamaica confirms these reactions from others toward the HIV-infected person. Reports of verbal and physical abuse of persons infected with HIV range from ignoring a blind woman who fell in a gully to leaving an infected patient at the hospital in soiled diapers for three days to teenage boys physically beating a woman in the street (Carr, under review). These incidents are just a fraction of the abuse suffered by persons living with HIV/AIDS in the Caribbean region. These persons are dehumanized and until society accepts that a person living with HIV or AIDS deserves to be treated like a human and not some animal or worse, these incidents will not subside.

In addition to the social stigma and isolation, discrimination is a major negative result of the epidemic. Discrimination is not unusual in the region due to the lack of clearly
noted discrimination laws. Employers and landlords can choose to treat an employee or tenant in a discriminatory fashion with little or no recrimination.

These negative social impacts not only affect the infected person but to their children and other survivors, placing an extreme emotional burden on these other persons. These children and survivors may be ostracized from their own communities, even though they may not even be infected with the virus. For example, in Jamaica, two children were sent home from school because it became know that a family member was HIV positive (Carr, under review).

**Conclusion**

As we approach the third decade of the HIV/AIDS epidemic with no cure or vaccine available, it is clear that the epidemic will undermine the economic and social development in countries badly affected by the virus. Until such a cure or vaccine is developed, behaviour change is the only viable mechanism to decrease the spread of HIV transmission. These interventions should be targeted, depending on the social climate of the country or even areas within a country, and address the economic and social needs of those persons at risk of both primary and secondary HIV transmission. Considering the strong cultural influence within the region, it is imperative that cultural considerations be made when developing interventions as well as regional and national policies to ensure that all persons are treated with dignity, without fear of social stigma, discrimination or violence. Until persons recognize that HIV/AIDS affects everyone in a given society and appropriate
measures are taken, the detrimental demographic, economic and social impacts will continue to affect the countries of the Caribbean.
NOTES:

1Incidence is defined as the number of new cases of a disease occurring in the population during a specified period of time. Thus, the incidence of AIDS is often presented as the number of new cases of AIDS diagnosed during a given year per million population. Many years typically lapse between the time an individual is infected with HIV and the time he or she develops full-blown AIDS. For that reason, AIDS incidence rates reflect rates of HIV infection from years before. Prevalence is a commonly used epidemiological term that refers to the percentage of people suffering from an illness or condition at a given time. Prevalence rates are typically expressed as a percentage of the total population. Thus, the prevalence of HIV is defined as the percentage of the total population that is infected with HIV, including both HIV-positive individuals who have not yet developed AIDS and individuals whose HIV infection has developed into AIDS. From a public health perspective, HIV prevalence is important because it provides a measure of the population’s general risk of contracting AIDS. The higher the prevalence of HIV, the higher the risk of contracting AIDS.

2Carec member countries include Anguilla, Antigua and Barbuda, Bahamas, Barbados, Bermuda, Belize, British Virgin Islands, Cayman Islands, Dominica, Grenada, Guyana, Jamaica, Montserrat, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Trinidad and Tobago, Turks and Caicos Islands, and Suriname.
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