Economic Impact of Non-communicable Disease in the Caribbean

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The World Bank

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Outline of Presentation

1. Why focus on Non-communicable Diseases (NCDs)

2. Economic Implications of NCDs

3. Financing Strategies to address NCDs
Why NCDs Matter

- NCDs are becoming chronic emergency in middle-income and low-income countries
- NCDs present a particularly daunting challenge for middle- and low-income countries because of the scale of the burden relative to their level of economic development.
Increase Burden of Diseases due to NCDs in Disability-adjusted life years (DALYs)
Burden of NCDs in the Caribbean

- NCD deaths are 5 times of deaths from other diseases
- NCD deaths are 10 times of deaths from HIV/AIDS
- NCDs account for 65% burden of diseases
NCDs #1 KILLER IN AMERICAS REGION

- Chronic respiratory disease: 10%
- Other NCDs: 7%
- Diabetes: 8%
- Cancer: 30%
- TOTAL NCD DEATHS 2009: 4.5 Millions
- Cardiovascular diseases: 45%
- 37% deaths are below age 70 years

Approx 250,000,000 people live with an NCD in the Americas region

- 149 million smokers
- 30-40% of 25-64 hypertensive
- 25% persons >15 years old obese
Figure 2: Disability-adjusted life year ranks, top 25 causes, and percentage change in Latin America and Caribbean, 1990-2010

1. In 1990 Diarrheal Diseases ranked No. 1 and in 2010, it ranks No. 20.

2. In 1990 Forces of nature ranked No. 174 and in 2010, it ranks No. 2

Top 5 burden of diseases in 2010

1. Heat diseases
2. Forces of Nature
3. Violence
4. Road injury
5. Major depressive disorder
Jamaica: Trend of NCDs

Source: JSLC author calculation

Predicted prevalence controlled for key individual socioeconomic and demographic characteristics

% chronic illness

year

female

male

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<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>%</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Nauru</td>
<td>82</td>
</tr>
<tr>
<td>2</td>
<td>Tonga</td>
<td>81</td>
</tr>
<tr>
<td>3</td>
<td>Micronesia</td>
<td>79</td>
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<td>4</td>
<td>Cook Is.</td>
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<td>5</td>
<td>Samoa</td>
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<td>6</td>
<td>Niue</td>
<td>70</td>
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<tr>
<td>7</td>
<td>Kuwait</td>
<td>67</td>
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<tr>
<td>8</td>
<td>Barbados</td>
<td>63</td>
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<td>9</td>
<td>Palau</td>
<td>62</td>
</tr>
<tr>
<td>10</td>
<td>Trinidad</td>
<td>61</td>
</tr>
<tr>
<td>11</td>
<td>Dominica</td>
<td>60</td>
</tr>
<tr>
<td>12</td>
<td>Egypt</td>
<td>59</td>
</tr>
<tr>
<td>13</td>
<td>USA</td>
<td>55</td>
</tr>
<tr>
<td>14</td>
<td>Jamaica</td>
<td>53</td>
</tr>
</tbody>
</table>
ADULT OVERWEIGHT/OBESITY TRENDS IN THE CARIBBEAN

- **1970s**
  - Male
  - Female

- **1980s**
  - Male
  - Female

- **1990s**
  - Male
  - Female

- **2000s**
  - Male
  - Female

(Chart showing trends over decades for male and female adult overweight/obesity rates.)
Economic Implications of NCDs
Socioeconomic Impact of NCDs

Exhibit 4. NCDs have a significant impact on economies, health systems and households

**Key drivers**

**Economies**
- Reduced labor supply
- Reduced labor outputs (e.g., cost of absenteeism)
- Lower tax revenues
- Lower returns on human capital investments
- Increased public health and social welfare expenditures
- Cost to employers (e.g., productivity, health)

**Health systems**
- Increased consumption of NCD-related healthcare
- High medical treatment costs (per episode)
- Demand for more effective treatments (e.g., cost of technology and innovation)
- Health system adaptation needs and costs (e.g., organization, service delivery, financing)

**Households and individuals**
- Reduced well-being
- Increased disabilities and premature deaths
- Household income decrease, loss, or impoverishment
- Higher health expenditures, including catastrophic spending
- Savings and assets loss
- Reduced opportunities

**Key impact areas**

- Country productivity and competitiveness
- Fiscal pressures
- Health outcomes
- Poverty, inequity, and opportunity loss

*Source: World Bank analysis by the authors*
Fiscal Pressure of NCDs

• Lose tax revenue;
• Increase health and social protection expenditures;
• Reduce fiscal space;
• Limit governments’ ability to invest in economic development and general social welfare.
NCD Situation not Sustainable

- $47 trillion output lost globally in 20 years (75% of global GDP in 2010)

- $500 billion annually in LMICs = 4% GDP

World Economic Forum and the Harvard School of Public Health, 2011
Methodology to estimate NCD cost

Three distinct approaches are used to compute the economic burden:

(1) the standard cost of illness method;
(2) macroeconomic simulation and
(3) the value of a statistical life.

World Economic Forum and the Harvard School of Public Health, 2011
Examples of economic impact

• China: reducing cardiovascular mortality by 1% per year between 2010 and 2040 could generate an economic value equivalent to 68% of China’s real GDP in 2010 or over PPP US$10.7 trillion

• Egypt: NCDs could be leading to an overall production loss of 12% of Egypt’s GDP

• Brazil: costs of NCDs between 2005 and 2009 could equal 10% of Brazil’s 2003 GDP

• India: eliminating NCDs could have, in theory, increased India’s 2004 GDP by 4%-10%
Economic Burden to individuals have two components:

- **Direct economic burden**: at individual level is the sum of
  - (a) out-patients visits; (b) hospital stays, and (c) medication.
- **Indirect economic burden** of NCDs is from reduction of productivity due to illness.
Estimated Average Economic Burden Per Person with NCD in Jamaica 2008 is about J$70,000

- Indirect work loss
  - $15,912
  - 23%

- Medicine/prescription purchase
  - $25,267
  - 36%

- Health practitioner visits
  - $15,236
  - 22%

- Hospital stay
  - $13,581
  - 19%

Jamaica dollar
National Aggregate Economic Burden

National aggregate economic burdens by conditions, in J$M

- **Asthma**
- **Diabetes**
- **Hypertension**
- **Arthritis**

Source: JSLC author calculation.
2008 Jamaica million Dollar
Economic Implication of NCDs

• Based on household survey data, NCDs economic burden accounted for 3% of Jamaica GDP in 2008. This does not include government expenditure or insurance expenditure.

• Health expenditure on a diabetic patient ranges from US$322 to US$769 per year which is more than annual per capita spending for health in the six OECS countries.

• Data for Saint Lucia show that NCD patients spend 36 percent of their annual household expenditures on out-of-pocket healthcare costs for NCD care.
# Direct Cost of Diabetes & Hypertension

<table>
<thead>
<tr>
<th>Caribbean Countries</th>
<th>Total Cost (US$ M)</th>
<th>As % of Public Health Exp</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guyana</td>
<td>74.5</td>
<td>211.3</td>
</tr>
<tr>
<td>Jamaica</td>
<td>289.0</td>
<td>175.3</td>
</tr>
<tr>
<td>Suriname</td>
<td>42.3</td>
<td>122.2</td>
</tr>
<tr>
<td>St Vincent &amp; Grenadines</td>
<td>12.2</td>
<td>83.0</td>
</tr>
<tr>
<td>Dominica</td>
<td>8.0</td>
<td>69.3</td>
</tr>
<tr>
<td>St Lucia</td>
<td>17.0</td>
<td>66.1</td>
</tr>
<tr>
<td>St Kitts &amp; Nevis</td>
<td>4.9</td>
<td>47.9</td>
</tr>
<tr>
<td>Belize</td>
<td>19.6</td>
<td>47.8</td>
</tr>
<tr>
<td>Trinidad &amp; Tobago</td>
<td>131.6</td>
<td>41.0</td>
</tr>
<tr>
<td>Barbados</td>
<td>38.1</td>
<td>31.6</td>
</tr>
<tr>
<td>Anguilla</td>
<td>1.6</td>
<td>30.5</td>
</tr>
<tr>
<td>Montserrat</td>
<td>1.1</td>
<td>27.2</td>
</tr>
<tr>
<td>Antigua/Barbuda</td>
<td>7.7</td>
<td>25.7</td>
</tr>
<tr>
<td>Grenada</td>
<td>6.0</td>
<td>25.5</td>
</tr>
<tr>
<td>BVI</td>
<td>2.6</td>
<td>18.4</td>
</tr>
<tr>
<td>Bahamas</td>
<td>34.8</td>
<td>17.6</td>
</tr>
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Strategies to address NCDs
Challenges for Low and Middle Income countries

• Most countries lack the means to “treat their way out” of the NCD challenge.

• Rising trends in NCD prevalence and treatment costs will force countries to make deliberate, and often very difficult choices in creating strategies to address NCDs in a sustainable way.

• The strategy should strongly emphasize prevention, alongside efforts to provide effective treatment.
We can avoid 3 million deaths in 10 years in LAC

NCDs ARE HIGHLY PREVENTABLE

Reducing tobacco use by 20% + Lowering salt intake by 15% + Increase coverage of patients at high risk of Cardiovascular Diseases with simple drug regimen to 60% = 3.4 M deaths prevented in LAC in the next 10 years

The tobacco and salt intake interventions would be cost than US $ 0.40 per person/year in low and middle income countries, and US$ 0.50-1.00 in upper middle-income countries

Plus Education & Communication
<table>
<thead>
<tr>
<th>Condition</th>
<th>Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco use</td>
<td>Tax increases; smoke-free indoor workplaces &amp; public places; health information / warnings; advertising/promotion bans</td>
</tr>
<tr>
<td>Alcohol use</td>
<td>Tax increases; restrict retail access; advertising bans</td>
</tr>
<tr>
<td>Unhealthy diet &amp; physical inactivity</td>
<td>Reduced salt intake; replacement of trans fat; public awareness about diet &amp; physical activity</td>
</tr>
<tr>
<td>CVD &amp; diabetes</td>
<td>Counseling &amp; multi-drug therapy (including glycaemic control for diabetes) for people with &gt;30% CVD risk (including those with CVD); treatment of heart attacks with aspirin</td>
</tr>
<tr>
<td>Cancer</td>
<td>Hepatitis B immunization to prevent liver cancer; screening &amp; treatment of pre-cancerous lesions to prevent cervical cancer</td>
</tr>
</tbody>
</table>
Jamaica’s Response to NCDs

- National Health Fund (NHF) created in 2003 using Taxation from tobacco.
  - Individual Benefits:
    - **NHF Card**: Subsidizes drugs for all Jamaican residents with eligible NCDs
    - **JADEP Card**: The Jamaica Drug for the Elderly Program (JADEP) that provides drugs free of charge to residents age 60 and over who suffer from eligible diseases
  - Institutional Benefits:
    - **Health Promotion Fund**: finances public and private sector health promotion and disease prevention programs and spends at least 10 percent of the NHF revenues
    - **Health Support Fund**: assists the public agencies by financing the infrastructure development activities such as purchasing equipment and renovating, refurbishing and constructing health
Direct Healthcare Cost By Insurance

Source: JSCL author calculation. 2008
Jamaica dollar
Figure 1. Individual annual medical expenditures before and after NHF Program among NCD population (in 1000 2008 constant JMD)

- Richest 20%
- Poorest 20%
- 100% of Population

Medicine and prescription drug expenditure

- Richest 20%
- Poorest 20%
- 100% of Population

2006 and 2007
2000 and 2001
The Way Forward
Mitigate the impact of NCDs

- **On productivity and labor supply**
  - Targeted educational and worker training programs
  - Access to cost-effective NCD treatments
  - Develop employer-led disease management programs that help those with NCDs to continue working.

- **On competitiveness:**
  - High-level fiscal planning to avoid undue debt burdens, tax increases, and reductions to productive public investments.

- **On cost control:**
  - Improving prevention efforts
  - Leveraging existing communicable diseases management channels and community health worker schemes
  - Strengthening primary health care
  - Sharing resources – e-medicine
How to make UHC a Reality

• Universal Health Coverage
  – What services to be covered
  – How to finance them

• Financing Strategy
  – Caribbean Regional financing strategy?
  – Regional health fund or Regional health insurance?
  – Where are the funds from at the country level
    • Financing through sin taxation
    • Pay-roll taxation
    • General taxation
  – Private Sector (insurance vs. fee forerves)