A Business Case for Managing NCDs in Barbados

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Overview

- 1. The NCD Situation in Barbados with projections of risk factors
- 2. Economic Modelling based on direct and direct cost estimates
- 3. Results of the Model – the Business Case
- 4. Limitations
- 5. Conclusion and Lessons Learnt

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The NCD Situation in Barbados

- Island state with a population of 276,000
- Aging Population with over 13% over the age of 65 years
- Characterised as a high income country
- GDP per capita estimated in 2014 at US $13,250
- Non communicable diseases account for 7 out of every 10 deaths in Barbados

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The NCD Situation in Barbados

- One quarter of all adults have an NCD and another quarter are at risk (140,000 persons)
- Diabetes, hypertension, cardiovascular disease (stroke and heart attack), cancers and pulmonary disease
- 9 out of every 10 women have at least one risk factor
- 8 out of every 10 men have at least one risk factor

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Risk Factors in Barbados - Behavioral

2007

- **Current Smokers Tobacco**
- All 8.4% – M 14.4% and F 2.2%
- **Alcohol in the last 30 days**
- All 23.9% – M 42.1% and F 16.9%
- **Binge drinking**
- All 13.8% M 21.9% and F 9.7%
- **< 5 servings F&V**
- All 95.4% - M 96.6% and F 94.3%

2012

- **Current Smokers Tobacco**
- All 8.8% - M 15.6% and F 4.9%
- **Alcohol in the last 30 days**
- All 40.8% - M 56.6% and F 32.0%
- **Binge drinking**
- All 12.1% - M 23.9% and F 5.6%
- **< 5 servings F&V**
- All 81.2% – M 80.1% and F 81.8%

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Risk Factors in Barbados - Biological

2007

- **Mean BMI (kg/m2)**
- All 27.7- M 26.1 and F 29.1
- **Overweight**
- All 65.2% - M 54.6% and F 74.3%
- **Obesity**
- 28.5% - M 20.3% and F 35.5%
- **Hypertension**
- All 41.5% - M 41.2% and F 41.8%
- **Diabetes Mellitus**
- All 14.9% - M 12.7% and F 16.7%

2012

- **Mean BMI (kg/m2)**
- All 28.1 – M 26.5 and F 29.0
- **Overweight**
- All 64.3% - M 56.6% and F 68.8%
- **Obesity**
- All 32.9% M 22.1% and F 39.3%
- **Hypertension**
- All 38.8% - M 40.1% and F 38.1%
- **Diabetes Mellitus**
- All 16.9% - M 16.7% and F 17.0%

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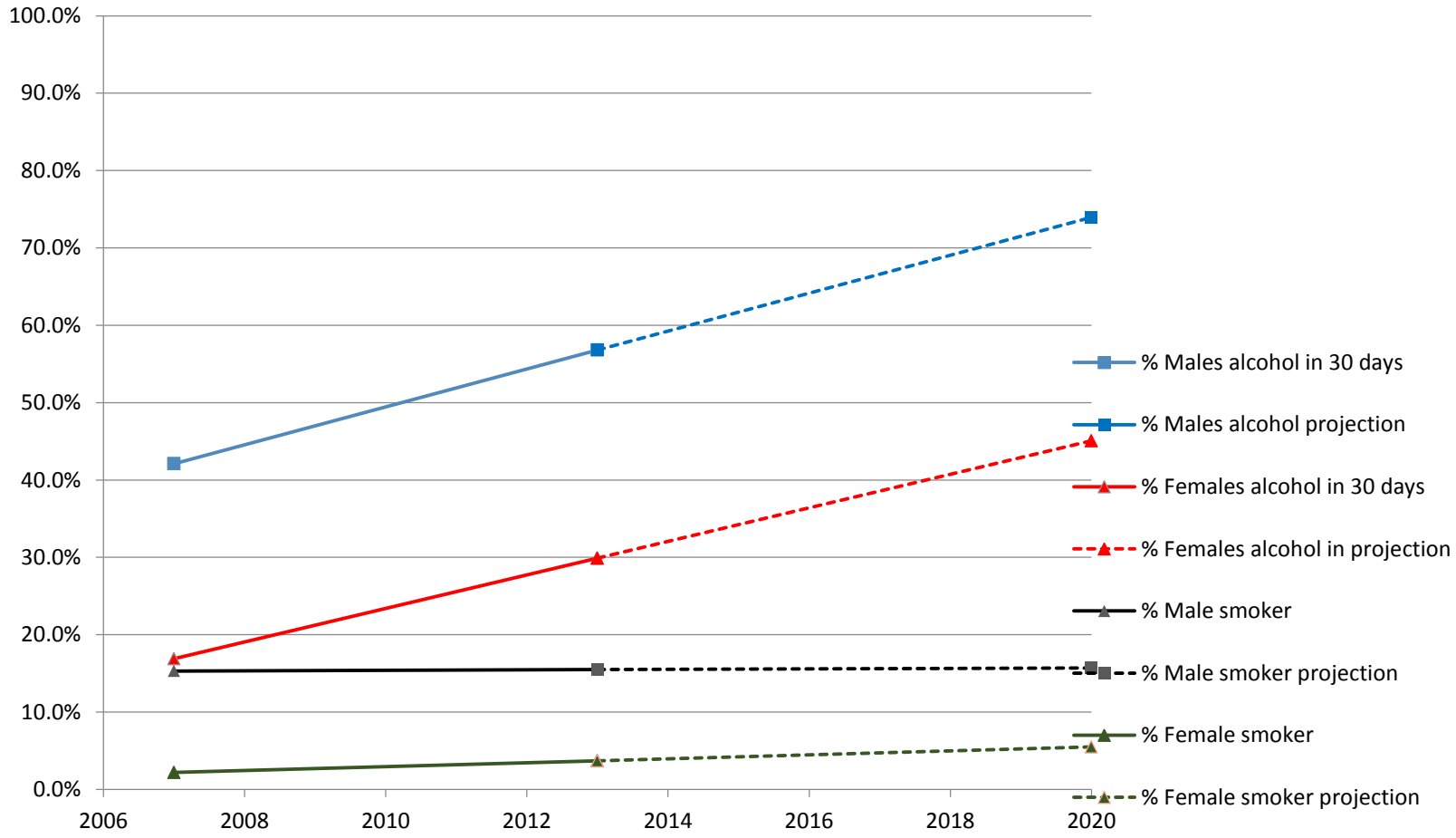
Tobacco and Alcohol use 2007, 2013 and projected to 2020 (A Samuels 2014)



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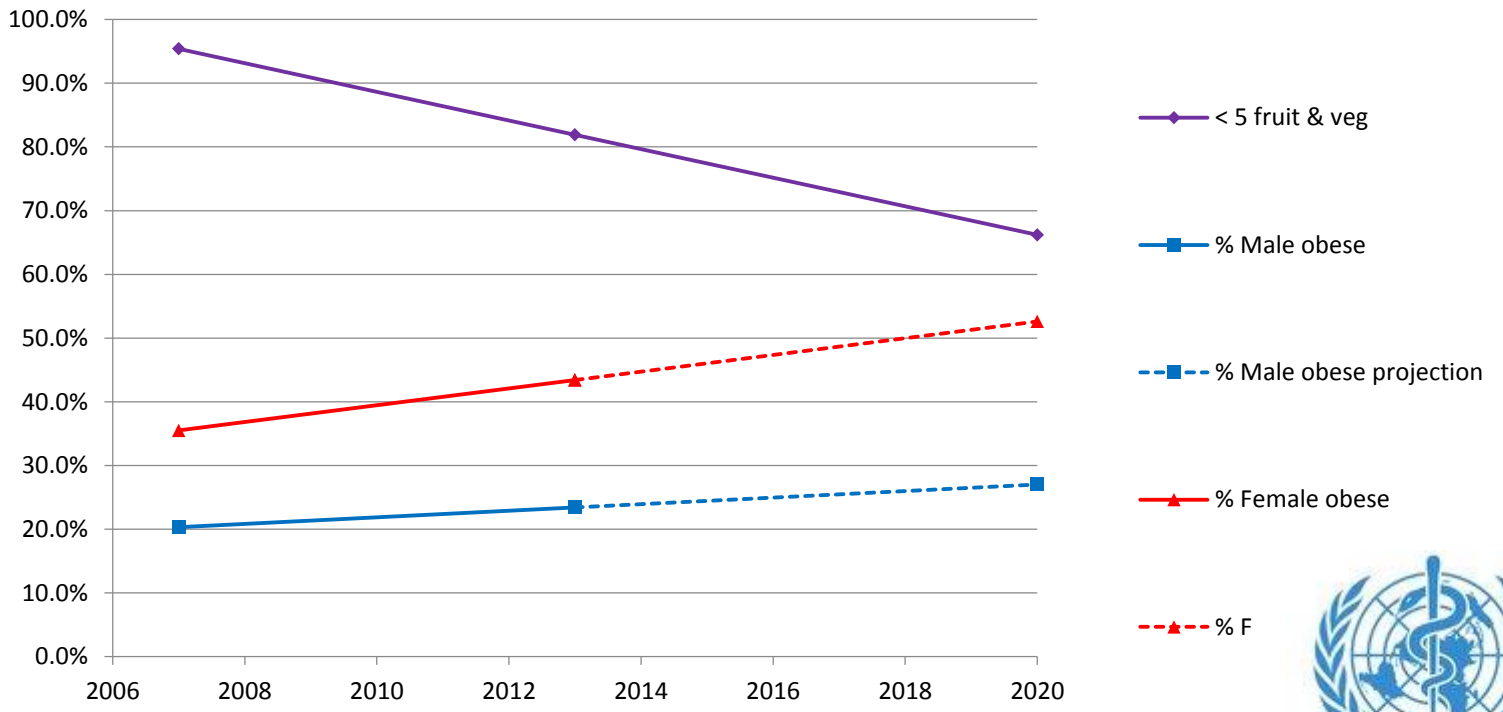
<5 F&V and obesity 2007,2013 and projected to 2020



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Economic Modelling for NCD Business Case In Barbados

- The One Health Tool is the model for estimation of the economic impact of health care interventions

- The two NCDs analysed using the model were cardiovascular disease (hypertension, stroke and heart attack) and diabetes

- The elements of the model included
  1. Burden of disease
  2. Investment cost of Barbados' NCD Strategy 2015 to 2019
  3. Evaluation of policy options based on cost benefit analysis

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There are many ways to value the economic costs of non-communicable diseases (NCDs)

Direct costs

Government

- **Government expenditure on prevention, screening, and treatment**

Individuals

- Human lives lost
- Increased personal medical expenditures

Private sector

- Private sector expenditure on health
- Non-health sector expenditures

Indirect costs

Economy

- **Output lost due to absenteeism[1]**
- **Output lost due to presenteeism[2]**
- **Cost to replace workers who drop out of workforce due to chronic disease**
- Decreased human capital

Individuals

- Lost income
- Lost time due to caretaking responsibilities

1. Days absent from work
2. Reduced productivity at work

XX = Incorporated into this analysis

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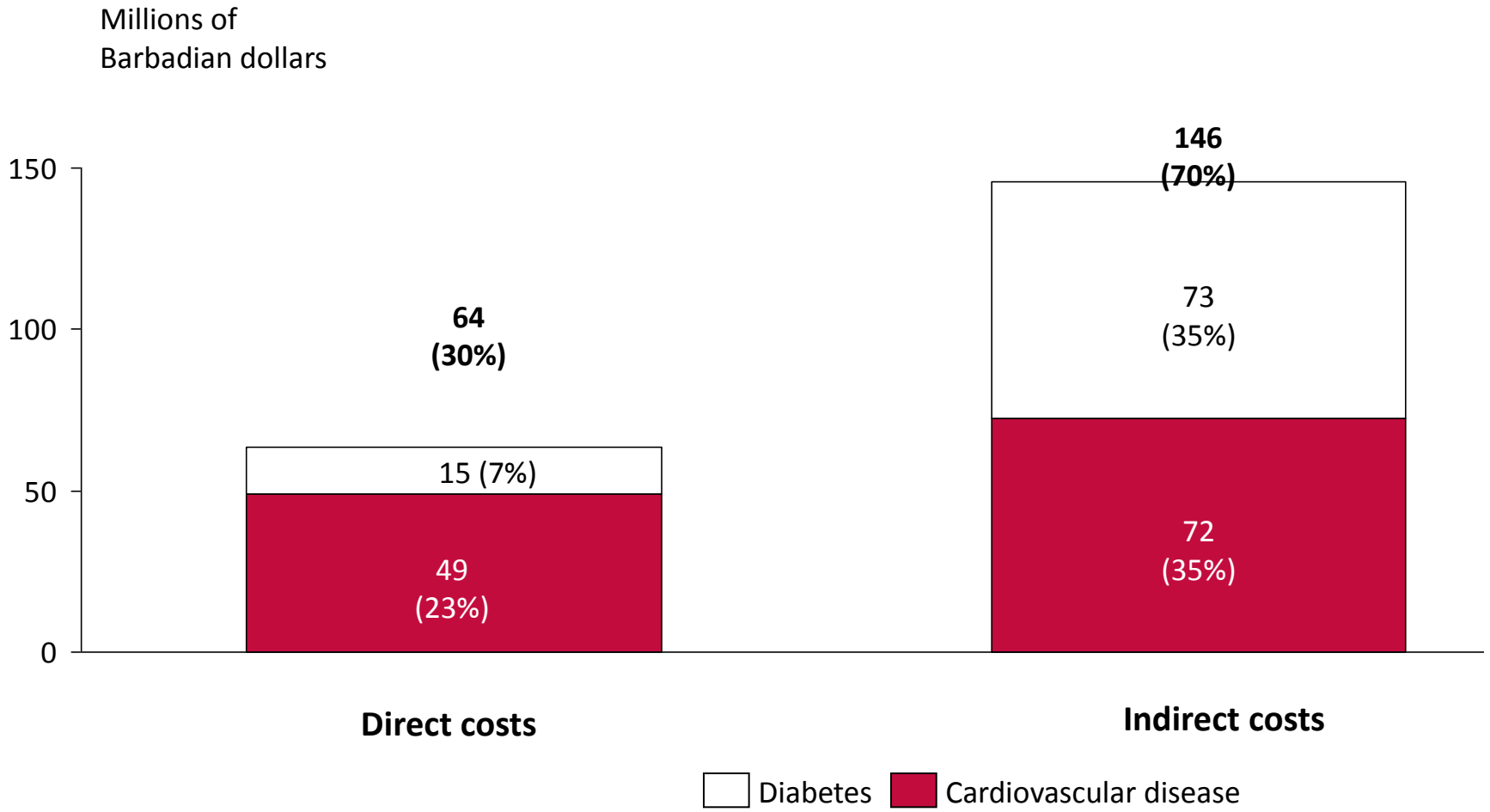
Estimated cost of treated cardiovascular disease and diagnosed diabetes in Barbados



Notes: Based on GDP of BDS$ 8.7 billion. Includes only diagnosed diabetes cases and patients on medication for hypertension.

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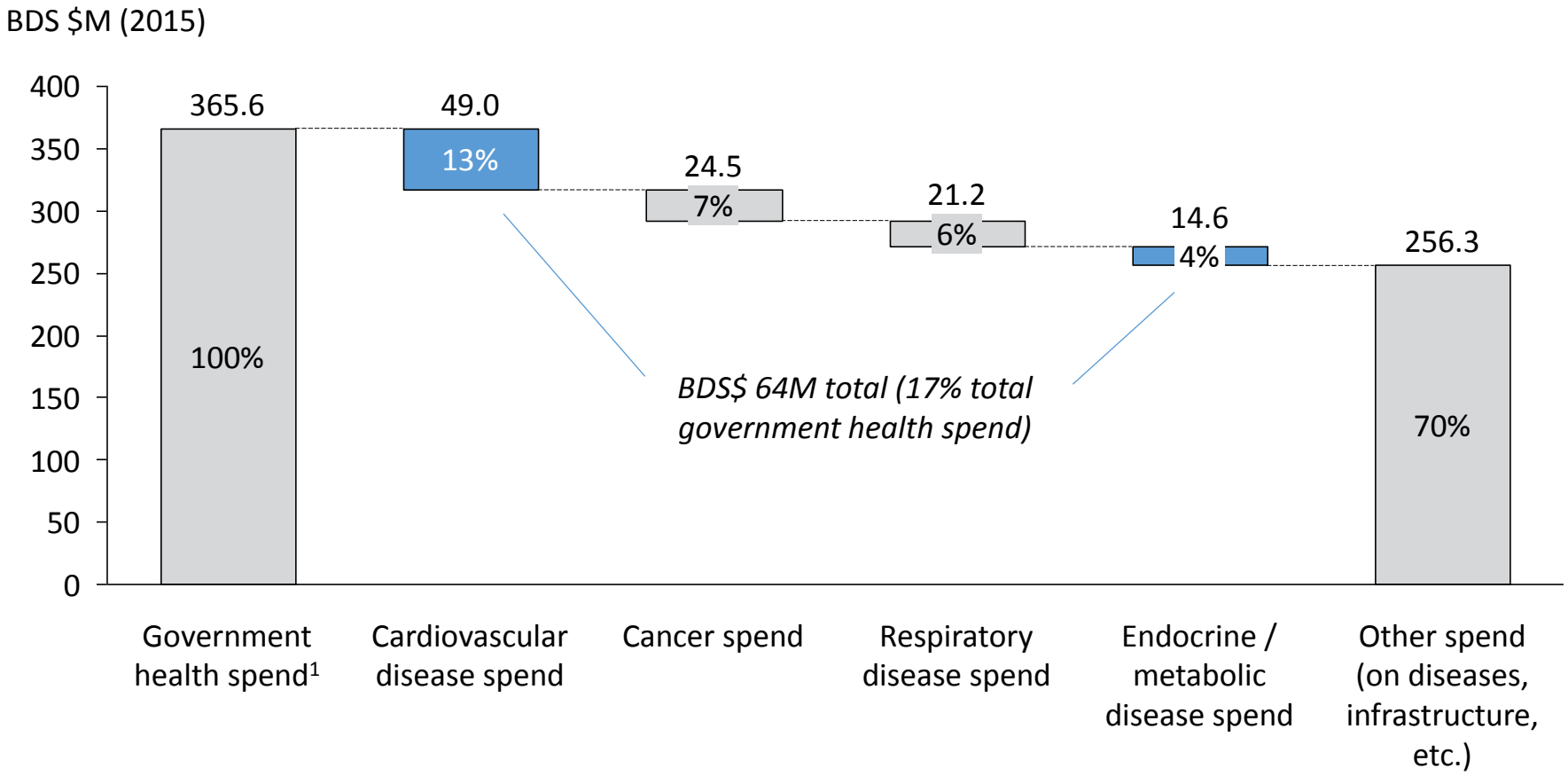
Estimate of direct costs to the Barbados government of heart disease and diabetes



*Government health spend on CVD, cancers, endocrine and metabolic disease, and respiratory disease represents 1.3% of Barbados's total GDP in 2013. Estimate **does not include** private health spend, and non-health sector spend, on NCDs.*

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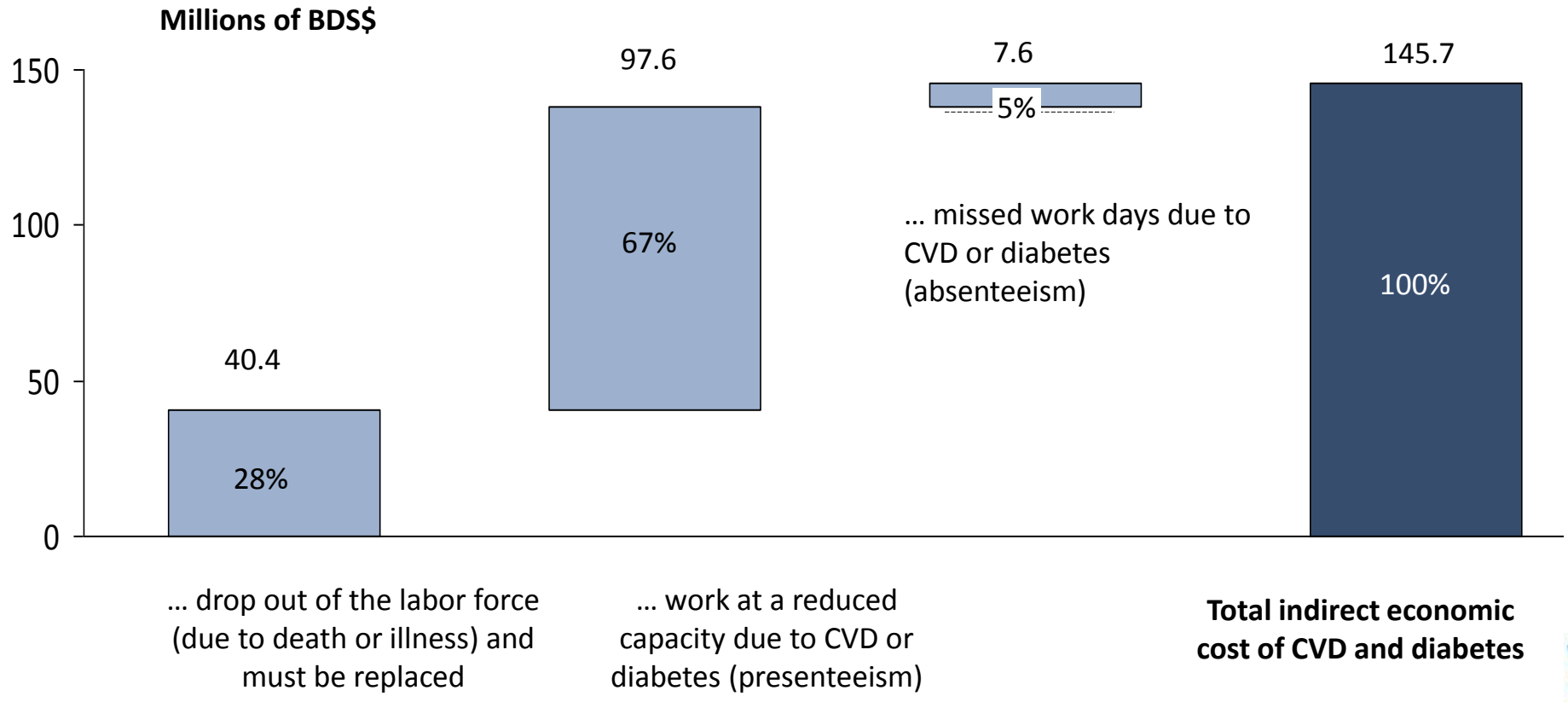
Estimated indirect economic costs of diabetes and cardiovascular disease

Economic output lost due to Barbadian work force with NCDs…



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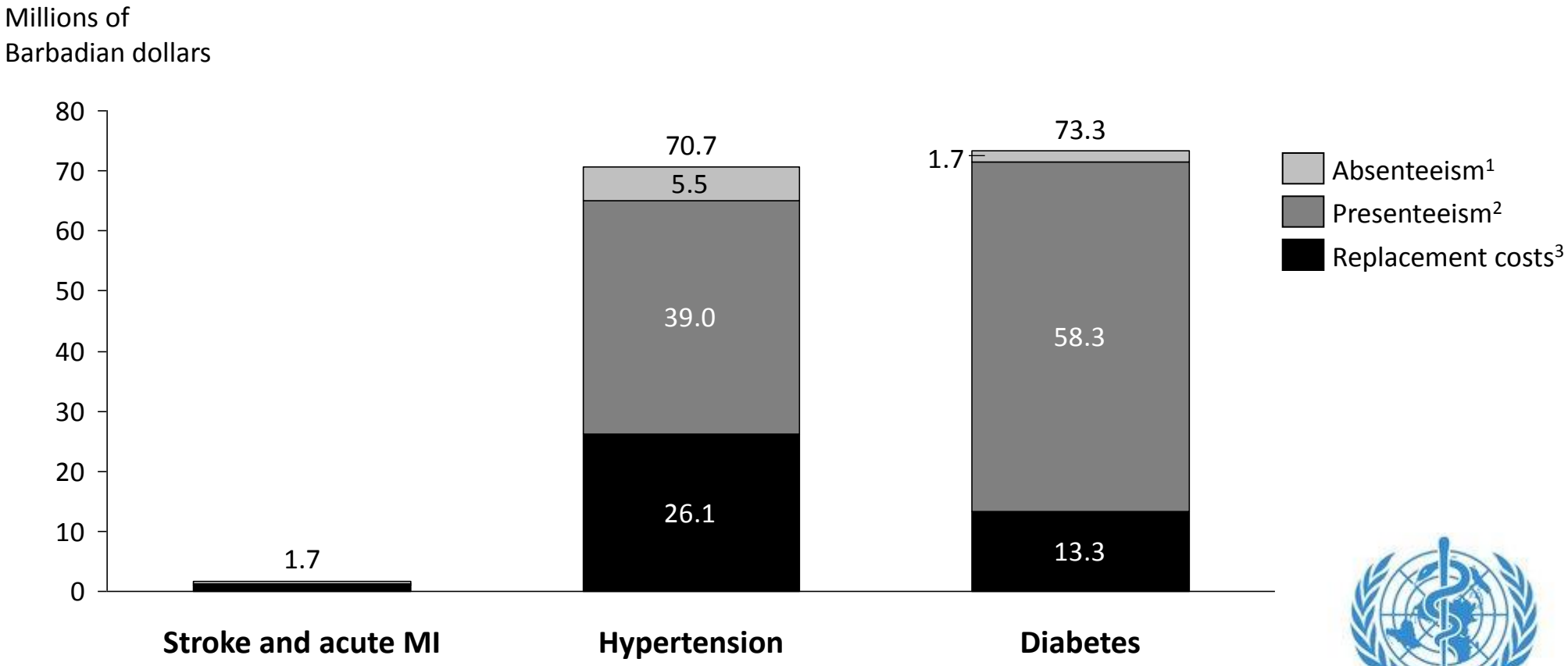
Indirect costs driven by diabetes and hypertension

Reduced productivity at work is the single biggest cost driver



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ROI of 33% by 2019; 131% if social value is included

	Direct GDP Returns on Investment					Returns on Investment including Social Value				
	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Tobacco										
… Package warnings	-	0.3	-	0.9	-	-	1.1	-	4.1	-
… Advertising bans	-	-	0.4	-	1.0	-	-	1.5	-	5.1
… Cessation programmes	-	-	-	0.3	0.4	-	-	-	1.5	1.9
Diet										
… Salt reduction policy	-	3.8	7.5	8.1	9.2	-	13.5	30.1	35.4	41.7
CVD										
… Combination Prevention therapy for those at 30% or greater CVD risk	-	0.6	0.7	0.9	1.0	-	1.8	2.5	3.2	3.9
… Blood pressure drugs for those with SBP > 140 mmHG but less than 30% absolute risk	-	0.1	0.1	0.1	0.1	-	0.5	0.4	0.4	0.4
… Cholesterol drugs for those with Chol > 6mmol/L but less than 30% absolute risk	-	0.4	0.3	0.2	0.2	-	1.3	1.0	1.0	1.0
… Aspirin	-	1.2	1.3	0.9	1.0	-	1.2	2.1	1.9	2.1
… Treat post acute IHD combination	-	0.9	1.3	1.4	1.5	-	1.3	2.0	2.4	3.0
… Treat post acute Stroke combination	-	2.4	2.4	2.3	2.2	-	3.5	4.1	4.3	4.7
Diabetes										
… Standard Glycemic Control	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.3	0.5
… Intensive Glycemic Control	-	0.0	0.1	0.2	0.3	-	0.3	0.7	1.2	1.7
… Screening and treatment for diabetic blindness	0.2	0.2	0.4	0.4	0.6	1.2	1.6	2.2	2.7	3.7
… Screening and treatment for diabetic foot	0.1	0.1	0.2	0.2	0.3	0.4	0.7	0.9	1.2	1.6
TOTAL BENEFIT	-	1.2	2.1	3.3	4.8	-	3.8	7.6	12.7	19.2
TOTAL COSTS	0.0	3.3	7.1	11.3	14.7	0.0	3.3	7.1	11.3	14.7
ROI (%)	0%	35%	30%	29%	33%	0%	113%	106%	112%	131%

Salt reduction efforts have a positive ROI within a short period of time, thanks to a low cost of intervention with a strong effect on cardiac event rates

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ROI to 2030

*Note: This table presents **ratios** that represent net present value of each intervention*

	GDP only	GDP + Social Value
Tobacco		
… Package warnings	9.7	57.4
… Advertising bans	9.7	58.3
… Cessation programmes	5.5	33.0
Diet		
… Salt reduction policy	358	2110
CVD		
… Combination Prevention therapy for those at 30% or greater CVD risk	2.1	9.6
… Blood pressure drugs for those with SBP > 140 mmHG but less than 30% absolute risk	0.2	1.0
… Cholesterol drugs for those with Chol > 6mmol/L but less than 30% absolute risk	0.5	2.7
… Aspirin	1.0	3.3
… Treat post acute IHD combination	1.8	5.6
… Treat post acute Stroke combination	2.0	6.5
Diabetes		
… Standard Glycemic Control	0.1	0.9
… Intensive Glycemic Control	0.5	2.9
… Screening and treatment for diabetic blindness	1.1	6.9
… Screening and treatment for diabetic foot	0.5	3.0

Analysis does <u>not</u> include benefits due to reduced intake of sugar and trans fatty acids. Thus, this analysis represents a significant <u>underestimate</u> of the total benefits to Barbados of implementing its strategic plan to prevent NCDs

Note: Includes only interventions where both cost and benefit data was provided

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Limitations of the Costing Model

- Inclusion of cancer in the model would have presented a stronger analysis of the burden. Currently, the model to analyse cancer is a work in progress.
- Consideration was given to persons seen and treated in the public sector only. Sufficient data on the private sector and civil society was not available.
- Health information system implemented in a pilot phase in 2014, and only in the public sector at this time.
- Modelling calls for having sufficient data.

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Moving forward, a few provisional recommendations

More analysis is required to complete the business case, and to finalize a list of the most cost effective NCD interventions for Barbados, but a few recommendations may be especially feasible to the Barbados context…

- The private sector can review and scale up workplace wellness programs that are proven to have positive impact on the health of Barbados (for example, the Pharma Wellness Programme run by Mr. Lenox Presod)
- Civil society can scale up community based screening, taking advantage of grassroots associations unique to Barbados (eg. Diabetes Association). Continued advocacy and sensitization for NCD prevention and control through various social media needs to be strengthened.
- Within the public sector,
    - Ministry of Education should continue to scale up Health Promoting Schools, implementing policies that improve the health of school-aged children (eg. eliminate soda machines, make fresh drinking water available, regulating the quality of food and beverages sold in and around schools and controlling advertising of food and beverages aimed at children/youth, periodical review of the nutrient contents of school feeding programme, ensure that curriculum includes adequate physical activity etc.)

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Moving forward, a few provisional recommendations Cont'd

More analysis is required to complete the business case, and to finalize a list of the most cost effective NCD interventions for Barbados, but a few recommendations may be especially feasible to the Barbados context…

- Ministry of Agriculture should promote fruit and vegetable intake as well as improve supply and demand chains for better accessibility, availability and affordability of healthy foods
- Ministry of Health can scale up public education campaigns on NCDs, utilize social marketing approach to reach targeted populations, and strengthen NCD human resource capacity, especially in nutrition functions such as policy, surveillance, and audit, and in obesity and work towards fulfilling obligations of the FCTC.

- Strengthen "Whole of Government" and "Whole of Society" approaches

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Thank you