



**Caribbean Institute  
for Health Research**

# **CHILDHOOD OBESITY IN CARICOM - BURDEN AND DRIVERS**

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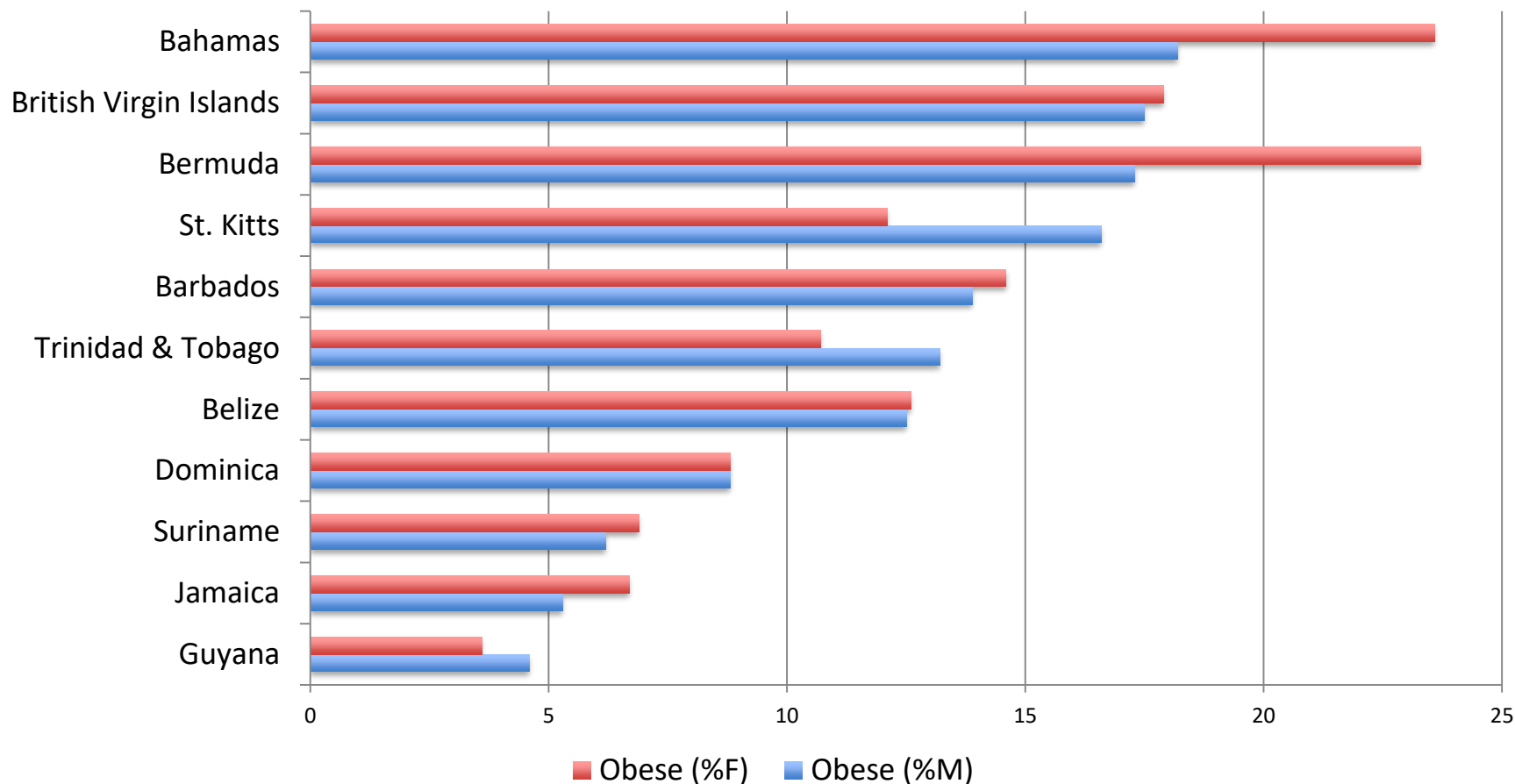
# **BURDEN OF CHILDHOOD OBESITY**

# HIGHEST FEMALE (15YR+) OVERWT/OBESITY IN THE WORLD (WHO 2011)

Rank	Country	%
<b>1</b>	<b>Nauru</b>	<b>82</b>
<b>2</b>	<b>Tonga</b>	<b>81</b>
<b>3</b>	<b>Micronesia</b>	<b>79</b>
<b>4</b>	<b>Cook Is.</b>	<b>73</b>
<b>5</b>	<b>Samoa</b>	<b>72</b>
<b>6</b>	<b>Niue</b>	<b>70</b>
<b>7</b>	<b>Kuwait</b>	<b>67</b>

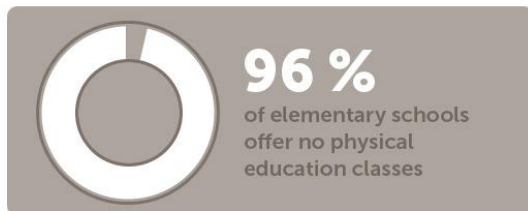
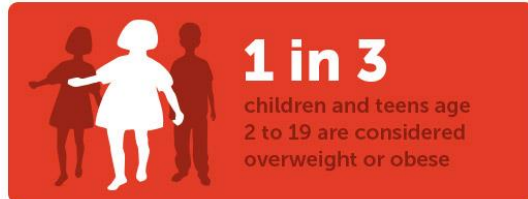
Rank	Country	%
<b>8</b>	<b>Barbados</b>	<b>63</b>
<b>9</b>	<b>Palau</b>	<b>62</b>
<b>10</b>	<b>Trinidad</b>	<b>61</b>
<b>11</b>	<b>Dominica</b>	<b>60</b>
<b>12</b>	<b>Egypt</b>	<b>59</b>
<b>13</b>	<b>USA</b>	<b>55</b>
<b>14</b>	<b>Jamaica</b>	<b>53</b>

## % Childhood Obesity (> +2SD from median BMI) by gender: from Global School Health Survey (2009-2013)



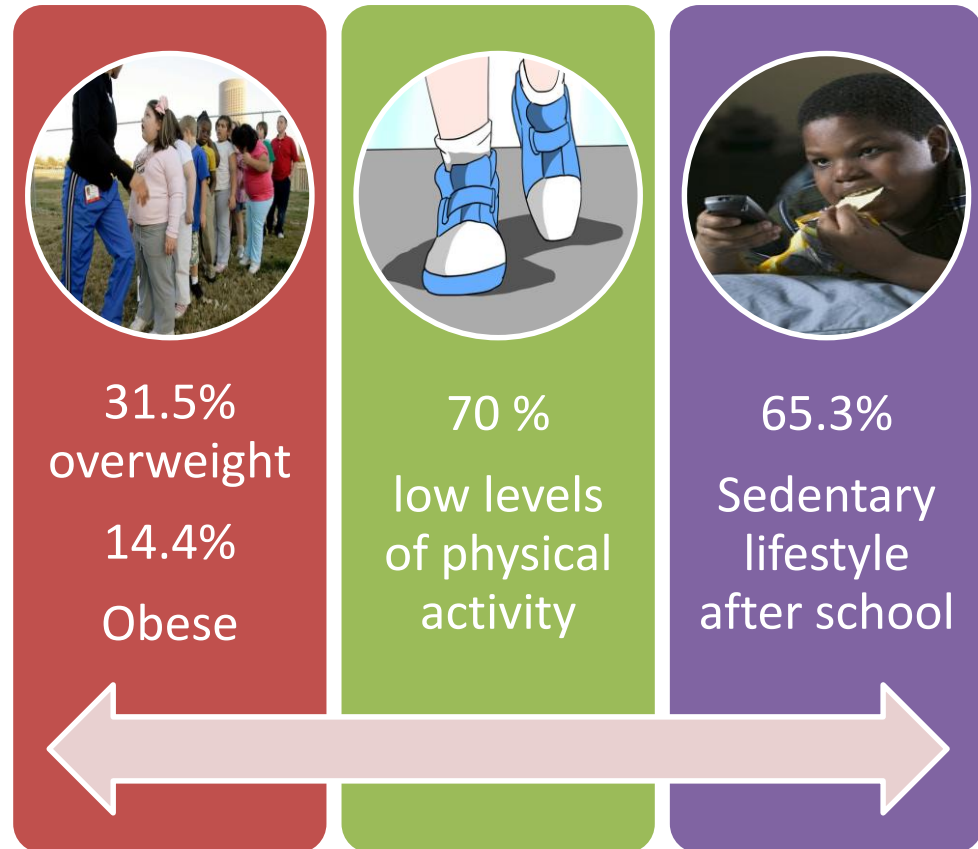
# CHILDHOOD OBESITY BY THE NUMBERS

Many U.S. kids are overweight or obese, and most don't exercise.



Source: CDC

## WHO Global School Health Survey (GSHS) 2012 (26 schools in Barbados)



Girls were at a slightly higher rate of overweight and obesity when compared to boys.

# **Barbadian Children 9 and 10 years in 2010 (Gaskin, P)**

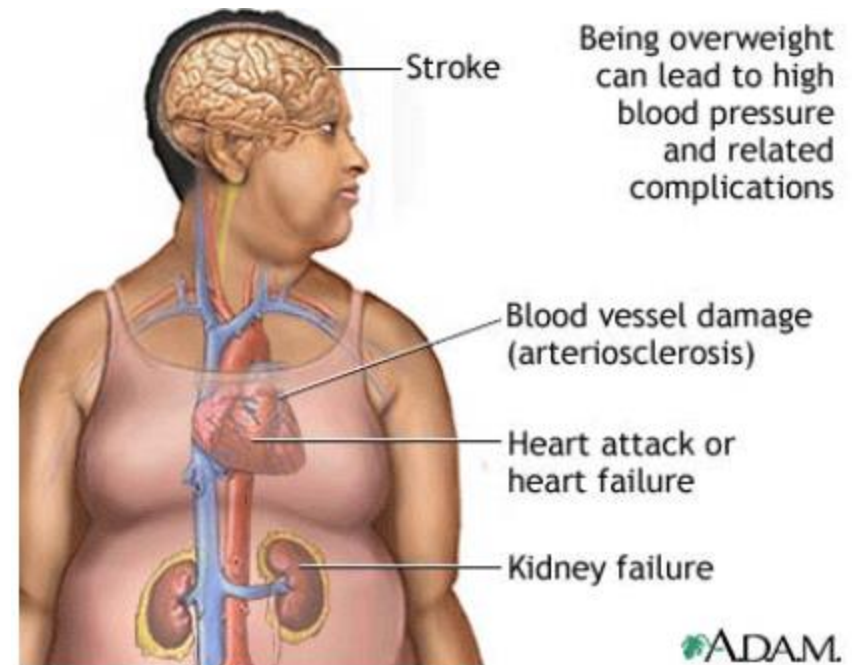
- 33% of 9-10 year old were overweight/obese
- 12% had high blood pressure (4,000+ children)
- Blood pressure was related to body size
- Children were almost 3 times more likely to be OWOB if annual household income <BBD 9000
- Eating dinner with the family every night was associated with 45% lower rate of OWOB

# **HEALTH IMPACT OF OWOB**

# Obesity

## Health Risks

- Diabetes (Type 2) – 10 fold increase
- Hypertension and Heart Disease -
- Neurologic Complications
- Respiratory Disease
- Orthopedic Condition
- Psychosocial Disorders
- Hyperlipidemia
- GI Manifestations
- Menstrual Disorders





# Obesity

## Psychological Disorders

- Difficult to quantitate
- Stigmatization
- Low self esteem
- Depression
- Discrimination

# Complications Specific to Children ...

- **Persistence of Obesity at Adulthood:**
  - Overweight adolescents have a 70% chance of becoming overweight adults.
  - Increases to 80% if one or both parents are obese.
- Obese 6 year old has a 25% chance of becoming obese adult
- Obese 12 year old has a 75% chance of becoming a obese adult.

# RED FLAG

- Premature deaths from obesity and overweight, 2<sup>nd</sup> only to tobacco-related deaths in USA.
- **Obesity would surpass tobacco as the leading cause of death worldwide in the next decade.**
- **Obesity is the leading cause of premature death in Barbados**



**IN ALL AGE GROUPS**

**OBESITY HAS LEFT ITS MARK**

**Nutrition & Death in the Caribbean**

**Heart disease**

**Cancer**

**Diabetes**

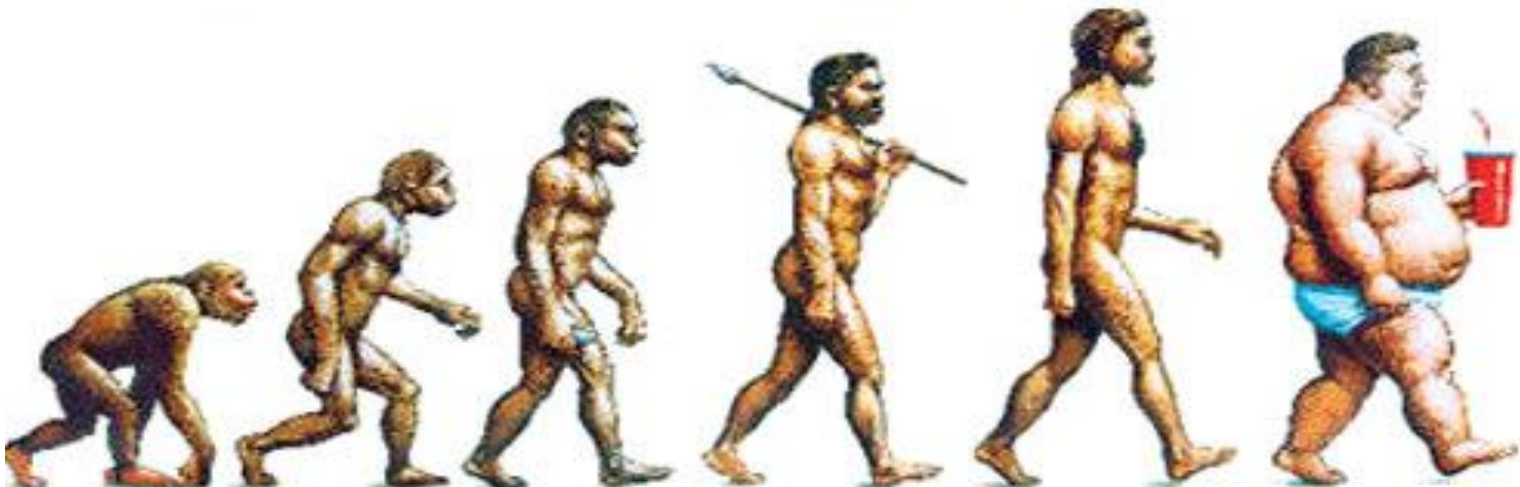
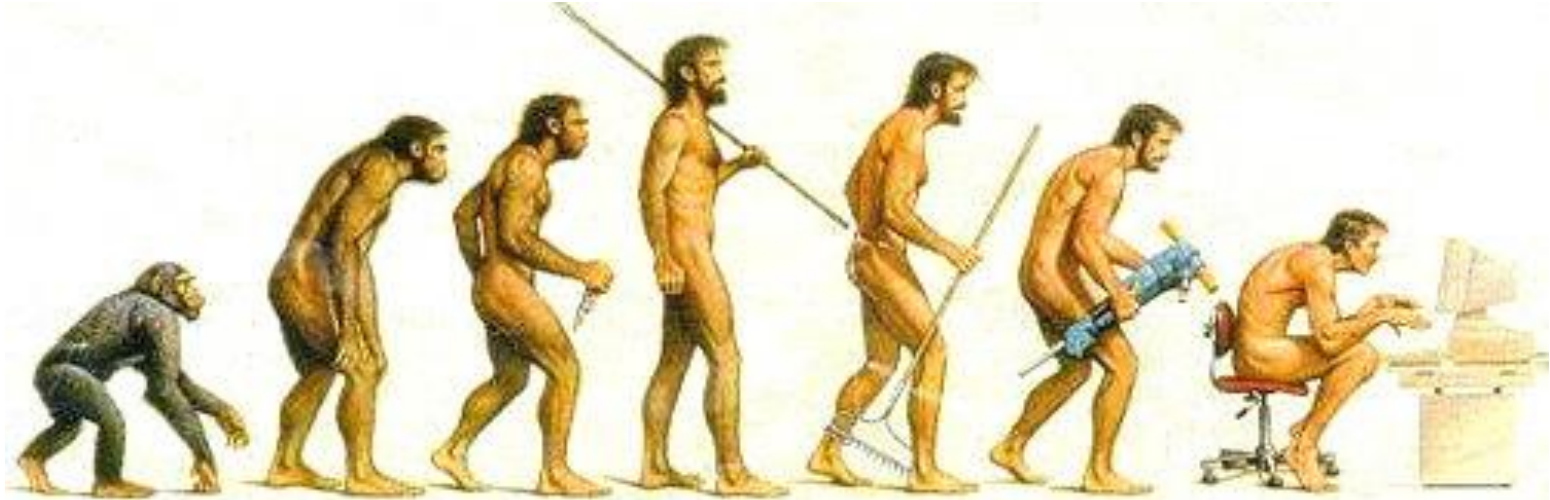
**Hypertension**

**Stroke**

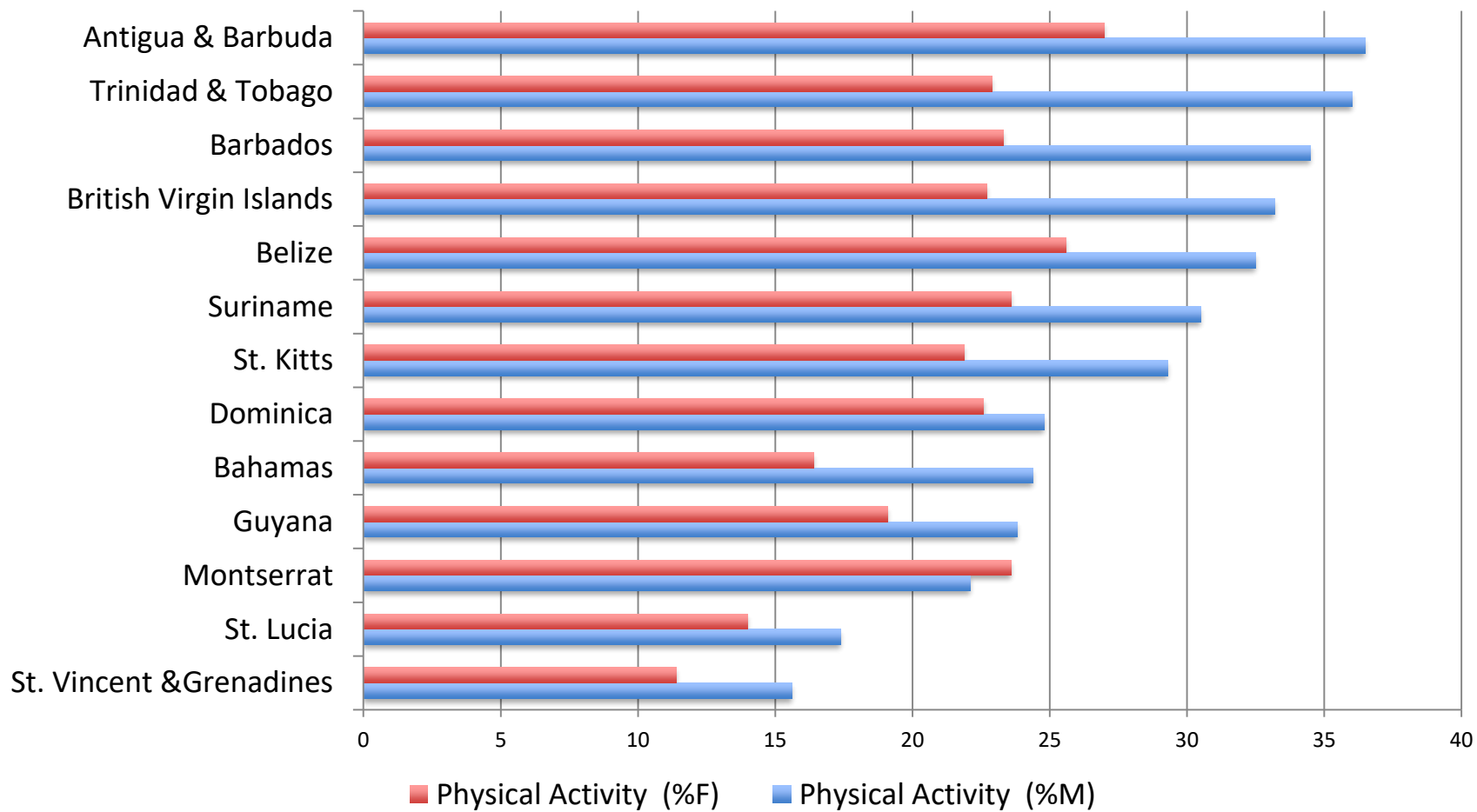
**57% mortality is nutrition related**

# **DRIVERS OF CHILDHOOD OBESITY**

# Evolution of the Problem



## % Physical activity for 60 minutes/day during last 5/7 days from GSHS (2007-2013)



# Myth v. Truth

- **Myth:** just exercise more and eat what you want.
- **Truth:** exercise alone generally won't work (it takes 2 hours of brisk walking to burn off 500 calories – small chocolate and small pack of chips).



# Obesity: Environmental Factors: Increased Energy Intake

- **Increased intake foods**
  - Sweeteners, salt, & fat
  - Processed foods,
  - Refined carbohydrates
  - Snacks
- Reduced intake of fruits and vegetables
- **Increased beverage**
  - Access, low price
- Supersized portions
- Eating out
- Marketing



# Obesity: Environmental Factors: Decreased Energy Expenditure

- Excess TV; computer, & play station time
- Children are home alone
- Decreased physical activity at school & at home
- Transportation by car or school bus
- Neighborhood safety
- Few public parks, sidewalks, swimming pools ..etc
- Sedentary Lifestyle



# Childhood Obesity

## Environmental Factors: TV

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'HE'S IN TRAINING FOR THE OLYMPICS'

- 25 hours/week
- Half the ads are for food
- Obesity increases 2% /hour of viewing
- Strongest predictor of subsequent obesity

# **TRANSITION TO PROCESSED FOODS**





# Commercial determinants of health

- Multinational food and beverage companies promote overconsumption of **highly processed, unhealthy food and sugary drinks** for profit
- Like tobacco, **marketing is shifting** from high income countries to developing countries, including in the Caribbean

Moodie R., Stuckler, D., Monteiro, C., Sheron, N., Nea, I B., Thamarangsi, T., et al. (2013). Profits and pandemics: prevention of harmful effects of tobacco, alcohol, and ultra-processed food and drink industries. *Lancet*, 381(9867), 670-679.

Stuckler D, McKee M, Ebrahim S, Basu S. Manufacturing epidemics: the role of global producers in increased consumption of unhealthy commodities including processed foods, alcohol, and tobacco. *PLoS medicine*. 2012;9(6):e1001235.

# Unhealthy food companies target children





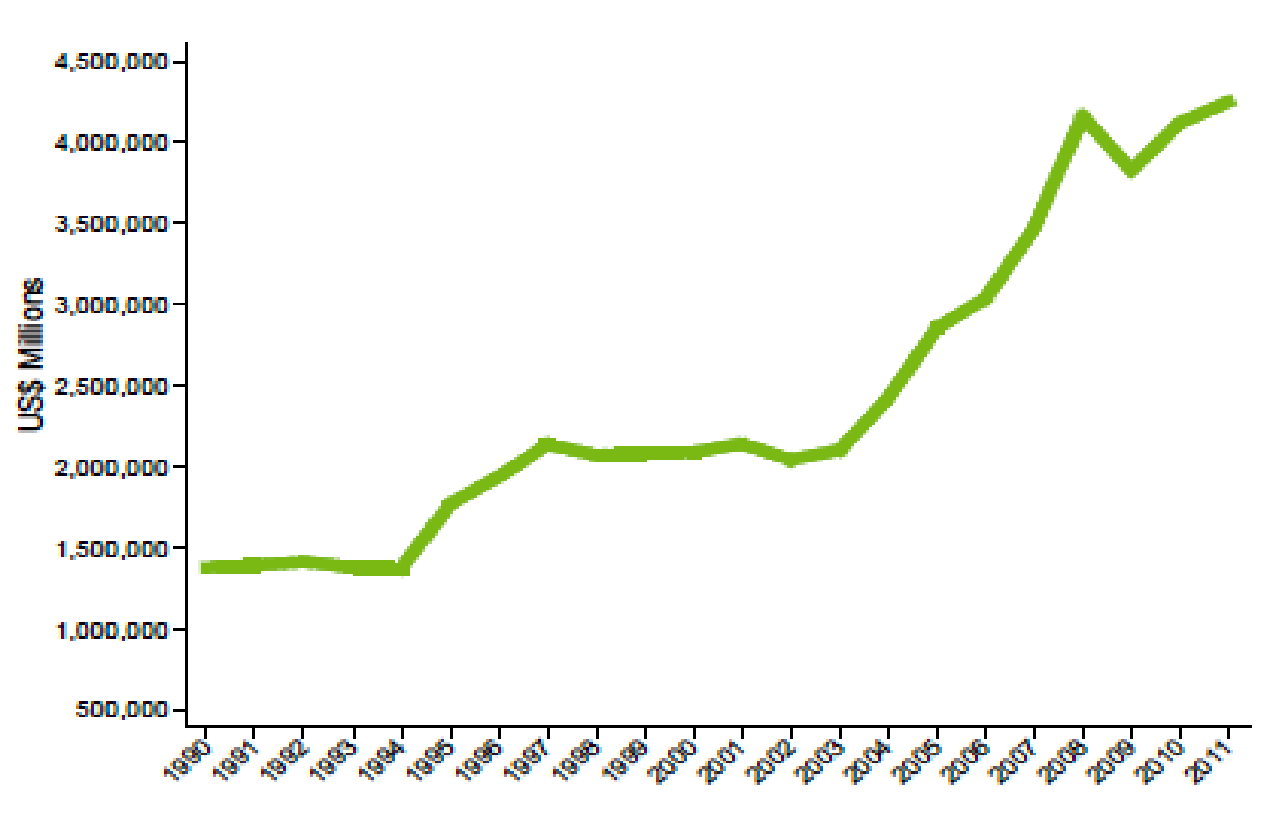
**Just like the tobacco industry,  
the food, soda and alcohol  
industries are driving the 21<sup>st</sup>  
century's deadly NCD pandemic.**

Increased consumption of processed foods and drinks — those containing high levels of added sugars, salt and fats — tracks closely with rising levels of obesity, diabetes and cardiovascular diseases across the world.<sup>[4]</sup>

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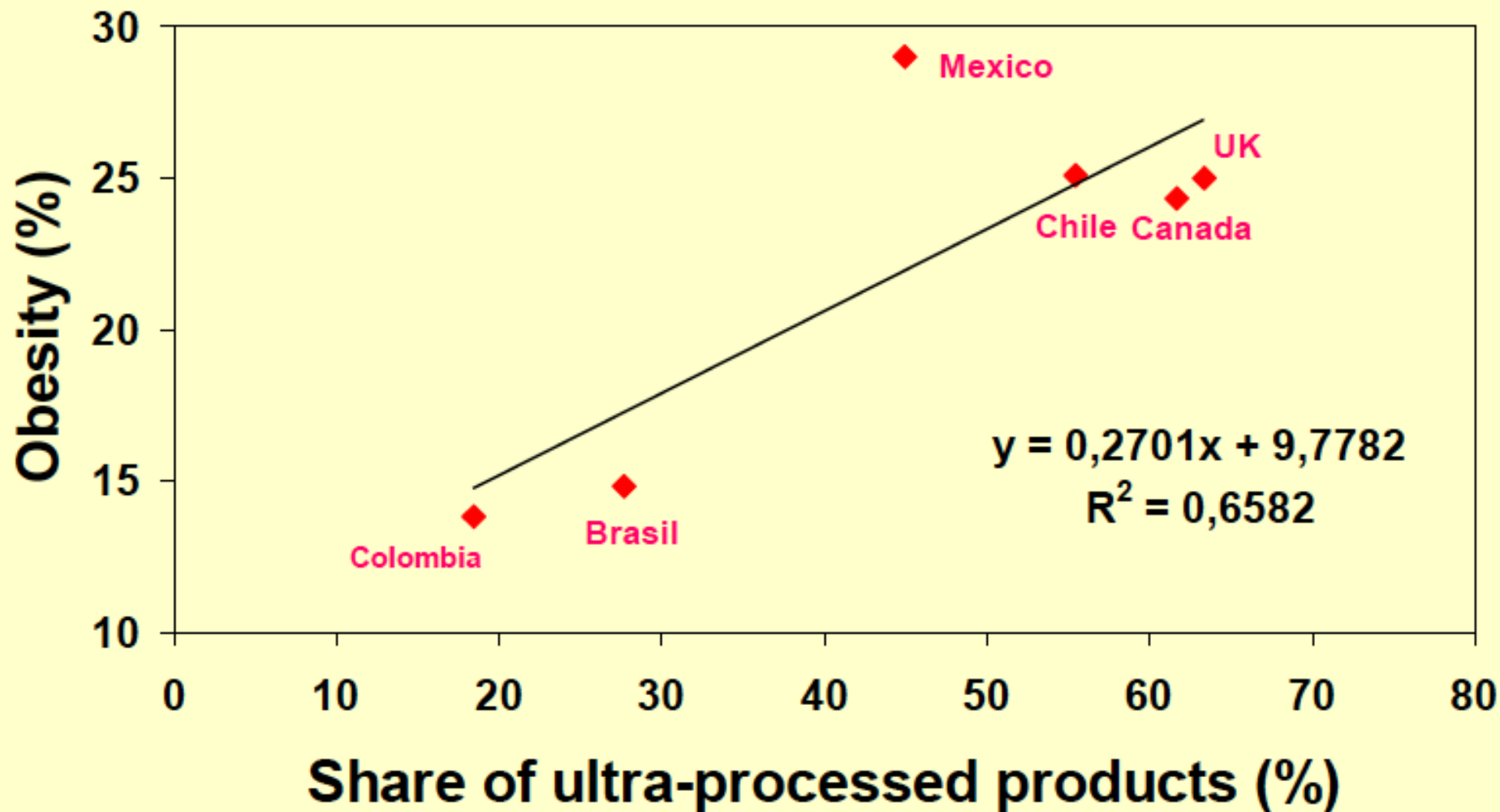


**Figure 12. Food imports into CARICOM countries, 1990-2011**  
(US\$ million)



Source: FAOSTAT, 2015.

# Obesity (%) and the caloric share (%) of ultra-processed products



- **Why is everyone talking about sodium?**



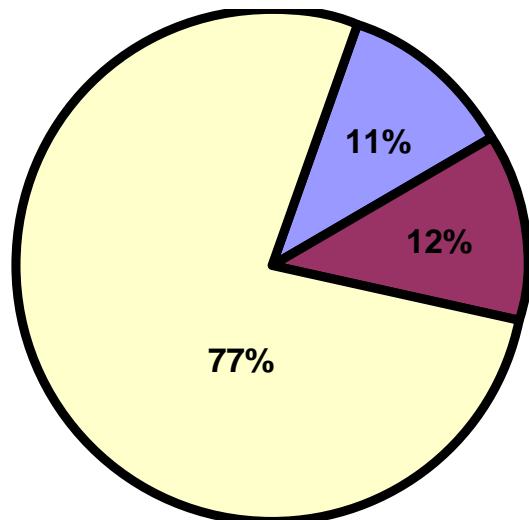
# Salt intake and obesity

- High dietary salt increases thirst and fluid consumption.
- Many of the fluids consumed contain simple sugars or alcohol and contribute to caloric intake.
- 20-30% of the excess calories consumed by children and adolescents are through increased beverage consumption associated with high salt intake.
- Therefore high salt diets are likely to be a significant factor in the obesity epidemic.

- All types of salt are high in sodium.
  - Kosher salt, sea salt etc = same amount of sodium as table salt (not healthier)
- Healthy adults need only 1500 mg of sodium per day.
- Healthy children need only 1000-1500 mg of sodium per day.
- We consume **double** the amount we need

# Where in our diet does salt come from?

In regions where most food is processed or eaten in restaurants



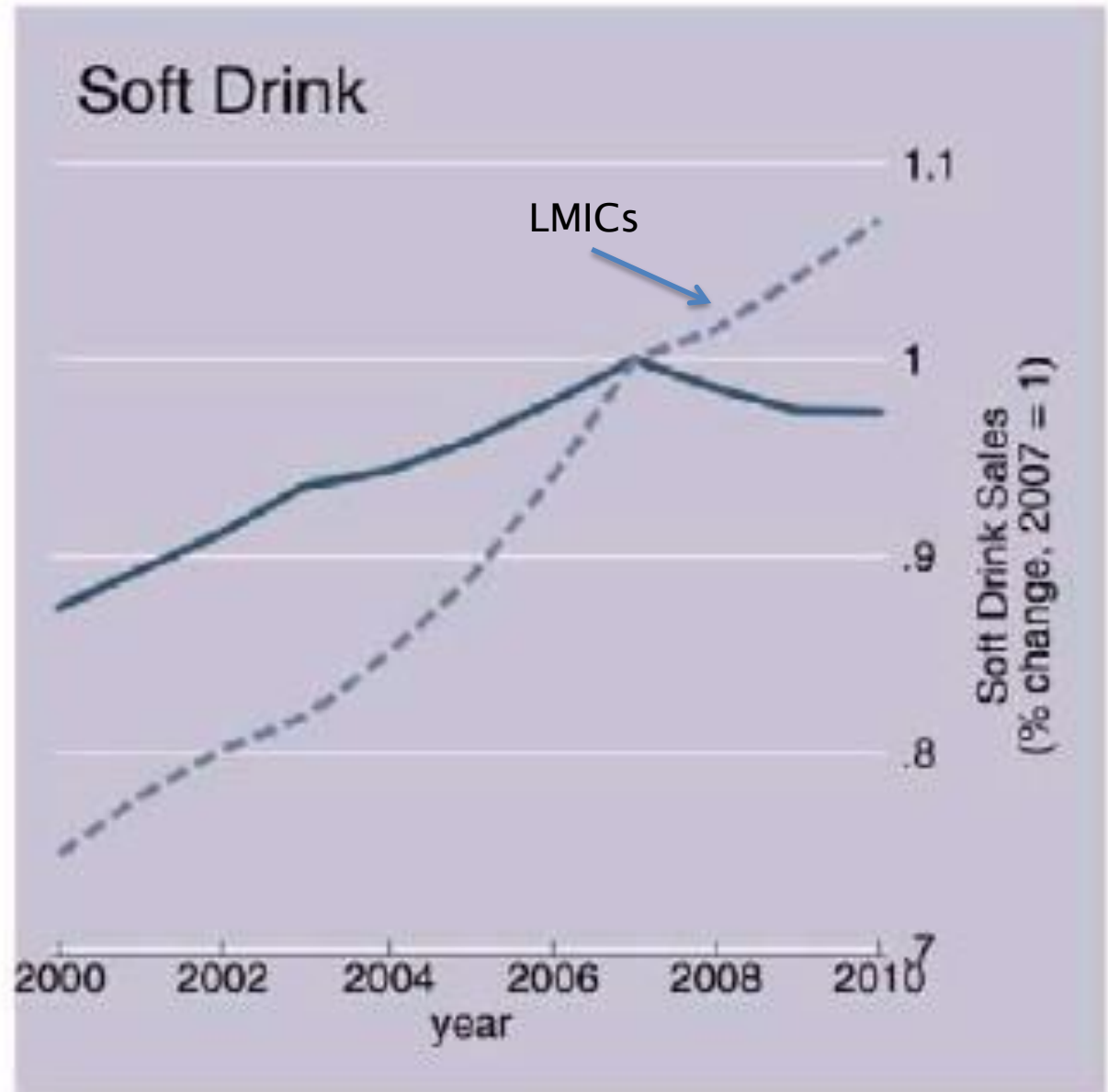
- Occurs Naturally in Foods
- Added at the Table or in Cooking
- Restaurant/Processed Food

- 12% natural content of foods
- “hidden” salt: 77% from processed food – manufactured and restaurants
- “conscious” salt: 11% added at the table (5%) and in cooking (6%)

**ADDED SUGAR**

# Trends in sweetened drink consump- tion

Stuckler and Nestle 2013



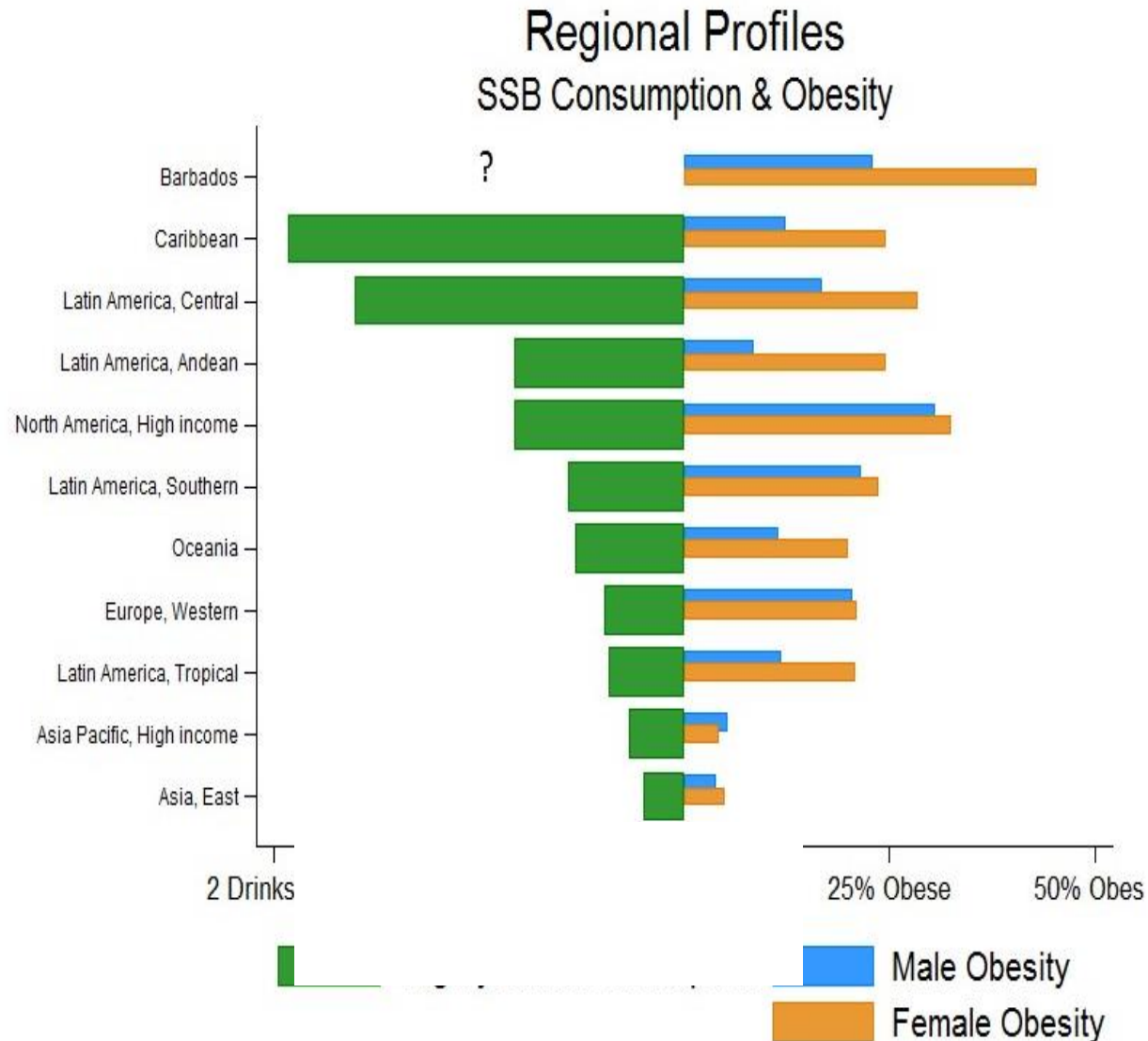


# Sugary drink consumption levels

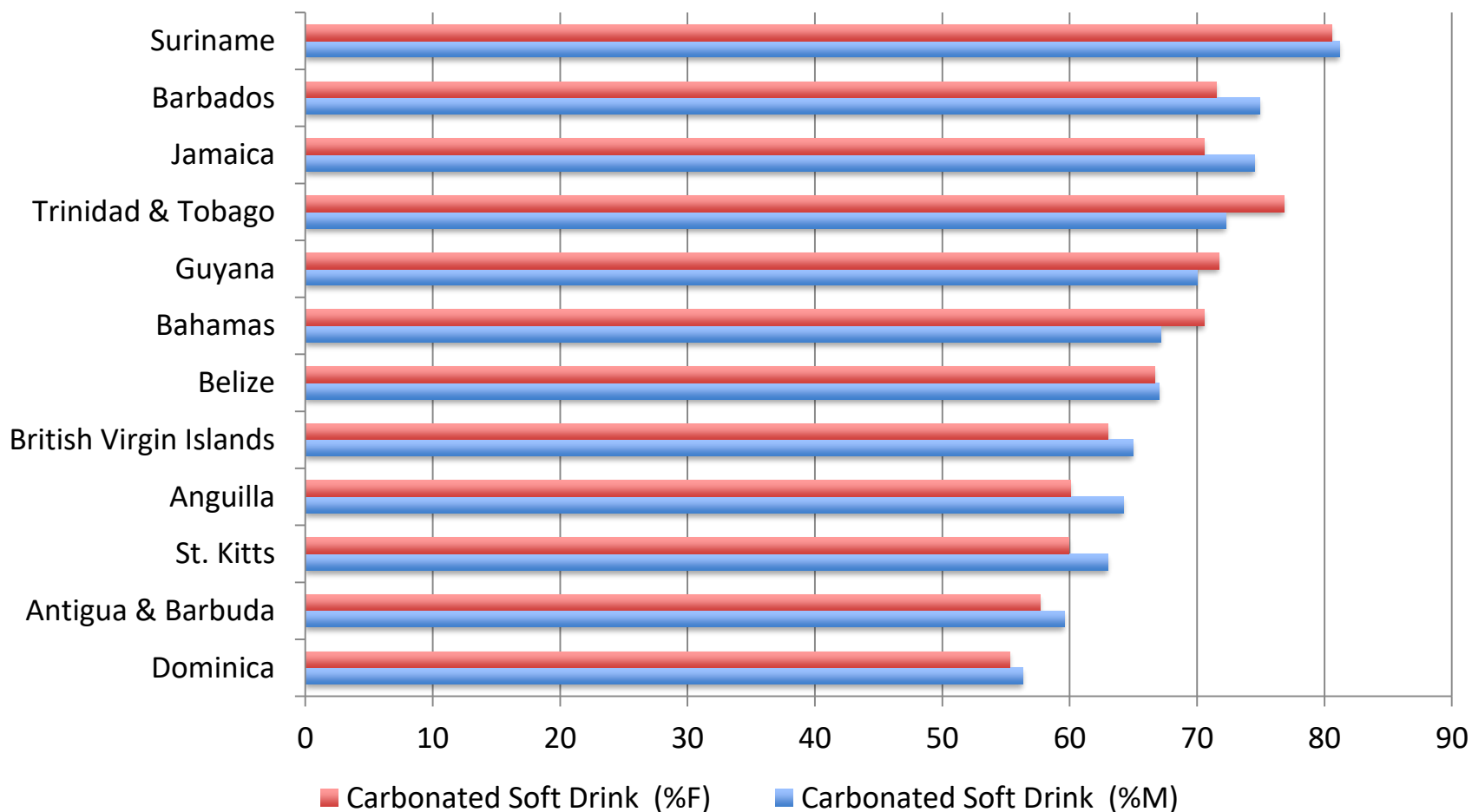
The Caribbean has been estimated to have the highest SSB consumption in the world with an estimated

2 SSB/person / day

(Jou & Techakehakij 2012)



## % Drank carbonated soft drinks during the past 30 days from GSHS (2009-2013)





Swiss Miss Marshmallow  
1 pack (1 serving)  
= 17 g of sugar (4.25 tsp)  
= 0.4175 g of salt



Turbo Plus (Fruit Punch)  
1 pack (5 servings)  
= 31.15g of sugar  
= 0.29g of salt



Coca-Cola  
1 bottle (1 serving)  
= 53 g of sugar (13 tsp)



Pinehill Fruit Punch  
1 juice box (1 serving)  
= 40 g of sugar (10 tsp)



Sun Sweet Condensed Milk  
1 can (10 servings)  
= 220 g of sugar (55 tsp)  
= 0.875 g of salt



# Obesity and SSBs

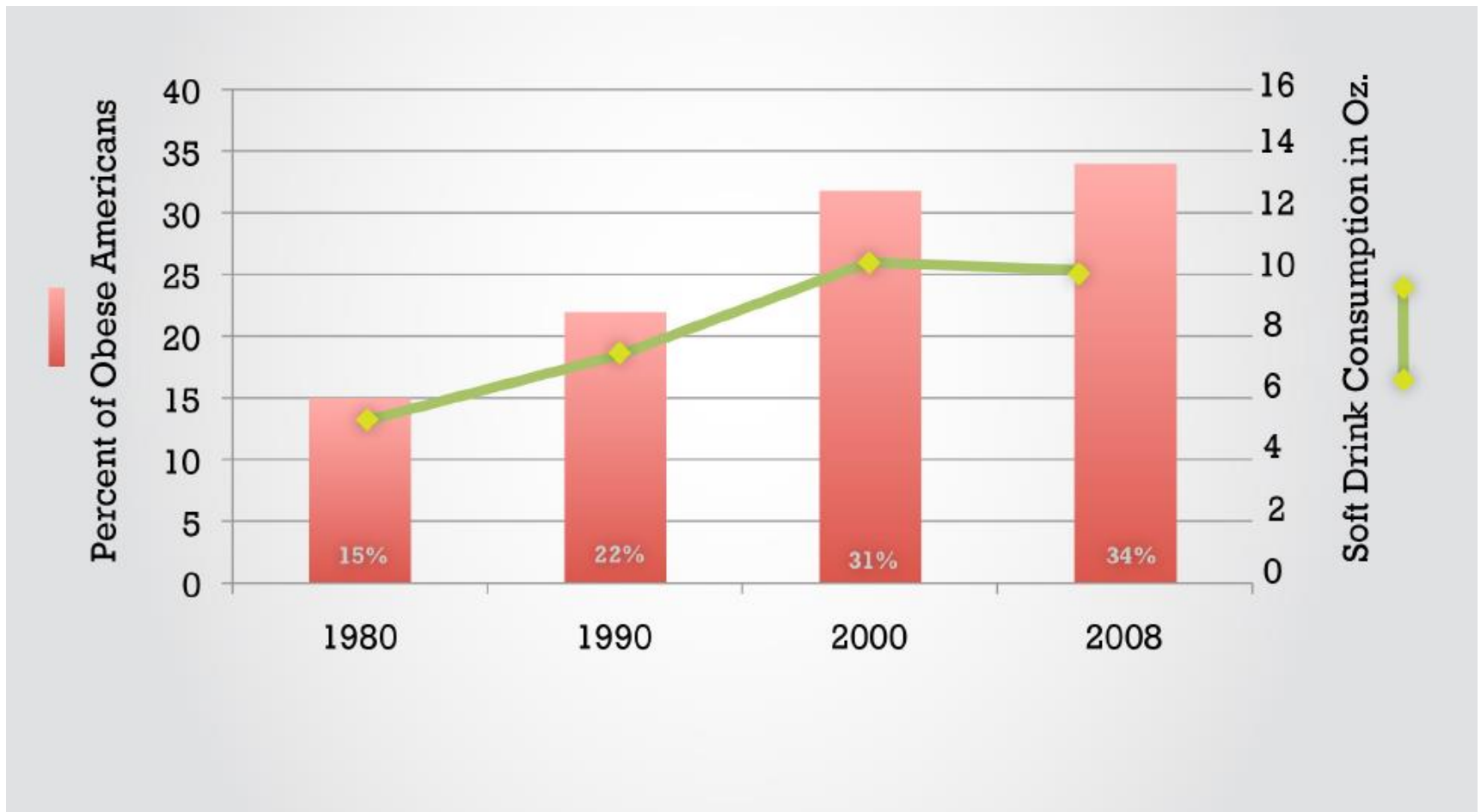
- The association between SSB consumption and weight gain is stronger than for any other food or beverage (Lavin, Timpson 2013)
- SSB is the leading cause of obesity, diabetes and heart disease in both adults and children

Stuckler D, McKee M, Ebrahim S, Basu S. Manufacturing epidemics: the role of global producers in increased consumption of unhealthy commodities including processed foods, alcohol, and tobacco. *PLoS medicine*. 2012;9(6):e1001235

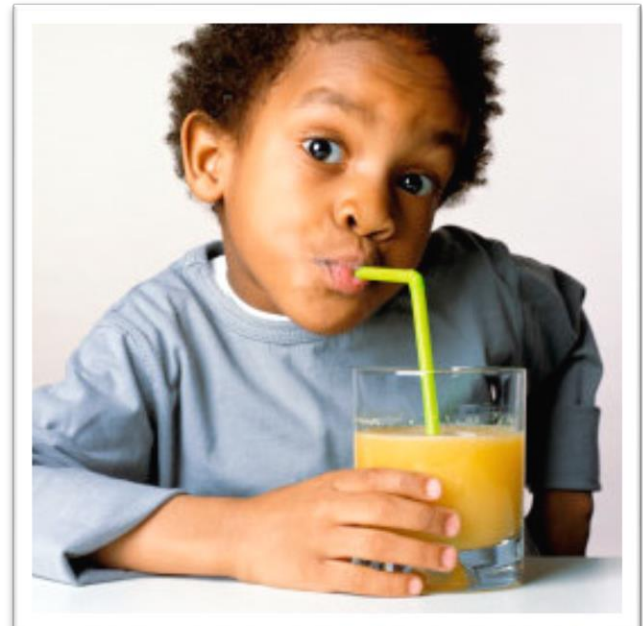
World Health Organization. (2015). Interim Report of the Commission on Ending Childhood Obesity Geneva, Switzerland. Available from: <http://www.who.int/end-childhood-obesity/interim-report-for-comment/en/>.

Popkin, B. M., & Hawkes, C. (2016). The sweetening of the global diet, particularly beverages: patterns, trends and policy responses for diabetes prevention. *The Lancet. Diabetes & Endocrinology*, 4(2), 174–186. [http://doi.org/10.1016/S2213-8587\(15\)00419-2](http://doi.org/10.1016/S2213-8587(15)00419-2).

# The connection between sugar and obesity



**Fruit drinks...just as much sugar as **soda****





# The cost of a daily sugary drink



Drinking one **12 oz.** (355 mL) **soft drink** every day for a year :

→  $\approx 150 \text{ calories} \times 365 \text{ days} = \mathbf{54,750 \text{ calories}}$  per year, the energy equivalent of over **15 pounds of fat** per year

To avoid weight gain:

→ To burn off the calories from an 12 oz. sugary drink, the average person would have to **walk 1.5 miles**

One 12-oz can soda contains over **9 tsp sugar**



UNC  
CAROLINA  
POPULATION  
CENTER

# Added sugar in drinks

- Calories from simple sugars added to drinks do not satisfy hunger, there is no feeling of fullness
  - ***Wasted calories***
- Sugar in SSBs contain no nutrients
  - ***Empty calories***
- Sugar in SSBs are absorbed extremely rapidly causing a spike in blood sugar and in insulin
  - ***Dangerous calories***



# **HIDDEN SUGARS IN LABELS & PRODUCTS**

## **LABELS WITH SUGAR:**

Lactose; brown rice syrup; molasses;  
dextrose; cane sugar; corn sweetener;  
fructose; glucose; maltose; organic raw  
sugar; maltodextrin; etc..

## **PROCESSED FOODS WITH SUGAR:**

Barbecue sauce; bacon; bread; canned meats;  
cereals ; crackers; gravy;  
flavored coffee; creamers; fruit juice; ketchup;  
mustard; pancake mix; pretzels;  
salad dressing; soups; soy sauce;  
wine; etc. etc.





**BUT WE'RE SURROUNDED BY SUGAR! IT'S EVERYWHERE! AND IT'S SO TASTY!**





# Born to buy: How advertising targets young consumers

Dr Emma Boyland

Biopsychology Research Group  
Liverpool Obesity Research  
Network  
University of Liverpool



# ADVERTISING AVENUES

# Television and film

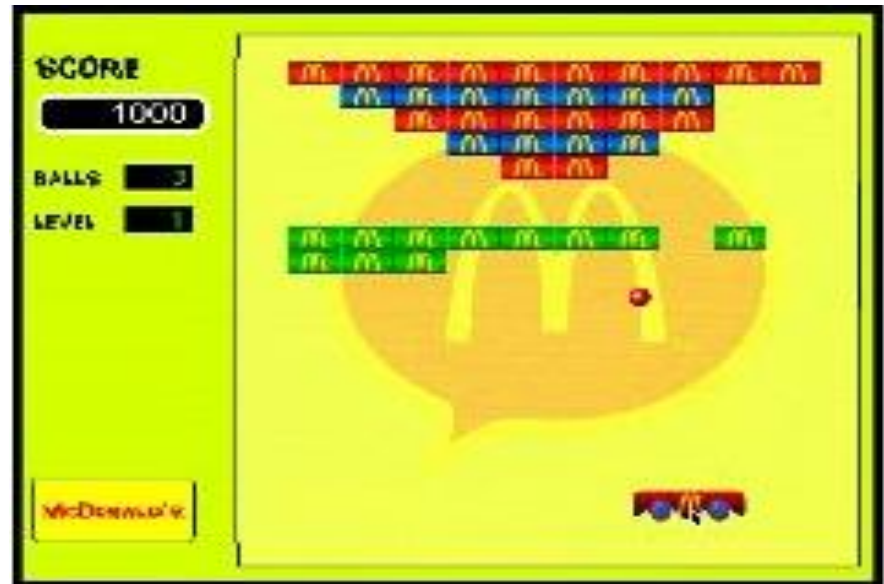


Programme  
sponsorship

Product  
Placement



# Internet advergaming



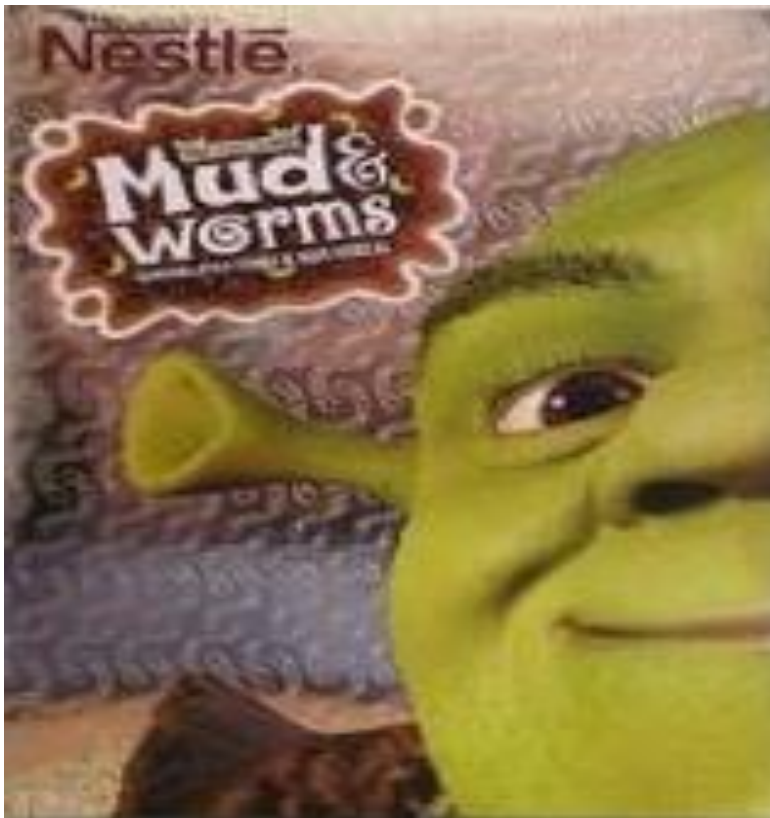


# Event sponsorship



# Promotional Characters

Licensed characters





# Premium offers/giveaways



# **EFFECTS OF FOOD ADVERTISING**

# Television and energy intake



- Television viewing has been associated with:
  - Increased meal frequency (Stroebele & Castro, 2004).
  - Fast food consumption (Taveras et al., 2006).
  - Snacking (Snoek et al., 2006; Thomson et al., 2006).
  - Increased intake of dietary fat (Epstein et al., 2005; Miller et al., 2008).
  - Lower intake of fruit and vegetables (Boynton-Jarrett et al., 2003).

# Creating Brand Preference in Children (Consumer International, 2004)

- 6 months: Forming mental images of corporate logos and mascots.
- 2 years: Children may already have beliefs about specific brands.
- 3 years: Already making specific requests for brand name products.  
Can identify brand names & logos especially with cartoon characters.
- Lifetime: A lifetime consumer in the US is worth an estimated \$100,000 to a retailer.

Children start to express self-care activities including food choice between ages of 3-8 and these are stable by 9-11 years (Kennedy, 2000).

Brand-building must therefore start in toddler-hood (Story & French, 2004).

# Impact of Marketing to Children

- Nestle and others still **promoting breast milk substitutes** and depressing breast feeding rates
- Marketing **influences** childrens' preferences, requests, consumption
- Result: **30% childrens calories from sweets, drinks, salt snacks, fast food**

# Partnerships and Reformulation

- Must work with private sector
  - They feed the population, not us
  - Implementation of warning labels and nutrition information
  - Conflict of interest recognized and addressed
- “Friendly” private sector
  - Making profit from selling healthy foods
  - Farmers, retailers, healthy food vendors
- Reformulation – trust but verify





Caribbean Unity in Health  
LOVE THAT BODY

