



CANCER IS MAINLY A LIFESTYLE DISEASE

HEALTHY CARIBBEAN 2012

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**CARIBBEAN FOOD AND NUTRITION INSTITUTE
(PAHO/WHO)**

RALLYING FOR ACTION ON NCD

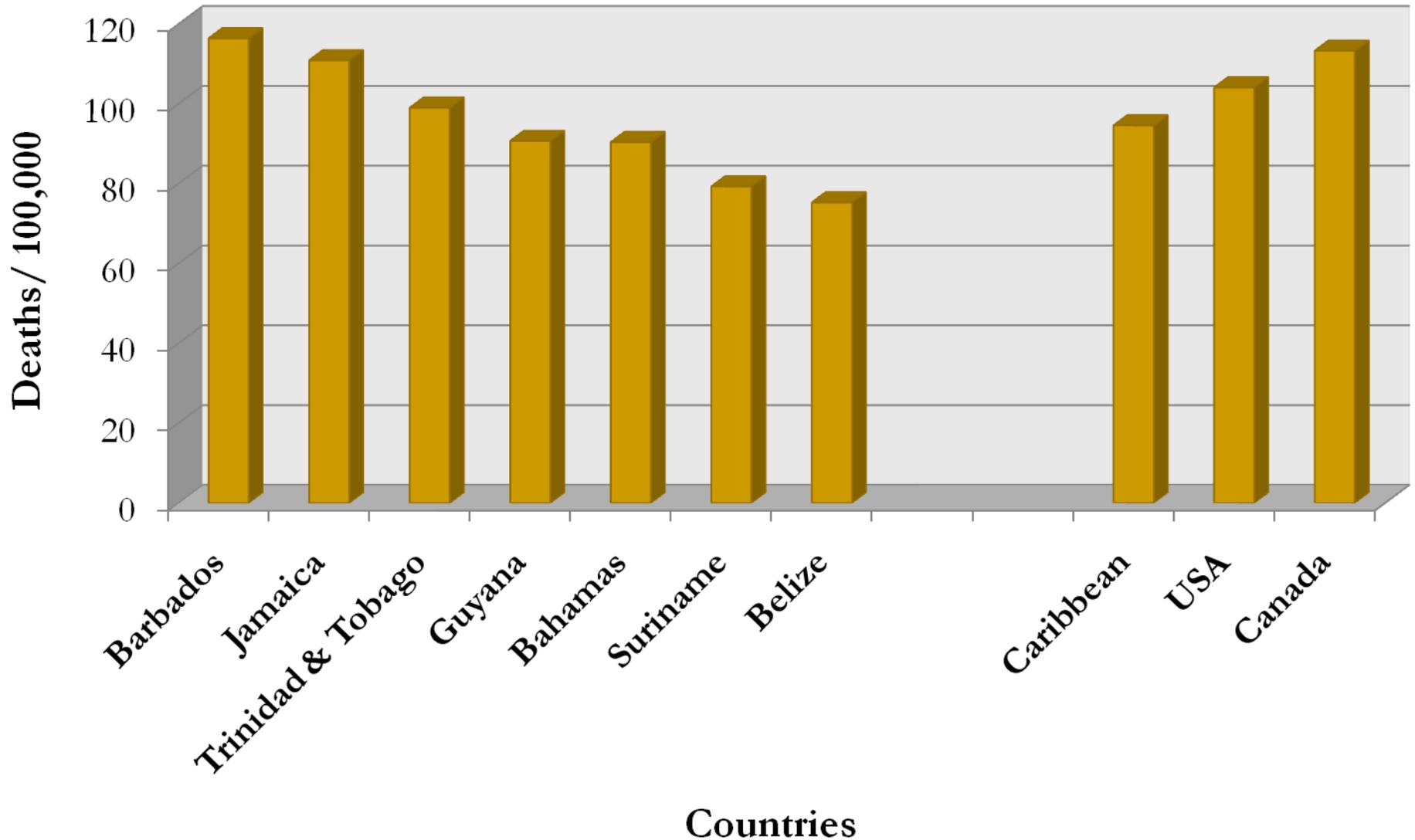
Kingston, Jamaica

May 27, 2012

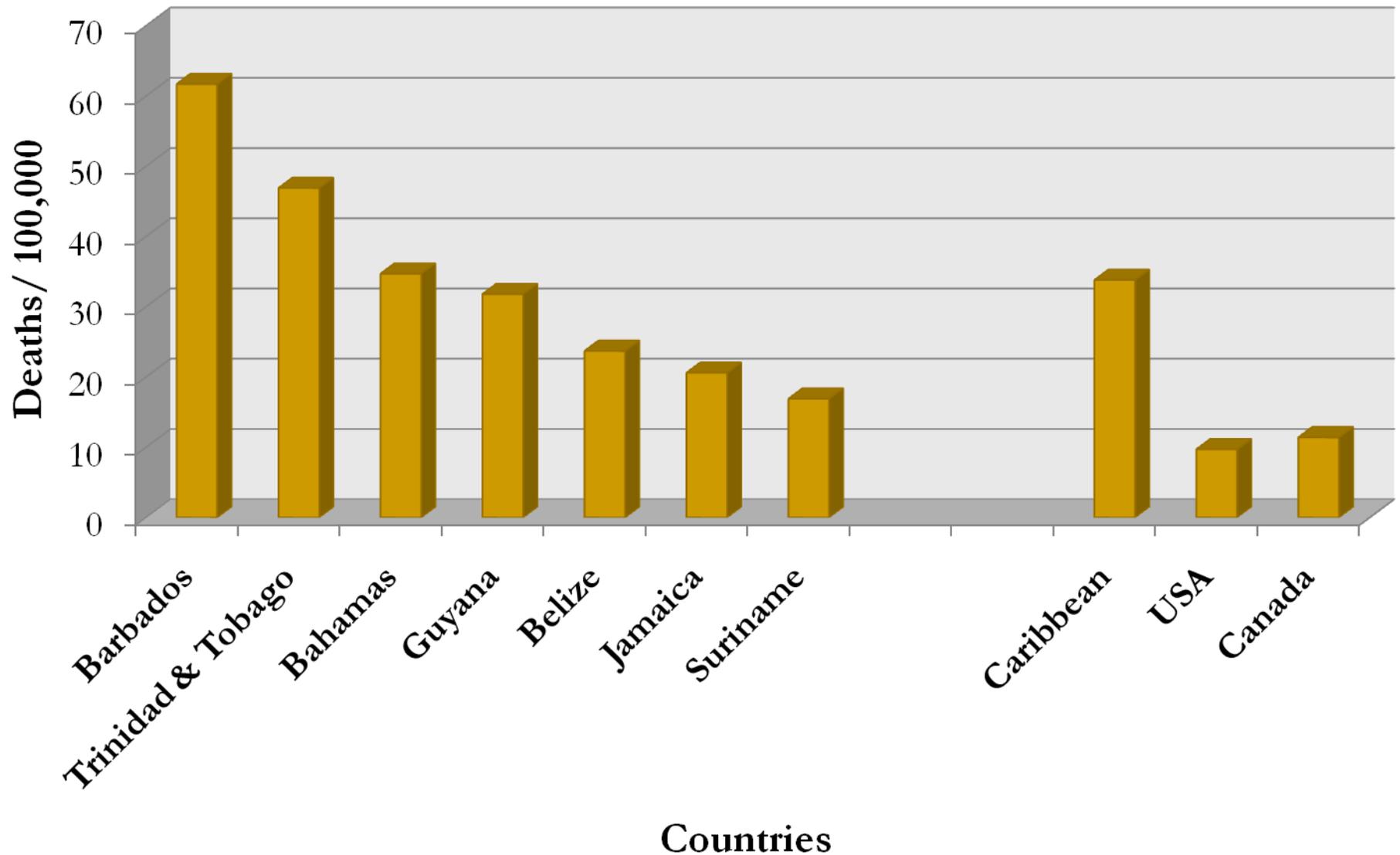
OUTLINE OF PRESENTATION

- **Main Cancers in the Caribbean**
- **EVIDENCE OF ATTRIBUTABLE FACTORS**
- **LIFESTYLE FACTORS - Macro & Micro Challenges**
- **WHAT CAN WE DO?**

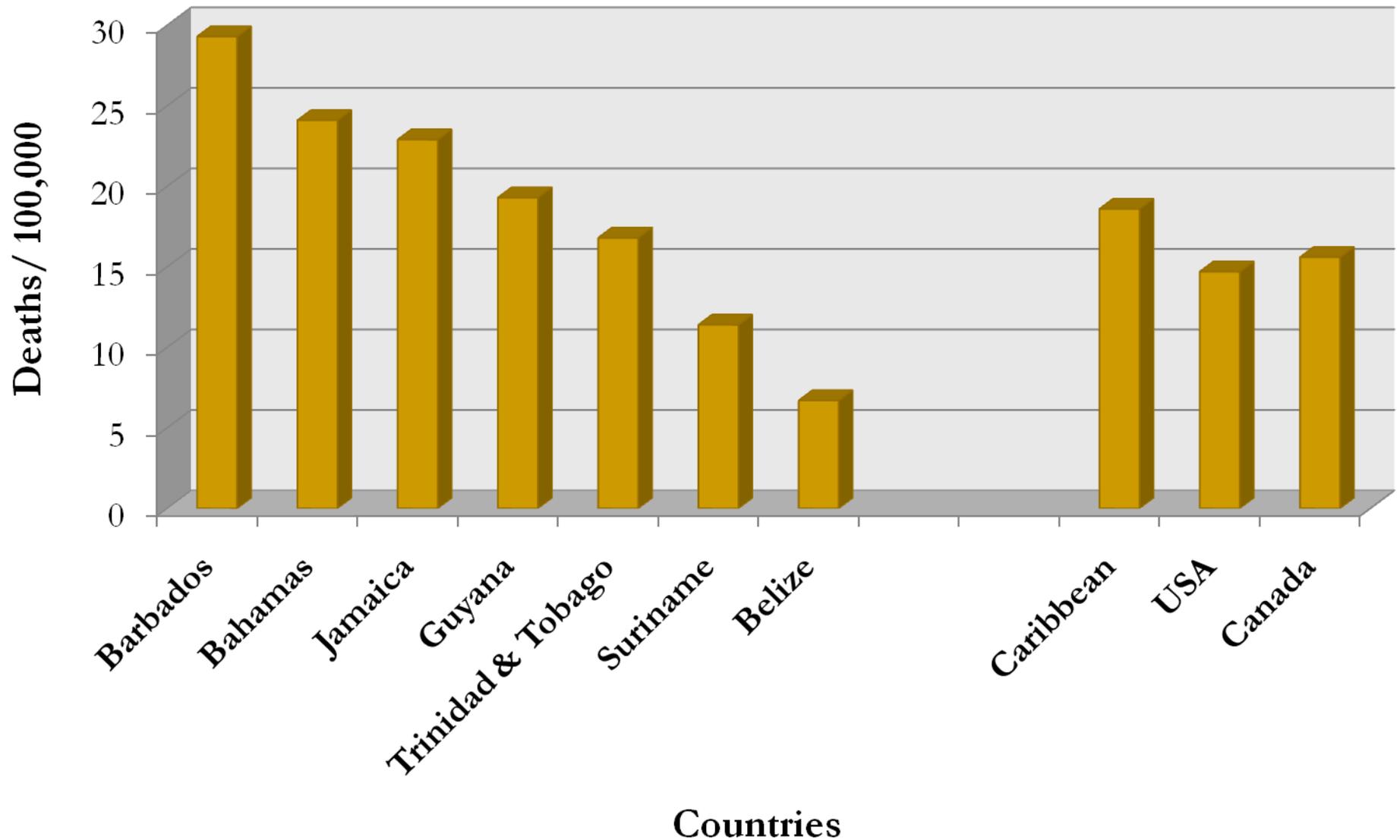
All Cancer Mortality by Country - 2008



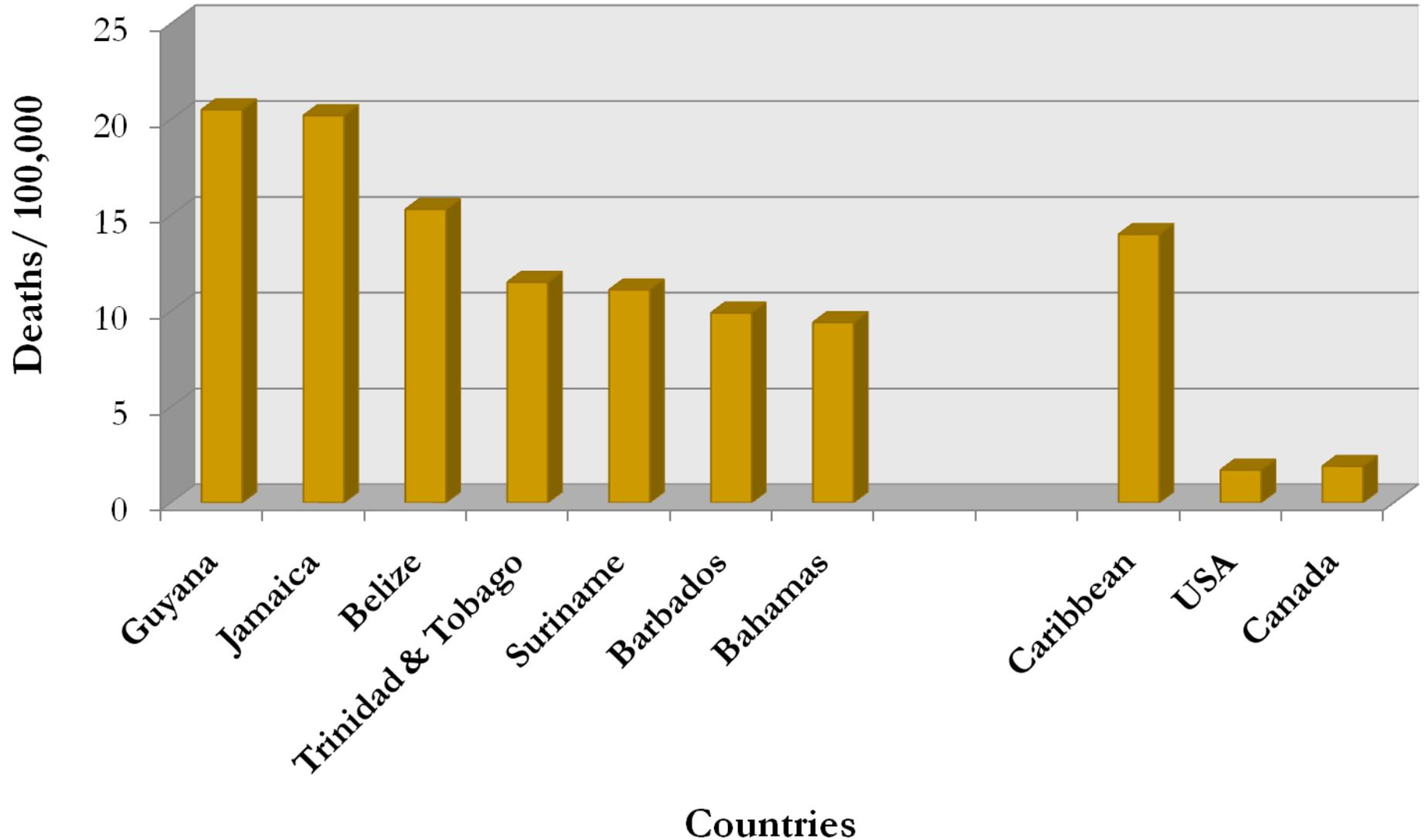
Prostate Cancer Mortality by Country - 2008



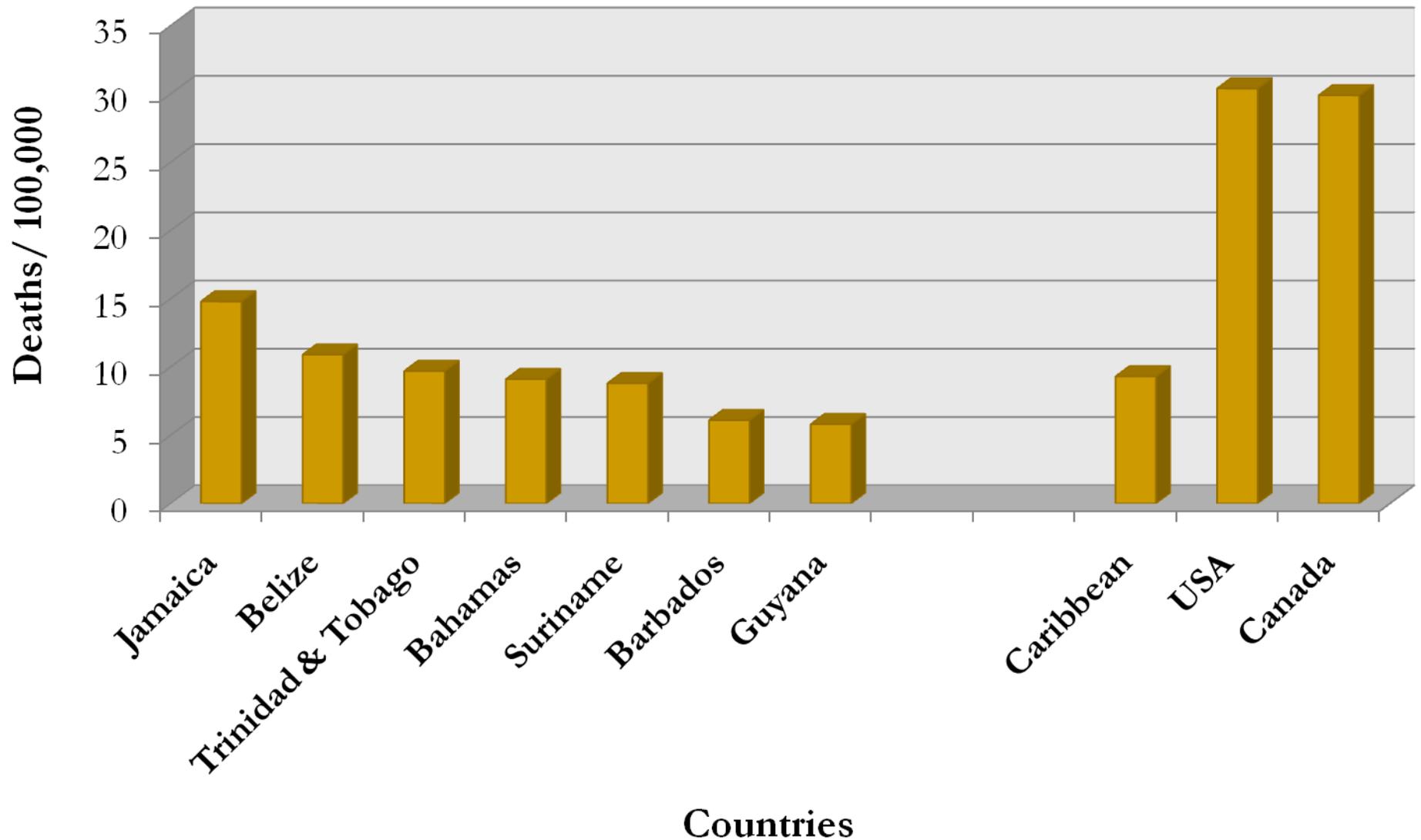
Breast Cancer Mortality by Country - 2008



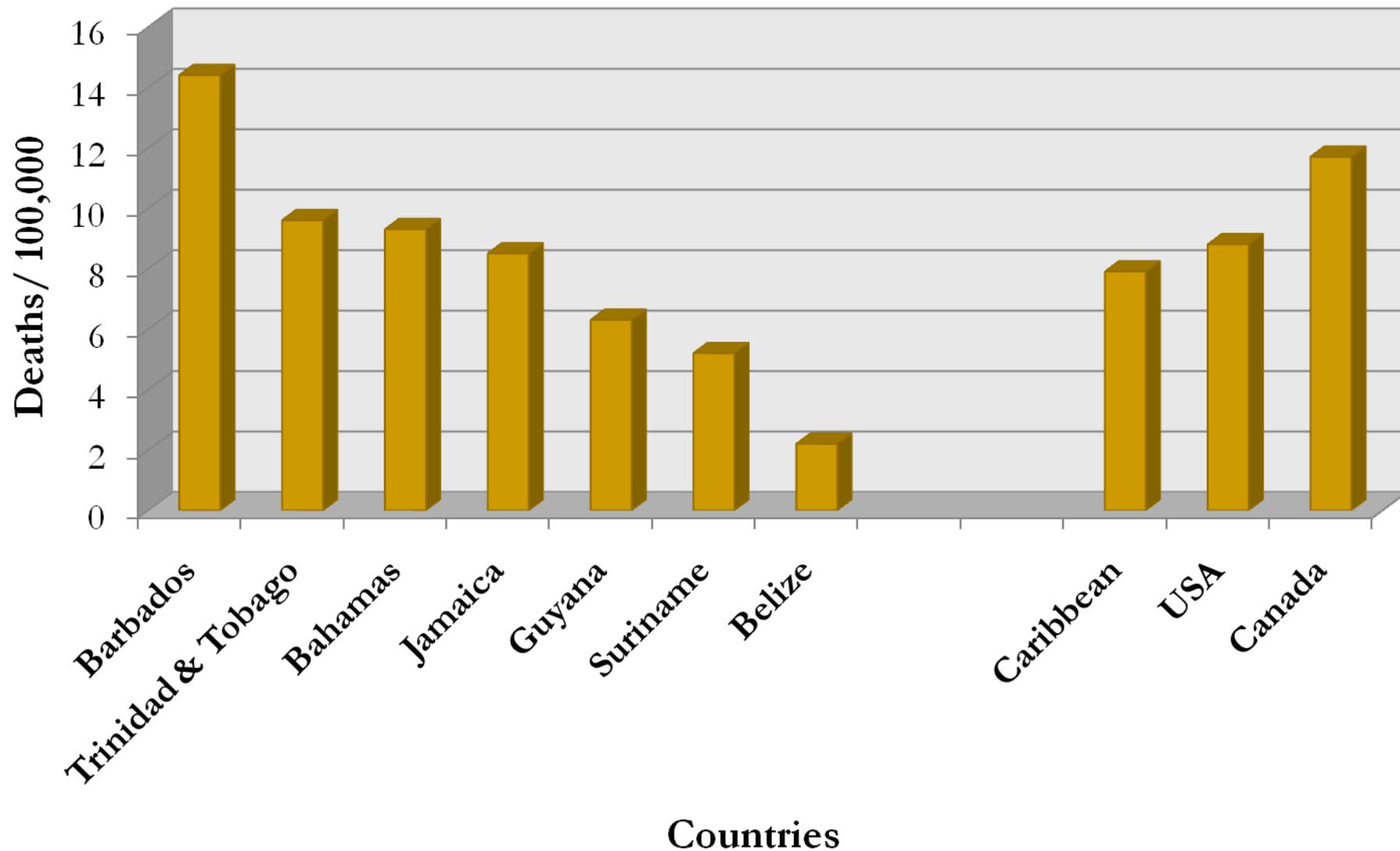
Cervical Cancer Mortality by Country - 2008



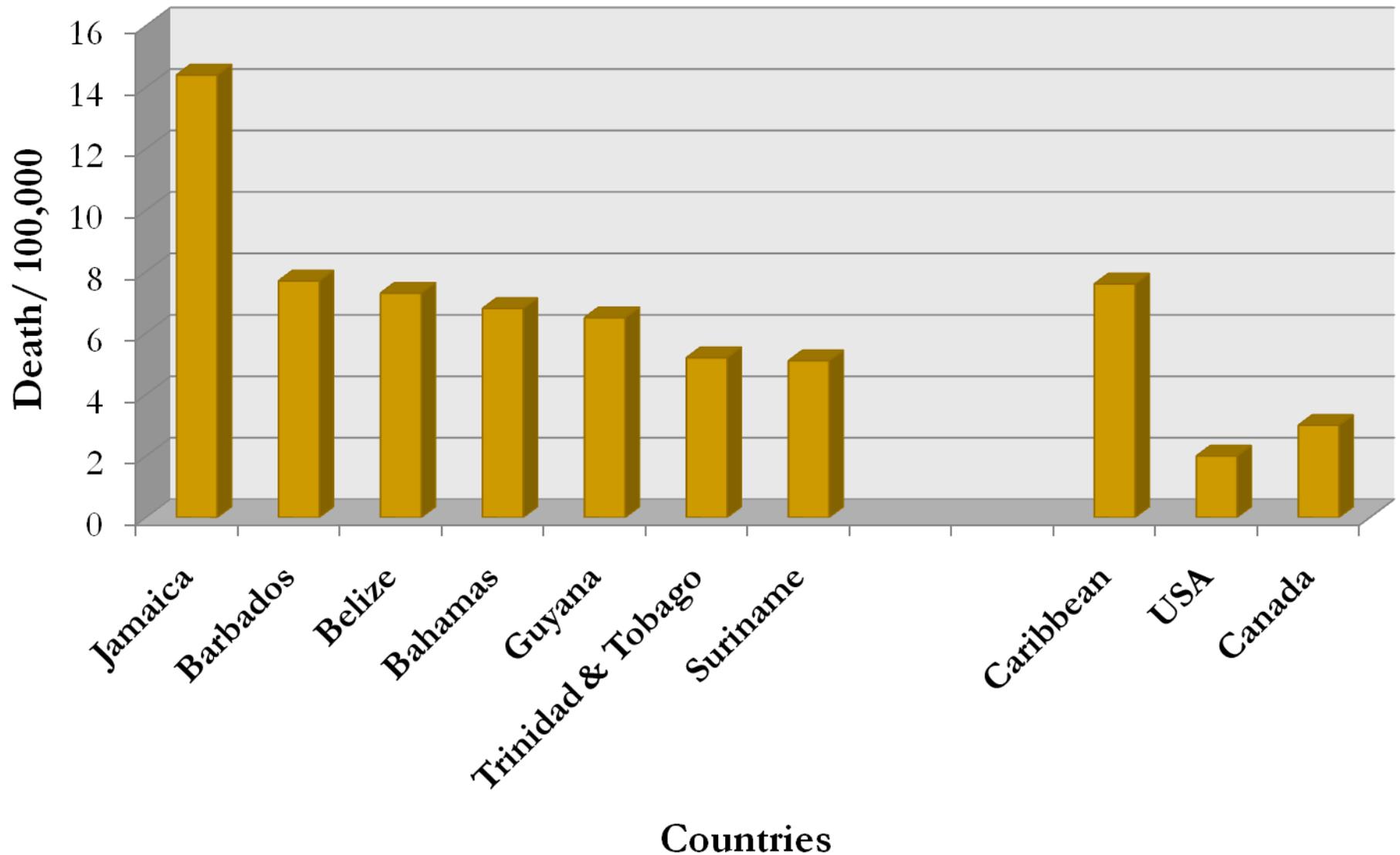
Lung Cancer Mortality by Country - 2008



Colorectal Cancer Mortality by Country - 2008



Stomach Cancer Mortality by Country - 2008



Cancer Rates Relative to USA

LOCATION	PROSTATE	BREAST	CERVIX
	RANK 1	RANK 2	RANK 3
World	76	84	459
Caribbean	348	127	824
Jamaica	212	156	1188
USA	100	100	100

Cancer Rates Relative to USA

LOCATION	LUNG		COLORECTAL		STOMACH	
	RANK 4		RANK 5		RANK 6	
	Male	Female	Male	Female	Male	Female
World	76	45	97	91	526	493
Caribbean	40	18	92	91	381	386
Jamaica	58	32	80	117	726	700
USA	100	100	100	100	100	100

Cancers Ranked by Mortality

RANK	CARIBBEAN		JAMAICA		USA	
	Female	Male	Female	Male	Female	Male
1 st (highest)	Breast	Prostate	Breast	Prostate	Lung	Lung
2 nd	Cervix	Lung	Cervix	Lung	Breast	Prostate
3 rd	Colorect	Stomach	Stomach	Stomach	Colorect	Colorect
4 th	Stomach	Colorect	Colorect	Colorect	Ovary	Pancreas

Change (%) in Cancer Mortality: 2000-2008

COUNTRY	AGE STANDARIZED CANCER MORTALITY RATE (PER 100,000)		PERCENTAGE CHANGE (%)
	2000	2008	
Guyana	75.8	90.1	+ 18.9
Trinidad & Tobago	93.6	101.7	+ 8.7
Barbados	127.2	130.7	+ 2.7
Bahamas	97.0	94.2	-2.9
Jamaica	107.1	101.9	-4.9
Belize	76.1	66.6	-12.4
Suriname	67.7	59.1	-12.6
USA	107.9	68.1	-36.9

ATTRIBUTABLE FACTORS

Cancer Deaths Attributable To Various Factors

1980		2010	
-		Medical Procedures	0.5%
-		Physical Inactivity	1.5%
-		Pollution/Food Additives	2%
-		Occupational Hazards	2%
Pollution/Food Additives	3%	Electromagnetic Radiation	4%
Alcohol	3%	Alcohol	5%
Occupational Hazards	4%	Reproductive Hormones	10%
Viruses/infection	5%	Viruses/Infection	10%
Smoking	30%	Smoking	30%
Diet	35%	Diet	35%

Risk (lifestyle) Factors ~ Prostate Cancer

EVIDENCE	DECREASES RISK	INCREASES RISK
Convincing		Inherited mutations
Probable	Lycopene Selenium	Calcium
Possible	Legumes Vitamin E Alpha-tocoferol	Processed meat Milk and diary products

Risk (lifestyle) Factors ~ Breast Cancer

EVIDENCE	DECREASES RISK		INCREASES RISK	
	Pre menopause	Post menopause	Pre menopause	Post menopause
Convincing	Lactation	Lactation	Alcohol Inherited mutations Hormones	Alcohol Body fat Adult Ht Inherited mutations
Probable	Body fatness	Physical activity	Adult Ht Greater birth weight	Abdominal fatness Adult Wt gain
Possible	Physical activity			Total fat

Risk (lifestyle) Factors and Cervical Cancer

EVIDENCE	DECREASES RISK	INCREASES RISK
Convincing		Smoking Viral infection (HPV)
Probable	Carrots	
Possible		

Risk (lifestyle) Factors ~ Lung Cancer

EVIDENCE	DECREASES RISK	INCREASES RISK
Convincing		Smoking Arsenic in water Beta-carotene Mutations
Probable	Fruits Carotenoids	
Possible	Vegetables Selenium Quercetin Physical Activity	Red meat Processed meat Total fat, Butter Retinol Low body fatness

Risk (lifestyle) Factors and Colorectal Cancer

EVIDENCE	DECREASES RISK	INCREASES RISK
Convincing	Physical activity	Red /Processed meat Alcohol (men) Body & Ab fatness Adult Ht /Smoking Inherited mutations
Probable	Fibre Garlic Milk Calcium	Alcohol (women)
Possible	Vegetables/Fruits Folate /Selenium Fish Vitamin D	Iron Cheese Animal fats Sugar

Risk (lifestyle) Factors and Stomach Cancer

EVIDENCE	DECREASES RISK	INCREASES RISK
Convincing		Mutations Bacterial infection (H. pylori)
Probable	Vegetables Allium vegetables Fruits	Salt Salty and salted food
Possible	Legumes Selenium	Chilli Processed meat Smoked foods Grilled / barbeque animal food

CANCER	RISK FACTORS OF COMMON CANCERS								GENETIC FACTORS	OTHER MAJOR FACTORS
	FAT	BODY WEIGHT	FIBRE	FRUITS & VEGGIES	ALCOHOL	SMOKING	PHYSICAL ACTIVITIES	SEXUAL BEH'R		
PROSTATE	+			--					+++	
BREAST	+	+++			+++		--		+++	++ (hormonal)
CERVIX				-		+++				+++ (HPV)
LUNG	+			--		+++	-		+++	+++
COLORECTAL	+	+++	--	--	+++	+++	---		+++	
STOMACH				--					+++	+++ (H. pylori)

EFFECTS OF FACTORS ON TYPES OF CANCER

PROPORTION OF VARIANCE (95% CI)

TYPE	HERITABLE FACTORS	SHARED ENV - LIFESTYLE FACTORS	NONSHARED ENV-LIFESTYLE FACTORS
PROSTATE	0.42 (0.29-0.50)	0 (0-0.09)	0.58 (0.50-0.67)
BREAST	0.27 (0.04-0.41)	0.06 (0-0.22)	0.67 (0.59-0.76)
CERVIX	0 (0-0.42)	0.20 (0-0.35)	0.80 (0.57-0.97)
STOMACH	0.28 (0-0.51)	0.10 (0-0.34)	0.62 (0.49-0.76)
LUNG	0.26 (0-0.49)	0.12 (0-0.34)	0.62 (0.51-0.73)
COLORECTAL	0.35 (0.10-0.48)	0.05 (0-0.23)	0.60 (0.52-0.70)

EFFECT OF LIFESTYLE FACTORS

Likelihood of Cancers in Smokers *vs* Non-smokers

- 15 to 30 x – Lung
- 6 x – Larynx, Pharynx, Mouth
- 4 to 7 x - Bladder
- 4 x – Oesophagus
- 2 to 3 x - Pancreas
- 2 x – Cervix, Kidney

Likelihood of Cancers in Heavy *vs* Non-drinkers

- 4 x – Oral, Esophagus
- 2 to 10 x – Larynx, Pharynx
- 2 x – Breast

DIET

PROVEN CAUSE

- Liver
- Colorectum
- Lung
- Breast
- Mouth
- Pharynx
- Larynx

LIKELY CONTRIBUTOR

- Prostate
- Stomach
- Skin
- Oesophagus

**MACRO CHALLENGES
TO
LIFESTYLE
INTERVENTIONS**

The Holistic Approach

MIND, BODY, SPIRIT --- CANCER

- Nutrition – Physical IQ & Mental
- Exercise – Physical Mood
- Meditation – Heart, Immune function

Cancer Research

- Cancer Development ↑↑↑↑↑↑↑↑↑↑
- Cancer Treatment ↑↑↑↑↑↑↑↑↑↑
- Cancer Prevention ↑

Cancer & Politics

PROBLEM

- Diet
- Smoking
- Drinking
- Pollution
- Chemicals

SOLUTION

- Food Companies
- Tobacco Industry
- Breweries/Distilleries
- Petrochemical Industry
- Pharmaceutical Industry

Solution – Suicide for a Politician

**MICRO CHALLENGES
TO
LIFESTYLE
INTERVENTIONS**

WHAT CAN WE DO?

RECOMMENDATIONS

DIET

- **EAT MAINLY FOOD OF PLANT ORIGIN**
- ≥ 5 serves/day – Vegetables & Fruits
- < 18 oz/week - Red Meat
- Eat Grains and Legumes with every meal
- Limit Refined Starchy Foods
- Avoid Processed Meat
- Limit Energy Dense Food
- Avoid Sugary Drinks

RECOMMENDATIONS

FOOD PREPARATIONS

- **Avoid Salt Preserved, Salted or Salty Food**
- **Do Not eat Mouldy Grains or Legumes**

RECOMMENDATIONS

TOBACCO

- **DO NOT SMOKE**
- **AVOID SECONDARY SMOKE**

RECOMMENDATIONS

PHYSICAL ACTIVITY

- Limit Sedentary Habits
- BMI to be between 21 and 23
- Keep PAL > 1.6
- Brisk walk – 30 mins daily

RECOMMENDATIONS

ALCOHOL

If consumed, limit to:

- 2 drinks/day – men
- 1 drink/day - women

CONCLUSION

- **CANCER IS LARGELY A PREVENTABLE DISEASE**
- **LIFESTYLE FACTORS PLAY A KEY ROLE**
- **EFFECTIVE ACTION ON DIET AND SMOKING CAN REDUCE CANCERS BY 60-70% .**

CARIBBEAN FOOD & NUTRITION INSTITUTE

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Years of Service

1967-2012



Pan American Health Organization

Regional Office of the World Health Organization



THANK YOU