# Global gaps in smokers' knowledge of cardiovascular harms from smoking and secondhand smoke: Findings from the ITC Project

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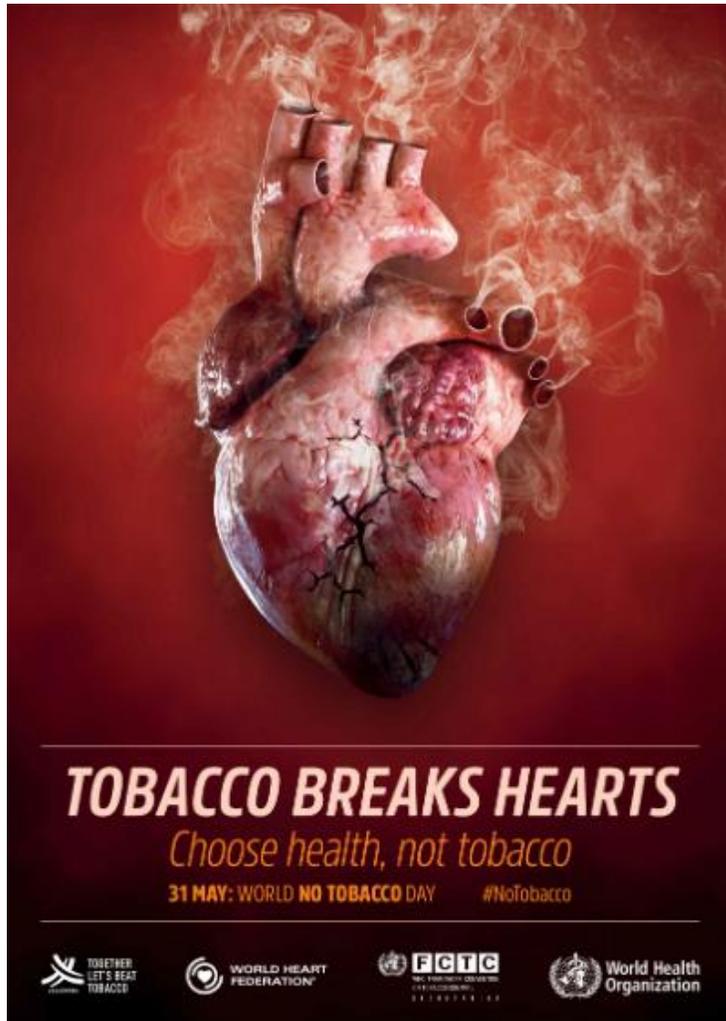[3] Medical University of South Carolina, Charleston, SC, USA

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# Disclosure Statement

- I have no affiliation (financial or otherwise) with a pharmaceutical, medical device or communications organization.

- K. Michael Cummings and David Hammond have each served as a paid expert witness in litigation filed against the tobacco industry.

- All other authors have no conflicts of interest to declare.

# Cardiovascular Disease and Tobacco



TOBACCO BREAKS HEARTS
*Choose health, not tobacco*
31 MAY: WORLD NO TOBACCO DAY    #NoTobacco

- Theme of World No Tobacco Day (WNTD) 2018

- Cardiovascular disease is the world's leading cause of death
  - 31% of global deaths in 2015
  - Includes stroke, heart disease, peripheral vascular disease

- Largely preventable through reduction of behavioural risk factors

- Tobacco use & SHS cause ~12% of all global deaths from CVDs
  - Second leading cause of CVDs worldwide
  - No safe level of smoking for CVD risk (*Hackshaw, 2018*)

- 80% of these deaths occur in low- and middle-income countries (LMICs)
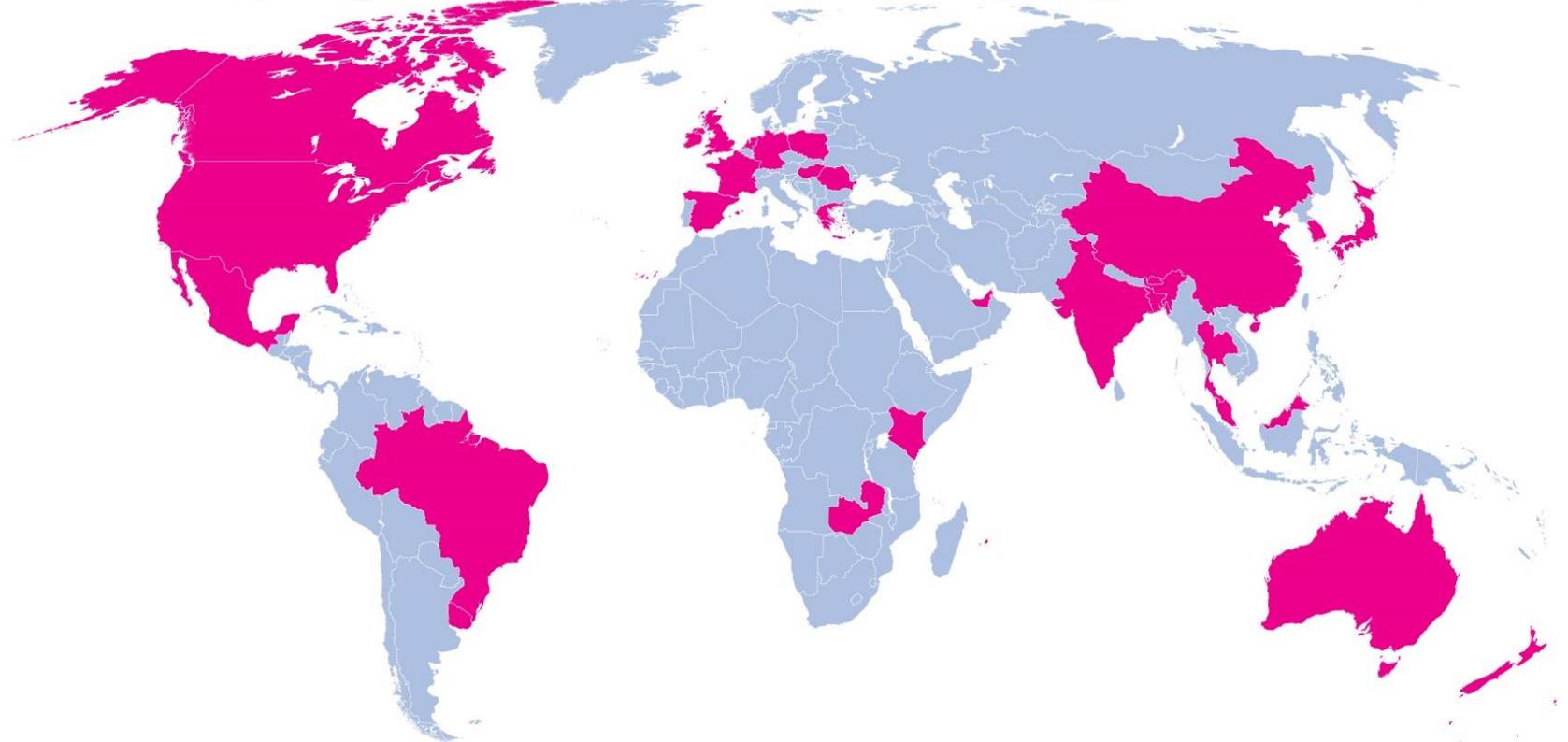
# Knowledge of CVD Harms

- Despite the known harms of tobacco to heart health, many people are not aware of this link

- Awareness of the harms is an important predictor or smoking-related behavior
  - i.e., Quit intentions; smoking initiation

- Knowledge is also associated with sociodemographic factors
  - i.e., higher education and income

- However, little is known about levels of knowledge across countries

# Background



- Joint ITC/WHO/WHF report published in 2012
- Data from two major international tobacco research and surveillance initiatives:
  1) ITC Project Surveys
  2) Global Adult Tobacco Surveys (GATS)
- Aim: to examine smokers' knowledge of the cardiovascular harms of smoking and SHS
- Focus on LMICs
- Found significant gaps in smokers' knowledge of CVD risks of tobacco use in many countries

# Current Study

- Update of selected results from the 2012 report
  - Including new countries added to the ITC Project
    - HICs: Greece, Hungary, Poland, Spain
    - LMICs: India, Kenya, Zambia, Romania
  - More recent survey waves from previous countries

- Aims:
  1) Examine current levels of knowledge of cardiovascular harms caused by tobacco use and SHS among smokers across countries
  2) Compare levels of knowledge for different types of diseases
  3) Compare high income countries with LMICs
  4) Identify gaps in knowledge and strategies for raising awareness

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# ITC Project



**ITC Surveys are being conducted in:**

- **29 countries**
- **Over 50% of the world's population**
- **Over 60% of the world's smokers**
- **Over 70% of the world's tobacco users**

International Tobacco Control Policy Evaluation Project

# Key Features of the ITC Project

- **Focus on science**
  - First-ever international cohort study of tobacco use (2002)
  - Only international study designed to evaluate actual impact of tobacco control measures (e.g., FCTC policies)
  - Globally recognized for its rigorous research design
  - Cross-country comparisons; health inequalities
  - Rigorous evaluation of specific policies and implementations

- **Focus on dissemination**
  - 60 national/policy reports for policymakers, other key actors
  - Directly countering myths of the tobacco industry

- **Focus on collaboration, building research capacity**
  - Over 150 research collaborators across 29 countries
  - Workshops, seminars to build research capacity (especially in LMICs)

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# Study Methods

- Cross-sectional data from ITC Surveys in up to 25 countries
  - Most recent survey wave where the questions of interest were asked

- Limited to current smokers* only
  - Excluding other tobacco users and non-users

- Analyses conducted using the multilog procedure in SUDAAN v11

- All analyses used weighted data and adjusted for sex, age, smoking status, and time in sample

*Note: in some countries, smokers included bidi smokers as well as cigarette smokers
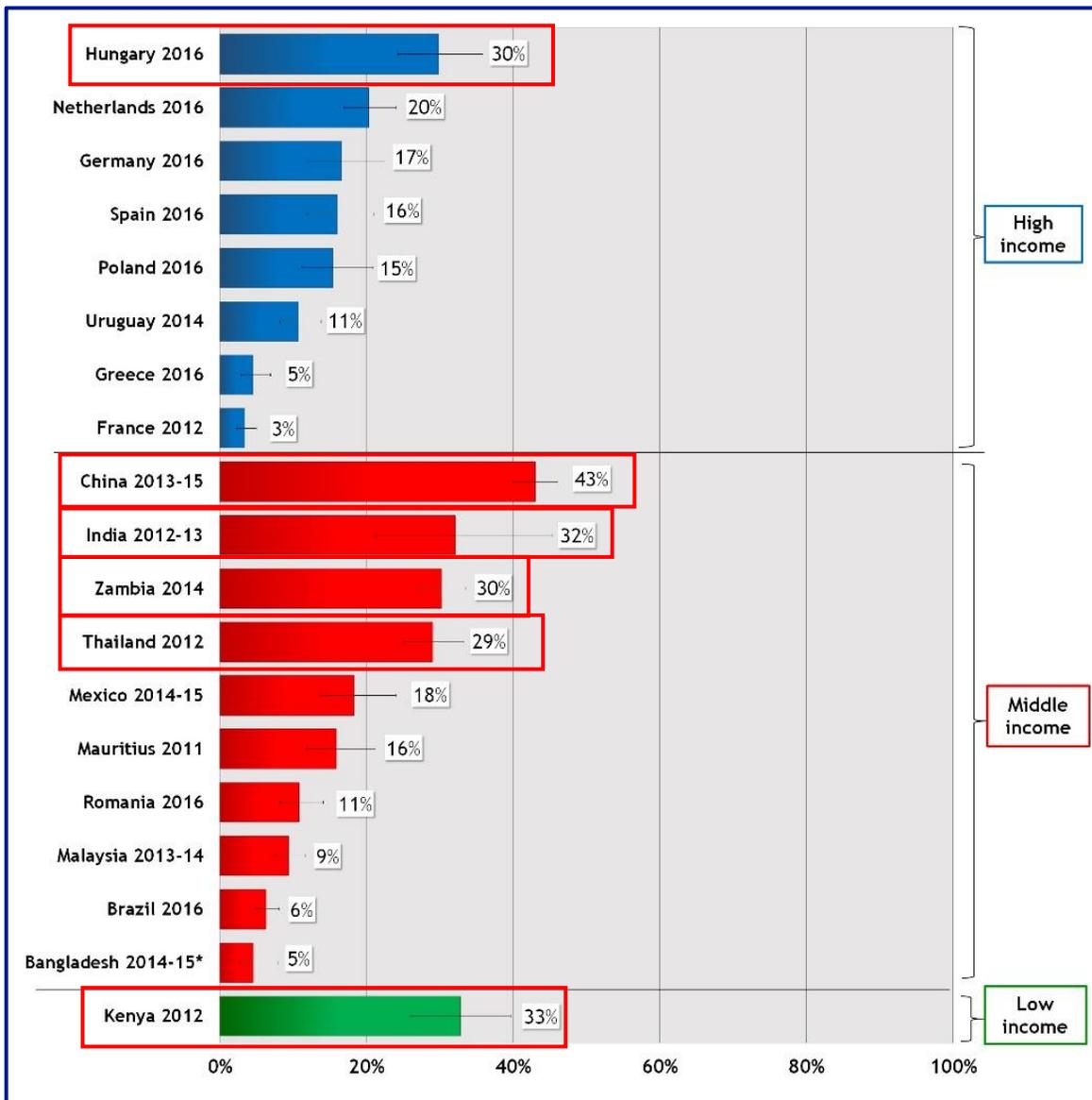
# Measures

- Survey questions on knowledge of cardiovascular harms:

- "Based on what you know or believe, does smoking cause…"
  - Stroke
  - (Coronary) heart disease
  - Lung cancer
  - Peripheral vascular disease/gangrene
  - Heart attack/disease in non-smokers from SHS
  - Lung cancer in non-smokers from SHS

  ❏ Yes

  ❏ No

  ❏ Don't Know

- Combined responses of "no" and "don't know"
  - So results show the **LACK** of awareness

- Note about measures used: awareness/knowledge/agreement
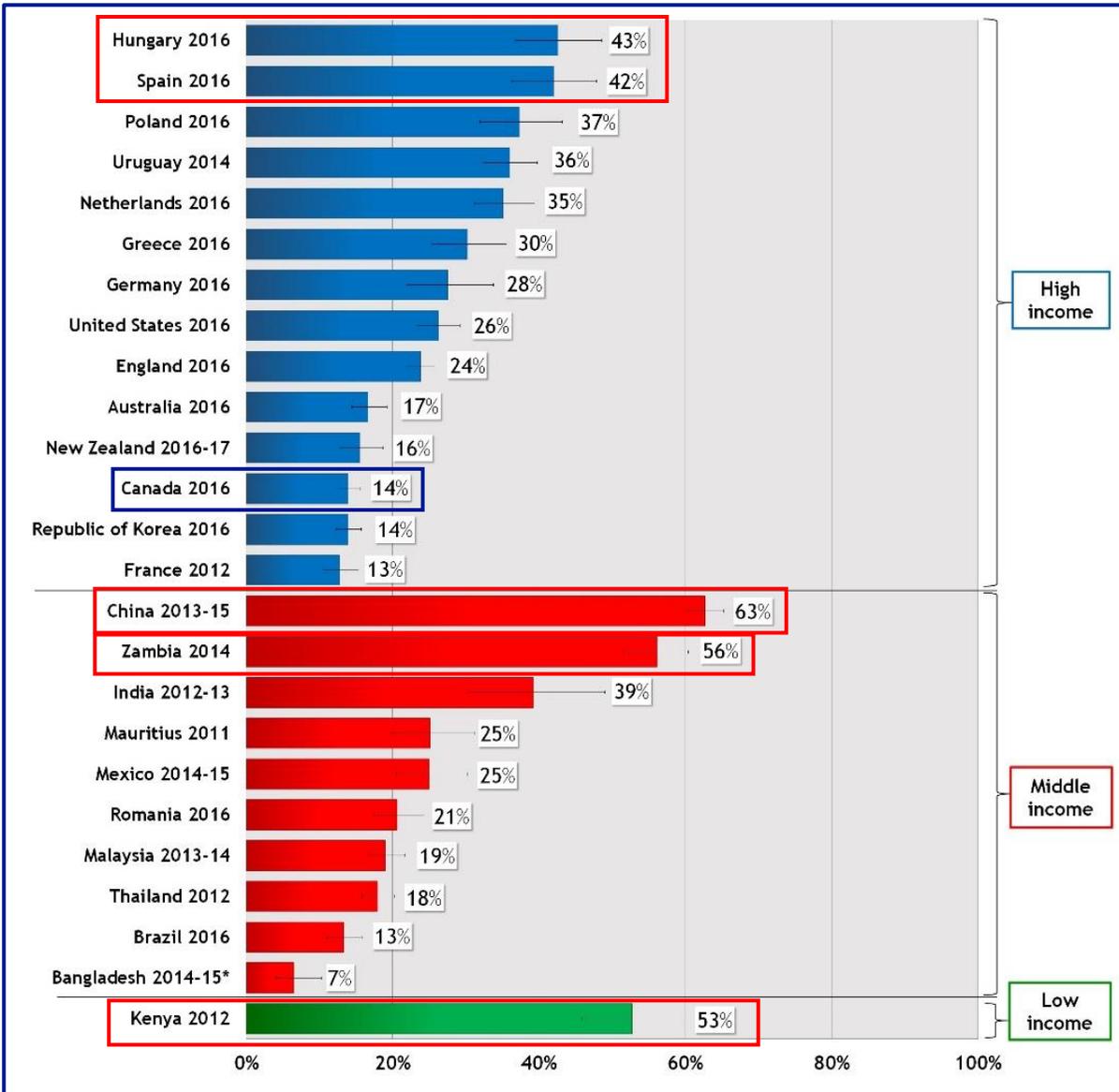
# Findings – Heart Disease



**Percentage of smokers who DO NOT know or believe that smoking causes heart disease**

- Overall, the majority of smokers were aware that smoking causes heart disease

- Lowest in **China** where almost half (43%) of smokers were not aware

- In some other countries, nearly one-third of smokers were not aware
  - i.e., Kenya (33%), India (32%), Zambia (30%), Hungary (30%), Thailand (29%)
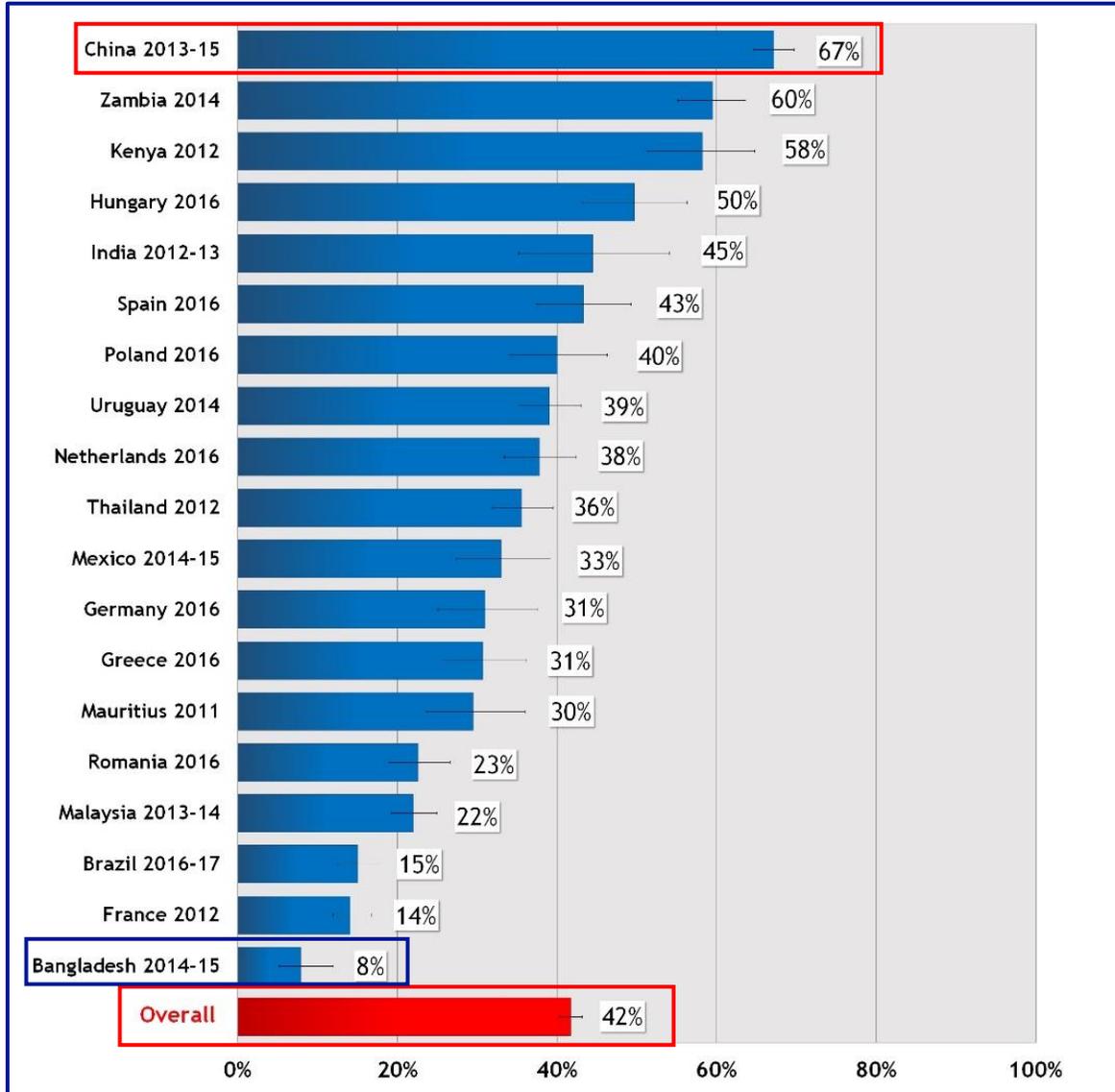
**Longer bars = lower knowledge**

# Findings – Stroke



Percentage of smokers who DO NOT know or believe that smoking causes stroke

- Overall, knowledge that smoking causes stroke was low

- In LMICs: Over half of smokers in **China**, **Zambia**, and **Kenya** were not aware that smoking causes stroke

- In HICs: Close to half of smokers in **Hungary** and **Spain** were not aware

- Canada: Only 14% were not aware that smoking causes stroke (due to graphic warning?)
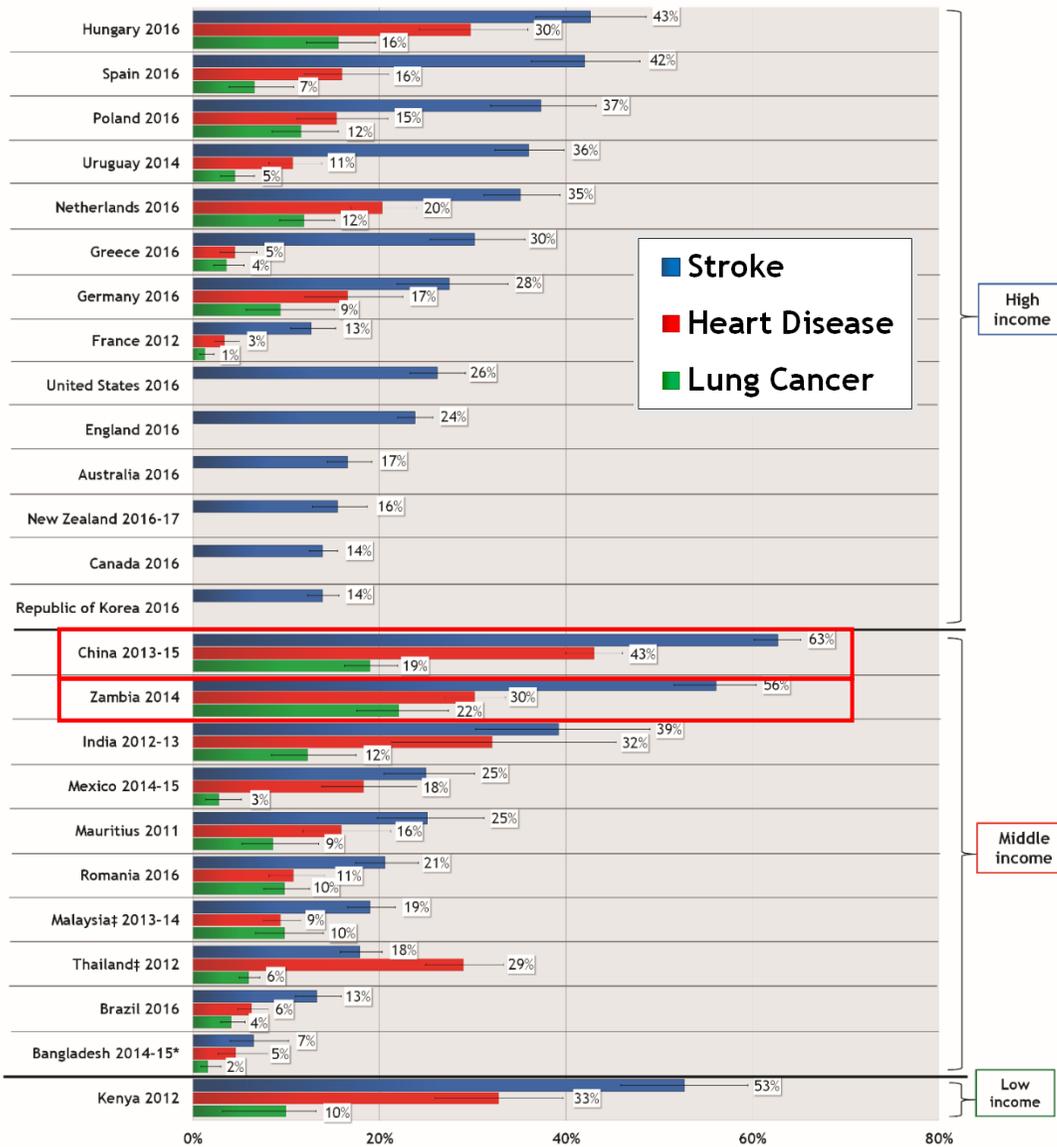
# Findings – Stroke & Heart Disease



| Country | % |
|---|---|
| China 2013-15 | 67% |
| Zambia 2014 | 60% |
| Kenya 2012 | 58% |
| Hungary 2016 | 50% |
| India 2012-13 | 45% |
| Spain 2016 | 43% |
| Poland 2016 | 40% |
| Uruguay 2014 | 39% |
| Netherlands 2016 | 38% |
| Thailand 2012 | 36% |
| Mexico 2014-15 | 33% |
| Germany 2016 | 31% |
| Greece 2016 | 31% |
| Mauritius 2011 | 30% |
| Romania 2016 | 23% |
| Malaysia 2013-14 | 22% |
| Brazil 2016-17 | 15% |
| France 2012 | 14% |
| Bangladesh 2014-15 | 8% |
| Overall | 42% |

**Percentage of smokers who DO NOT know or believe that smoking causes BOTH stroke and heart disease**

- Results represent the % who lacked knowledge of at least one of the two CVD risks
- **Overall** across all countries, almost half (42%) of smokers were not aware that smoking causes both stroke and heart disease
- Highest knowledge: **Bangladesh** – 92% aware that smoking causes both diseases
- Lowest knowledge: **China** – over 2/3 of smokers lacked CVD knowledge

Note: Results are only shown for countries that asked about both stroke and heart disease in the same survey wave, so Canada was not included.
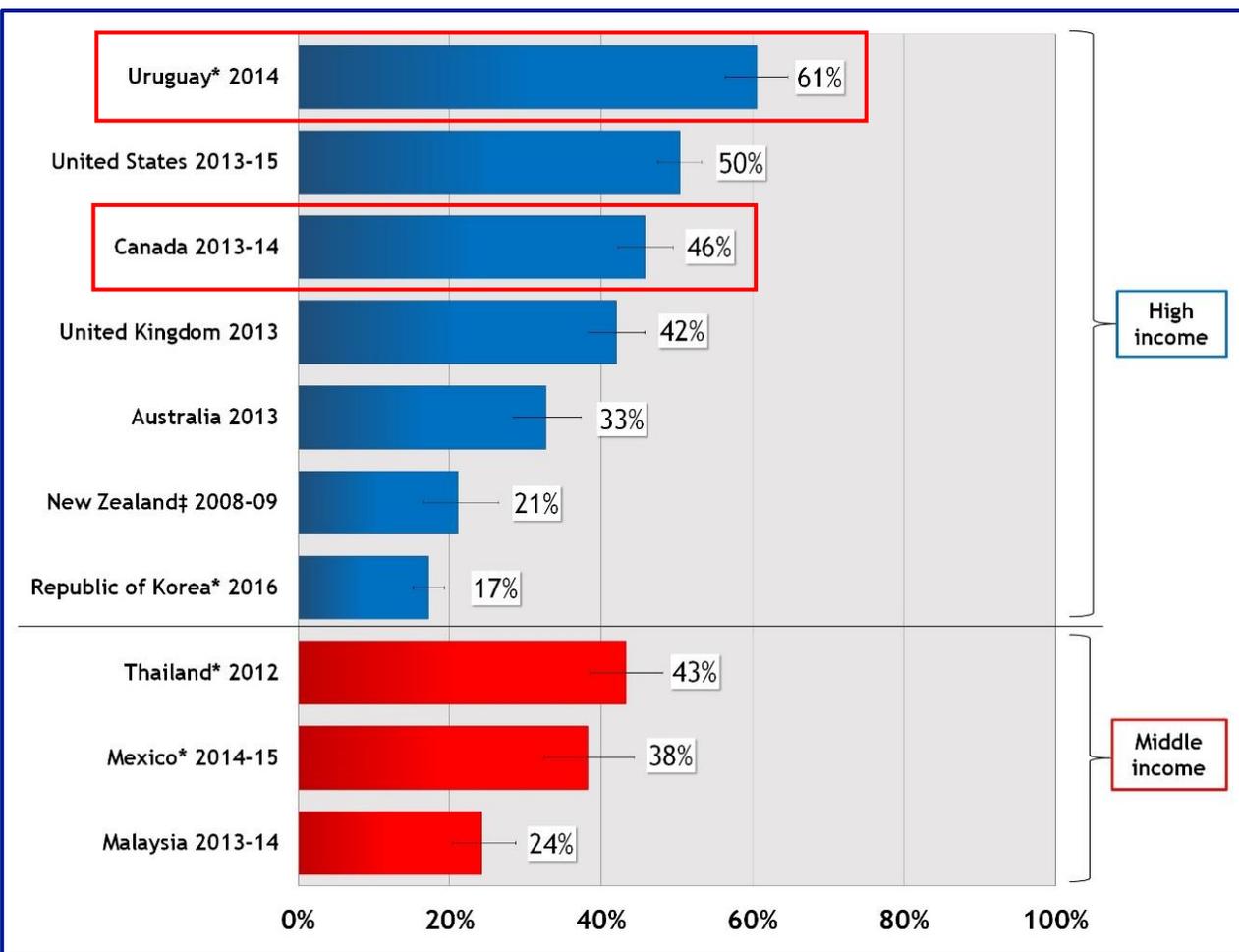
# Findings – CVD vs. Lung Cancer



**Percentage of smokers who DO NOT know or believe that smoking causes stroke VS. heart disease VS. lung cancer**

- Majority of smokers across countries are aware that smoking causes lung cancer
  - But there are still gaps in some LMICs, e.g., **China** (19% unaware) and **Zambia** (22% unaware)

- In almost every country, significance tests for differences in knowledge showed:
  - Lung cancer > heart disease
  - Lung cancer > stroke
  - Heart disease > stroke

‡ In Malaysia and Thailand, results for lung cancer are from 2008-09
In some HICs (including Canada), questions about lung cancer & heart disease were not asked in recent survey waves so comparisons could not be shown
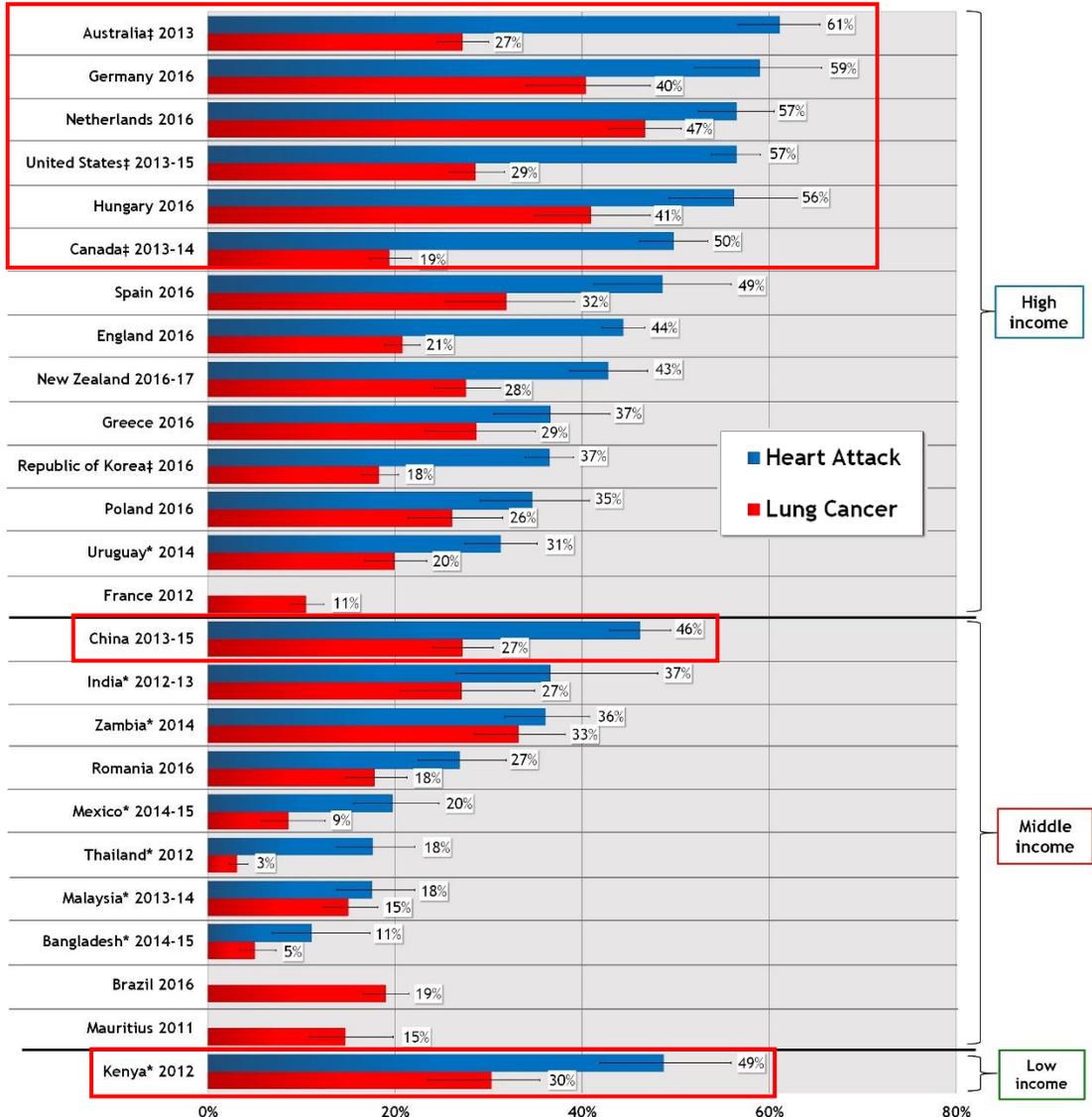
# Findings – PVD



**Percentage of smokers who DO NOT know or believe that smoking causes peripheral vascular disease**

- Overall, knowledge that smoking causes PVD was low

- In most countries, at least one-third of smokers were not aware

- Lowest knowledge was in **Uruguay**

- Almost half (46%) of smokers in **Canada** were not aware

Chart data:

| Country | Percentage | Income group |
|---|---|---|
| Uruguay* 2014 | 61% | High income |
| United States 2013-15 | 50% | High income |
| Canada 2013-14 | 46% | High income |
| United Kingdom 2013 | 42% | High income |
| Australia 2013 | 33% | High income |
| New Zealand‡ 2008-09 | 21% | High income |
| Republic of Korea* 2016 | 17% | High income |
| Thailand* 2012 | 43% | Middle income |
| Mexico* 2014-15 | 38% | Middle income |
| Malaysia 2013-14 | 24% | Middle income |

* In these countries, the question asked about gangrene
‡ In New Zealand, the question asked about "poor blood flow leading to loss of toes"

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# Findings – SHS Harms



**Percentage of smokers who DO NOT know or believe that SHS causes: heart attack VS. lung cancer**

- In every country, knowledge that SHS causes heart attack was significantly lower than knowledge that SHS causes lung cancer

- Overall, knowledge of SHS harms was lower in HICs
    - At least half of smokers in 6/13 HICs were not aware that SHS causes heart attack

- In LMICs: almost half of smokers in **China** (46%) and **Kenya** (49%) were not aware that SHS causes heart attack

**Longer bars = lower knowledge**

\* In these countries, the question asked about heart disease instead of heart attack

‡ In these countries, results for lung cancer are from 2008-09

# Summary of Findings

- Smokers' knowledge of the cardiovascular diseases caused by tobacco and SHS varies widely across countries

- Significant gaps in knowledge
  - Especially in LMICs, e.g., China, Zambia, Kenya, and India
  - Even in some HICs
    - In Canada: high knowledge of stroke (86% aware) but almost half were not aware of other CVD risks (PVD and heart attack in non-smokers)

- In almost <u>every</u> country, smokers were less likely to agree that smoking and SHS causes stroke and heart disease than lung cancer

- Some evidence that knowledge of CVD harms caused by SHS is lower overall than smoking-related harms

- Limitations

# Implications

- Global burden of NCDs, especially CVDs, is increasing

- WHO and UN have set targets for reducing NCD deaths by one-third by 2025-2030
  - Need to reduce tobacco use prevalence by 30%

- Stronger global efforts to increase awareness of the specific health risks caused by tobacco use

- Focus on LMICs: those with weaker TC are those with lowest knowledge

| Canada: | China: |
|---|---|
| ~4 million smokers | ~315 million smokers |
| **14%** unaware that smoking causes stroke = over **500,000** smokers | **63%** not aware that smoking causes stroke = almost **200 million** smokers |

# Implications and Recommendations

- The need for efforts to increase knowledge of specific diseases
  - Large pictorial health warnings with specific messages



**Canada:**

**China:**

  - Sustained public education campaigns
  - Smoke-free laws

- Cessation support and advice
  - Training of public health practitioners
  - Risk of CHD is reduced by half within 1 year of quitting; risk of stroke is reduced to that of a non-smoker within 5 years (*Tobacco Atlas, 2016*)

# Future Research

- Currently examining ITC longitudinal data within countries to look at trends in CVD knowledge: is knowledge increasing?

- What factors are associated with knowledge (within and between countries)?

  - Education

  - Socioeconomic status (equity implications)

  - Policies and programs: specific warnings, media/education campaigns

# ITC Project Research Organizations

# ITC Project Research Support

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