

Prevalence of Alcohol Consumption during Pregnancy and Fetal Alcohol Spectrum Disorder

**Presented by
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**Centre
for Addiction and
Mental Health**
**Centre de
toxicomanie et
de santé mentale**

OVERVIEW

- **Prevalence of alcohol consumption and binge drinking during pregnancy in general population of different countries (including countries of Latin America and the Caribbean), World Health Organization (WHO) regions and globally.**
- **Prevalence of FAS/FASD in different populations in different countries (including countries of Latin America and the Caribbean), WHO regions and globally.**
- **Estimated global incidence of children born with FAS and FASD annually**

Prevalence of Alcohol Use During Pregnancy and FAS/FASD

1) Popova S, Lange S, Probst C, Gmel G, & Rehm J (2017). *Lancet Global Health*

2) Lange S, Probst C, Gmel G, Rehm J, Popova S (accepted). *JAMA, Pediatrics*

Objective: To estimate the prevalence of alcohol use and binge drinking during pregnancy and FAS/FASD by country, WHO region, and globally

Methodology:

Comprehensive Literature search: not limited geographically/language

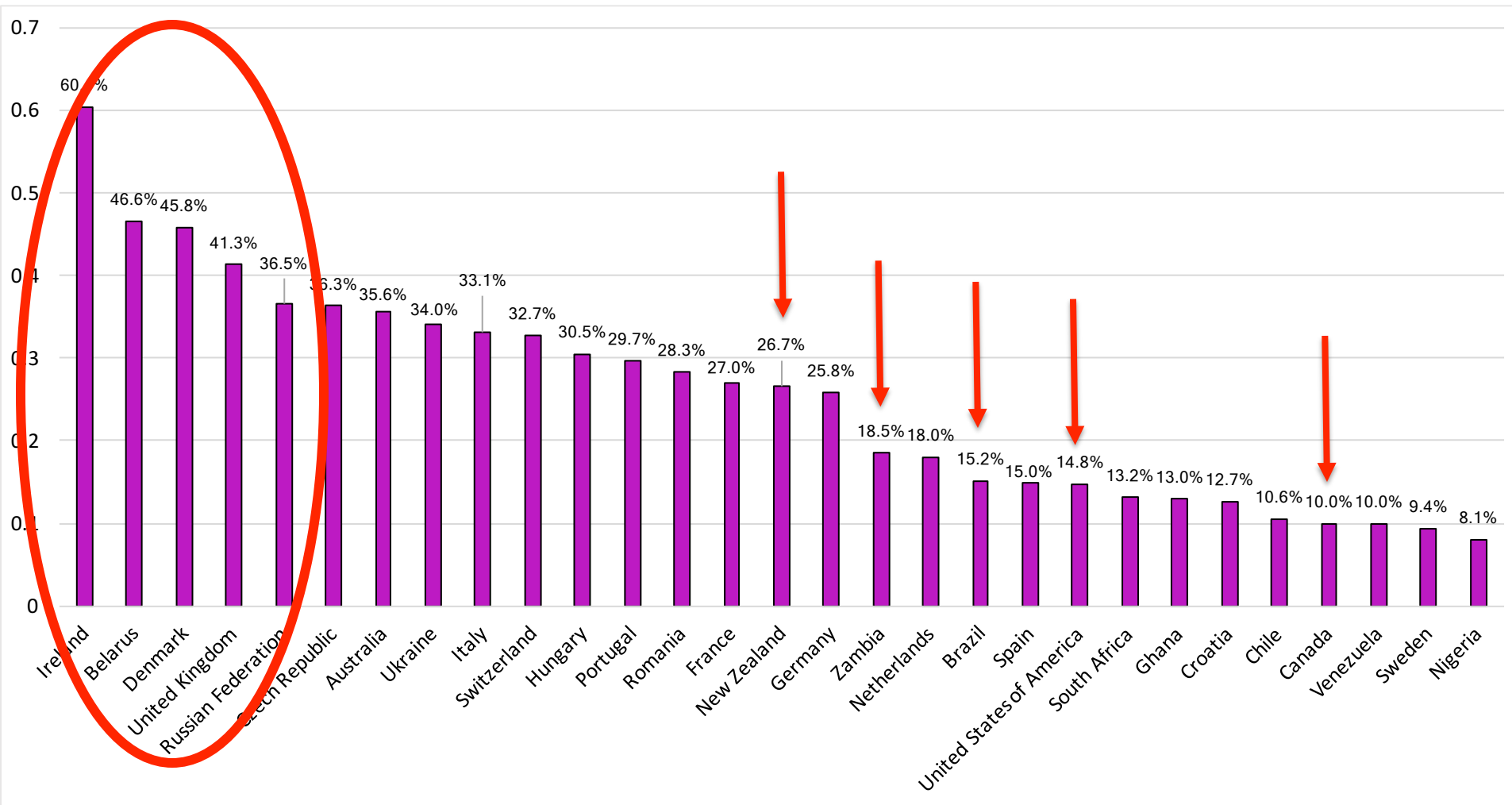
Meta-analyses: Pooled prevalence for countries with 2+ studies, assuming a random-effects model

Data prediction: For countries with one or no studies:

- a) For AC: using fractional response regression modelling and;
- b) For FAS/FASD: based on the proportion of women who gave birth to a child with FAS/FASD among women who consumed alcohol during pregnancy
- Estimated WHO regional and global averages of FAS/FASD prevalence weighted by the number of live births in each country

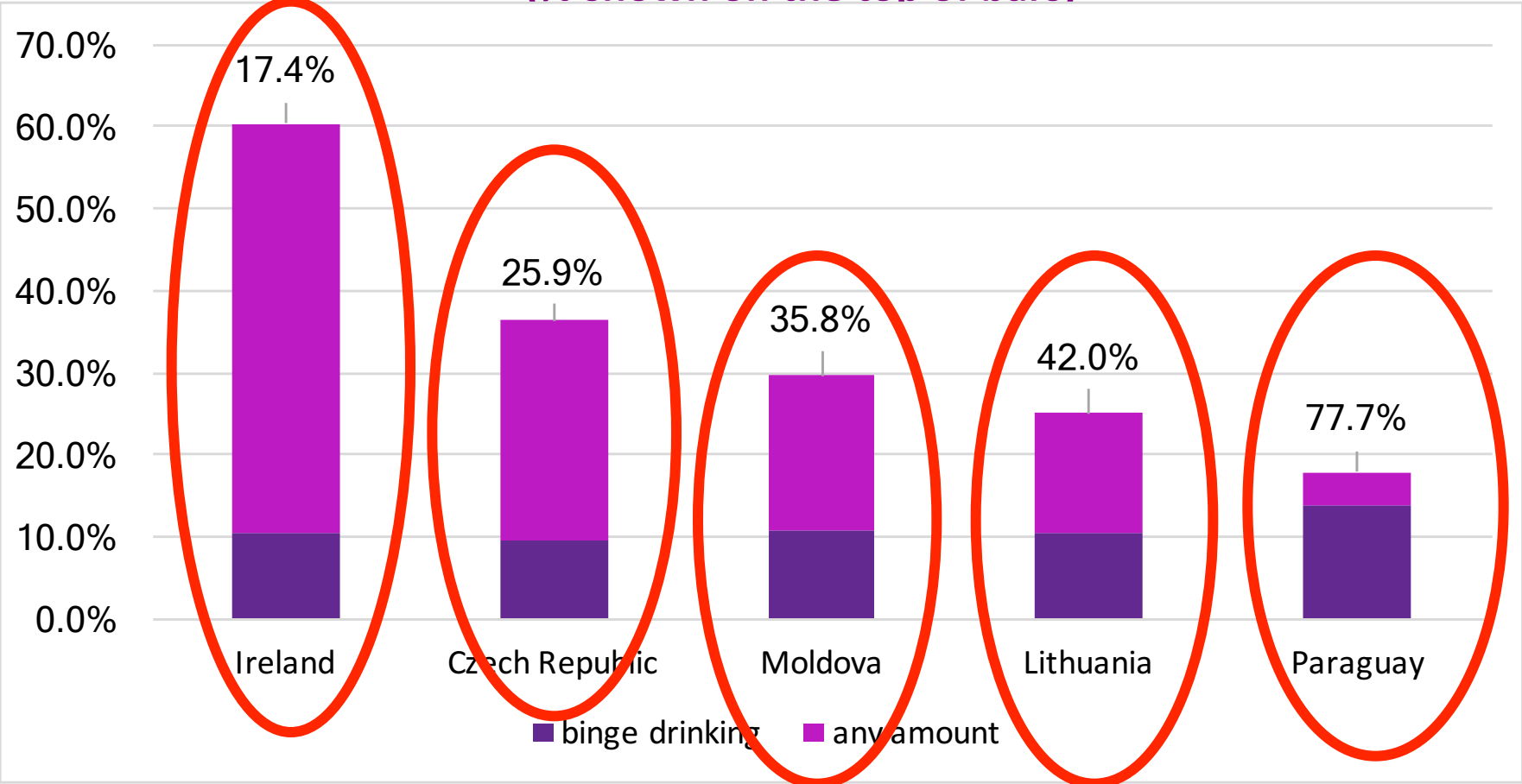
Prevalence of Alcohol Use During Pregnancy in General Population for select Countries

(any amount of alcohol consumed and at any point during pregnancy)

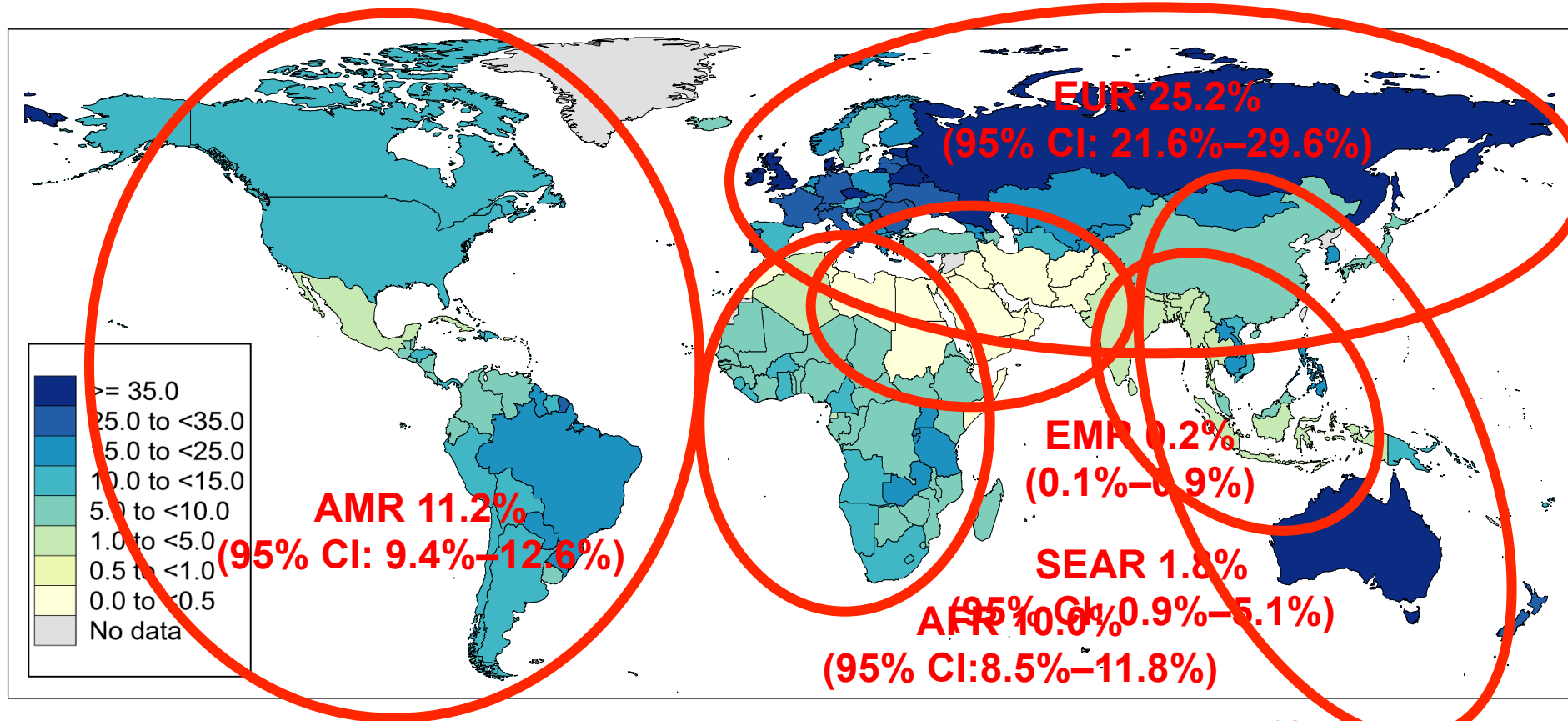


Five Countries with the Highest Prevalence of Binge Drinking During Pregnancy in General Population

Estimated proportion of women who binge drank during pregnancy out of all women who used any amount of alcohol during pregnancy
(% shown on the top of bars)

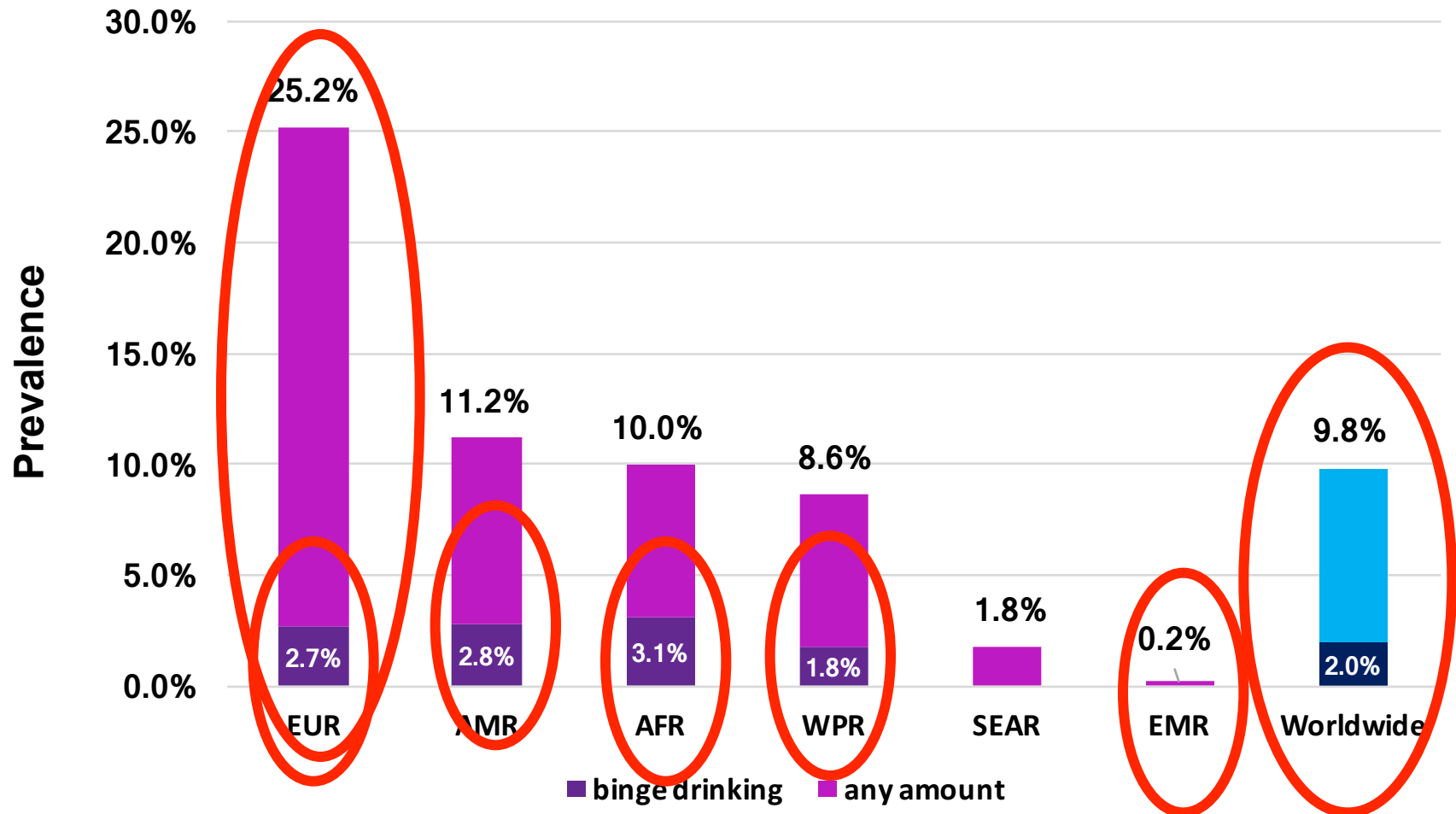


Prevalence of Alcohol Use During Pregnancy in General Population by WHO Region, 2012



AFR=African Region, AMR=Region of the Americas, EMR=Eastern-Mediterranean Region, EUR=European Region, SEAR=South-East Asia Region, WPR=Western Pacific Region

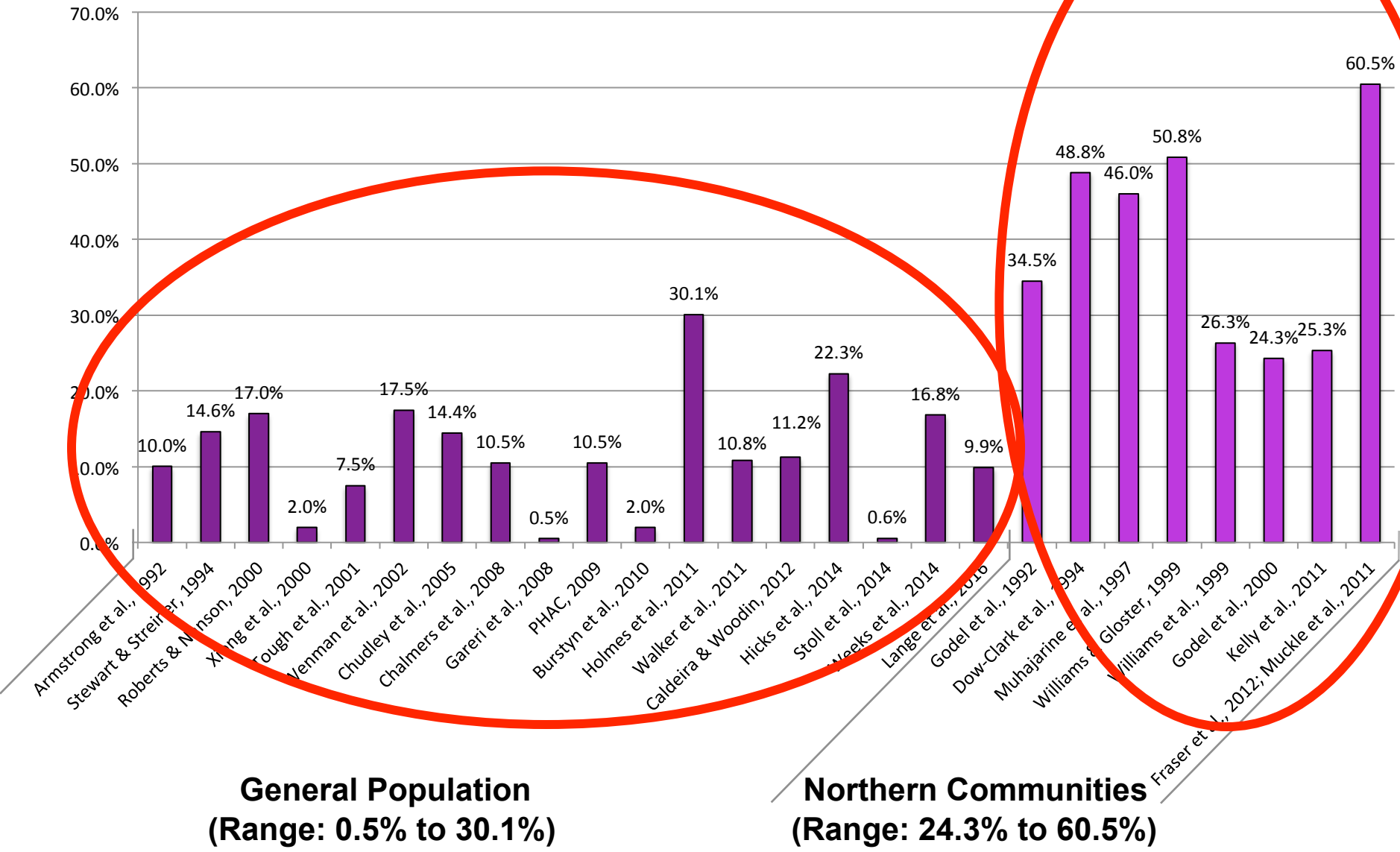
Prevalence of Alcohol Use and Binge Drinking During Pregnancy in General Population by WHO Region and Globally, 2012



AFR=African Region, AMR=Region of the Americas, EMR=Eastern-Mediterranean Region, EUR=European Region, SEAR=South-East Asia Region, WPR=Western Pacific Region

Prevalence of Alcohol Use During Pregnancy in Canada

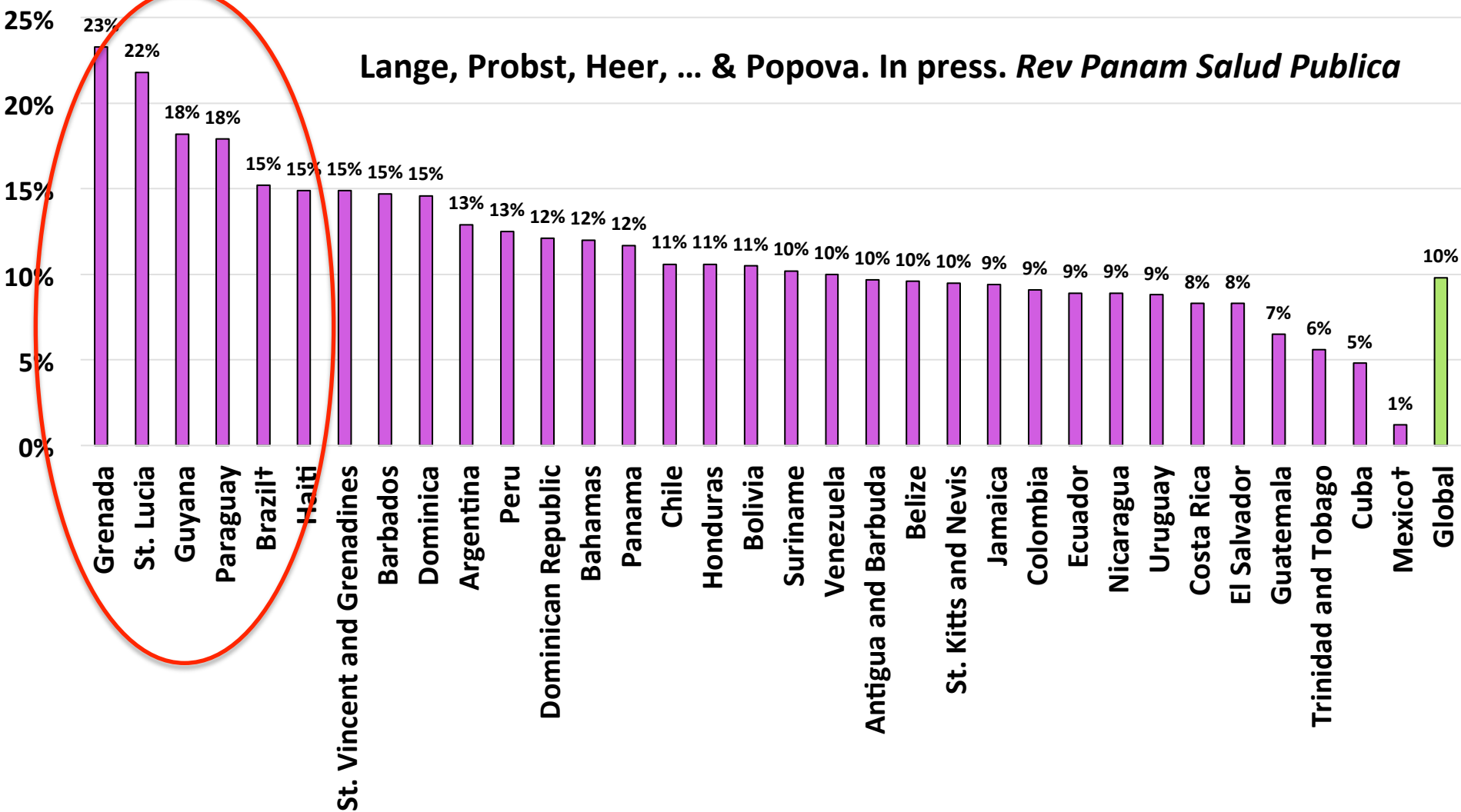
(any amount, and at any point during pregnancy)



Prevalence of Any Amount of Alcohol Use During Pregnancy in General Population of Latin America and the Caribbean in 2012

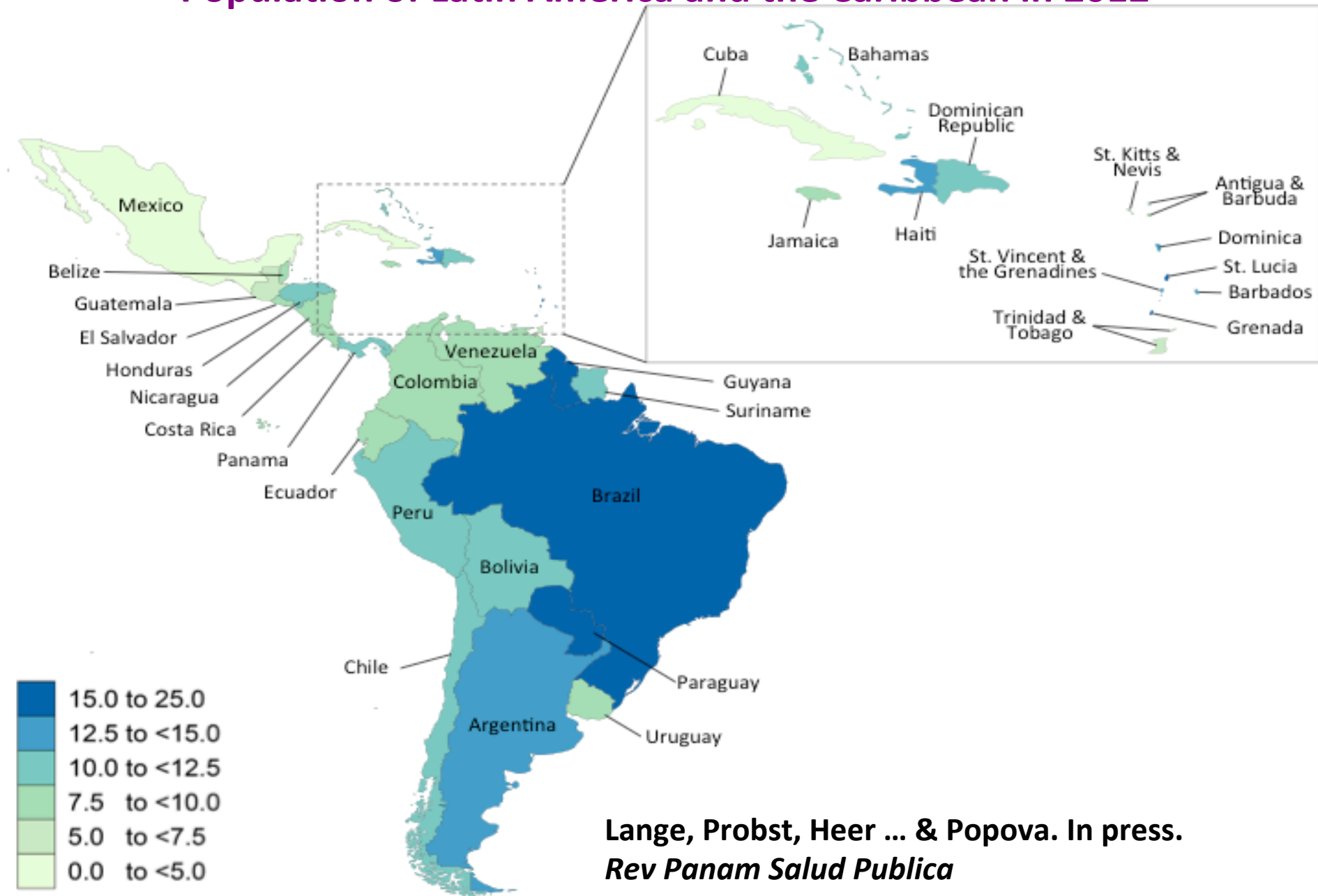
- Lange, Probst, Heer, Roerecke, Rehm, Monteiro, Shield, de Oliveira & Popova. In press. *Rev Panam Salud Publica [Pan American Journal of Public Health]*
- Data from published studies on the prevalence of alcohol consumption during pregnancy were available from 5 of the 33 countries in Latin America and the Caribbean:
- Brazil [n=17], Chile [n=2], Guatemala [n=1], Mexico [n=3], and Uruguay [n=1]; no studies from the Caribbean.
- Meta-analysis for Brazil and Mexico, based on the criterion of three available studies per country.
- The prevalence of alcohol consumption during pregnancy was predicted for 31 countries.

Prevalence of Any Amount of Alcohol Use During Pregnancy in General Population of Latin America and the Caribbean in 2012

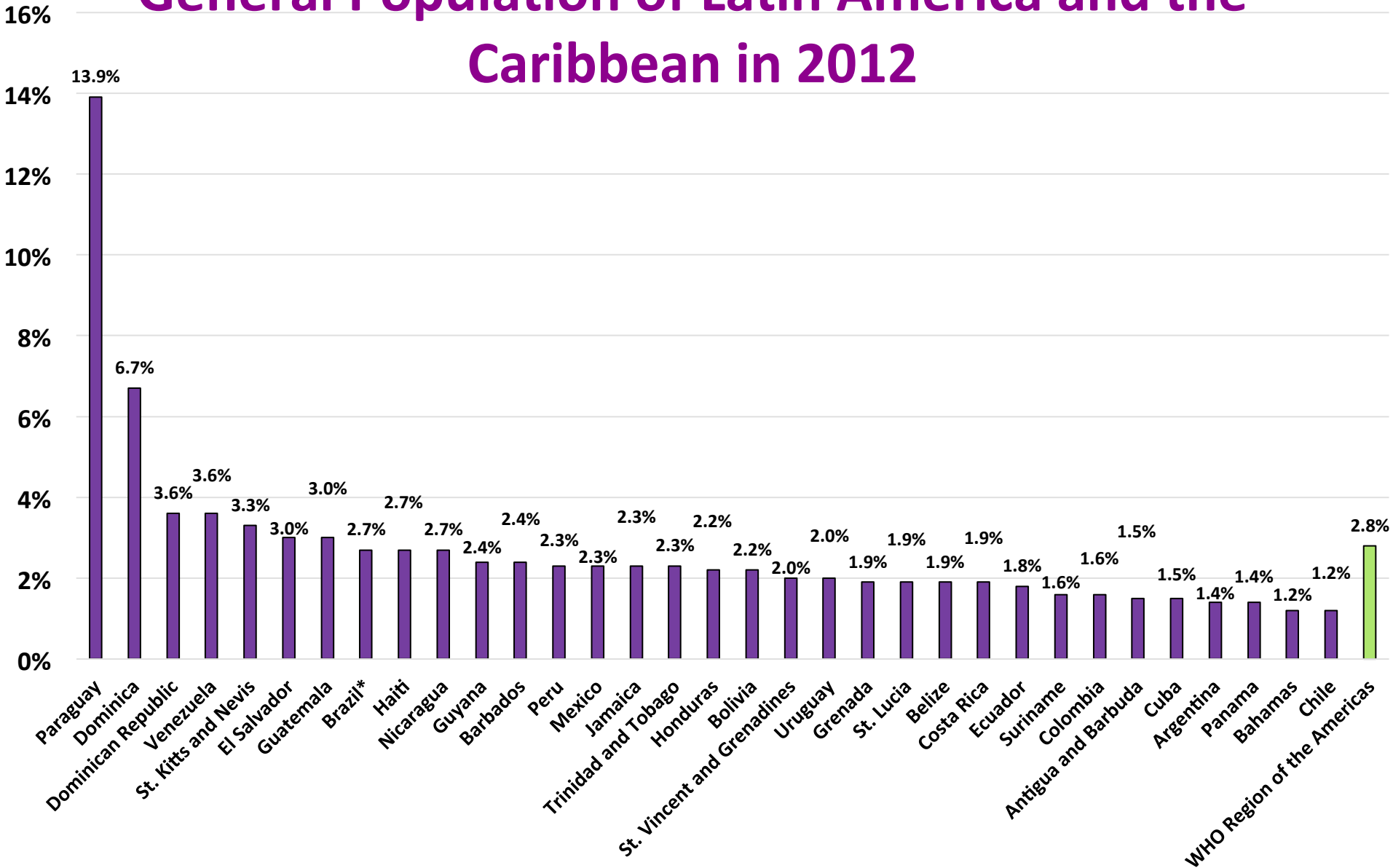


†Estimate of alcohol use (any amount) during pregnancy based on a meta-analysis of the current literature

Prevalence of Any Amount of Alcohol Use During Pregnancy in General Population of Latin America and the Caribbean in 2012



Prevalence of Binge Drinking During Pregnancy in General Population of Latin America and the Caribbean in 2012



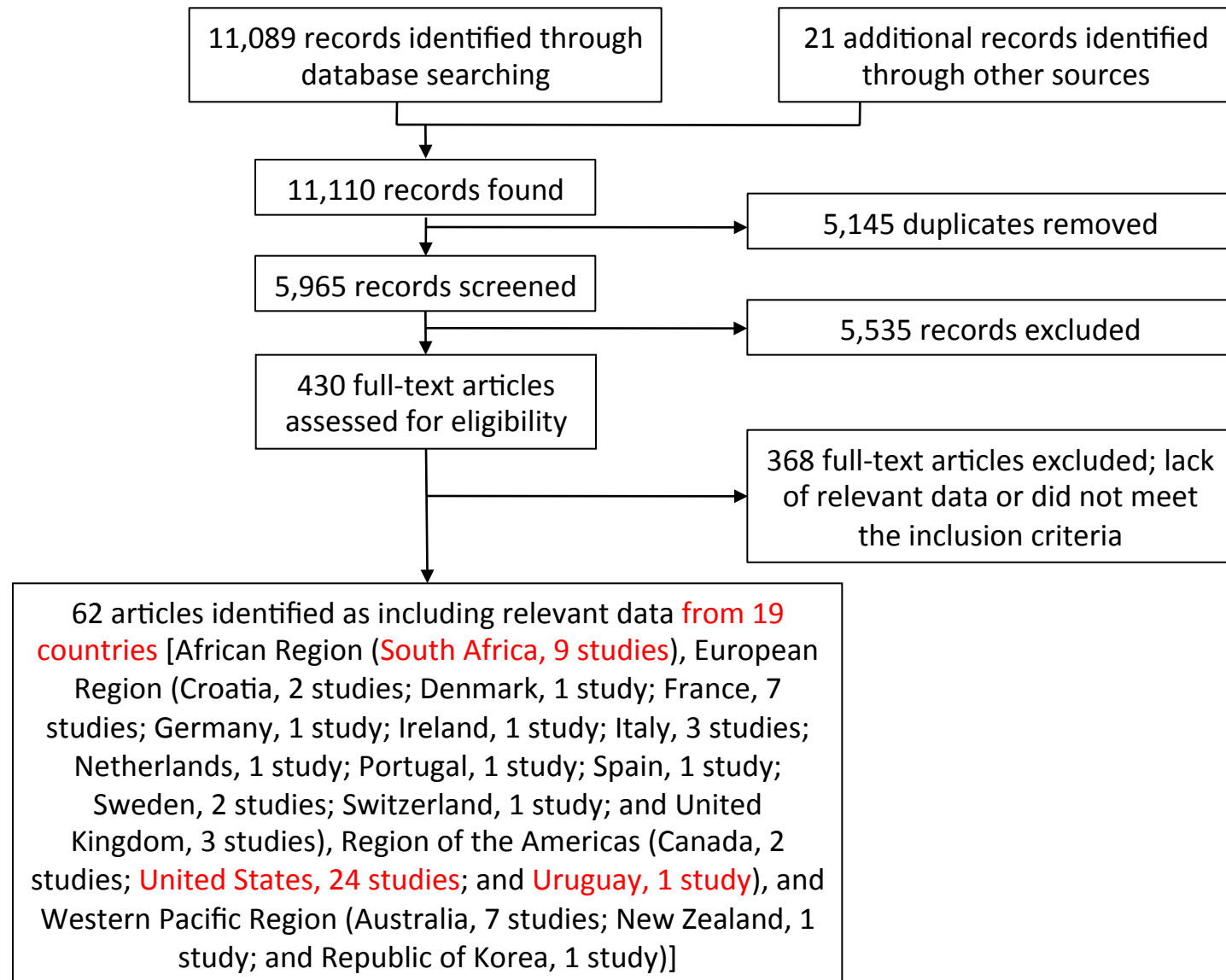
*Estimate of binge drinking during pregnancy based on a meta-analysis of the current literature

Prevalence of Alcohol Use During Pregnancy (cont')

- **Alcohol consumption during pregnancy is a significant public health concern worldwide and an established cause of FASD**
- **FASD is theoretically, largely preventable**
- **However, globally, FASD may increase in the near future due to two reasons:**
 - 1) the rates of alcohol use, binge drinking and drinking during pregnancy appear to be increasing among young women in a number of countries; and**
 - 2) a vast majority of pregnancies are unplanned**

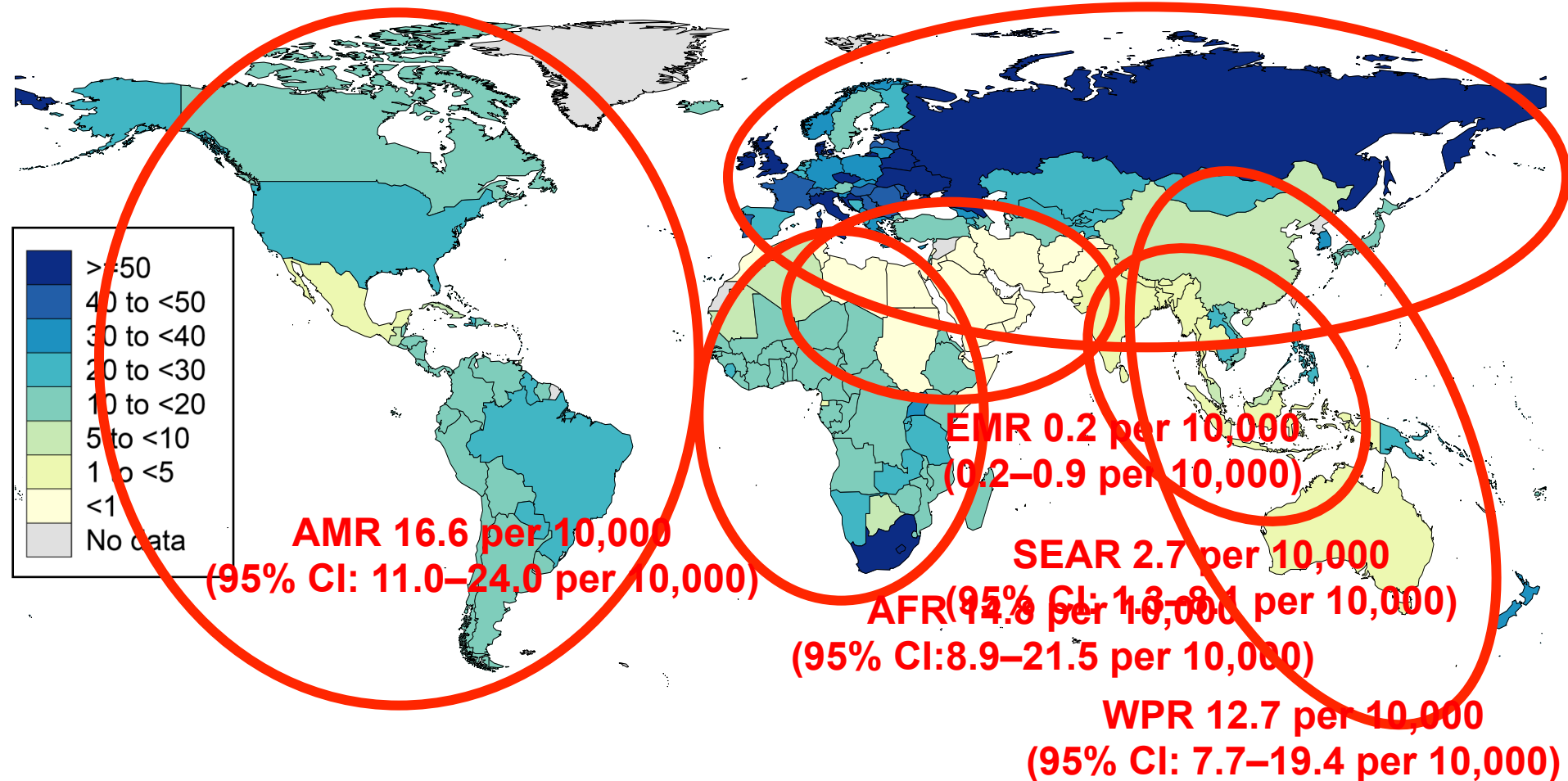
Prevalence of FAS/FASD in General Population

Flow chart for systematic literature search on prevalence of FAS/FASD



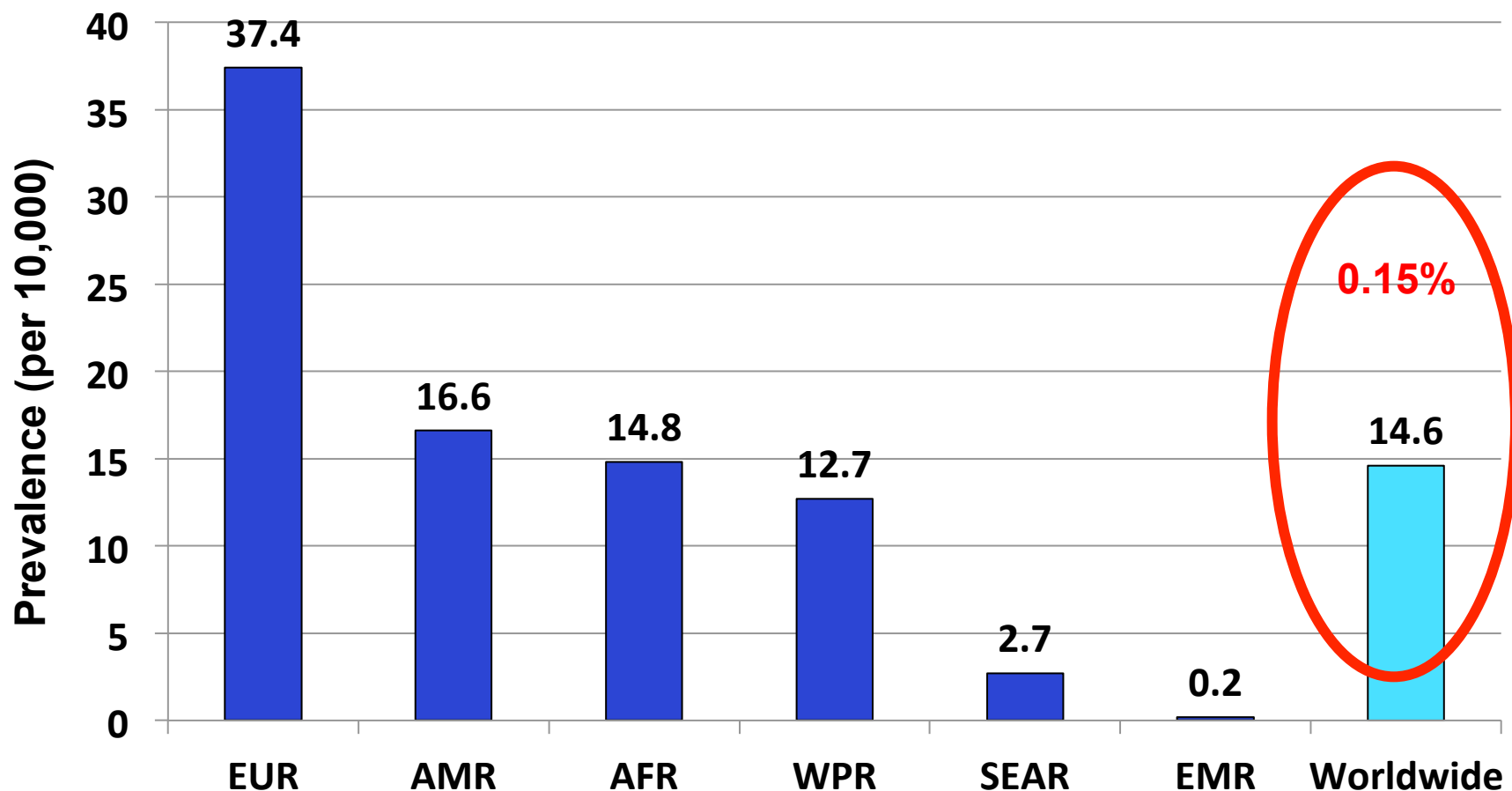
Prevalence of FAS in General Population by WHO Region, 2012

EUR 37.4 per 10,000
(95% CI: 24.7–54.2 per 10,000)



AFR=African Region, AMR=Region of the Americas, EMR=Eastern-Mediterranean Region, EUR=European Region, SEAR=South-East Asia Region, WPR=Western Pacific Region

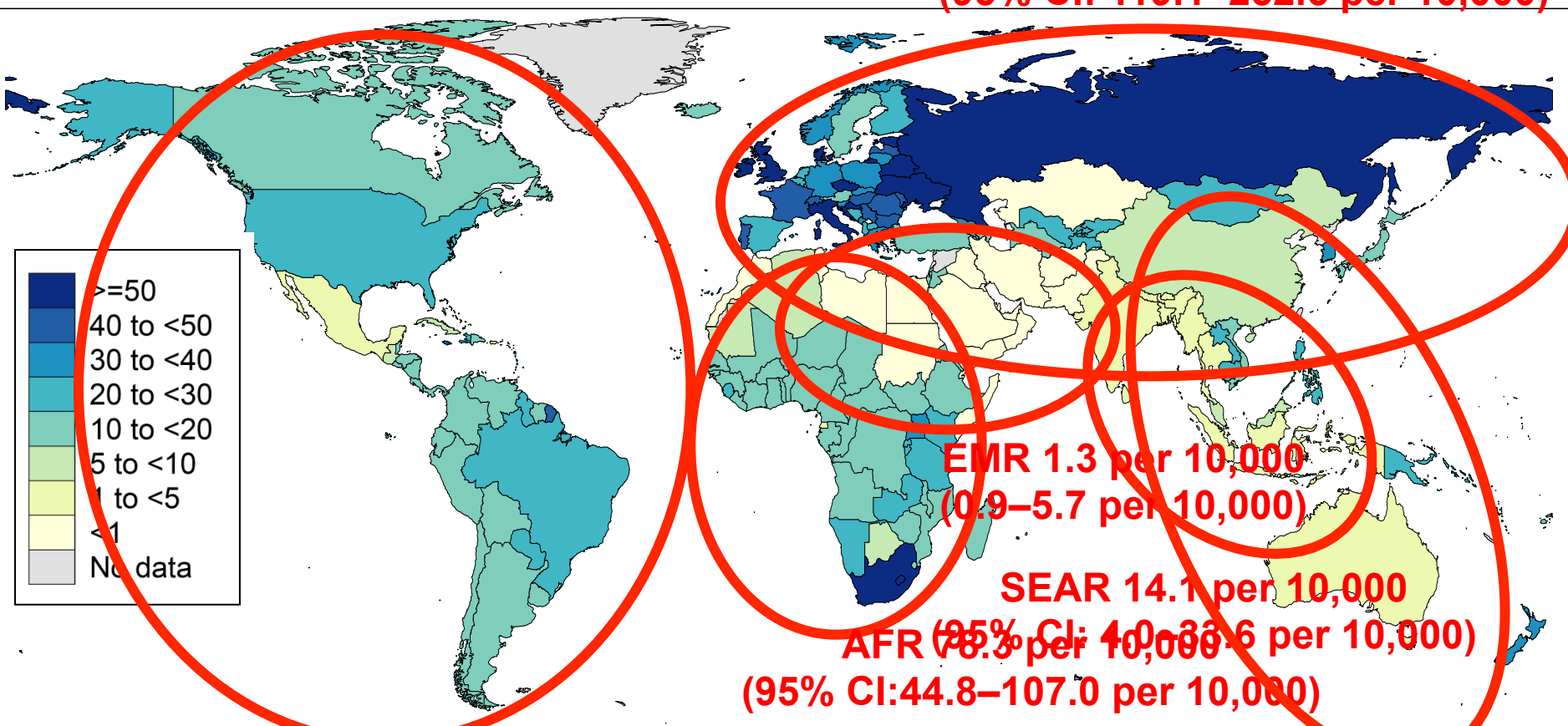
Prevalence of FAS in General Population by WHO Region and Globally, 2012



AFR=African R, AMR=R of the Americas, EMR=Eastern-Mediterranean R,
EUR=European R, SEAR=South-East Asia R, WPR=Western Pacific R

Prevalence of FASD in General Population by WHO Region, 2012

EUR 198.2 per 10,000
(95% CI: 119.1–252.6 per 10,000)



AMR 87.9 per 10,000
(95% CI: 57.5–113.4 per 10,000)

EMR 1.3 per 10,000
(0.9–5.7 per 10,000)

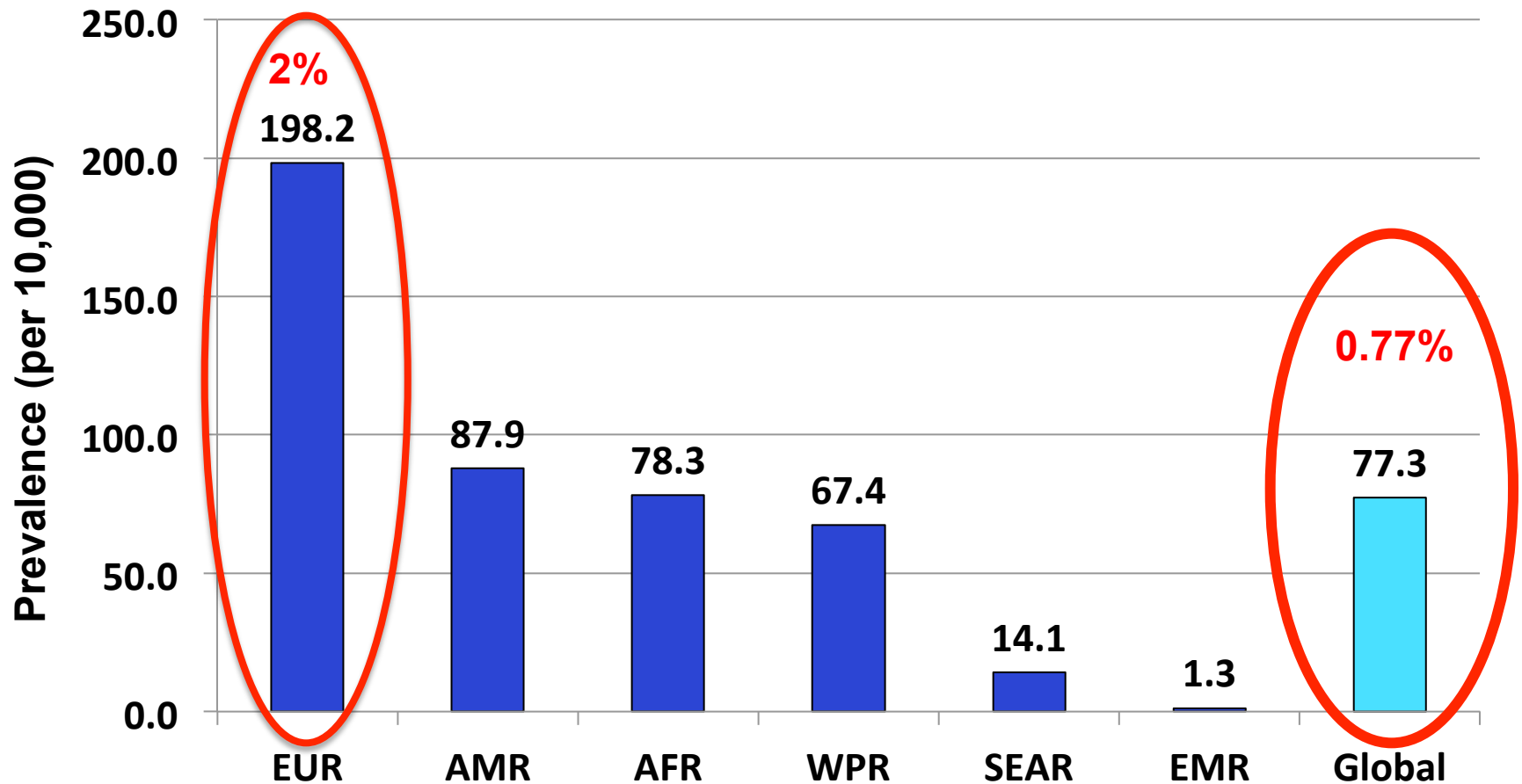
SEAR 14.1 per 10,000
(95% CI: 4.0–33.6 per 10,000)

AFR 78.3 per 10,000
(95% CI: 44.8–107.0 per 10,000)

WPR 67.4 per 10,000
(95% CI: 31.6–95.1 per 10,000)

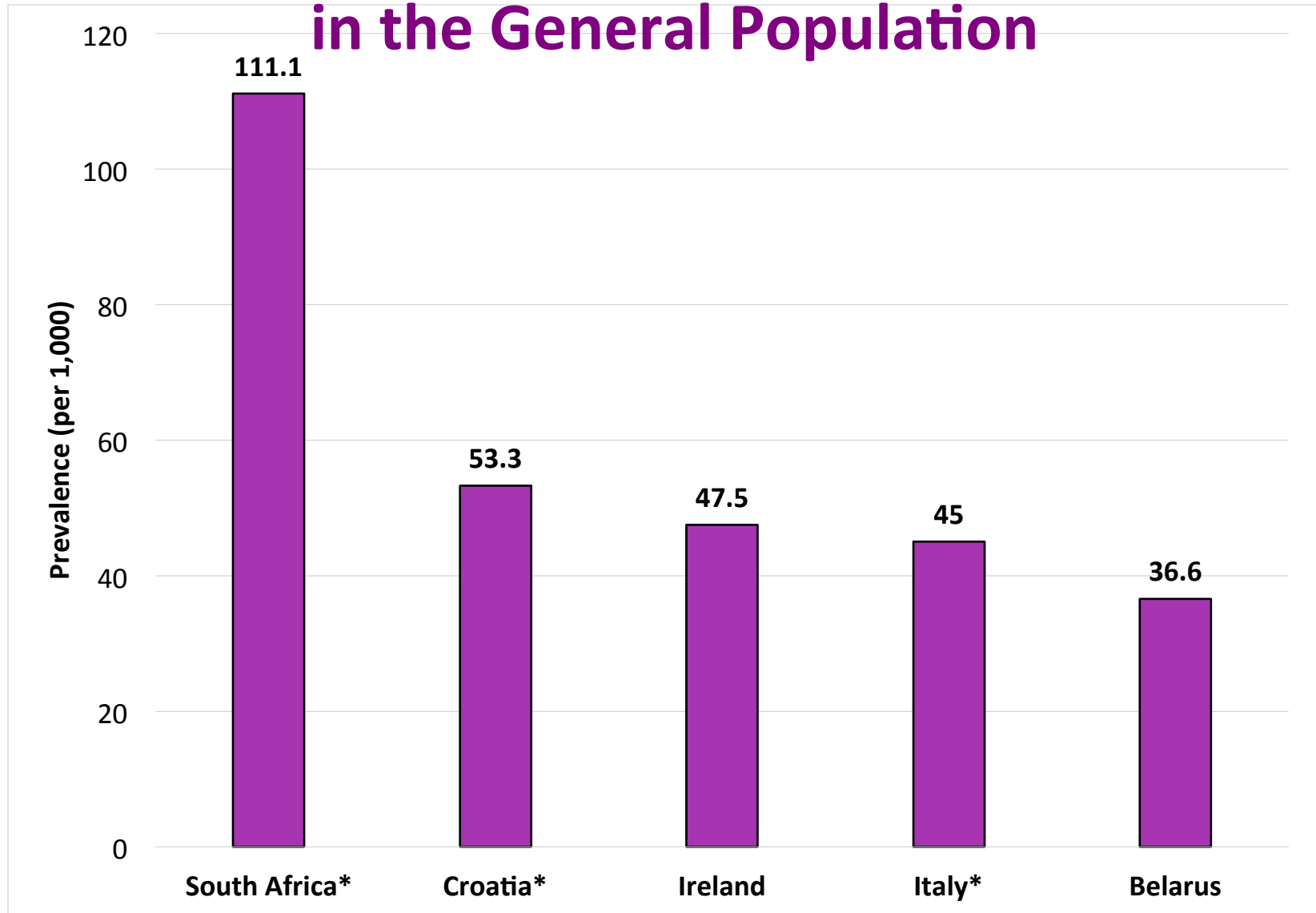
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Prevalence of FASD in General Population by WHO Region and Globally, 2012



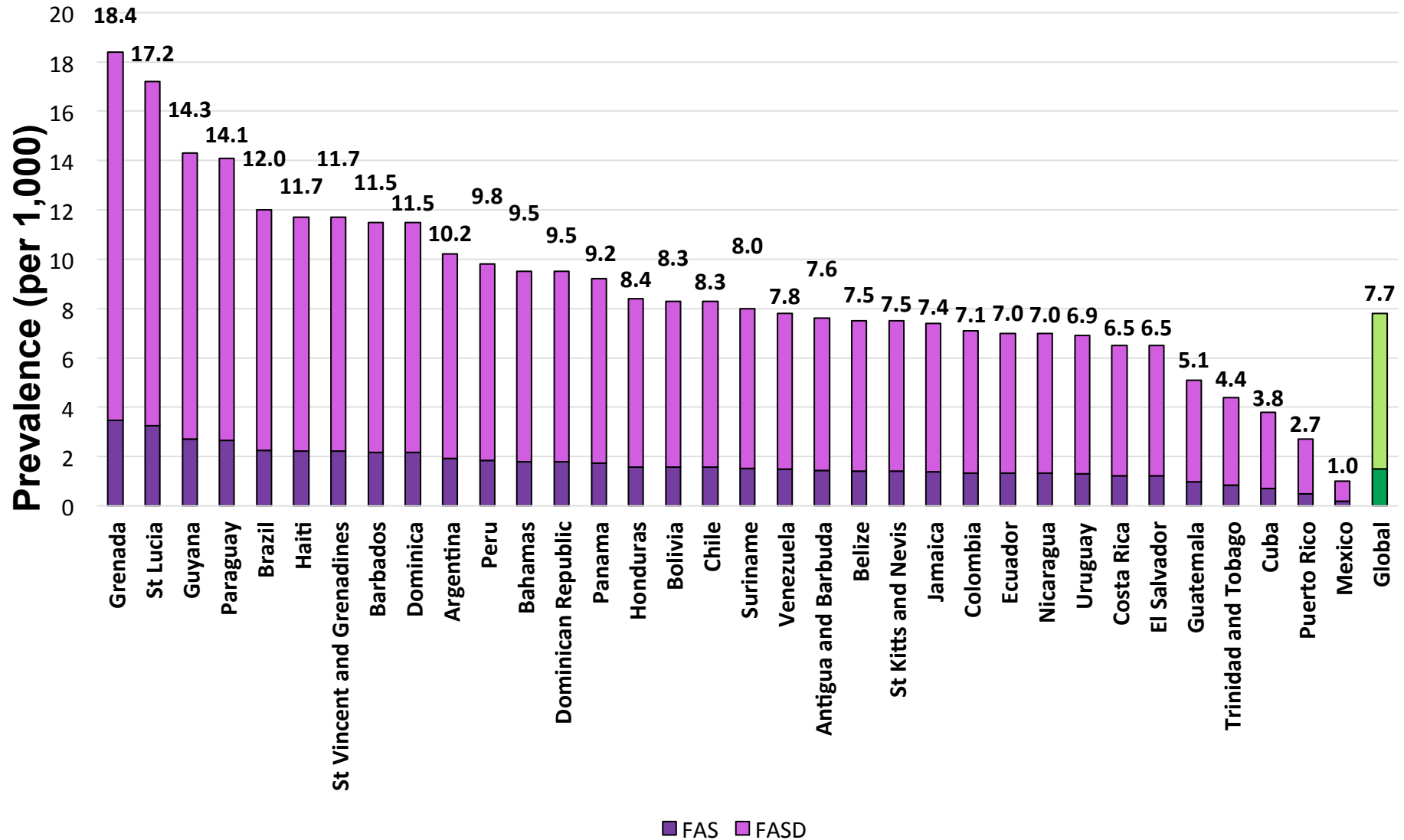
AFR=African Region, AMR=Region of the Americas, EMR=Eastern-Mediterranean Region, EUR=European Region, SEAR=South-East Asia Region, WPR=Western Pacific Region

Five Countries with the Highest Prevalence of FASD in the General Population



*Based on actual data

Prevalence of FAS and FASD in Latin America and the Caribbean in 2012



Global Incidence of FAS and FASD

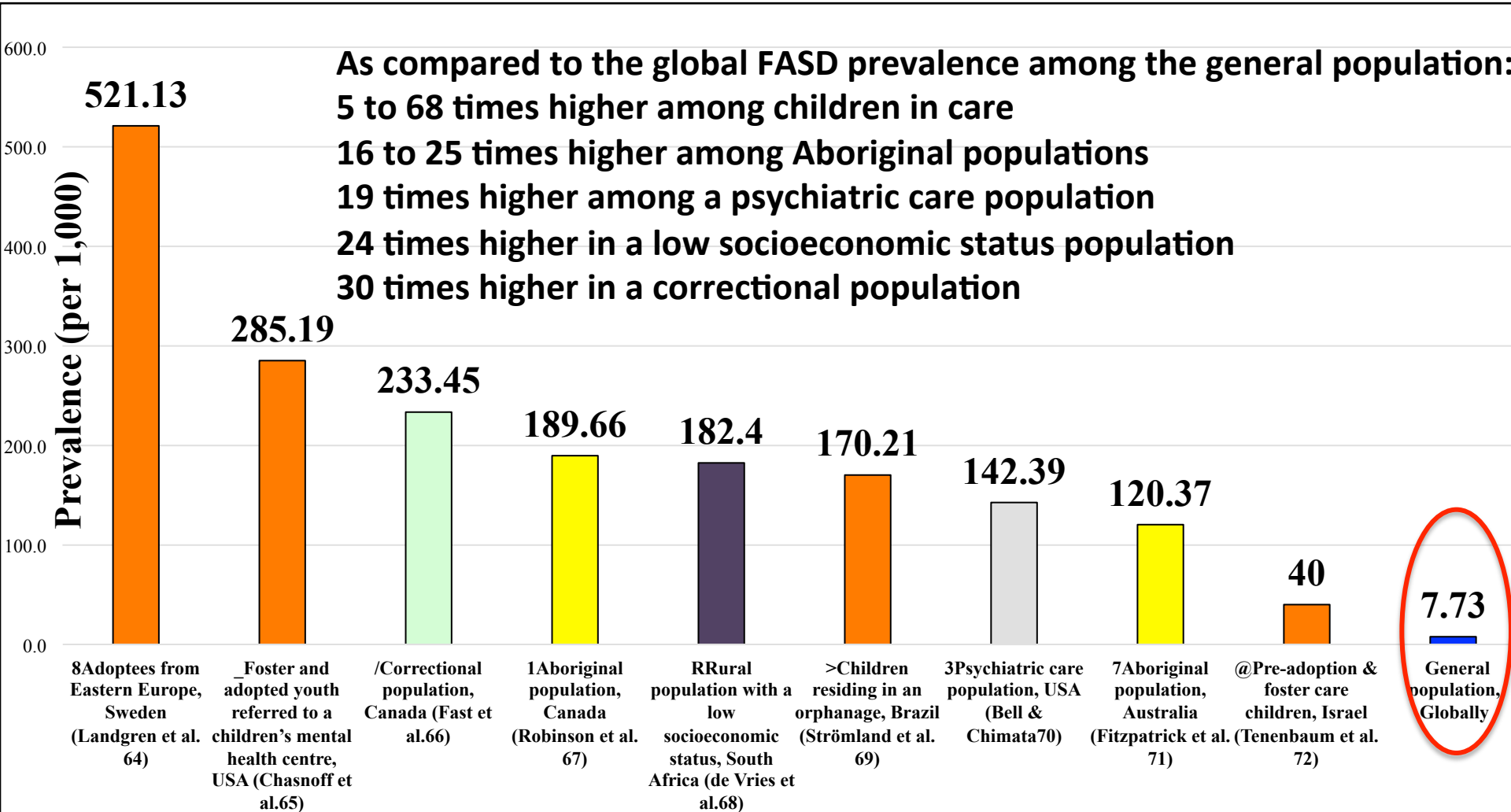
Fetal Alcohol Syndrome

- **Globally, one out of 67 women who consume alcohol during pregnancy in the general population delivered a child with FAS, which translates to about 119,000 children born with FAS in the world each year**

Fetal Alcohol Spectrum Disorder

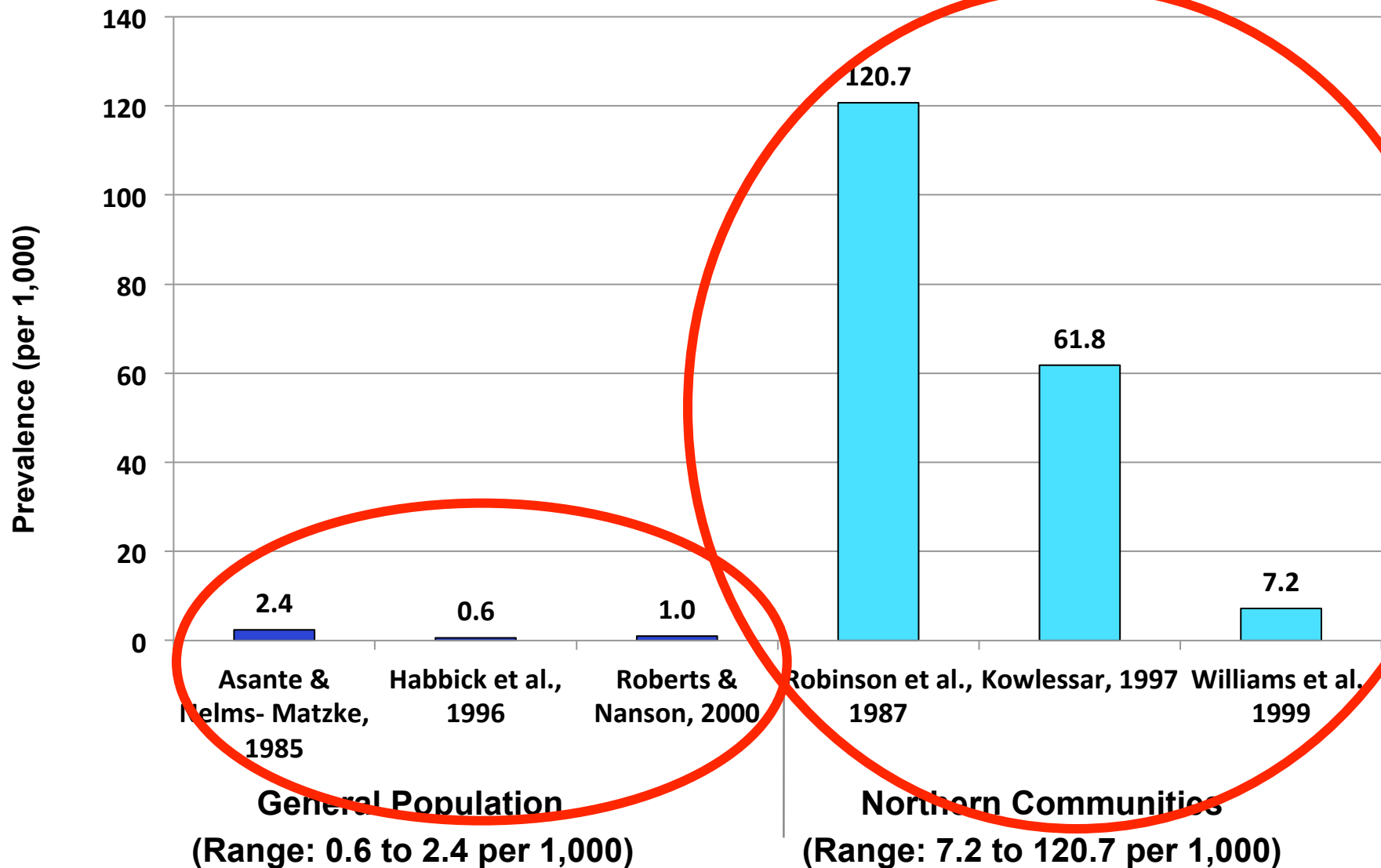
- **One out of 13 pregnant women who consumed alcohol while pregnant delivered a child with FASD**
- **Over 1,700 cases of FASD are born every day**
- **630,000 cases of FASD are born every year globally**

Comparison FASD prevalence among special populations, based on select studies, to the global prevalence among the general population



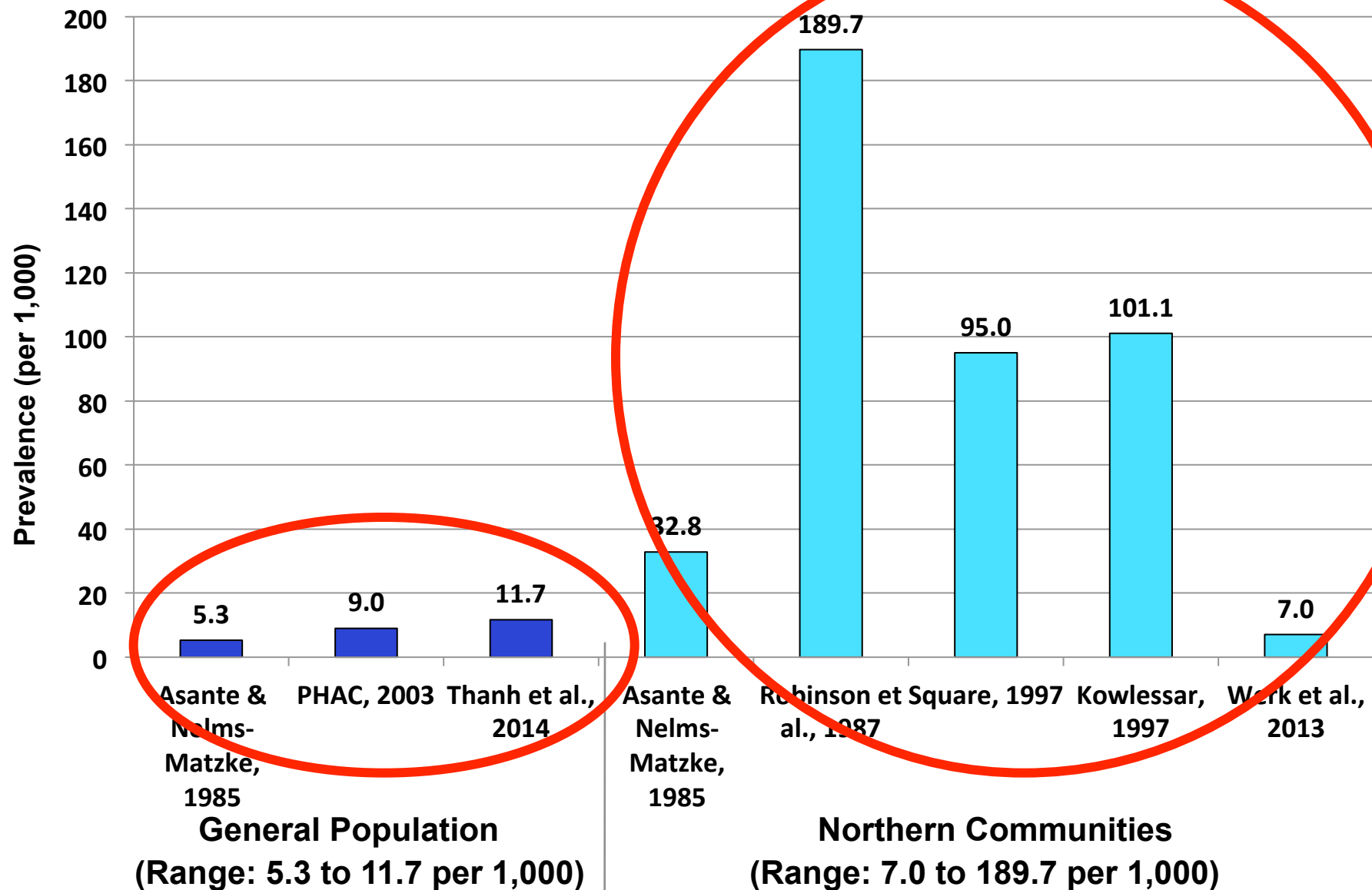
Prevalence of FAS in Canada

General Population vs. Northern Communities



Prevalence of FASD in Canada

General Population vs. Northern Communities



The Prevalence of Children with FASD in Various Child Care Systems



The Prevalence of Children with FASD in Various Child Care Systems (cont')

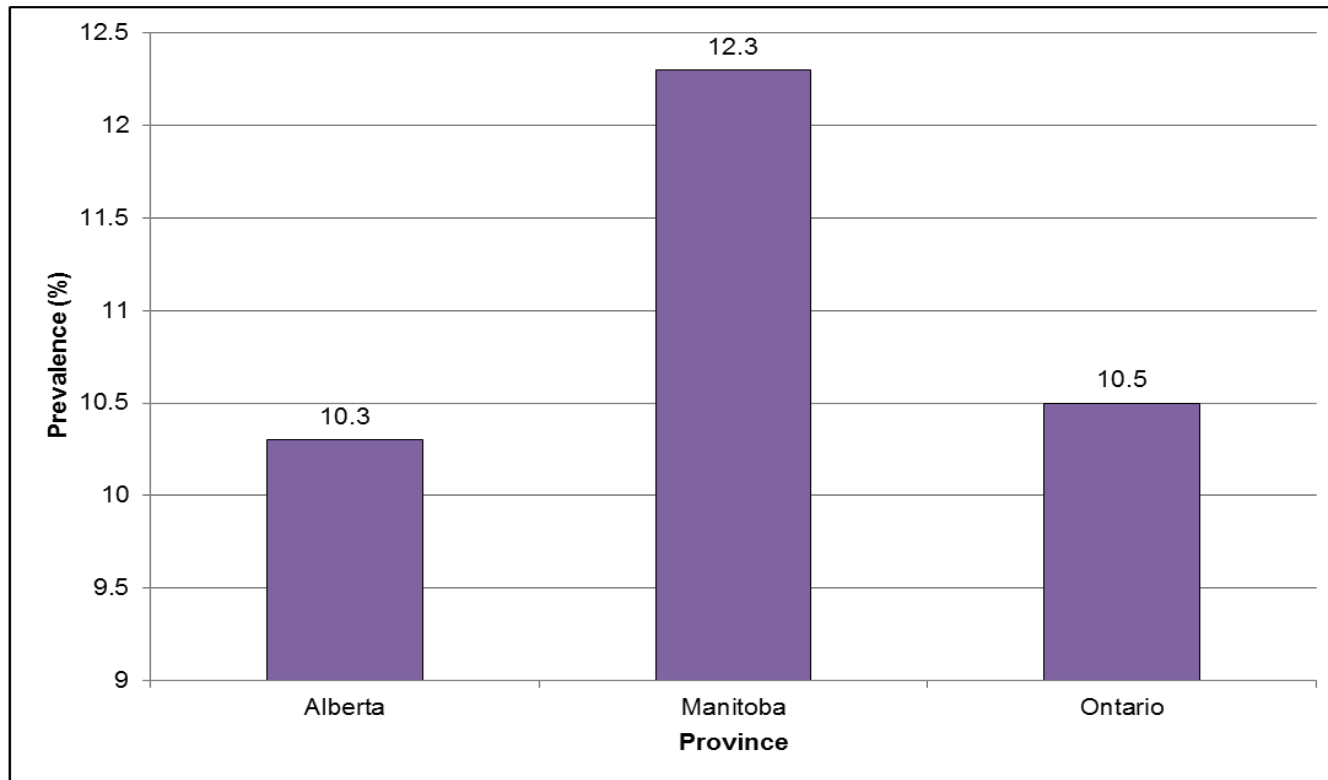
Literature Review

- **In total, 33 studies were identified and included in the analysis (*Lange et al., 2013, Pediatrics; 132: e980-e995*)**
- **Data on the prevalence of FAS/D in child care systems are available from only 11 countries/regions, including: Brazil, Chile, Canada, Eastern Europe (Romania, Ukraine, Moldova), Israel, Russia, Spain, Sweden, and USA**
- **The prevalence was reported for six major settings: boarding schools, child welfare agencies, foster care, homes for children with mental deficiencies, orphanages, and mixed-care settings**

The Prevalence of Children with FASD in Various Child Care Systems (cont')

- Fuch et al. (2005): **11.3%** of **children and youths in care** have FASD in Manitoba
- Burge (2007): **3.3%** children who are **permanent wards** in Ontario have FASD
- => Prevalence of FASD in child welfare system is 3 to 11 times higher as compared to FASD prevalence in general population of Canada (1%)

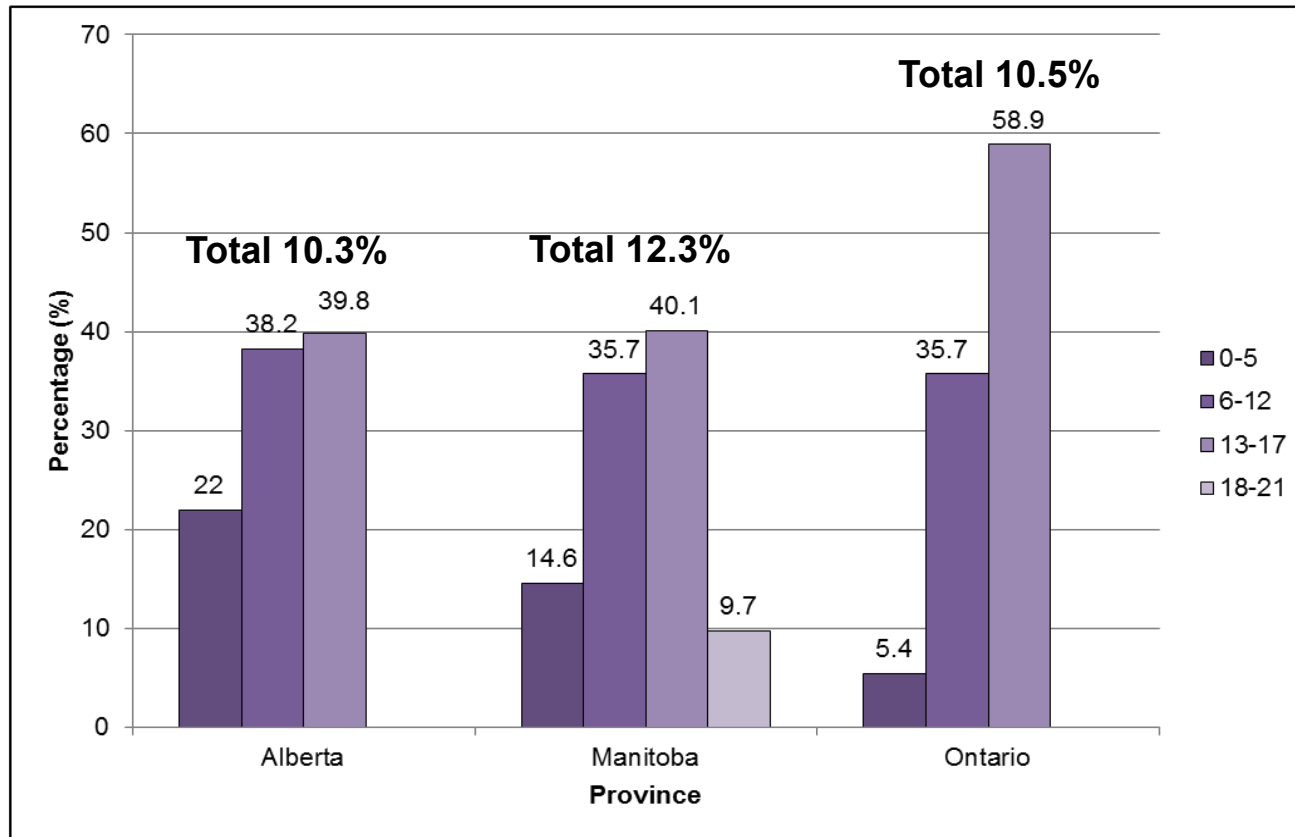
The Prevalence of Children with FASD in Various Child Care Systems (cont') Canada



Source: Tri-Provincial FASD Project, a collaborative initiative between ON, MA, AB (Fuchs & Burnside, 2014)

Note: Includes both diagnosed and suspected cases of FASD

The Prevalence of Children with FASD in Various Child Care Systems (cont') Canada (by age groups)



Source: Fuchs & Burnside, 2014

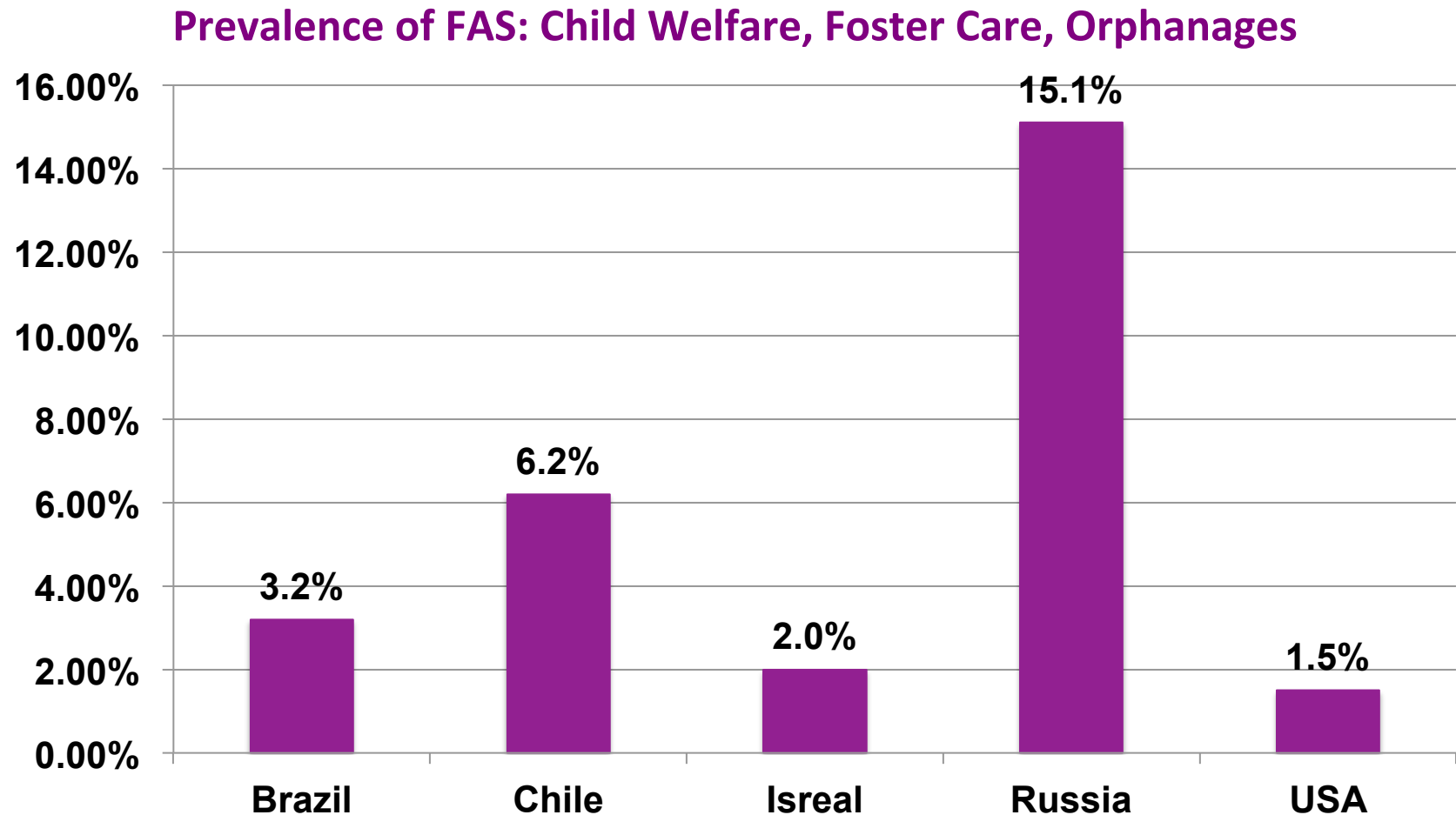
Note. In Alberta and Ontario, children in care include children 0-17 years of age;
In Manitoba, children in care include children 0-21 years of age

The Prevalence of Children with FASD in Various Child Care Systems (cont')

- Wide Ranges -

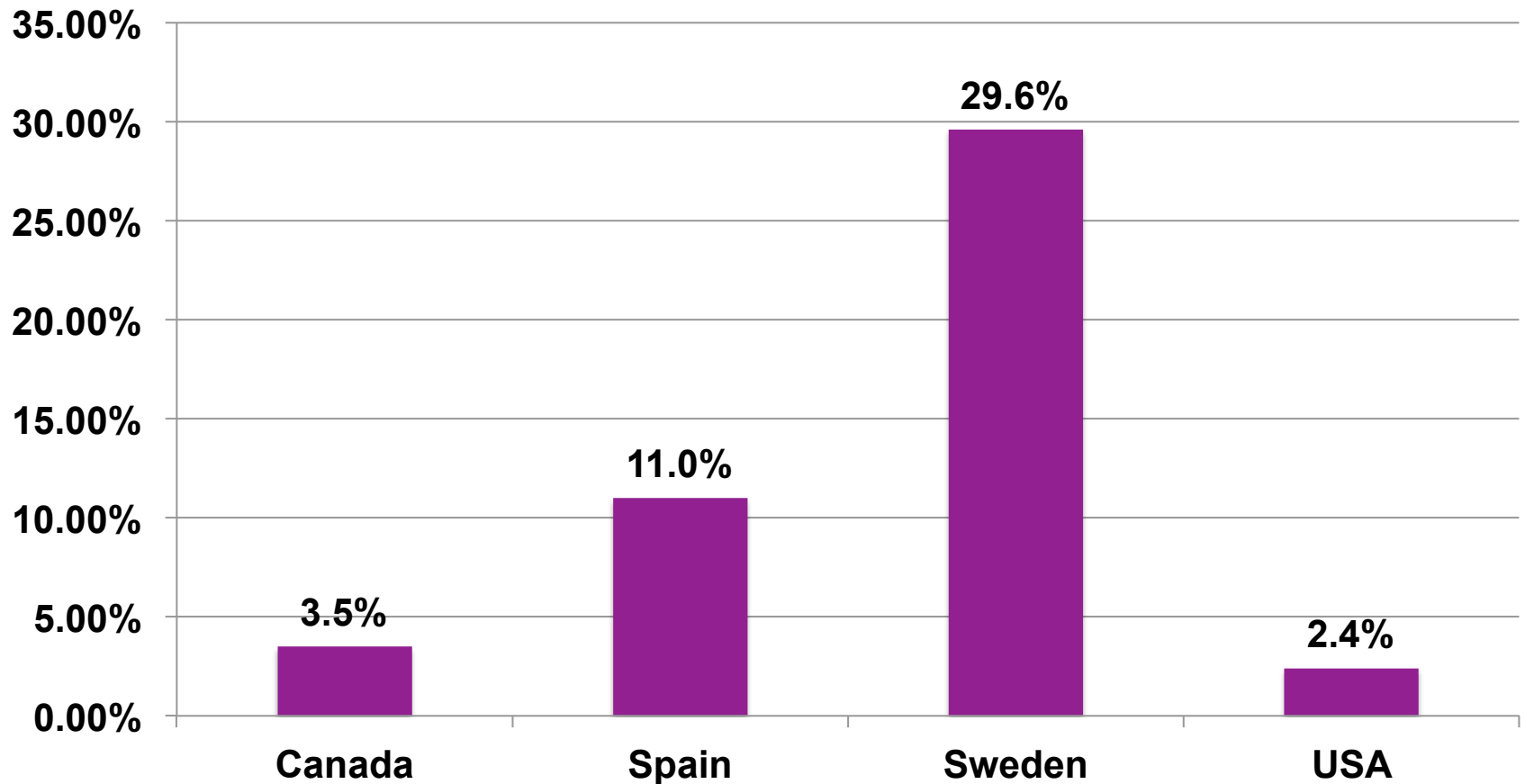
- The prevalence of FAS ranges from 5 per 1,000 (child welfare system, USA; Ringeisen et al., 2008) to 680 per 1,000 (orphanage for children with special needs, Russia; Palchik & Legonkova, 2011)**
- The prevalence of FASD ranges from 37 per 1,000 (foster care, USA; Astley et al., 2002) to 521 per 1,000 (adoptees from Eastern Europe, adopted in Sweden; Landgren et al., 2010)**

The Prevalence of Children with FASD in Various Child Care Systems (cont')



The Prevalence of Children with FASD in Various Child Care Systems (cont')

Prevalence of FAS: International Adoptees



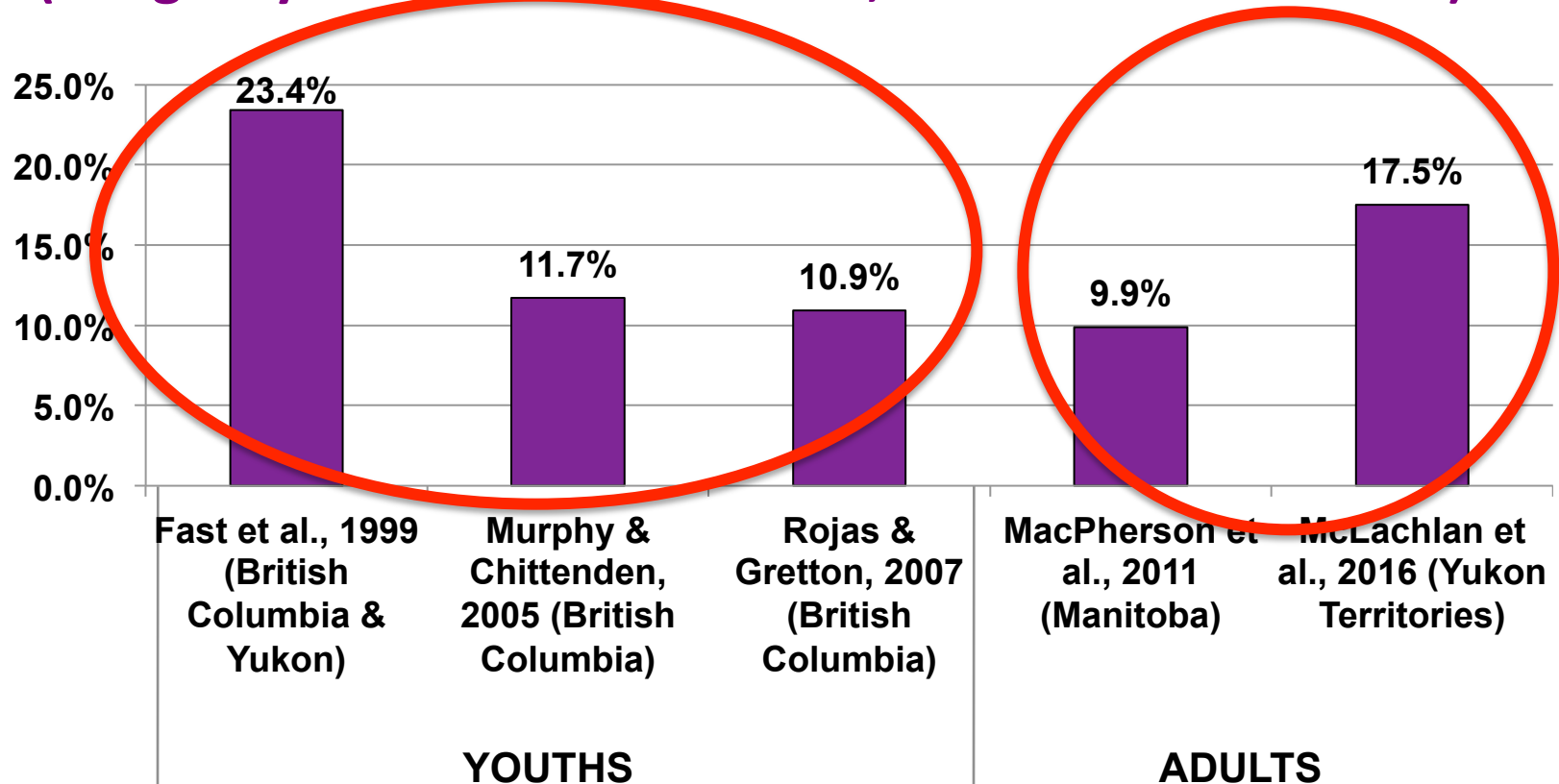
The Prevalence of Children with FASD in Various Child Care Systems (cont')

- The pooled prevalence of FAS in child care settings is approximately 70 times higher than the prevalence of FAS in the general population of Canada
- Screening for FASD in this high-risk population is necessary, in order to facilitate early diagnosis!



Prevalence of FASD in Canadian Correctional System

(Range – youths: 10.9% to 23.4%, adults: 9.9% to 17.5%)



Youths with FASD are **nineteen times** more likely to be incarcerated than youths without FASD in any given year (Popova et al., 2011)

Popova et al. (2011) *Canadian Journal of Public Health*, 102(5), 336-340.



Discussion

- **FASD is a relatively prevalent alcohol-related developmental disability globally**
- **This study used the best available data and provides a working estimate of the prevalence of alcohol use during pregnancy and FAS/FASD in countries that do not currently have actual data**
- **Should inspire countries to do their own research to obtain their own prevalence data**

Discussion (con')

- **Establish a universal public health message about the potential harm of prenatal alcohol exposure**
- **Establish routine screening protocols**
- **Provide brief interventions, where appropriate, to all pregnant women**
- **Special attention has to be paid to high-risk populations where the impact of FASD is especially severe**

Contact Information

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**Remember: When you drink,
so does your child**