

Epidemiology of Fetal Alcohol Spectrum Disorder

**Presented by
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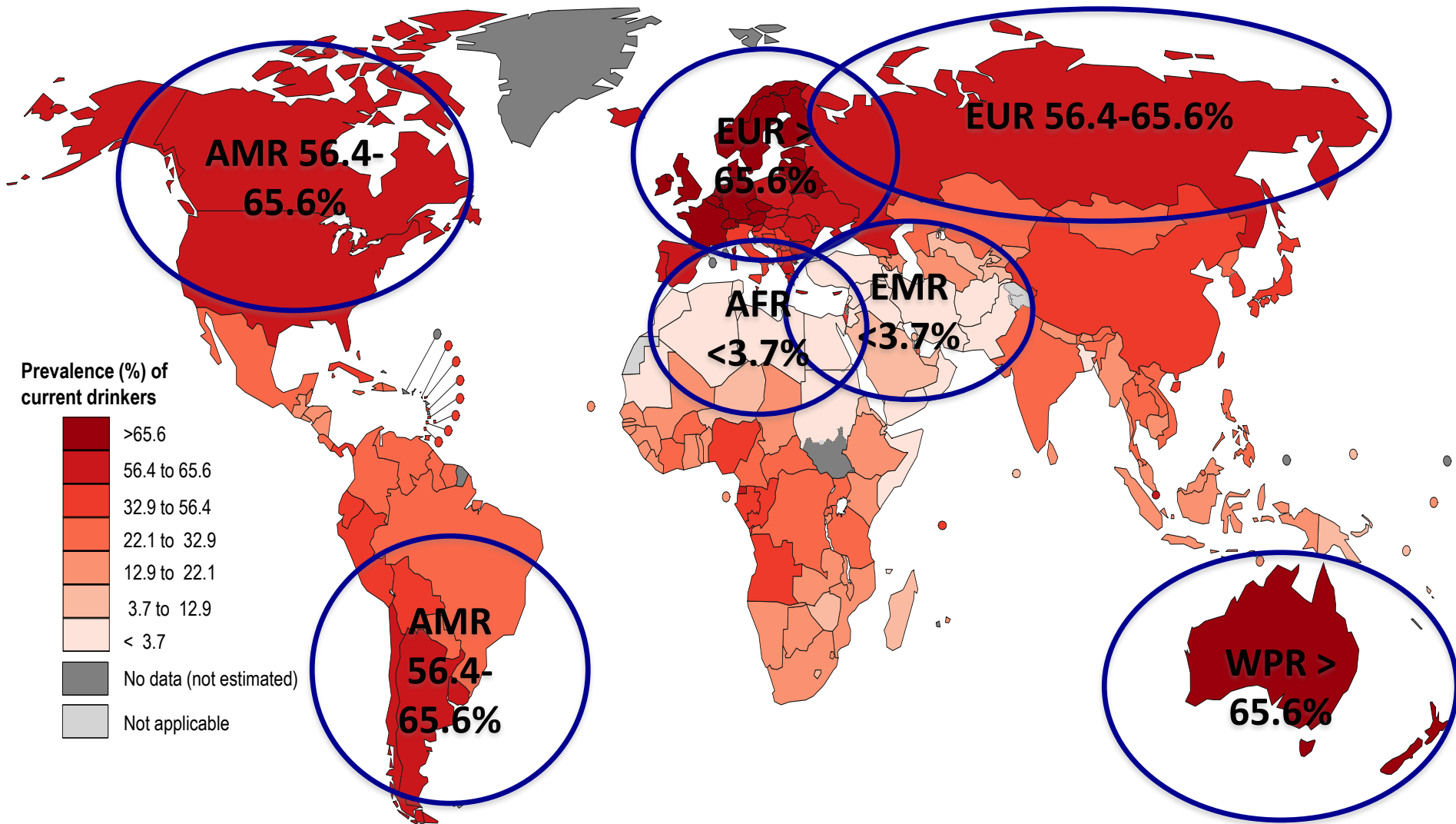
**A workshop for Latin American countries,
organized by
Pan American Health Organization**

April 10, 2019

OVERVIEW

- **Prevalence of alcohol consumption among women of childbearing age in the world (WHO 2016 data)**
- **Prevalence of alcohol consumption and binge drinking during pregnancy in general population of different countries, World Health Organization (WHO) regions and globally.**
- **Prevalence of FAS/FASD in different populations in different countries, WHO regions and globally.**
- **WHO Global Prevalence Study on FASD**

Percentage of current drinkers (consumed alcoholic beverages in the previous 12-month) among childbearing age women (15-49) in the world, 2016 (WHO Global Status Report on Alcohol and Health, 2018)



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 (2017). *JAMA, Pediatrics*
- 3) Popova S, Lange S, Probst C, Gmel G, & Rehm J (2018). *Biochemistry and Cell Biology, special issue on FASD*

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

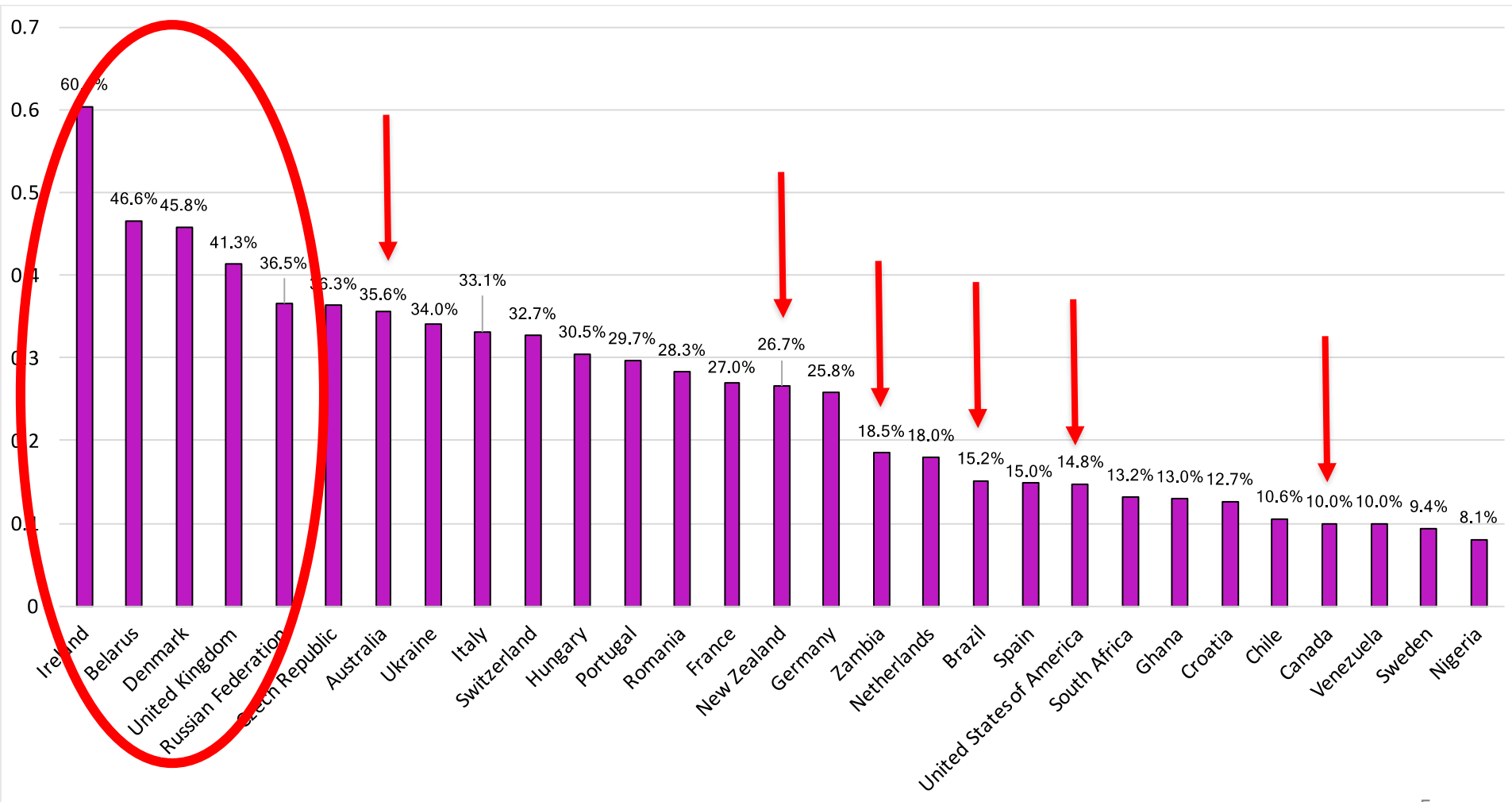
Meta-analyses: Pooled prevalence for countries with 2+ studies, assuming a random-effects model

Data prediction: For countries with one or no studies:

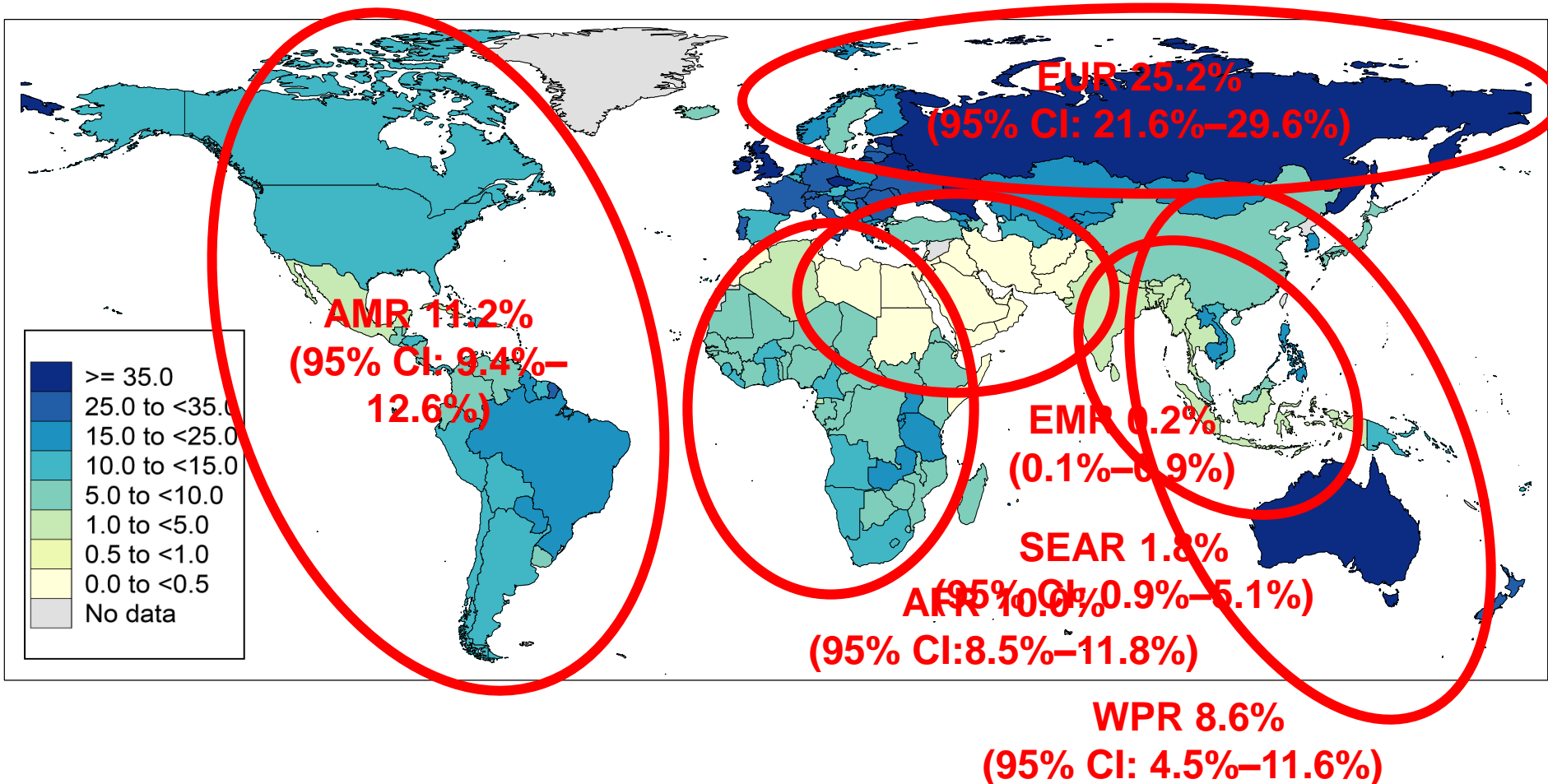
- a) For AC: using fractional response regression modelling and;
 - b) For FAS/FASD: based on the proportion of women who gave birth to a child with FAS/FASD among women who consumed alcohol during pregnancy
- Estimated WHO regional and global averages of FAS/FASD prevalence weighted by the number of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

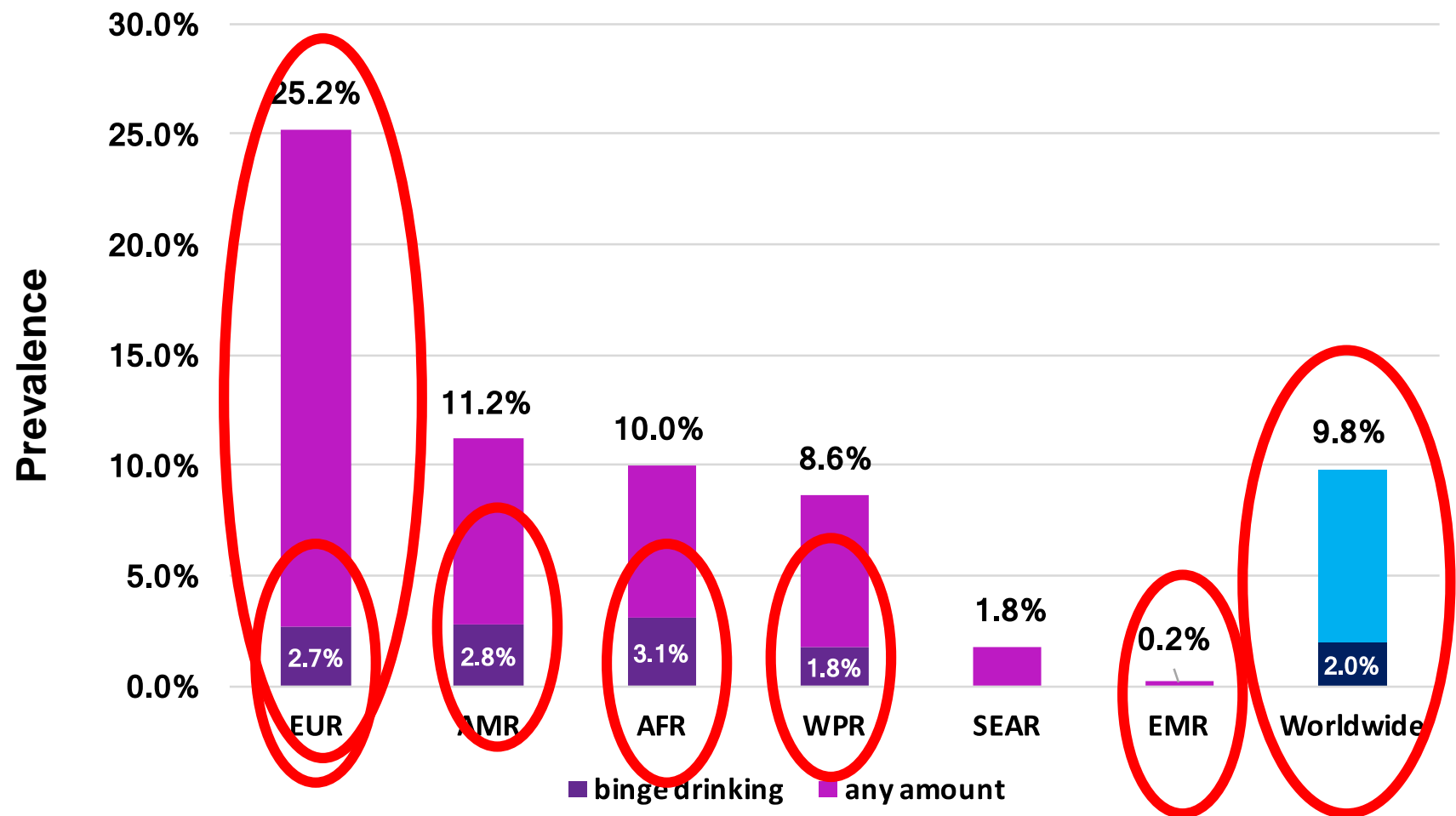


Prevalence of Alcohol Use during Pregnancy in General Population by WHO Region



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

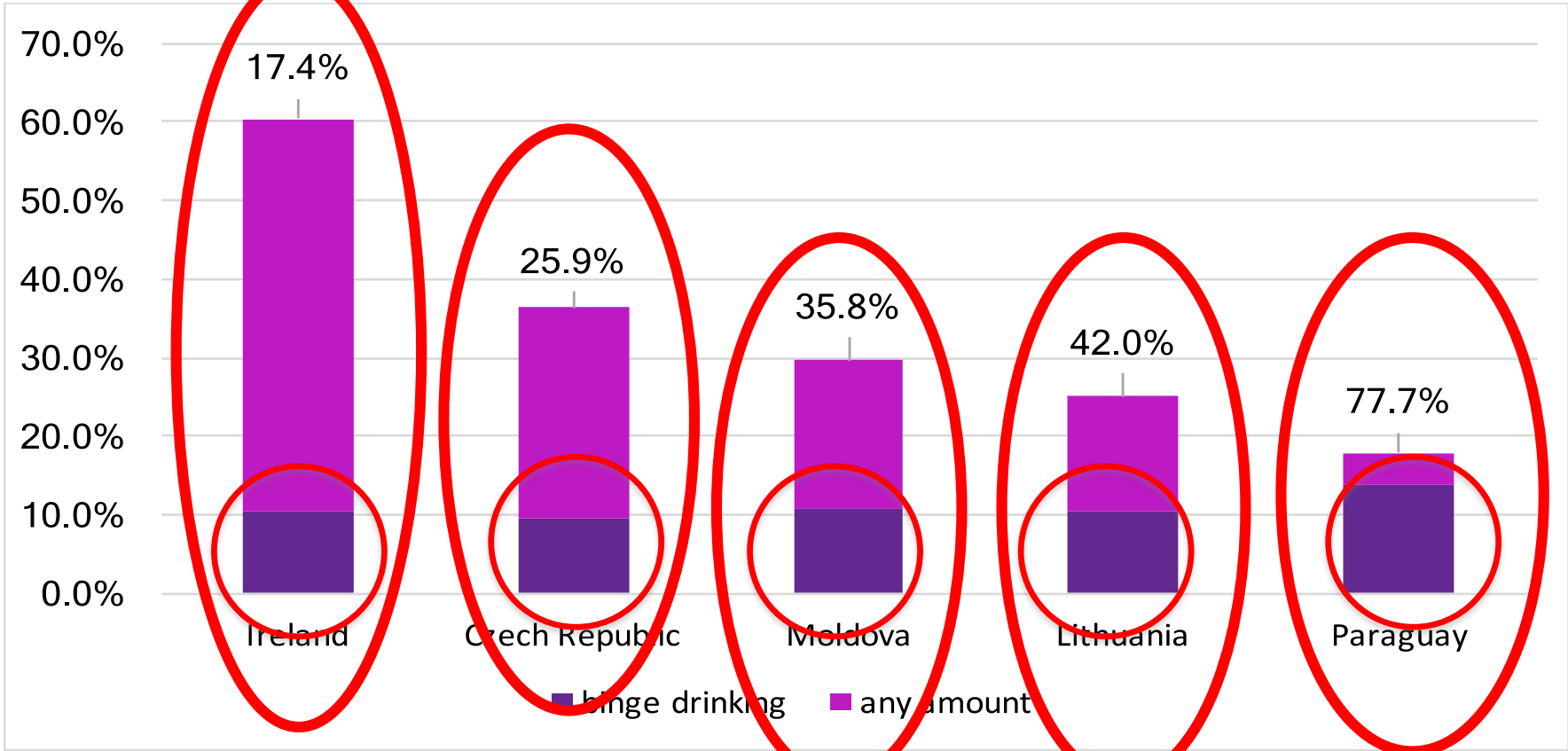
Prevalence of Alcohol Use and Binge Drinking (4+ drinks per occasion) during Pregnancy in General Population by WHO Region and Globally



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

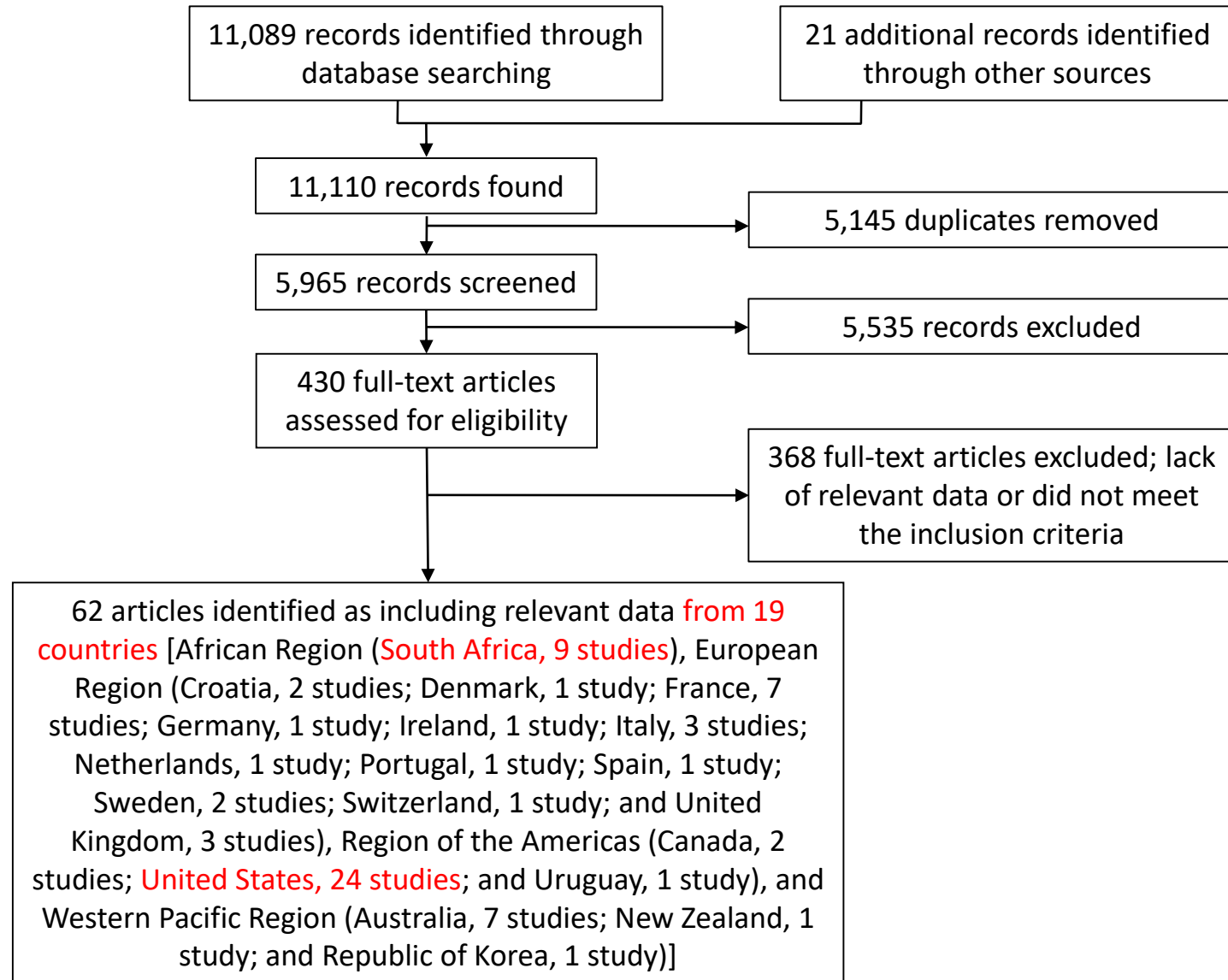
Five Countries with the Highest Prevalence of Binge Drinking during Pregnancy in General Population

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)

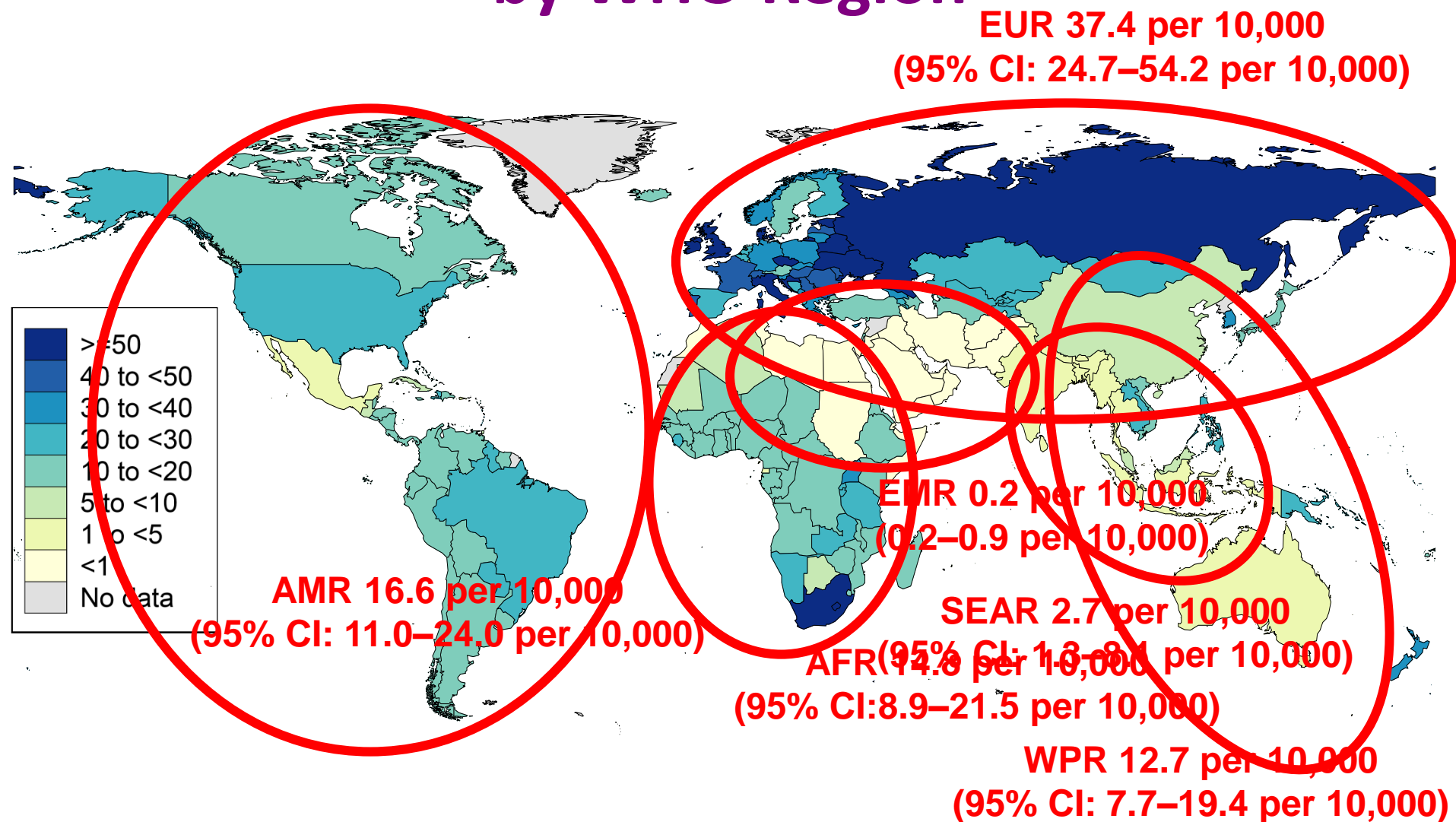


Prevalence of FAS/FASD in General Population

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

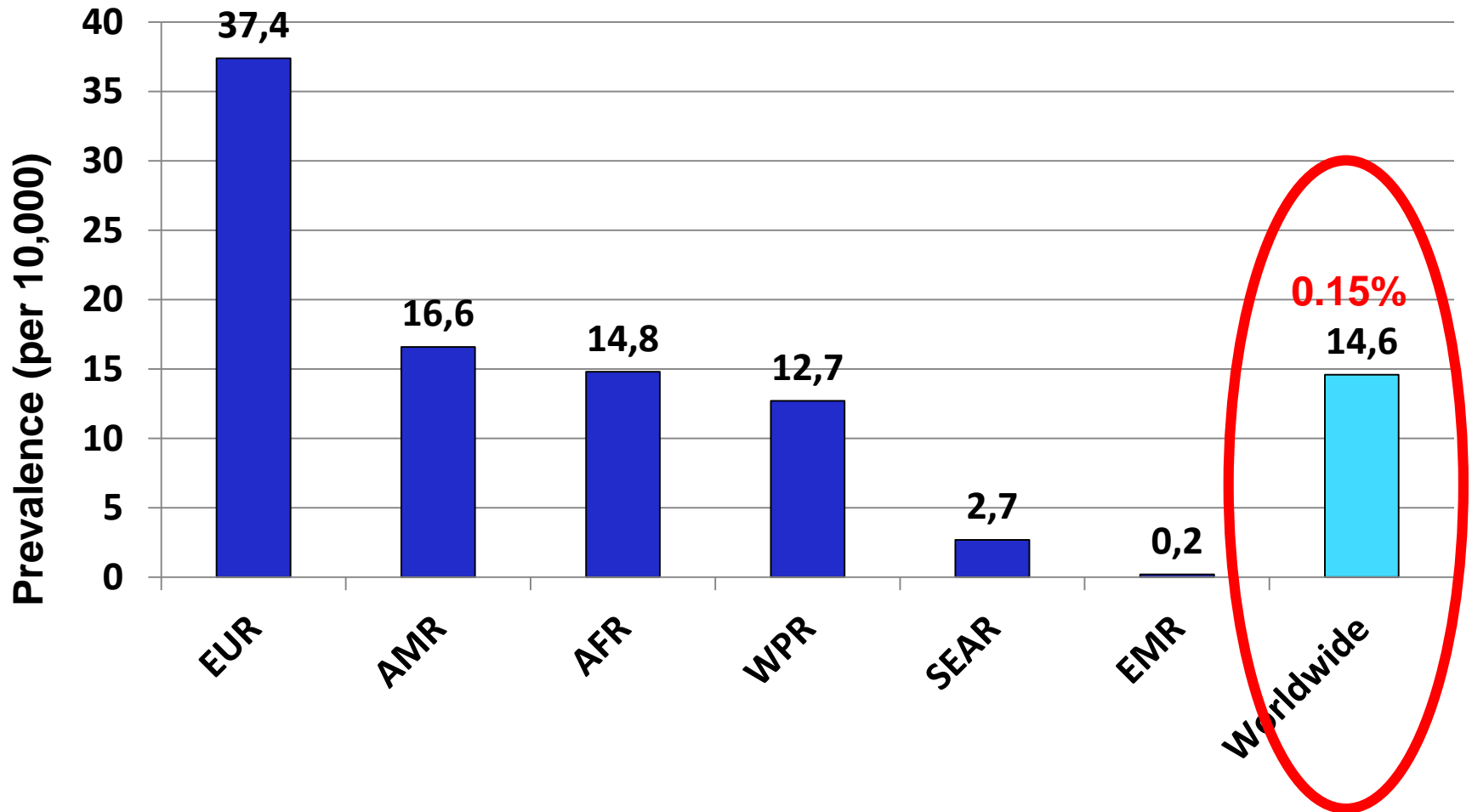


Prevalence of FAS in General Population by WHO Region



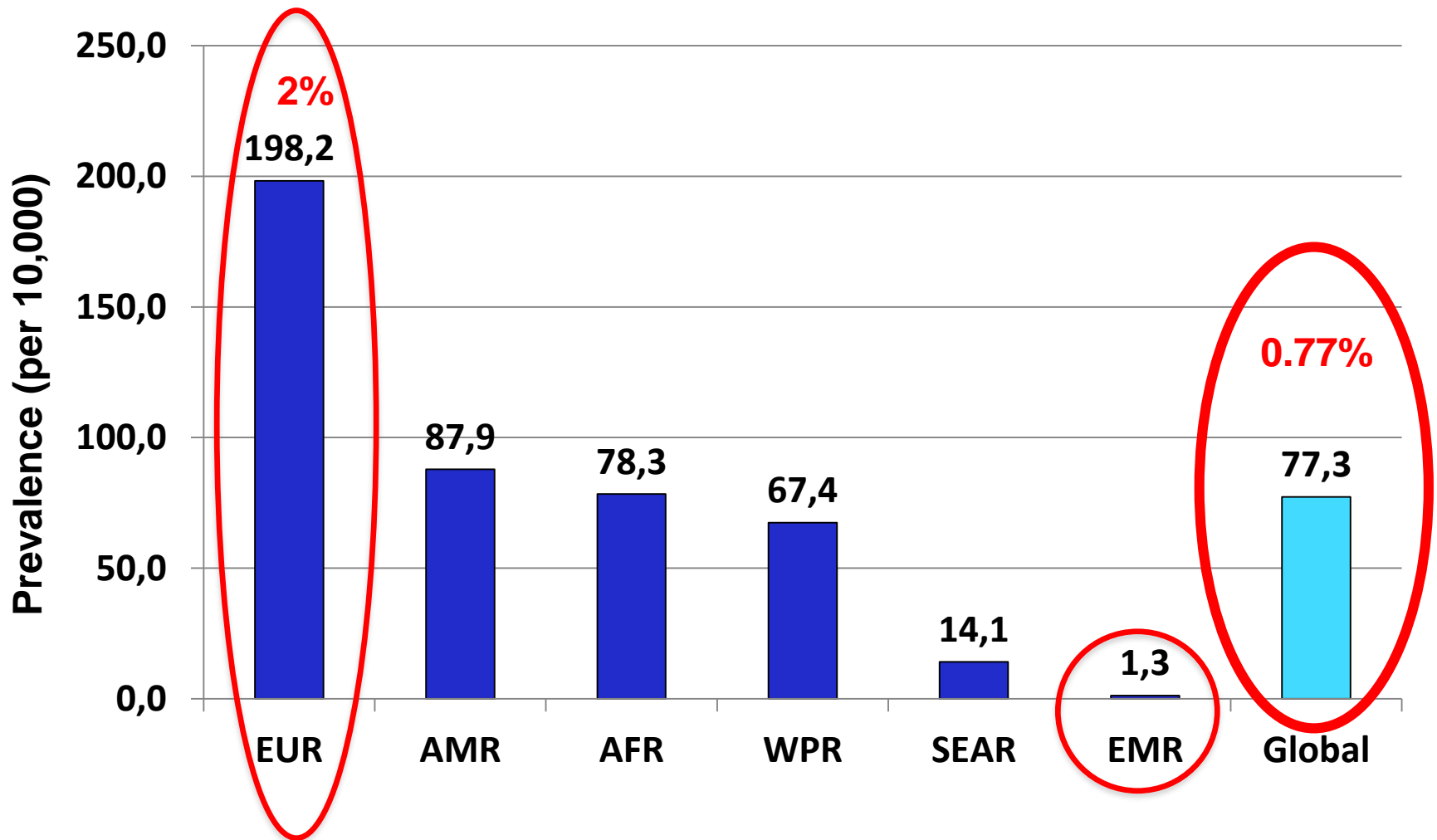
AFR=African Region, AMR=Region of the Americas, EMR=Eastern-Mediterranean Region, EUR=European Region, SEAR=South-East Asia Region, WPR=Western Pacific Region

Prevalence of FAS in General Population by WHO Region and Globally



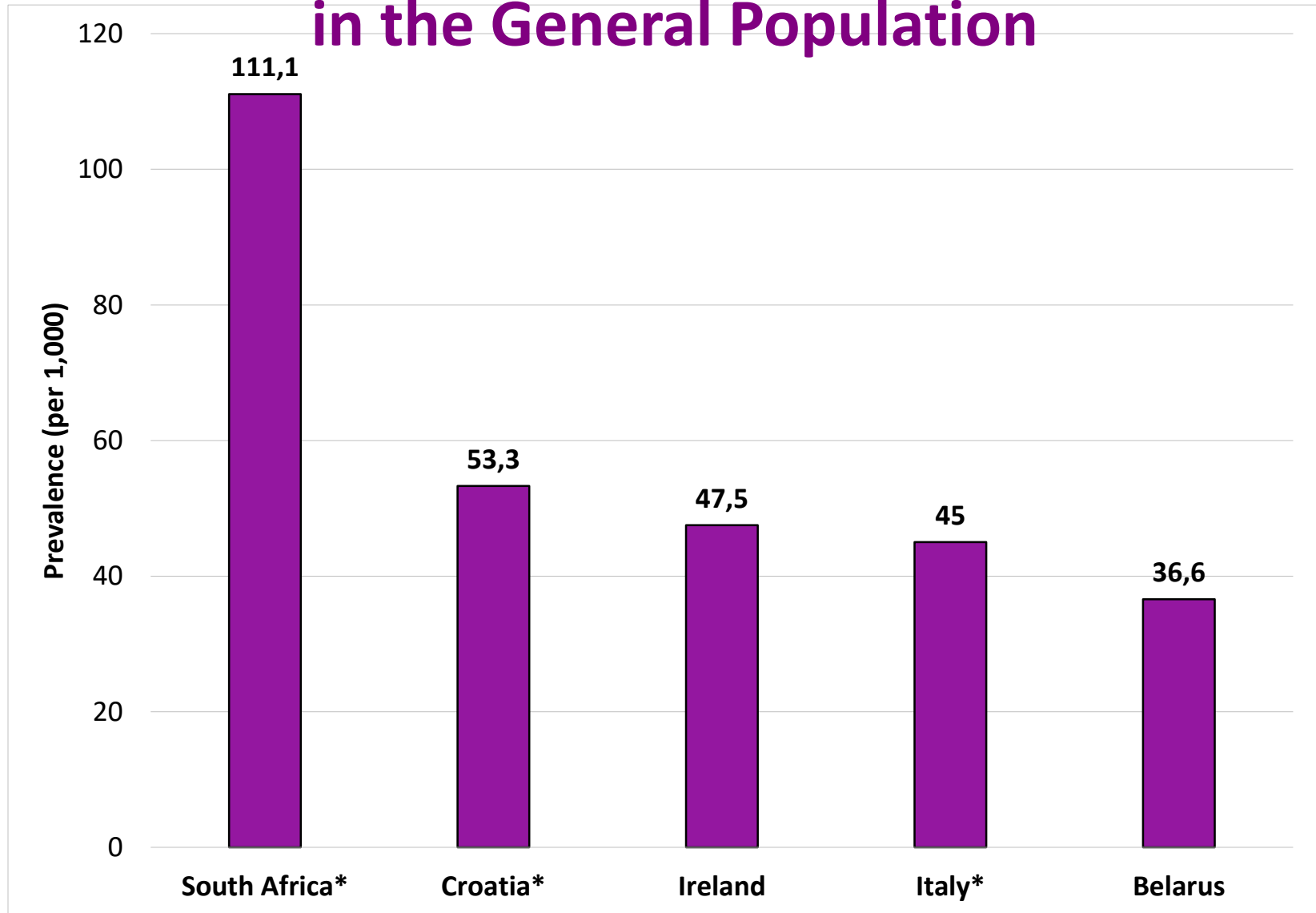
AFR=African R, AMR=R of the Americas, EMR=Eastern-Mediterranean R,
EUR=European R, SEAR=South-East Asia R, WPR=Western Pacific R

Prevalence of FASD in General Population by WHO Region and Globally



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 (meta-analysis)**

Prevalence of FASD among special sub-populations: A systematic review and meta-analysis

Popova S, Lange S, Shield K, Burd L, & Rehm J (in press). *Addiction*

Objective:

To estimate the prevalence of FAS/FASD among special sub-populations, utilizing all published studies in the world literature and compare the meta-analysed FAS/FASD prevalence estimates with the global FAS/FASD prevalence

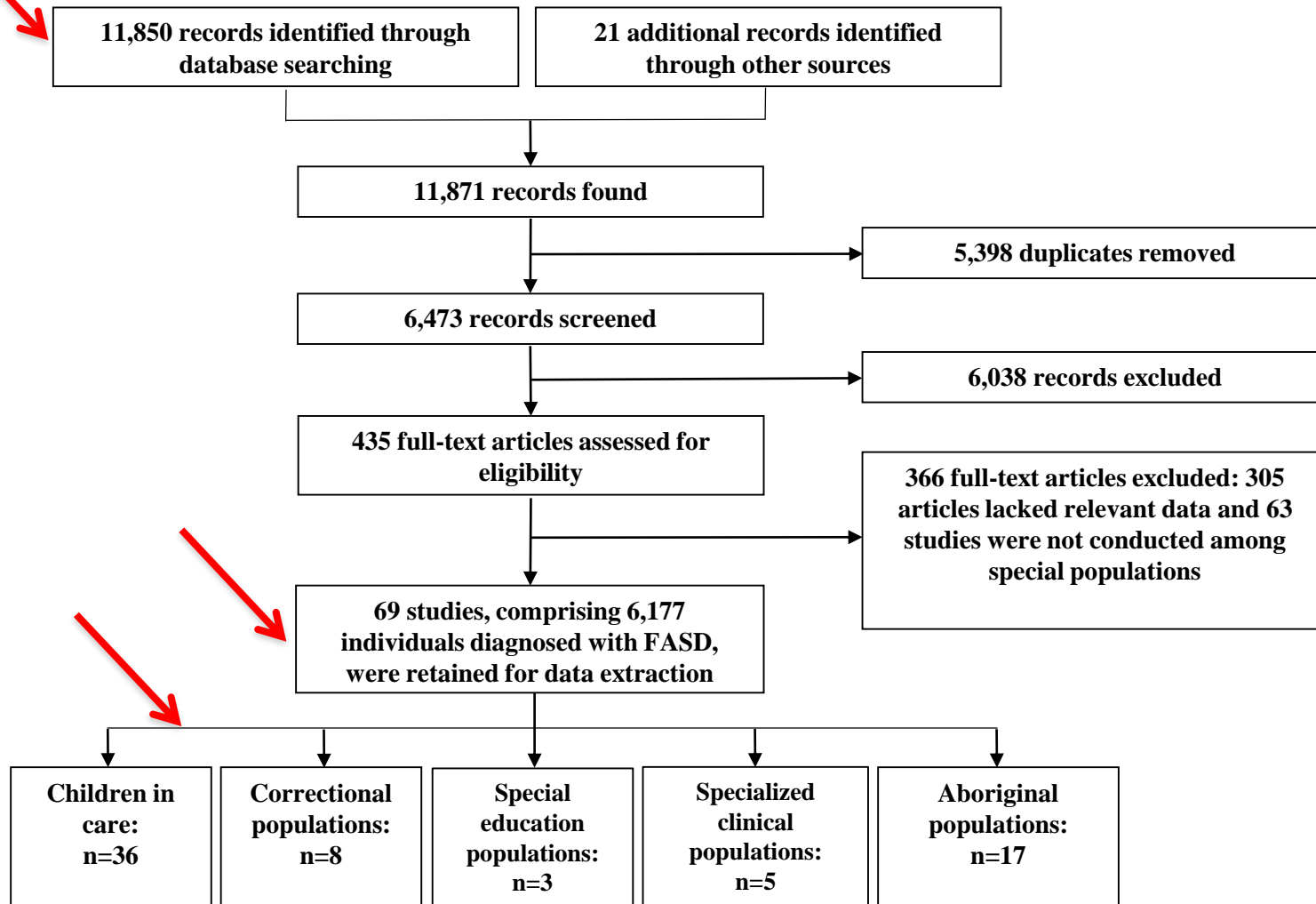
Methodology:

Comprehensive Literature search: studies published between November 1, 1973 and December 1, 2018; not limited geographically/language

Meta-analyses: Country-, disorder- (FAS and FASD, inclusive of FAS) and population-specific meta-analyses were performed for countries with 2+ studies that used active case ascertainment and/or clinic-based methods and specified the diagnostic criteria

Results

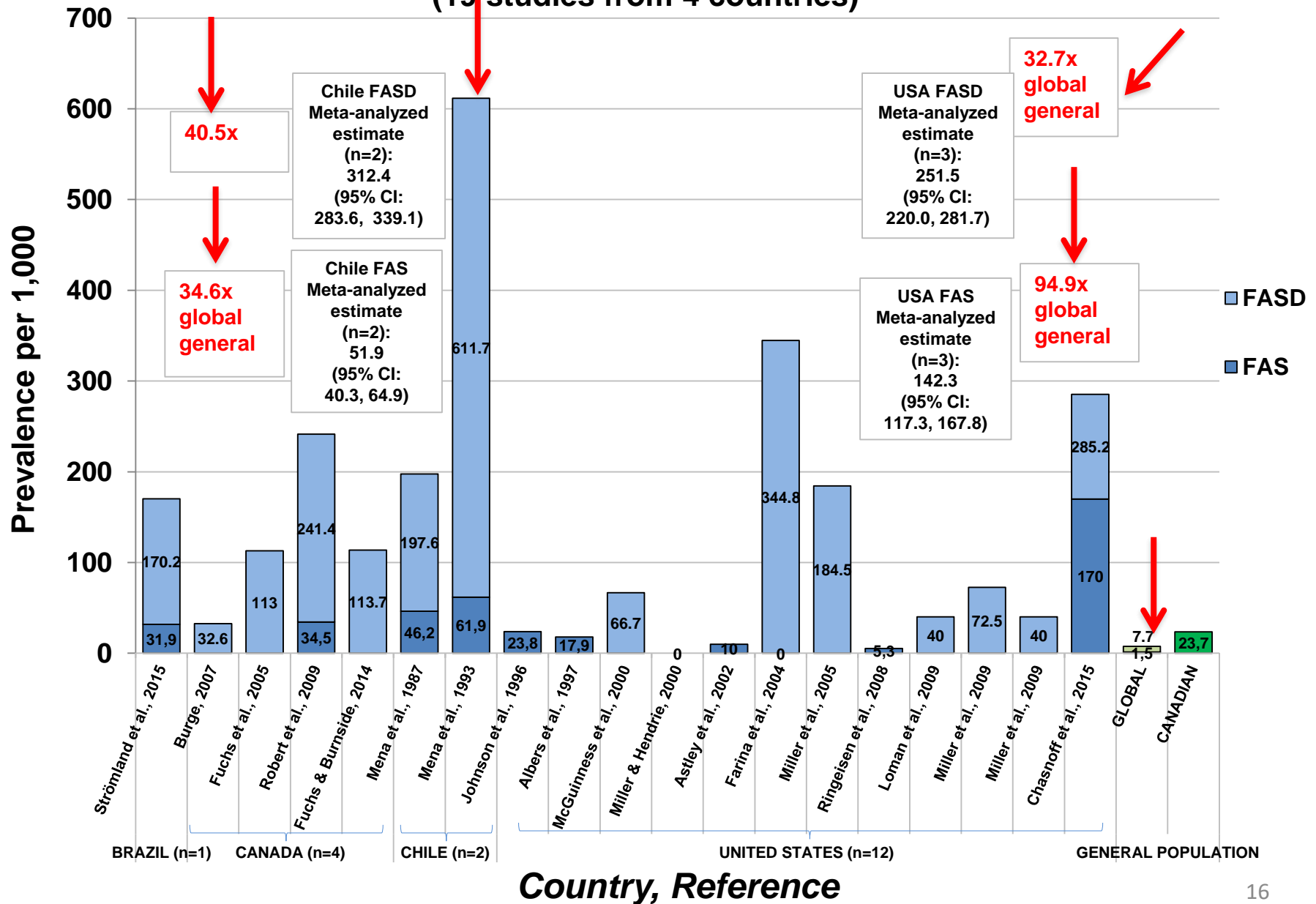
Schematic diagram depicting the search strategy employed



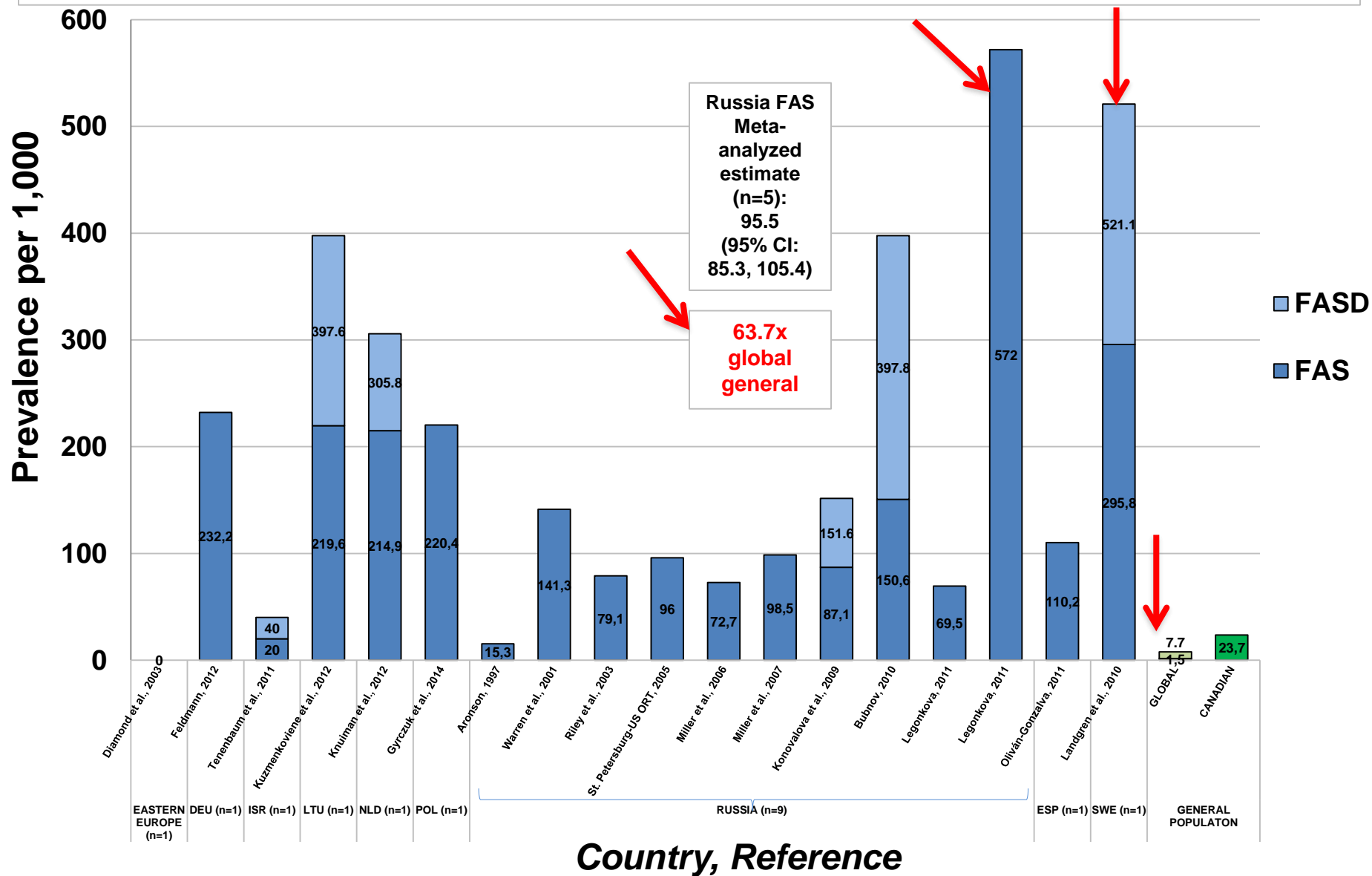
Represented 17 countries: Australia (n=5), Brazil (n=2), Canada (n=15), Chile (n=4), Eastern Europe (Moldova, Romania, and Ukraine; n=1), Germany (n=1), Israel (n=1), Lithuania (n=1), Netherlands (n=1), Poland (n=1), Russia (n=9), South Korea (n=1), Spain (n=1), Sweden (n=1), and United States (n=25)

Prevalence of FAS and FASD among children in care - North and South America

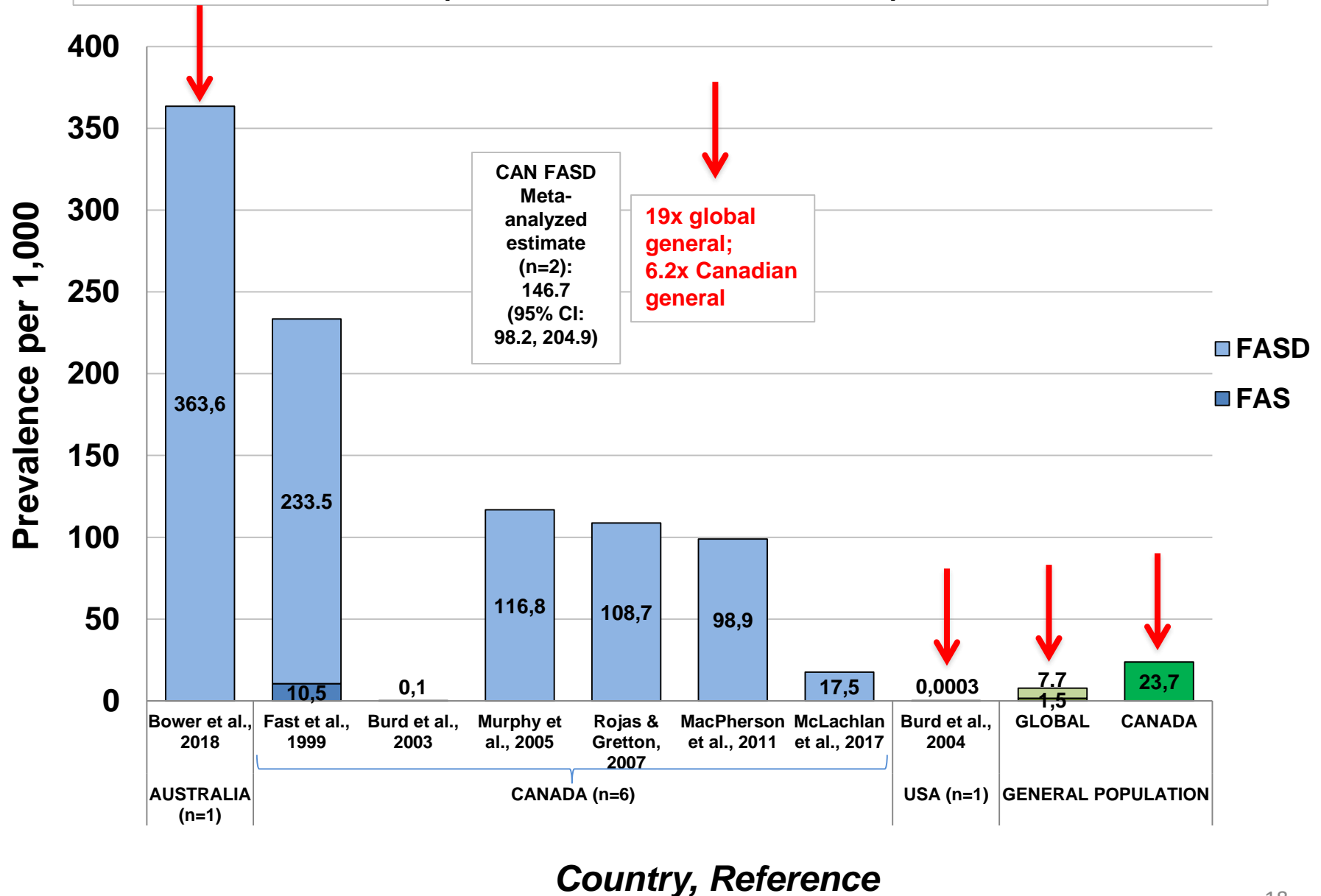
(19 studies from 4 countries)



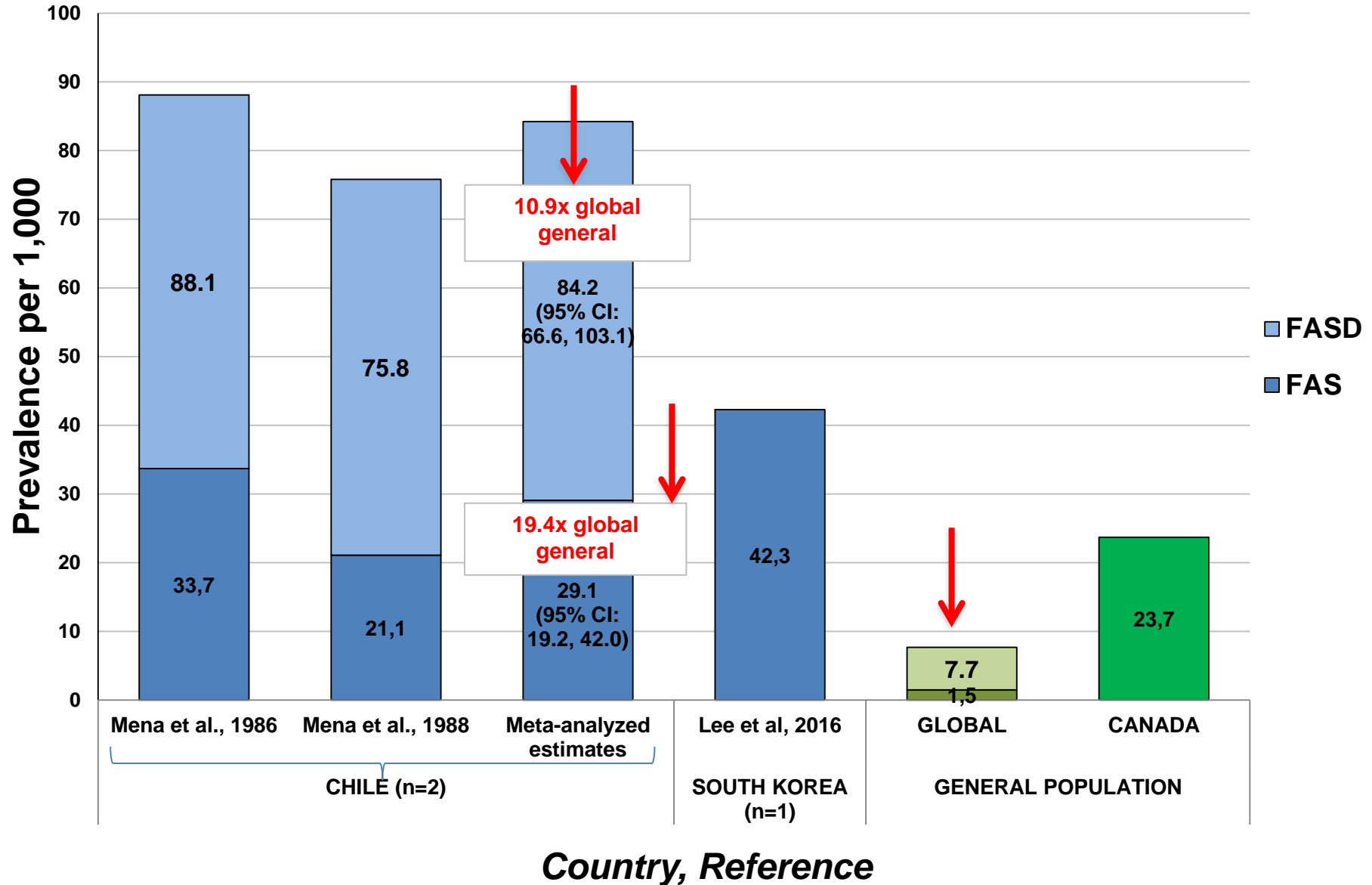
Prevalence of FAS and FASD among children in care - Europe and Asia (17 studies representing 11 countries)



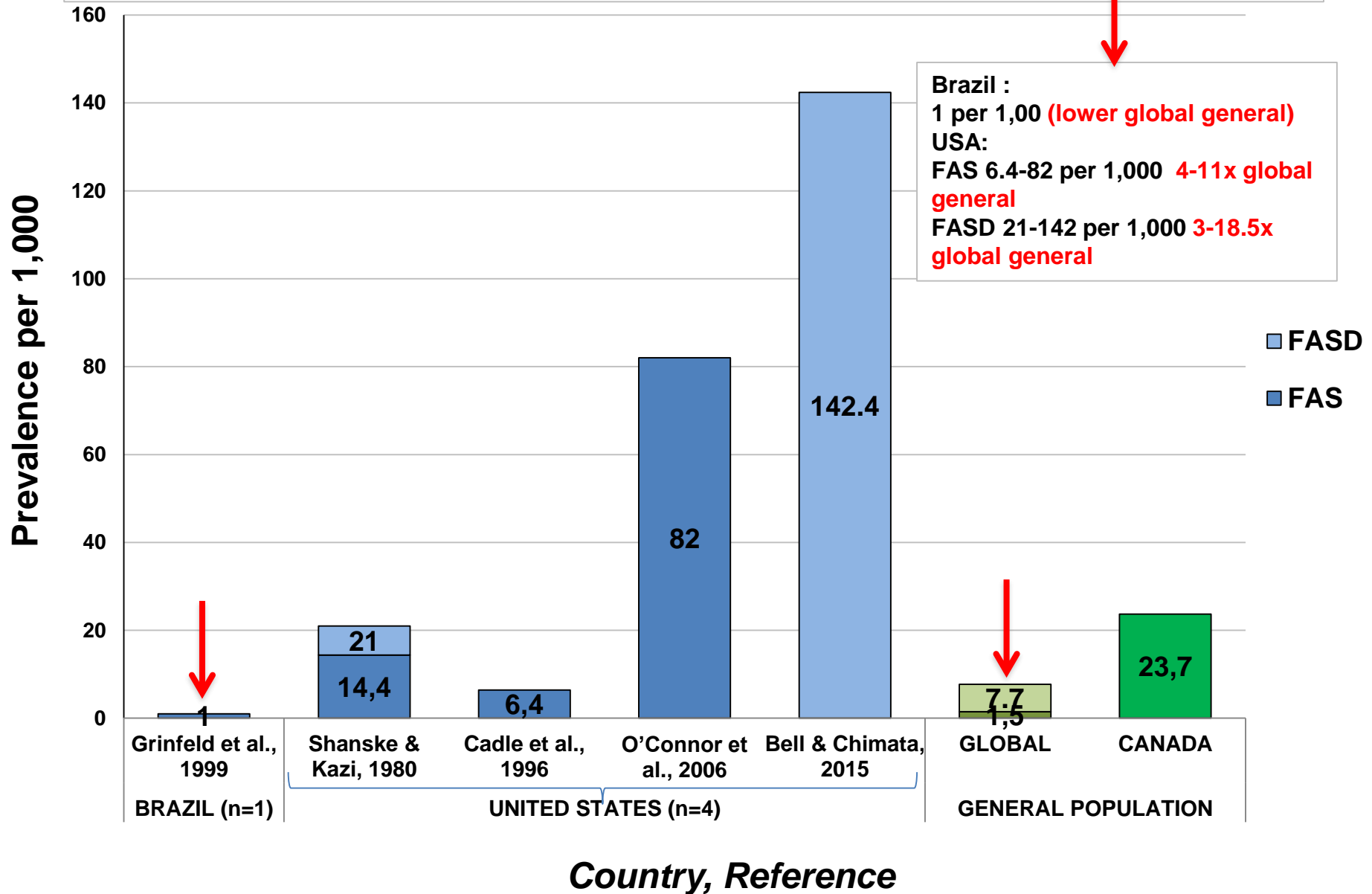
Prevalence of FAS and FASD among correctional populations (8 studies from 3 countries)



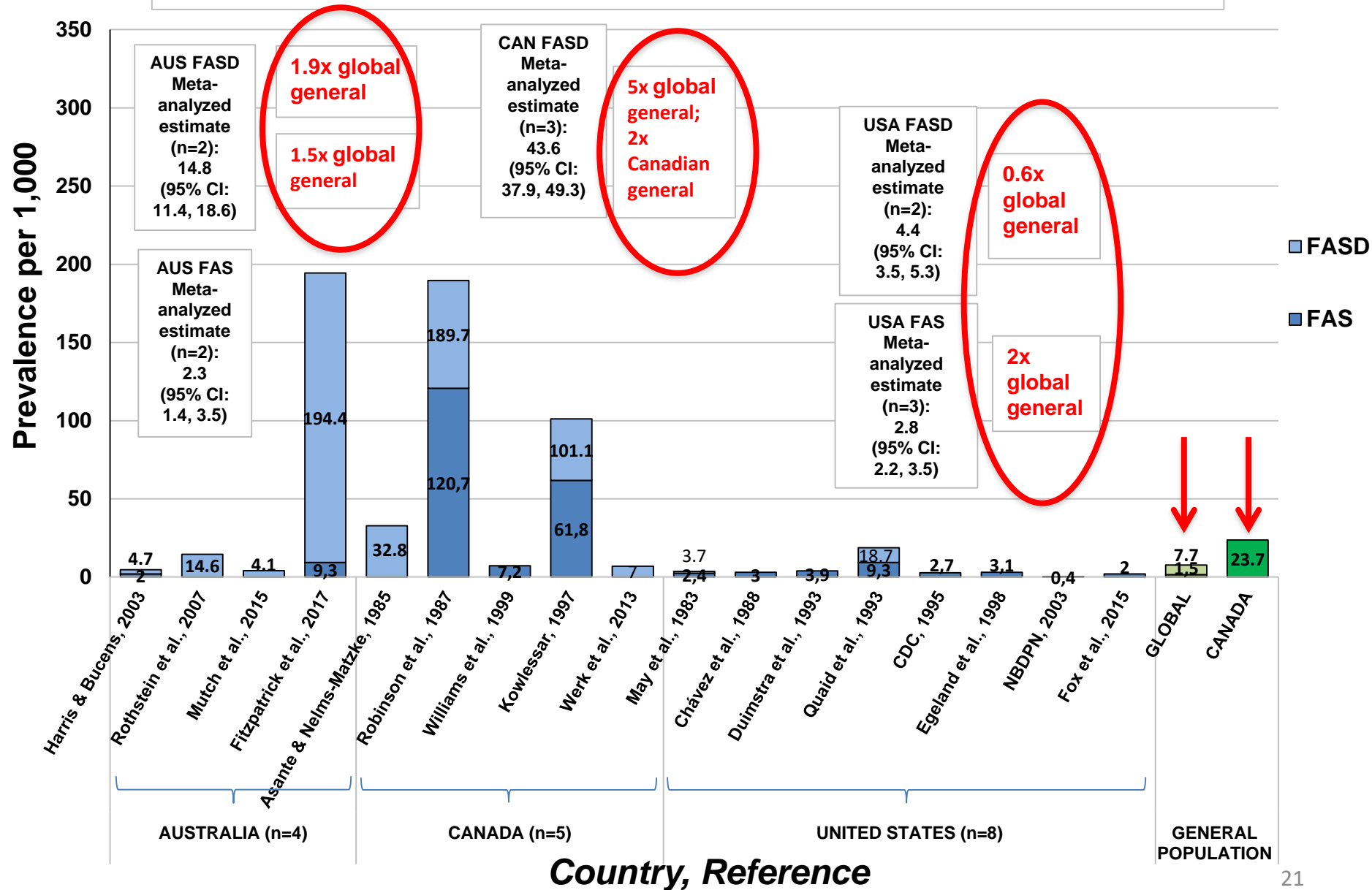
Prevalence of FAS and FASD among special education populations (3 studies from 2 countries)



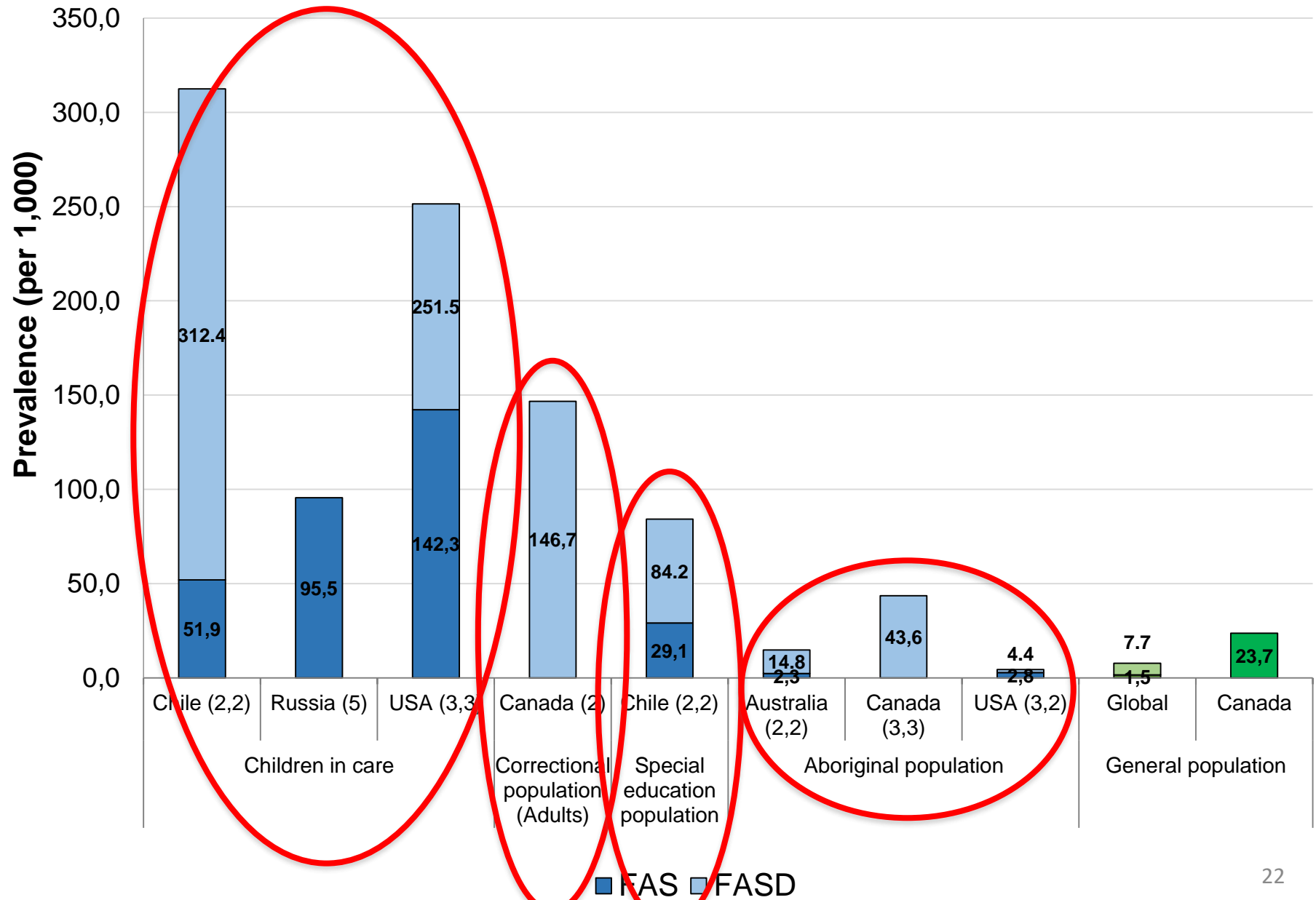
Prevalence of FAS and FASD among specialized clinical populations (5 studies from 2 countries)



Prevalence of FAS and FASD among Aboriginal Populations (17 studies from 3 countries)



Pooled prevalence of FAS and FASD among special sub-populations (25 studies in total, representing 5 countries)



More Rigorous Epidemiological Prevalence Studies are Needed!

- **To understand the severity and impact of FASD**
- **To plan policies and programs that will benefit people with FASD and to prevent children from being born with these conditions**
- **Data on the incidence/prevalence of FASD are completely absent for the majority of countries**
- **Existing data is outdated and have many methodological limitations**
- **FASD is expensive!**
- **Urgently need to monitor and lower the rate of these conditions effectively throughout the world**

World Health Organization

Global Prevalence Study on FASD

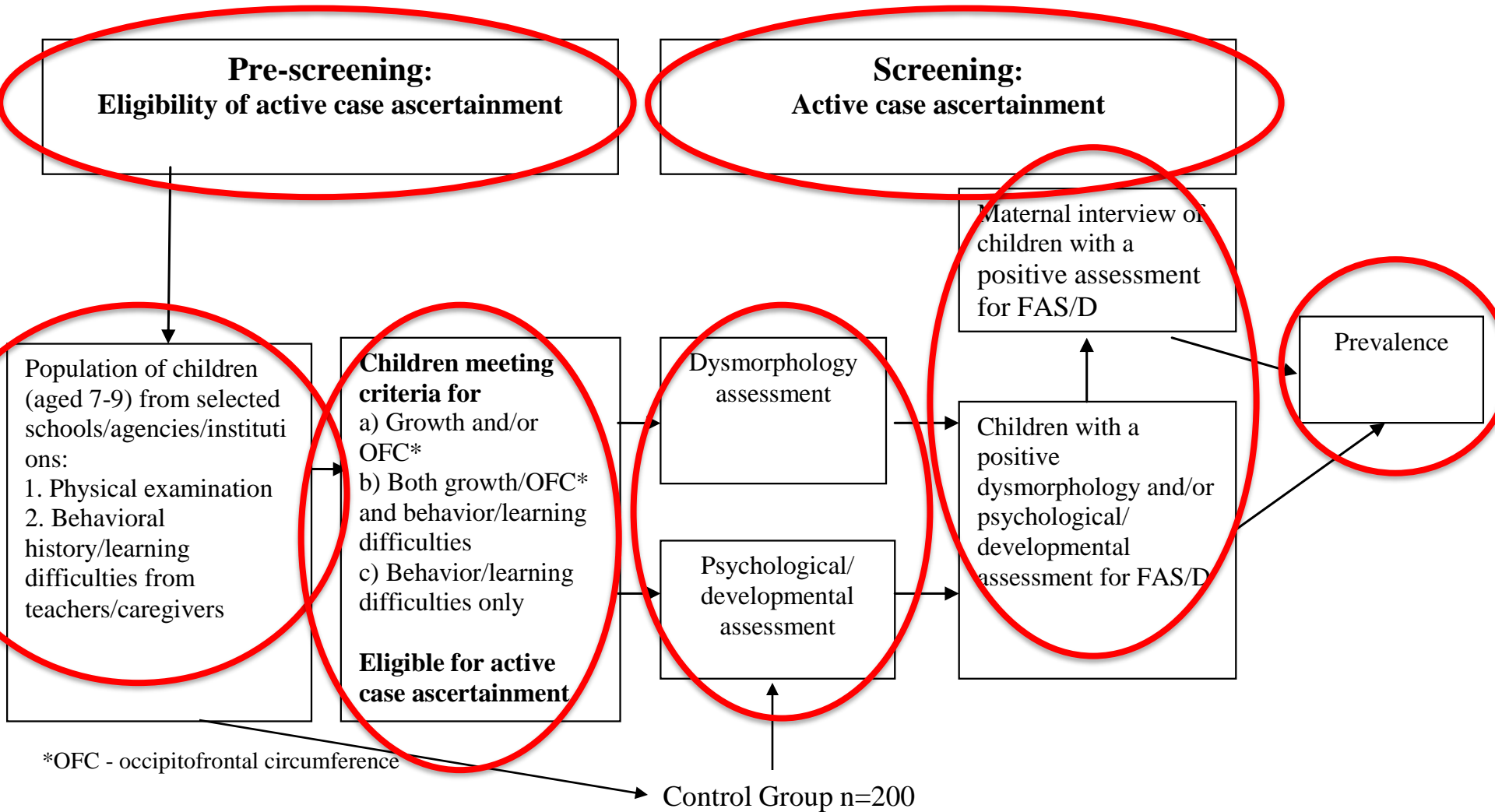


- **WHO Research Initiative on Alcohol, Health and Development with support of National Institute on Alcohol Abuse and Alcoholism (NIAAA)**
- **Objective: To estimate the prevalence of FASD among children (7-9 years of age) using an active case ascertainment approach**
- **Participants: selected countries in Central and Eastern Europe, Africa as well as Canada**
- **CAMH, a Collaborating Centre of the WHO, provides research support to all involved countries**

WHO Global Prevalence Study on FASD

Method:

Active Case Ascertainment



World Health Organization International Study on the Prevalence of FASD: Canadian Component

- This study provides the first population-based estimate of the prevalence of FASD among elementary school students (aged 7 to 9 years) in in the GTA in Ontario, Canada, which is likely to range between approximately 2% and 3%
- The estimate is approximately double or possibly even triple previous crude estimates
- FASD prevalence exceeds that of other common birth defects such as Down's syndrome, spina bifida, trisomy 18, as well as autism spectrum disorder in Canada.
- FASD occurs throughout society, regardless of socioeconomic status or ethnicity

Popova, S., Lange, S., Chudley, A.E., Reynolds, J.N., & Rehm, J. in collaboration with May, P.A. and Riley, E.P. (2018). WHO International Study on the Prevalence of FASD: Canadian Component. Toronto, ON: Centre for Addiction and Mental Health. Available from <https://www.camh.ca/-/media/files/pdfs---reports-and-books---research/who-fasd-report-english-april2018-pdf.pdf>

IMPORTANT!!!

These scientific data, as a powerful argument, should not be misused for the further stigmatization of mothers with alcohol dependence, but rather, they should be used as a strong scientific evidence base demonstrating the cost and utilization requirements for policy makers formulating policies on FASD.



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Discussion

- **Maternal alcohol consumption is a significant public health concern worldwide.**
- **FASD is a prevalent alcohol-related developmental disability globally, especially among some special sub-populations.**
- **Globally, FASD prevalence may increase in the near future because:**
 - **the rates of alcohol use, binge drinking and drinking during pregnancy are increasing among young women in a number of countries; and**
 - **a vast majority of pregnancies are unplanned.**

Discussion (cont')

- **Establish a universal public health message about the potential harm of prenatal alcohol exposure;**
- **Establish universal routine screening protocols for alcohol use among childbearing age, pregnant and postpartum women;**
- **Provide brief interventions, where appropriate;**
- **Educate MDs and other health professionals on FASD;**
- **Provide postpartum support for new mothers, especially mothers of children with FASD in order to prevent re-occurrence of FASD;**
- **Special attention has to be paid to high-risk sub-populations;**
- **Provide timely interventions and support to people with FASD and their families;**
- **Establish surveillance system for FASD and prenatal alcohol exposure;**
- **We are ALL responsible for FASD prevention!!!**

Contact Information

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**Remember: When you drink,
so does your child 30**