Birth prevalence of Congenital Heart Disease; *meta-analysis* on geographical differences


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### Purpose
- Determine birth prevalence of CHD worldwide.
- Determine birth prevalence of 8 most common CHD subtypes (VSD, ASD, PDA, PS, TOF, Coarct, TGA, AoSa).
- Compare birth prevalence estimates from continents.

### Methods
- On September 23rd 2010 a PubMed literature search was conducted.
- Search terms: “heart defects, congenital/epidemiology”, “incidence” and “prevalence”.
- Weighted averages were calculated using the generic inverse variance method.
- Comparisons were performed with a Chi square test.

### Results

#### Search results:
- 1136 articles
  - Titles and abstracts reviewed: excluded 958 articles.
  - Full articles reviewed: excluded 70 articles.
  - Cross-referencing: 6 additional articles included.
  - 114 articles included

#### Study population:
- 24,091,867 live births
- 164,396 identified with CHD

#### Reported total CHD birth prevalence

- * Europe > North America, South America, Oceania and Africa (p<0.001).
- * Asia > Europe, North America, South America, Oceania and Africa (p<0.001).

#### Birth prevalence of CHD subtypes

- PS and TOF birth prevalence: Asia > Europe and North America (p<0.001).
- Coarct birth prevalence: Asia < Europe (p<0.001).
- TGA and AoSa birth prevalence: Asia < Europe, North America and Oceania (p<0.001).
- § No data available on TOF and AoSa birth prevalence in Africa.

### Conclusions
- Major geographical differences in reported CHD birth prevalence exist.
- Asia reported the highest total CHD birth prevalence (9.3 per 1,000 live births).
- Reported total CHD birth prevalence in Europe was significantly higher than in North America (8.2 vs. 6.9 per 1,000 live births).
- Asia reported relatively more pulmonary outflow tract obstructions and less left ventricular outflow tract obstructions.
- Observed differences may be of genetic, environmental or socio-economic origin.
- Furthermore, differences could have occurred due to methodological differences, for example availability of diagnostic tools.
- In the future, population wide birth defect registries covering the entire world population are needed.

### References

### Declaration of interest: None