### Supplementary Table 1: Inclusion of anomaly subgroups.

<table>
<thead>
<tr>
<th>Subgroup</th>
<th>Classification of anomaly included</th>
</tr>
</thead>
</table>
| All anomalies; all isolated anomalies; and all multiple anomalies | • Nervous system;  
• Eye, ear, face and neck;  
• Cardiovascular system;  
• Respiratory and clefts;  
• Abdominal wall defects and diaphragmatic hernia;  
• Upper and lower gastrointestinal;  
• Genitourinary;  
• Limb and skeletal;  
• Blood disorders;  
• Endocrine and Metabolic;  
• Neoplasm;  
• Syndromes and congenital malformation syndromes;  
• Maternal Infection leading to malformations. |
| Cardiovascular anomalies                        | • Congenital heart defects and diseases of the circulatory system.                                |
Supplementary Table 2: Description of included variables in the analyses.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Categorisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Townsend (as area-based deprivation)</td>
<td>1 (least deprived)(^1), 2, 3, 4, 5 (most deprived), and not known/missing.</td>
</tr>
<tr>
<td>Maternal ethnicity</td>
<td>White(^2), Other (Chinese, Indian, Bangladeshi, Pakistani, Other Asian, Black</td>
</tr>
<tr>
<td></td>
<td>Caribbean, Black African, Other Black, Mixed, Other), and not known/missing.</td>
</tr>
<tr>
<td>Maternal age at birth</td>
<td>≤24, 25-29(^2), 30-34, ≥35 years, and not known/missing.</td>
</tr>
<tr>
<td>Parity</td>
<td>Nulliparous(^2), ≥1, and not known/missing.</td>
</tr>
<tr>
<td>Multiple pregnancies</td>
<td>Yes, No(^2), and not known/missing.</td>
</tr>
<tr>
<td>Maternal smoking</td>
<td>Smoker, Non/ Ex-smoker(^2), and not known/missing.</td>
</tr>
<tr>
<td>Anomaly in previous pregnancies</td>
<td>Yes, No(^2), and not known/missing.</td>
</tr>
<tr>
<td>Infant sex</td>
<td>Male, Female(^2) and not known/missing.</td>
</tr>
<tr>
<td>Infant’s birthweight</td>
<td>&lt;2500 (low birthweight), ≥2500(^2) g and not known/missing.</td>
</tr>
<tr>
<td>Infant’s gestational age at birth(^2)</td>
<td>&lt;37(^{th}) (preterm), ≥37(^{th}) (full), and not known/missing.</td>
</tr>
<tr>
<td>Disease severity (for CHD only)(^3)</td>
<td>Less severity(^1), moderate severity, most severity, and not known/missing.</td>
</tr>
<tr>
<td>Surgery</td>
<td>Performed (or expected) in the first year after birth, not performed or</td>
</tr>
<tr>
<td></td>
<td>required in the first year after birth(^1), and not known/missing.</td>
</tr>
</tbody>
</table>

\(^1\)Reference group. \(^2\)Significant departure of linearity was shown in the effect of gestational age in weeks on infant mortality. \(^3\)Congenital heart defects (CHD) severity category was based on criteria used by Khoshnood et al. (2012): CHD less severe = Ventricular septal defect (VSD), Atrial septal defect (ASD), Pulmonary valve stenosis. CHD moderate severe = Common arterial truncus, Transposition of great vessels, Atrio-ventricular septal defect (AVSD), Tetralogy of Fallot, Pulmonary valve atresia, Aortic valve atresia/ stenosis, Coarctation of aorta, total anomalous pulmonary venous return. CHD most severe = Single ventricle, Tricuspid atresia and stenosis, Ebstein’s anomaly, Hypoplastic left heart and Hypoplastic right heart.
**Supplementary Table 3:** Year of birth added as a covariate in the final model as a sensitivity analysis.

<table>
<thead>
<tr>
<th>Factors</th>
<th>All anomalies</th>
<th>Isolated anomalies</th>
<th>Multiple anomalies</th>
<th>Cardiovascular anomalies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethnicity Other vs. White</td>
<td>2.31 (1.82-2.94)</td>
<td>1.90 (1.18-3.07)</td>
<td>2.24 (1.76-2.84)</td>
<td>1.02 (0.27-3.89)</td>
</tr>
<tr>
<td>Parity ≥1 vs. Nulliparous</td>
<td>1.22 (1.07-1.40)</td>
<td>1.47 (1.15-1.88)</td>
<td>1.22 (1.08-1.40)</td>
<td></td>
</tr>
<tr>
<td>Maternal smoking Smoker vs. Non/Ex smoker</td>
<td>1.19 (1.02-1.39)</td>
<td>1.43 (1.07-1.91)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infant sex Female vs. Male</td>
<td>1.28 (1.13-1.45)</td>
<td>1.05 (0.84-1.32)</td>
<td>1.28 (1.12-1.45)</td>
<td>1.23 (0.76-2.02)</td>
</tr>
<tr>
<td>Gestational age at birth Preterm vs. Term</td>
<td>4.35 (3.83-4.94)</td>
<td>4.51 (3.59-5.64)</td>
<td>4.39 (3.87-4.99)</td>
<td>3.67 (2.18-6.17)</td>
</tr>
<tr>
<td>CHD severity Moderate vs. Less Most vs. Less</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>18.4 (8.10-41.7) 242 (94-620)</td>
</tr>
<tr>
<td>Surgery Yes vs. No</td>
<td>0.78 (0.66-0.93)</td>
<td></td>
<td>0.68 (0.58-0.79)</td>
<td>0.31 (0.14-0.70)</td>
</tr>
<tr>
<td>Year Per yearly increase (1998-2016)</td>
<td>0.96 (0.95-0.98)</td>
<td>0.98 (0.95-1.00)</td>
<td>0.96 (0.95-0.97)</td>
<td>0.93 (0.88-0.99)</td>
</tr>
</tbody>
</table>

*Note:* Statistical significance at $p < 0.05$; Adjusted odd ratios with 95% confidence intervals are shown. Empty cell represents variable that was not included in the multivariable analysis. CHD = Congenital heart defects. n/a = not applicable.