**Supplemental Material**

**Table S1**

Surgery definitions

|  |  |
| --- | --- |
| **Term defined as surgery** | **Term not defined as surgery** |
| Dilatations with or without stent implantation | Examinations/diagnostic procedure |
| Removal of foreign bodies from bronchus, lungs and oesophagus | Removal of foreign bodies in open areas (nose, ear, throat, skin) |
| Drainage from internal organs | Drainage with easy access by needle |
| Extraction of multiple teeth | Extraction of one tooth only, other dental treatment |
| Application of internal and external fixation to bone  | Closed manipulation/application traction of bones |
| Harvest of skin, bone, tendon | Removal of suture, tube |
|  | Attention, irrigation, aspiration |

**Table S2**

Proportion of codes for surgery by coding systems used in the countries.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Coding system | All procedure codes used | Number of codes rated as a surgery (%) |
| Denmark  | Nordic Medico-Statistical Committee (NOMESCO) national version | 2022 | 1672 (83%) |
| Finland | Nordic Medico-Statistical Committee (NOMESCO) national version | 1148 (3-digit codes) | 721 (63%) |
| England and Wales | Office for Population Censuses and Surveys Classification of Interventions and Procedures – Fourth Revision  | 4778 | 2855 (60%) |
| Italy | International Classification of Diseases – Ninth Revision - Clinical Modification  | 3006 | 1734 (58%) |
| Spain | International Classification of Diseases – Ninth Revision - Clinical Modification  | 2920 | 1785 (61%) |

**Table S3. Linkage quality**

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|  |
| Registry | Number of children with congenital anomalies | Percentage of children linked and included in the study |
| Denmark, Funen | 2,423 | 99.9 |
| Finland | 38,555 | 99.4 |
| Italy, Emilia Romagna | 5,801 | 92.8 |
| Italy, Tuscany | 4,821 | 87.6 |
| Spain, Valencian Region  | 4,308 | 98.9 |
| UK, Wales | 17,641 | 98.9 |
| UK, East Midlands and South Yorkshire |  11,605 |  97.2 |
| UK, Thames Valley |  3990 |  96.4 |
| UK, Wessex |  4,735 |  91.2 |