EUROPEAN PERINATAL HEALTH REPORT

Health and care of pregnant women and babies in Europe in 2010
# TABLE OF CONTENTS

List of Figures 6
List of Tables 7

1. **EXECUTIVE SUMMARY** 9

2. **SURVEILLANCE OF PERINATAL HEALTH IN EUROPE** 23
   - 2.1 Why monitor perinatal health in Europe? 24
   - 2.2 Perinatal health indicators for Europe: the EURO-PERISTAT project 27
   - 2.3 *European Perinatal Health Report* 29
   - 2.4 The future 30

3. **DATA FOR PERINATAL HEALTH MONITORING IN EUROPE** 35
   - 3.1 EURO-PERISTAT data collection process 36
   - 3.2 Data sources 36
   - 3.3 Collaboration with European registries (EUROCAT and SCPE) 38
   - 3.4 Registration criteria for births and deaths 39
   - 3.5 Comparing perinatal health data 40
   - 3.6 Data availability 41
   - 3.7 Conclusions and recommendations for improving health reporting 44

4. **CHARACTERISTICS OF CHILDBEARING WOMEN** 51
   - C7 Multiple births by number of fetuses 52
   - C8 Maternal age at delivery 56
   - C9 Distribution of parity 60
   - R8 Smoking during pregnancy 63
   - R9 Mothers’ educational level 66
   - R10 Parents’ occupational classification 69
   - R11 Mothers’ country of birth 69
   - R12 Distribution of maternal prepregnancy body mass index (BMI) 72

5. **THE CARE OF PREGNANT WOMEN AND BABIES DURING PREGNANCY AND THE POSTPARTUM PERIOD** 75
   - C10 Mode of delivery 77
   - R13 Pregnancies following subfertility treatment 83
   - R14 Timing of first antenatal visit 87
   - R15 Mode of onset of labour 90
   - R16 Place of birth by volume of deliveries 93
   - R17 Very preterm births delivered in maternity units without an on-site neonatal intensive care unit (NICU) 98
   - R18 Episiotomy rate 101
   - R19 Births without obstetric intervention 103
   - R20 Breast feeding in the first 48 hours after birth 103
6. **MOTHERS’ HEALTH: MORTALITY AND MORBIDITY ASSOCIATED WITH CHILDBEARING** 107  
   C6  Maternal mortality ratio 109  
   R5  Maternal mortality by cause of death 115  
   R6  Incidence of severe maternal morbidity 118  
   R7  Incidence of tears to the perineum 121  

7. **BABIES’ HEALTH: MORTALITY AND MORBIDITY DURING PREGNANCY AND IN THE FIRST YEAR OF LIFE** 125  
   C1  Fetal mortality 126  
   C2  Neonatal mortality 134  
   C3  Infant mortality 141  
   C4  Distribution of birth weight 147  
   C5  Distribution of gestational age 152  
   R2  Distribution of 5-minute Apgar scores among live births 157  
   R3  Fetal and neonatal deaths due to congenital anomalies 160  

8. **INDICATORS FROM OTHER EUROPEAN NETWORKS** 165  
   8.1  EUROCAT: Prevalence of Congenital Anomalies (R1) 166  
   8.2  SCPE: Prevalence of Cerebral Palsy (R4) 182  

**APPENDICES** 191
AUTHORS AND ACKNOWLEDGEMENTS

REPORT EDITORS
Jennifer Zeitlin (INSERM, France)
Ashna Mohangoo (TNO Child Health, the Netherlands).
Marie Delnord (INSERM, France)

WRITING COMMITTEE
Sophie Alexander, Béatrice Blondel*, Marie-Hélène Bouvier-Colle, Nirupa Dattani, Marie
Delnord*, Mika Gissler*, Alison Macfarlane*, Ashna Mohangoo*, Karin van der Pal, Katarzyna
Szamotulska*, Jennifer Zeitlin*, Wei Hong Zhang
* Editorial Supervision

ASSISTANCE WITH MAPS
Nicholas Lack

AUTHORS FROM SCPE
Christine Cans, Allan Colver, Ingeborg Krägeloh-Mann, Mary-Jane Platt, Javier de la Cruz on
behalf of SCPE Collaboration (contact information in Appendix A2)

AUTHORS FROM EUROCAT
Rhonda Curran, Maria Loane, Ruth Greenlees, Helen Dolk (contact information in Appendix A2)

DATA COLLECTION
TNO Child Health was responsible for data collection, management, and

EURO-PERISTAT EXECUTIVE BOARD
Jennifer Zeitlin (Project Coordinator)
Ashna Mohangoo (Data Collection Coordinator)
Marie Delnord (Project Manager)
Sophie Alexander
Béatrice Blondel
Marie-Hélène Bouvier Colle
Mika Gissler
Alison Macfarlane
Karin van der Pal
Katarzyna Szamotulska
EURO-PERISTAT SCIENTIFIC COMMITTEE (CONTACT INFORMATION IN APPENDIX A1)

Austria: Gerald Haidinger
Belgium: Sophie Alexander
Cyprus: Pavlos Pavlou
Czech Republic: Petr Velebil
Denmark: Jens Langhoff Roos
Estonia: Luule Sakkeus
Finland: Mika Gissler
France: Béatrice Blondel
Germany: Nicholas Lack
Greece: Aris Antsaklis
Iceland: Helga Sól Ólafsdóttir
Hungary: István Berbik
Ireland: Sheelagh Bonham
Italy: Marina Cuttini
Latvia: Janis Misins
Lithuania: Jone Jaselioniene
Luxembourg: Yolande Wagener
Malta: Miriam Gatt
Netherlands: Jan Nijhuis
Norway: Kari Klungsøy
Poland: Katarzyna Szamotulska
Portugal: Henrique Barros
Romania: Mihai Horga
Slovakia: Ján Cáp
Slovenia: Živa Novak-Antolic
Spain: Francisco Bolúmar
Sweden: Karin Gottvall
Switzerland: Sylvie Berrut
United Kingdom: Alison Macfarlane

DATA PROVIDERS AND OTHER CONTRIBUTORS (LISTED IN APPENDIX A1)

This report would not have been possible without the time and effort of data providers who produced the data for this report and reviewed and commented on the tables and manuscript.

PROJECT COORDINATION

The EURO-PERISTAT project is coordinated by INSERM, Paris.

FINANCING

The EURO-PERISTAT project is cofinanced by the Health Programme of the European Commission’s Directorate General for Health and Consumers, which also provides funding for SCPE and EUROCAT.

Editing support was provided by Jo Ann Cahn.
LIST OF FIGURES

Figure 2.1  Total fertility rates in European countries in 2010 26
Figure 3.1  Percentage of countries that provided the Euro-Peristat core indicators in 2010 42
Figure 3.2  Percentage of countries that provided the Euro-Peristat recommended indicators in 2010 43
Figure 4.1  Multiple birth rates per 1000 women with live births or stillbirths by number of fetuses in 2010 54
Figure 4.2  Twin birth rates per 1000 women in 2004 and 2010 55
Figure 4.3  Age distribution of women delivering live births or stillbirths in 2010 58
Figure 4.4  Mothers aged younger than 20 years as a percentage of all pregnancies with known maternal age in 2010 59
Figure 4.5  Mothers aged 35 years and above as a percentage of all pregnancies with known maternal age in 2010 59
Figure 4.6  Percentage of mothers 35 or older in 2004 and difference between 2010 and 2004 60
Figure 4.7  Distribution of parity for women delivering live births or stillbirths in 2010 62
Figure 4.8  Distribution of mothers’ educational level in 2010 68
Figure 4.9  Distribution of maternal prepregnancy body mass index (BMI) in 2010 74
Figure 5.1  Percentage of births by mode of delivery in 2010 80
Figure 5.2  Percentage of births by type of caesarean section in 2010 81
Figure 5.3  Caesareans as a percentage of all births in 2010 82
Figure 5.4  Percentage of births by caesarean section in 2004 and change 2004-2010 83
Figure 5.5  Percentage of women with live births and stillbirths in 2010 following treatment for subfertility 86
Figure 5.6  Distribution of initiation of antenatal care after the first trimester in 2010 89
Figure 5.7  Distribution of mode of onset of labour in 2010 92
Figure 5.8  Distribution of births by maternity unit volume of deliveries in 2010 96
Figure 5.9  Percentage of births in units with 3000 or more births per year in 2004 and 2010 97
Figure 5.10  Percentage of women who had episiotomies among women with vaginal deliveries in 2010 102
Figure 5.11  Episiotomy rates in 2004 and changes between 2010 and 2004 among women with vaginal deliveries 103
Figure 5.12  Distribution of exclusive and mixed breast feeding for the first 48 hours in 2010 106
Figure 6.1  Maternal mortality ratio, 2006-2010 113
Figure 6.2  Maternal mortality ratios from routine statistics and from enhanced systems, 2006-2010 114
Figure 6.3  Maternal mortality ratios by maternal age in Europe in 2003-2004 and 2006-2010 114
Figure 6.4  Maternal mortality ratios by obstetric causes, data pooled from all national data provided for 2003-2004 and 2006-2010 117
Figure 6.5  Maternal morbidity: rates of eclampsia and of hysterectomy for postpartum haemorrhage in 2010 120
Figure 6.6  Incidence of third- and fourth-degree tears to the perineum in 2010 123
Figure 7.1  Fetal mortality rates per 1000 total births in 2010 131
Figure 7.2  Percentage of fetal deaths by gestational-age and birthweight groups from all countries contributing data by these subgroups in 2010 132
Figure 7.3  Comparison of fetal mortality rates at or after 28 weeks in 2004 and 2010 133
Figure 7.4  Early and late neonatal mortality rates per 1000 live births in 2010 137
Figure 7.5  Neonatal mortality rates per 1000 live births for all live births and live births at and after 24 weeks of gestation in 2010 138
Figure 7.6  Distribution of neonatal deaths by gestational-age and birthweight groups for all live births at or after 22 weeks of gestation in all countries contributing data in 2010 139
Figure 7.7  Comparison of neonatal mortality rates at or after 24 weeks in 2004 and 2010 140
Figure 7.8  Infant mortality rates per 1000 live births at or after 22 weeks in 2010 144
Figure 7.9  Distribution of infant deaths by gestational-age and birthweight subgroups in 2010 145
Figure 7.10  Comparison of infant mortality rates at or after 22 weeks (2010 vs. 2004) 146
Figure 7.11  Percentage of live births with a birth weight under 2500 grams in 2010 149
Figure 7.12  Map of distribution of live births with low birth weight (<2500 grams) in 2010 150
Figure 7.13  Percentage of live births with birth weight under 2500 grams in 2004 and difference between 2010 and 2004 151
Figure 7.14  Percentage of live births with a gestational age <32 weeks and between 32-36 weeks in 2010 155
Figure 7.15  Percent of preterm live births in 2004 and difference between 2010 and 2004 156
Figure 7.16  Percentage of live births with a 5-minute Apgar score less than 4 and less than 7 in 2010 159
Figure 7.17  Percentage of fetal deaths due to congenital anomalies in 2010 162
Figure 7.18  Percentage of neonatal deaths due to congenital anomalies in 2010 163
Figure 8.1  Total prevalence rates per 1000 births (including live births, fetal deaths and TOPFAs) for spina bifida, cleft lip (with or without palate) and Down syndrome (2006-2010) 180

LIST OF TABLES

Table 2.1  EURO-PERISTAT indicators (C=core, R=recommended) 28
Table 3.1  Main sources of data used by EURO-PERISTAT in 29 European countries for 2010 46
Table 3.2  Inclusion criteria for births and deaths provided to the EURO-PERISTAT project for 2010 47
Table 4.1  Estimates of proportion of women smoking during pregnancy in routine data according to period for which data were collected in 2010 65
Table 4.2  Proportion of women with live births or stillbirths who were of foreign origin (or nationality or ethnicity) as defined by country of birth in 2010 71
Table 5.1  Percentage of very preterm babies born in the most specialised units as defined by national classifications of levels of care in 2010 100
Table 8.1.  Coverage of the European population, birth year 2010, by EUROCAT full or associate member registries 174
Table 8.2  Prevalence rates (per 1000 births) of EUROCAT congenital anomaly subgroups (2006-2010), for all EUROCAT full member registries combined* 176
Table 8.3.  Prenatal diagnosis of 18 selected congenital anomaly subgroups (2006-2010) 178
Table 8.4.  Rate of TOPFA and rates of perinatal deaths (per 1000 births) by country (2006-2010), for 13 EUROCAT full member registries 179
Table 8.5.  Gestational age and prevalence rate (per 1000 births) of TOPFA for all anomalies, by EUROCAT registry in 2010 179
Table 8.6.  Perinatal mortality associated with congenital anomalies in 13 EUROCAT full member registries (2006-2010), by type of anomaly 180
Table 8.7  21 European registries submitted data to the SCPE Common Database for 1990-1998 and 1999-2003 periods – Number of children with CP 184
# Abbreviations and Acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AED</td>
<td>Antiepileptic drug</td>
</tr>
<tr>
<td>ART</td>
<td>Assisted reproductive techniques</td>
</tr>
<tr>
<td>BMI</td>
<td>Body mass index</td>
</tr>
<tr>
<td>CHD</td>
<td>Congenital heart disease</td>
</tr>
<tr>
<td>CP</td>
<td>Cerebral palsies</td>
</tr>
<tr>
<td>ESPR</td>
<td>European Society for Paediatric Research</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>FGR</td>
<td>Fetal growth restriction</td>
</tr>
<tr>
<td>FMR</td>
<td>Fetal mortality rate</td>
</tr>
<tr>
<td>ICD-10</td>
<td>International Classification of Diseases, 10th revision</td>
</tr>
<tr>
<td>ICU</td>
<td>Intensive care unit</td>
</tr>
<tr>
<td>IVF</td>
<td>In vitro fertilisation</td>
</tr>
<tr>
<td>IVH</td>
<td>Intraventricular haemorrhage</td>
</tr>
<tr>
<td>MMR</td>
<td>Maternity mortality ratio</td>
</tr>
<tr>
<td>NICU</td>
<td>Neonatal intensive care unit</td>
</tr>
<tr>
<td>NTD</td>
<td>Neural tube defect</td>
</tr>
<tr>
<td>PDA</td>
<td>Symptomatic patent ductus arteriosus</td>
</tr>
<tr>
<td>PPH</td>
<td>Postpartum haemorrhage</td>
</tr>
<tr>
<td>SCPE</td>
<td>Surveillance of Cerebral Palsy in Europe</td>
</tr>
<tr>
<td>SES</td>
<td>Socioeconomic status</td>
</tr>
<tr>
<td>TOP</td>
<td>Termination of pregnancy</td>
</tr>
<tr>
<td>TOPFA</td>
<td>Termination of pregnancy for fetal anomaly</td>
</tr>
<tr>
<td>VLBW</td>
<td>Very low birth weight</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organisation</td>
</tr>
</tbody>
</table>