



Amélioration de la qualité de la prise en charge des usagers en périnatalité : l'apport des comparaisons européennes.

Jennifer Zeitlin

Obstetrical, Perinatal and Pediatric Epidemiology Research Team Center for Epidemiology and Statistics







ERISTA

Perinatal Epidemiogist **Contract States Contract States** Obstetrical, Perinatal and Pediatric Epidemiology Research

Team, Paris

- How to improve the organization of care and quality of care for mothers and babies
- Cohort studies of very preterm births in Europe
 - MOSAIC, EPICE (SHIPS), RECAP Preterm
- The Euro-Peristat network, evaluating perinatal health using routine national population birth data

Outline

• Comparisons between countries to improve quality of care

• The Euro-Peristat project

- Recent data from Euro-Peristat: lessons for France
 - Stillbirth and neonatal mortality
 - Mode of delivery

Power of comparative research

Better is possible \rightarrow Generate ideas and motivation for change





"My team is having trouble thinking outside the box. We can't agree on the size of the box, what materials the box should be constructed from, a reasonable budget for the box, or our first choice of box vendors."



How can European comparisons contribute to better policy and clinical practice?

- Provide benchmarks to assess performance
- > Can address "big picture" questions
- Generate hypotheses for future research

Maternal and newborn health viewed through a European lens

- Similar access to medical knowledge, universal insurance coverage, maternity benefits
- European countries vary in the organization of obstetric and neonatal care and in their medical practices
- We can benefit from European success stories and learn from each other through working collaboratively

eurostat ****

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Table Customization show

							4	Demographic indicator			
TIME		+	GEO				•	lean age of women at ch	ldbirth		\sim
🖬 🕂 TIME 🔰	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
🕂 GEO 👻	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	
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uropean Union (27 countries	29.5	29.6	29.7	29.7	29.8	30.0 ^(b)	30.1 ^(b)	30.2 ^(b)	30.3 (ep)	30.4 (bep)	
uro area (19 countries)	29.9	30.0	30.1	30.2	30.3	30.4	30.6 ^(b)	30.6 ^(b)	30.7 ^(p)	30.8 (bep)	
uro area (18 countries)	30.0	30.1	30.1	30.2	30.3	30.5	30.6 ^(b)	30.6 ^(b)	30.8 ^(p)	30.9 (bep)	
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reland	31.2	31.2	31.3	31.3	31.4	31.4	31.5	31.5	31.6 ^(p)	31.6 ^(p)	
ireece	29.9	30.0	30.1	30.2	30.4	30.4	30.5	30.7	30.9	31.1	
pain	30.9	30.9	30.8	30.8	31.0	31.2	31.4	31.6	31.7	31.8	
rance	29.7	29.7	29.8	29.8	29.9	30.0	30.0	30.1	30.2	30.3 ^(b)	
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Health for All explorer European health information at your fingertips





The Euro-Peristat Project



- Aim : to monitor perinatal health in Europe based on valid and reliable **routinely collected indicators**
- Scope : Maternal, fetal and infant health associated with pregnancy, delivery and the postpartum period
- Common data collection protocol based on populationbased data sources (vital statistics, birth registers, hospital discharge abstracts and routine surveys)



EUROPEAN PERINATAL HEALTH REPORT Fore indicators to the health and cars of pregnant women and babies in Europe in 2015

• Representatives from 31 European countries





This project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 101018317

Indicators

o 10 Core

o 20 Recommended

• Four categories

• Fetal/neonatal, child health

Maternal health

- Population characteristics
- Health services

FETAL, NEONATAL, AND CHILD HEALTH

- C1: Fetal mortality rate by gestational age, birth weight, and plurality
- C2: Neonatal mortality rate by gestational age, birth weight, and plurality
- C3: Infant mortality rate by gestational age, birth weight, and plurality
- C4: Distribution of birth weight by vital status, gestational age, and plurality
- C5: Distribution of gestational age by vital status and plurality
- R1: Prevalence of selected congenital anomalies
- R2: Distribution of Apgar scores at 5 minutes
- R3: Fetal and neonatal deaths due to congenital anomalies
- R4: Prevalence of cerebral palsy

MATERNAL HEALTH

- C6: Maternal mortality ratio
- R5: Maternal mortality by cause of death
- R6: Incidence of severe maternal morbidity
- F7: Incidence of tears to the perineum

POPULATION CHARACTERISTICS/RISK FACTORS

- C7: Multiple birth rate by number of fetuses
- C8: Distribution of maternal age
- C9: Distribution of parity
- R8: Percentage of women who smoked during pregnancy
- R9: Distribution of mothers' educational level
- R10: Distribution of parents' occupational classification
- R11: Distribution of mothers' country of birth
- R12: Distribution of mothers' prepregnancy body mass index (BMI)

HEALTHCARE SERVICES

- C10: Mode of delivery by parity, plurality, presentation, previous caesarean section, and gestational age
- R13: Percentage of all pregnancies following treatment for subfertility
- R14: Distribution of timing of first antenatal visit
- R15: Distribution of births by mode of onset of labour
- R16: Distribution of place of birth by volume of deliveries
- R17: Percentage of very preterm babies delivered in units without a neonatal intensive care unit (NICU)
- R18: Episiotomy rate
- R19: Births without obstetric intervention
- R20: Percentage of infants breast fed at birth

Data Collection & Reports

• For the year 2000

• the European Journal of Obstetrics and Gynecology, Vol 111, Supp 1, 28 November 2003

• For the year 2004

• European Perinatal Health Report (2008)

• For the year 2010

• European Perinatal Health Report (2013)

• For the year 2015

European Perinatal Health Core Indicator Report (2018)

•For the years 2015 to 2019

• European Perinatal Health **Core** Indicator Report (2022)





EUROPEAN PERINATAL HEALTH REPORT





Core indicators of the nealth and care of pregnar women and babies in Europe from 2015 to 2019



Collection using excel tables

50 tables to create core indicators produced by each country from their data and transfered to Inserm

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Benefits

Better harmonisation of data because of common specifications using individual data

Individual data are not transferred, only aggregated data tables

Once the model is set up, it is easy to produce multiple tables, facilitating reporting on several years.

Once the model is set up, easy to update with new years of data

Disadvantages/Limits

Data on all indicatiors need to be in one source

Provides need to be authorised holders of the data

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o 20 Recommended

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- Fetal/neonatal, child health
- Maternal health
- Population characteristics
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- R18: Episiotomy rate
- R19: Births without obstetric intervention
- R20: Percentage of infants breast fed at birth

Methods

• 28 countries

Austria, Belgium, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, *Romania**, UK (MBRRACE, and UK nations constituents: England and Wales, Northern Ireland, Scotland, Wales)

- Births from 2015 to 2019
- >27 million total births,1.9M preterm births,15K stillbirths, 10K neonatal deaths





Stillbirth and neonatal mortality

C1: Stillbirth rate at ≥24 and ≥28C2: Neonatal mortality rate at ≥22 and ≥24



Stillbirth rate cc

- Definition The numbe
 ≥22 completed weeks
 1000 live and stillbirth
- International reporting because of variations in because of variations in because a population-based study of 19 European complete low gestational ages
- Without terminations of pregnancy differences in

Quantifying the burden of stillbirths before 28 weeks of completed gestational age in high-income countries: a population-based study of 19 European countries

Articles





Note: Total number of stillbirths and live births at or after 24 weeks of gestation in parentheses after country name.

-

Stillbirth rate per year in Europe



Average annual change in stillbirth rate Pooled annual RR: 0.99 (95% CI 0.98, 1.00)





An International Journal of Obstetrics and Gynaecology

DOI: 10.1111/1471-0528.14767 www.bjog.org **Epidemiology & Public health – From data to prevention**

How do late terminations of pregnancy affect comparisons of stillbirth rates in Europe? Analyses of aggregated routine data from the Euro-Peristat Project

B Blondel,^a M Cuttini,^b AD Hindori-Mohangoo,^{c,d} M Gissler,^e M Loghi,^f C Prunet,^a A Heino,^e L Smith,^g K van der Pal-de Bruin,^c A Macfarlane,^h J Zeitlin,^a the Euro-Peristat Scientific Committee[†] European Journal of Public Health, Vol. 32, No. 2, 200-206

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Clarity and consistency in stillbirth reporting in Europe: why is it so hard to get this right?

Mika Gissler (D¹, Mélanie Durox², Lucy Smith³, Béatrice Blondel¹, Lisa Broeders⁴, Ashna Hindori-Mohangoo^{5,6}, Karen Kearns⁷, Rumyana Kolarova⁸, Marzia Loghi⁹, Urelija Rodin¹⁰, Katarzyna Szamotulska¹¹, Petr Velebil¹², Guy Weber¹³, Oscar Zurriaga^{14,15,16}, Jennifer Zeitlin (D²; the Euro-Peristat Research Network*



Figure 1 Stillbirth rate per 1000 total births in Eurostat cause of death statistics and Euro-Peristat by country in 2015, distinguishing between stillbirths and TOP and sorted by rates of stillbirth using Euro-Peristat data (solid red bar).

Indications leading to termination of pregnancy between 22⁺⁰ and 31⁺⁶ weeks of gestational age in France: A population-based cohort study



Isabelle Monier^{a,b,*}, Nathalie Lelong^a, Pierre-Yves Ancel^a, Alexandra Benachi^b, Babak Khoshnood^a, Jennifer Zeitlin^a, Béatrice Blondel^a

^a Inserm UMR 1153, Obstetrical, Perinatal and Pediatric Epidemiology Research Team (Epopé), Center for Epidemiology and Statistics Sorbonne Paris Cité, DHU Risks in pregnancy, Paris Descartes University, Paris, France

^b Antoine Beclere Maternity Unit, Department of Obstetrics and Gynaecology, University Paris Sud, AP-HP, Paris, France

Table 2

ndications for TOP by gestation	al age.			
Gestational age (weeks)	Congenital anomalies n (%)	PPROM or anamnios ^a n (%)	Maternal conditions n (%)	Severe FGR n (%)
Total	1078 (85.8)	59 (4.4)	80 (6.1)	47 (3.7)
22-23	302 (78.4)	38 (9.9)	36 (9.3)	9 (2.3)
24-25	402 (86.3)	17 (3.6)	28 (6.0)	19 (4.1)
26-27	194 (86.3)	4 (1.7)	14 (6.4)	13 (5.6)
28-29	103 (94.5)	0	1 (0.9)	5 (4.6)
30-31	77 (97.5)	0	1 (1.3)	1 (1.3)

Exclusive and hierarchical classification. There were two TOP with no information on the indication of the termination.

^a We included in this group 4 TOP for anamnios with no PPROM.

Neonatal mortality at ≥22 and ≥24 weeks of gestation per 1000 live births

Median:1.4 IQR: 1.2-2.1 Range: 0.5-3.8

No data for France



Average annual change in neonatal mortality rate Pooled annual RR: 0.99 (95% CI 0.98, 1.00)



Observed Outcome



Mode of delivery

C10: Mode of delivery



Caesaran section rate Median: 26.9 IQR: 20.3-32.7 Range: 16.4-53.1

Instrumental delivery rate Median: 6.1 IQR: 3.1-9.8 Range: 1.4-13.8



Caesarean rate per year in Europe



Average annual change in the caesarean section rate Pooled annual RR: 1.00 (95% CI: 1.00, 1.01)



Brief comments and data on the interpretation of comparisons and big picture questions

Interpretation: Validity of comparisons without adjustments for clinical characterstics

Using Robson's Ten-Group Classification System for comparing caesarean section rates in Europe: an analysis of routine data from the Euro-Peristat study

J Zeitlin,^a (D) M Durox,^a A Macfarlane,^b S Alexander,^c G Heller,^d M Loghi,^e J Nijhuis,^f H Sól Ólafsdóttir,^{g,h} E Mierzejewska,ⁱ M Gissler,ⁱ B Blondel,^{j,k} the Euro-Peristat Network^k



■ Group 1: Nulliparous singleton cephalic, ≥37 weeks in spontaneous labour

■ Group 3: Multiparous (excluding previous CS) singleton cephalic, ≥37 weeks in spontaneous labour

■ Group S: Previous CS singleton cephalic, ≥37 weeks

Group 7: All multiparous singleton breeches (including previous CS)

Group 9: All singleton abnormal lies (including previous CS)

■ Group 2: Nulliparous singleton cephalic, ≥37 weeks, induced or CS before labour

Group 4: Multiparous (excluding previous CS) singleton cephalic, ≥37 weeks, induced or CS before labour

Group 6: All nulliparous singleton breeches

Group 8: All multiple births (including previous CS)

■ Group 10: All singleton cephalic, ≤36 weeks (including previous CS)

Figure 3. Contribution of the ten groups to the overall caesarean section (CS) rate by country ranked by overall caesarean section rate in 2015. Note: *at least one group has a denominator <100 women (see Tables S1-S18). provided, interpretation of the underlying reasons for these differences could not be made.¹ Recording data such as these without analysis of the clinical context and patient population does not allow for holistic patient care.

There is an increasing awareness of the benefits of a personalised approach to medicine. A comparison of such data in isolation belies this aim and may lead to the chasing of target caesarean section rates, to the detriment of maternal and fetal outcomes.

A major limitation of the study was the lack of context for the clinical data. An example can be seen in the analysis of preterm caesarean section rates, where conclusions on differences are drawn without the inclusion of the overall rate for preterm births, and therefore the proportion of these cases delivered by caesarean is not reported. Equally, women of low socio-economic status as well as women from immigrant populations are widely recognised to suffer from poor maternal and fetal outcomes.² With the stark socio-economic differences across the nations described, a holistic individualised approach accounting for the patient's characteristics is imperative for providing optimum care, rather than risking the patient falling victim to an accounting exercise. Aiming for a target cae-

Re: Using Robson's Ten-Group Classification System for comparing caesarean section rates in Europe: an analysis of routine data from the Euro-Peristat study

A Emms ¹, J Odendaal ² ³, S Quenby ² ³

Affiliations - collapse

Affiliations

- Department of Obstetrics and Gynaecology, University Hospitals Coventry and Warwickshire NHS Trust, Coventry, UK.
- 2 Division of Biomedical Sciences, Clinical Sciences Research Laboratories, Warwick Medical School, University of Warwick, Coventry, UK.
- ³ Tommy's National Centre for Miscarriage Research, University Hospitals Coventry & Warwickshire, Coventry, UK.

Caesarean section rates adjusted for maternal age

Comment > BJOG. 2021 Aug;128(9):1557-1558. doi: 10.1111/1471-0528.16747. Epub 2021 Jun 5.



Understanding differences: beyond benchmarking?

Tradeoff between instrumental deliveries and caesarean section ?

Wide differences in mode of delivery within Europe: risk-stratified analyses of aggregated routine data from the Euro-Peristat study

AJ Macfarlane,^a B Blondel,^b AD Mohangoo,^c M Cuttini,^d J Nijhuis,^e Z Novak,^f HS Ólafsdóttir,^g J Zeitlin,^b the Euro-Peristat Scientific Committee



Figure 1. Comparison between caesarean section and vaginal instrumental birth rates, 2010.

Association of neonatal mortality rate and CS rate



Association of stillbirth rate and CS rate



Cross-national comparisons

- Enriching and a powerful tool for eliciting interest
 - intrigued by cultural differences,
 - vested interest in own system being best
- Reveals potential for improvement
- Hypothesis generation
 - Factors affecting health variation
 - Effectiveness of health interventions and procedures or the organization of health service ?
- Identifying the factors which explain difference between countries is challenging and requires multiple research approaches (RCT, qualitative!)

European-level health information

- Work of the network shows value and feasiblity of European comparisons
- New protocol could allow annual reporting
- Also provides benchmark for individual countries should be able to produce the common data model
 - France = neonatal mortality, infant mortality, (parity), England = caesarean
- Important to expand data collection exercise to produce full list of Euro-Peristat indicators

Acknowledgements: Euro-Peristat Research Group

Jeannette Klimont, Alex Farr (Austria) Sophie Alexander, Marie Delnord, Judith Racapé, Gisèle Vandervelpen, Wei-Hong Zhang (**Belgium**) Rumyana Kolarova, Evelin Jordanova (**Bulgaria**) Jelena Dimnjakovic, Željka Draušnik, Urelija Rodin (**Croatia**) Theopisti Kyprianou, Vasos Scoutellas (**Cyprus**) Jitka Jirova, Petr Velebil (Czech Republic) Anne Vinkel Hansen, Laust Hvas Mortensen (Denmark) Liili Abuladze, Luule Sakkeus (Estonia) Mika Gissler, Anna Heino (Finland) Melissa Amyx, Béatrice Blondel, Anne Chantry, Catherine Deneux Tharaux, Mélanie Durox, Jeanne Fresson, Alice Hocquette, Marianne Philibert, Annick Vilain, Jennifer Zeitlin (France) Dimitra Bon, Guenther Heller, Björn Misselwitz (Germany) Aris Antsaklis (Greece) István Sziller (Hungary) Védís Helga Eiríksdóttir, Jóhanna Gunnarsdóttir, Helga Sól Ólafsdóttir (Iceland) Karen Kearns, Izabela Sikora (Ireland) Rosaria Boldrini, Marina Cuttini, Serena Donati, Marzia Loghi, Marilena Pappagallo (Italy) Janis Misins, Irisa Zile-Velika (Latvia) Rita Gaidelyte, Jelena Isakova (Lithuania) Audrey Billy, Aline Lecomte, Jessica Pastore, Guy Weber (Luxembourg), Miriam Gatt (Malta), Peter Achterberg, Lisa Broeders, Ashna Hindori-Mohangoo, Jan Nijhuis (Netherlands) Rupali Akerkar, Hilde Engjom, Kari Klungsoyr (Norway) Ewa Mierzejewska, Katarzyna Szamotulska (Poland) Henrique Barros, Carina Rodrigues (**Portugal**) Mihaela-Alexandra Budianu, Alexandra Cucu, Mihai Horga, Lucian Puscasiu, Petru Sandu, Vlad Tica (**Romania**) Ján Cáp (**Slovakia**) Miha Lucovnik, Ivan Verdenik (Slovenia) Adela Recio Alcaide, Mireia Jané, Maria José Vidal, Óscar Zurriaga (Spain) Karin Källén, Anastasia Nyman (Sweden) Tonia Rihs (Switzerland) Diane Anderson, Samantha Clarke, Hannah McConnell, Alison Macfarlane, Sinead Magill, Kirsten Monteath, Siobhán Morgan, Joanne Murphy, Mark Piper, Sonya Scott, Lucy Smith, Craig Thomas, Martin Williams (United Kingdom)

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Bulgaria

Latvia

Portugal







Romania





Cyprus

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Luxembourg







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Malta



Iceland

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Questions?

