Comparability of perinatal health indicators in Europe: Summary of findings from the European Perinatal Health Report

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Collaboration since 1999

• The EURO-PERISTAT project’s goal is to develop valid and reliable indicators that can be used for monitoring and evaluating perinatal health in the EU.

• Three EU-funded projects
  – Indicators for Monitoring and Evaluating Perinatal Health in Europe 2000-2003 (15 EU-members)
  – EUROPERISTAT II—A comprehensive health information and knowledge system for evaluating and monitoring perinatal health in Europe 2005-2008 (25 EU-members)
European Perinatal Health Report

• The most comprehensive report on perinatal health in Europe.
• Published in December 2008.
• Available at: www.europeperistat.com
Development of indicators

• Indicators were selected in multiphase DELPHI-process and further divided into four themes:
  – Fetal, neonatal, and child health indicators
  – Maternal health indicators
  – Indicators on population characteristics and risk factors
  – Indicators on health services

• … and three levels:
  – Core indicators
  – Recommended indicators
  – Indicators for further development
Core perinatal health indicators
+ their availability in 29 European countries and regions

• FETAL, NEONATAL, AND CHILD HEALTH
  – Fetal mortality rate by gestational age, birth weight, plurality (21-25)
  – Neonatal mortality rate by gestational age, birth weight, plurality (21-25)
  – Infant mortality rate by gestational age, birth weight, plurality (14-18)
  – Birth weight distribution by vital status, gestational age, plurality (24-26)
  – Gestational age distribution by vital status, plurality (24-25)

• MATERNAL HEALTH
  – Maternal mortality ratio by age, mode of delivery (6-25)

• POPULATION CHARACTERISTICS/RISK FACTORS
  – Multiple birth rate by number of fetuses (28)
  – Distribution of maternal age (27)
  – Distribution of parity (24)

• HEALTH CARE SERVICES
  – Mode of delivery by parity, plurality, presentation, previous caesarean section (11-15)
Perinatal health monitoring systems consist of different parts

- **A Register-based data sources**
  1. Civil registration based on birth and death certificates, including causes-of-death certification
  2. Medical birth registers and perinatal databases
  3. Hospital discharge registration systems
  4. Other registers

- **B Survey data**
  1. Perinatal surveys
  2. Confidential enquiries and audits
  3. Other routine surveys

- **C Aggregated data collections**
  1. Perinatal surveys
  2. Confidential enquiries and audits
  3. Other routine surveys
Problem 1: Registration criteria

- Registration criteria varies between countries and even within country
  - Live births: all / 22 weeks / 500 grams
  - Stillbirths: 12 / 16 / 22 / 24 / 25+5/7 / 28 weeks 500 / 1000 grams
  - Are late pregnancy terminations registered as stillbirths or not?

- The WHO recommendation (International comparisons for children weighing 1000 grams or more) is out-of-date for OECD.
Problem 2: Coverage

• Coverage in population registers varies:
  – citizens and permanent residents
  – non-residents
    • immigrants, refugees and asylum seekers and
    • visitors
    • women from other countries seeking health care
  – citizens’ births in other countries

• Hospital-based data collection systems may exclude
  – births outside hospitals
  – births without an overnight stay
  – private institutions
Problem 3: Registration unit and period

• Registration unit varies by data:
  – women giving birth, deliveries, total births, live births, singletons etc.

• Mortality can be calculated in two ways:
  – by birth cohort or by death cohort

• An extreme example of a variable with seven different definitions is maternal smoking:
  – before pregnancy, at the start of pregnancy, during the first trimester, after first trimester, during the third trimester, at delivery and throughout the entire pregnancy
Problem 4: Denominators and numerators

- Discrepancies and inaccuracies were found, if the denominators and numerators came from different datasets without any linkage
  - Mortality-rates for very premature children approaching zero.
  - Mortality rates exceeding 1000 per thousand.
Problem 5: Missing data

- Information systems vary in the ways in which they handle missing data.
  - Ideally, 'not known' should be explicitly given as a separate category, but this is not always the case.
  - A tick box may be interpreted as a positive answer 'yes', but no distinction is made between 'no' and 'missing' if the box is not ticked.
  - Where data were stated to be missing in our data exercise, cases with missing data were excluded from calculations of rates and percentages in order to minimise bias.
Problem 6: Random variation

• The basic unit in our data collection was country.
  – France, Germany, Italy and the United Kingdom: more than half a million births per year each.
  – Smallest countries with 4 000 – 8 000 births per year: Malta, Luxembourg, and Cyprus. Also Estonia and Slovenia as well as Brussels in Belgium have only between 14 000 – 18 000 births per year.
  – The number of births in the perinatal surveys are usually smaller than 20 000.

• Data for a single year did not contain a sufficient number of events to enable the frequency of rare events or rare outcomes.
  – Collection of data for more than one year necessary, e.g. for maternal mortality.
  – Confidence intervals can be recommended to show the statistical variability in the estimates in relation to sample sizes.
Conclusions

• Perinatal health monitoring system needs improvements in all countries.
• Data protection issues may affect data collection – data on stillbirths is not collected in France any longer.
• The harmonisation of stillbirth and perinatal mortality statistics is needed.
• A new classification is required for comparing causes of deaths in perinatal and infant period.
• How perinatal health surveillance is done EU in the future remains unclear: – European Perinatal Health Monitoring Centre?
Core perinatal health indicators: OECD

- FETAL, NEONATAL, AND CHILD HEALTH
  - Fetal mortality rate by gestational age, birth weight, plurality
  - Neonatal mortality rate by gestational age, birth weight, plurality
  - Infant mortality rate by gestational age, birth weight, plurality
  - Birth weight distribution by vital status, gestational age, plurality → low birth weight among live births
  - Gestational age distribution by vital status, plurality

- MATERNAL HEALTH
  - Maternal mortality ratio by age, mode of delivery

- POPULATION CHARACTERISTICS/RISK FACTORS
  - Multiple birth rate by number of fetuses
  - Distribution of maternal age
  - Distribution of parity

- HEALTH CARE SERVICES
  - Mode of delivery by parity, plurality, presentation, previous caesarean section → caesarean section rates per 1000 live births
Other perinatal health indicators: OECD

• Average length of stay
  – Medical abortion O04
  – Other pregnancy with abortive outcome O00-03, O05-08
  – Complications of pregnancy predominantly in the antenatal period O10-O48
  – Complications of pregnancy predominantly during labour + delivery O60-O75
  – Single spontaneous delivery O80
  – Other delivery O81-O84
  – Complications predominantly related to the puerperium O85-O92
  – Other obstetric conditions O94, O95-O99

• Patient safety indicators (Health Care Quality Indicators)
  – Obstetric trauma vaginal delivery with instrument
  – Obstetric trauma vaginal delivery without instrument
Thank you!