



EXECUTIVE SUMMARY

A HEALTHY START: THE HEALTH AND CARE OF PREGNANT WOMEN AND BABIES IN EUROPE IN 2010

I. MONITORING PERINATAL HEALTH IN EUROPE

Healthy mothers and children are building blocks for a strong future in Europe. While infant and maternal mortality continue to decline, the burden of mortality and morbidity in the perinatal period — pregnancy, childbirth, and the postpartum — remains a major concern. This is because of the high number of births per year (over 5 million in Europe), the youth of the population harmed by adverse perinatal events (babies and women of childbearing age), and the long-term consequences of disabling complications of pregnancy such as very preterm birth or severe hypoxia.

The principal factors behind perinatal mortality and morbidity include very preterm birth, fetal growth restriction, and congenital anomalies. Babies born preterm and with low birth weight are more likely to die and to have long-term neurological and developmental disorders than those born at term. The incidence of these complications has increased in many countries, reflecting limited achievements in preventing high risk situations, compared with the medical advances that have reduced mortality for these infants. Stillbirths have declined less rapidly than neonatal deaths and, in many cases, their causes remain unknown. Women continue to die during childbirth, and substandard care is associated with a significant proportion of these deaths. As they grow up, babies born with major congenital anomalies or very preterm and with low birth weight may have important medical, social, and educational needs. These burdens fall disproportionately on socially disadvantaged women and babies and contribute to lifelong health inequalities.

Research on the early origins of adult diseases underscores the vital importance of the perinatal period for future health. Pregnancy complications which cause short-term morbidity — such as preterm birth and fetal growth restriction — are also associated with the development of chronic illnesses such as hypertension and metabolic disease across the life course. Further, risk factors for poor perinatal outcome — smoking, obesity, and alcohol use during pregnancy — continue to exert an effect through the child's increased susceptibility to asthma, obesity, and developmental delays.

Despite the risks faced by women and children during pregnancy and childbirth, pregnancy is not an illness. Achieving optimal perinatal health thus involves a balance between intervening to manage and prevent complications, while minimising interventions that have negative side effects on health and induce anxiety among pregnant women and their families. Unnecessary medical interventions also contribute to the costs of providing health care without achieving gains in health.

The EURO-PERISTAT project aims to provide health professionals, health planners, and users of the healthcare systems with comparable data about the health and care of pregnant women and their babies in Europe. It uses routinely collected data, thus adding value to the resources used to generate them and providing opportunities for sharing and use of information. While many countries collect routine data nationally about women and children, these data are not available in currently existing international databases. The first EURO-PERISTAT report, published with 2004



data in 2008, found wide differences in indicators of perinatal health and care between the countries in Europe. Documenting this variation is important because it shows that gains are possible in most countries, provides information about alternative options for care provision, and raises important questions about the effectiveness of national healthcare policies and the use of evidence-based care.

The data in this report can be used as a point of comparison for individual countries. For those indicators for which reliable data exist, countries can benchmark performance in providing effective health services and promoting the health of mothers and their newborn babies. Another aim is to reveal the strengths and weaknesses of perinatal health information systems and to encourage countries to invest in the resources needed to improve the completeness and quality of the data necessary for evidence-based public policy.

II. THE EURO-PERISTAT PROJECT

The project's goal has been to develop valid and reliable indicators that can be used for monitoring and evaluating perinatal health in the EU. The project began in 1999 as part of the EU's Health Monitoring Programme and has enlisted the assistance of perinatal health professionals (clinicians, epidemiologists, and statisticians) from EU member states and Iceland, Norway, and Switzerland as well as other networks, notably SCPE (a network of European cerebral palsy registries), ROAM (Reproductive Outcomes and Migration Collaboration), and EUROCAT (a network of European congenital anomaly registries), to develop its recommended indicator list. Our indicator list was developed by a series of successive Delphi consensus processes with members of our network as well as external advisors.

Twenty-nine countries currently participate in EURO-PERISTAT, including all current EU member states (except Bulgaria) and Iceland, Norway, and Switzerland. Romania, Switzerland, and Iceland have joined the project since our previous report. One person from each country is a representative on the Scientific Committee, but many countries have constituted teams comprising experts in the field of perinatal health surveillance (please see www.europeristat.com/our-network/country-teams.html, for a full list of participants).

The current EURO-PERISTAT indicator list includes 10 core and 20 recommended indicators, grouped into 4 themes: (i) fetal, neonatal, and child health, (ii) maternal health, (iii) population characteristics and risk factors, and (iv) health services. Core indicators are those that are essential to monitoring perinatal health, while recommended indicators are considered desirable for a more complete picture of perinatal health across European countries.

EURO-PERISTAT aims to compile population-based data at a national level from routine sources (ie, administrative or health registers, hospital discharge reporting systems, or routine surveys). If national level data are not available, population-based data for regions or constituent countries are collected. In defining our indicators, EURO-PERISTAT has sought to reduce the differences in indicators that are attributable to differences in data collection systems and definitions. We have accomplished this by selecting definitions most likely to be feasible and by carefully designing the data collection instrument. Country participants are actively engaged in checking and interpreting the data.

Collaborations

Two European networks contributed to the report — SCPE (Surveillance of Cerebral Palsy in Europe) and EUROCAT (European Surveillance of Congenital Anomalies). The objectives, scope, and methods of both of these networks are described in Chapter 8. SCPE provided information about the indicator on cerebral palsy. This essential indicator of the longer term consequences of perinatal events relies on networks that register all cases of cerebral palsy within a geographic area. EUROCAT, a collaborative network of population-based registries for the epidemiologic surveillance of congenital anomalies in Europe, provided data on their prevalence. The EUROCAT network has carried out the work of harmonising definitions across Europe and compiling data from registries in European countries. Annual reports on these data are made available on their website.

Scope and Format of this report

In order to provide timely data, EURO-PERISTAT made a decision to publish its results from 2010 in 2 stages. This report constitutes the first stage and provides key data on our indicators in 2010 and trends since 2004. The second stage, the release of the full set of EURO-PERISTAT tables, will take place after the summer of 2013 to give us more time to verify the complete set of data for each indicator and to analyse our indicators by subgroups. Some additional indicators will be issued in this second step (prevalence of selected congenital anomalies, parents' occupational classification, and birth without obstetric intervention). Ongoing work about social inequalities in perinatal health outcomes will also be released then.

We use the same format as in our first report; each indicator is presented separately and includes the justification for selecting the indicator, the methods for collecting and interpreting it, availability of data, results, and a summary of key points. Countries are not ranked for the presentation of data about indicators in 2010. The EURO-PERISTAT project avoids a league-table approach to international comparisons intended solely to identify the best and worst performers. There are many reasons that indicators vary between countries, and we aim to stress this point in the way the data are presented. Countries without data are included in all figures and tables presenting 2010 data. One of the goals of this report is not only to describe and analyse existing data, but also to point out the gaps in perinatal health information systems. This is another reason that we have not ranked countries.

III. HIGHLIGHTS OF HEALTH AND HEALTH CARE IN EUROPE IN 2010

HEALTH OUTCOMES

Fetal, neonatal, and infant mortality rates vary widely between the countries of Europe.

Fetal mortality rates at or after 28 weeks of gestation ranged from lows under 2.0 per 1000 live births and stillbirths in the Czech Republic and Iceland to 4.0 or more per 1000 in France, Latvia, the region of Brussels in Belgium, and Romania. The countries from the United Kingdom also had higher fetal mortality rates.

Neonatal mortality rates ranged from 1.2 per 1000 live births in Iceland to 4.5 in Malta and 5.5 in Romania. After excluding births and deaths before 24 weeks of gestation, these rates fell, ranging from 0.8 per 1000 live births in Iceland to 4.3 in Romania. Infant mortality rates ranged from 2.3 per 1000 live births in Iceland and Finland to 5.5 in Malta, 5.7 in Latvia, and 9.8 in Romania. Countries where terminations of pregnancy are not legal or access is very restricted may have



higher fetal, neonatal, and infant mortality rates due to deaths attributed to lethal congenital anomalies.

Europe experienced across-the-board declines in fetal, neonatal, and infant mortality, although rates of change differed.

Most countries contributing data to EURO-PERISTAT in 2004 and 2010 experienced declines in their fetal, neonatal, and infant mortality rates. For fetal mortality, the decreases (on average 19%; range: 0-38%) tended to be more pronounced for western European countries with higher mortality rates in 2004 (Denmark, Italy, and the Netherlands). Some countries with low mortality rates in 2004, such as the Czech Republic, achieved significant continued improvements in outcomes. Decreases in neonatal mortality averaged 24% (range: 9% to 50%), and infant mortality fell 19% (range: 6%-40%). The largest declines were in 3 Baltic countries: Estonia, Latvia, and Lithuania. Decreases were again most pronounced for countries with higher mortality rates in 2004, although some countries with lower mortality in 2004 also showed significant continued improvements (Slovenia, Finland, and Austria, for example). Neonatal and infant mortality were low (under 2 and 3 per 1000 live births for neonatal and infant mortality, respectively) in some European countries.

Preterm babies born before 28 weeks of gestational age constitute over one-third of all deaths, but data are not comparable between countries.

About one-third of all fetal deaths and 40% of all neonatal deaths were of babies born before 28 weeks of gestational age. Unfortunately, between-country differences in legislation governing registration of births and deaths and misclassification of stillbirths and neonatal deaths make it difficult to compare mortality at these early gestations. EURO-PERISTAT presents fetal mortality rates at 28 weeks of gestation and over and neonatal mortality at 24 weeks of gestation and over because our analyses have shown that these cutoffs provide more comparable data and thus allow more useful comparisons. However, given the large proportion of deaths before 28 weeks, it is essential to improve information systems in Europe by developing common guidelines for recording these births and deaths.

Another related issue is the variation in notification procedures for terminations of pregnancy at 22 weeks or later. These are included in fetal mortality rates in some but not all countries, and only some countries which include them can distinguish terminations from spontaneous deaths. Six percent of all fetal deaths were terminations in Scotland versus 40-50% in France. Terminations were 13% of fetal deaths in Hungary, 15% in Switzerland, and 19% in Italy.

The percentage of low birthweight babies is geographically patterned, partially reflecting differences in population birth weight, and was stable over time in most countries.

The percentage of live births with a birth weight under 2500 g varied from under 4 to over 9% in Europe. Countries from northern Europe had the lowest percentages of low birth weight (Denmark, Estonia, Ireland, Latvia, Lithuania, Finland, Sweden, Iceland, and Norway). The proportion of VLBW babies ranged from 0.6 (Iceland) to 1.9 (the region of Brussels in Belgium). Proportions of low birth weight remained similar in the 2 study periods. However, the rate of babies with low birth weight declined in some countries (France, Scotland, England and Wales, Malta, and Poland) whereas it increased in others (Luxembourg, Spain, Brussels, the Czech Republic, Slovakia, and Portugal).

Preterm birth rates were similar in 2004 and 2010 in many countries; differences in rates and trends raise questions about possible preventive strategies.

The preterm birth rate for live births varied in 2010 from about 5 to 10% in Europe. We observed relatively lower preterm birth rates (below 6.5%) in Iceland, Lithuania, Finland, Estonia, Ireland, Latvia, Sweden, Norway, and Denmark, and higher rates (above 8.5%) in Cyprus (10.4%) and Hungary (8.9%). Rates were around 8% in Austria, Germany, Romania, the Czech Republic, Luxembourg, Portugal, the Netherlands, and all regions of Belgium. In comparison to 2004, proportions of preterm live births were similar for many countries. However, they increased over this period in Luxembourg, the Brussels region, the Czech Republic, Slovakia, Portugal, Northern Ireland, and Italy, while they declined in Norway, Scotland, Germany, England and Wales, Denmark, and Sweden. The fact that rates are stable or declining in many countries goes against widely held beliefs that preterm birth rates are rising and raises questions about policies and practices associated with divergent trends between countries.

Maternal deaths are rare in Europe, but under-reporting is widespread.

Generally speaking the maternal mortality ratio in Europe is low, due to both the very low level of fertility (fewer than 2 children per woman, as shown in Chapter 2) and the high levels of care. The range in Europe is from lows under 3 per 100 000 (in Estonia, Italy, Austria, and Poland) to highs over 10 per 100 000 live births (Latvia, Hungary, Slovenia, Slovakia, and Romania). There is good evidence that maternal deaths derived from routine statistical systems are under-reported, and this must be suspected particularly where ratios are very low. Confidential enquiries and record linkage are recommended to obtain complete data on pregnancy-related deaths and also to make it possible to understand how these deaths happened and to make recommendations to prevent the recurrence of those that could have been prevented. When confidential enquiries are undertaken, as in France, the Netherlands, and the UK, almost half the maternal deaths are associated with substandard care. This should not occur in high-income countries.

Because mortality is rare, EURO-PERISTAT also collects data on severe maternal morbidity, which occurs in approximately 1% of all deliveries. However, the comparability of these indicators, when derived from hospital discharge systems and other routine sources, is still limited. Ongoing work is focused on assessing the quality and completeness of the data about diagnoses and procedures in routine hospital discharge systems so that we can propose better definitions.

An estimated 140 000 fetuses and babies had a major congenital anomaly in the EU-27 countries in 2010.

Data from EUROCAT were used to derive the overall prevalence of major congenital anomalies diagnosed during pregnancy, at birth, or in early infancy — 26 per 1000 births in 2010. This prevalence has shown a recent very shallow decrease, and there is a need to improve primary prevention policies to reduce environmental risk factors in the pre- and periconceptual period. Four fifths of cases were live births, the vast majority of whom survived the neonatal period and may have special medical, educational, or social needs. The largest group of congenital anomalies is congenital heart disease. An overall 0.81 perinatal deaths per 1000 births in 2010 were associated with congenital anomalies according to data from 13 EUROCAT registries. The rate of terminations of pregnancy for fetal anomaly (TOPFA) varies widely between countries from none (Ireland and Malta) to 10.5 per 1000 births (Paris, France), reflecting differences in prenatal screening policies and uptake and in abortion laws, practices, and cultural attitudes. The rate of live births with certain anomalies, such as spina bifida and Down syndrome, in a given country is inversely related to its rate of terminations of pregnancy for fetal anomaly.



Cerebral palsy registers in collaboration with their clinical networks make it possible to assess a group of rare conditions that develop in the perinatal period and lead to lifelong activity limitations and participation restrictions.

The increased survival of newborn babies in all birthweight and gestational-age groups correlates with a decrease in the prevalence of certain subtypes of cerebral palsies. For example, the proportion of babies born between 1980 and 1998 with a birth weight over 2500 g who developed bilateral spastic cerebral palsy decreased from 58 to 33 per 100 000 live births. In the same 2 decades, the proportion of cerebral palsy in the babies born at a gestational age between 32-36 weeks decreased by 3% annually. These downward trends coincided with a decrease of one third in the proportion of bilateral spastic cerebral palsy in babies with a birth weight between 1000 and 1499 g.

POPULATION RISK FACTORS

Age at childbirth has increased in Europe.

The age at which women bear children in Europe varies widely, and this has an impact on the health of mothers and babies. Both early and late childbearing are associated with higher than average rates of preterm birth, growth restriction, perinatal mortality, and congenital anomalies. Overall, teenage pregnancies are uncommon in Europe with a median of 2.7% of births to mothers aged younger than 20 years. However, some countries of eastern Europe have higher proportions. The UK also stands out from its neighbours with a high proportion of very young mothers (over 5%). The situation in Europe contrasts with the United States where 9.2% of births are to mothers under 20 (CDC: Births: final data for 2010: www.cdc.gov/nchs/data/nvsr/nvsr61/nvsr61_01.pdf).

At the other end of the age spectrum, the percentage of older mothers, defined as women giving birth at 35 years or older, ranged from 10.9% in Romania to 34.7% in Italy. The proportion of women bearing children later in life varies substantially, but in 40% of countries or regions, at least 20% of births were to women aged 35 years or more, and the proportion of births in this age group increased substantially in almost every country. Only Finland experienced a decrease between 2004 and 2010 in this proportion. The increase was relatively small in the United Kingdom (under 1 percentage point), and substantially larger (over 5 percentage points) in Italy, Estonia, Hungary, the Czech Republic, and Spain. Encouraging earlier childbearing may require policies to support young parents and working mothers, as well as informing the public about possible consequences of having children at later ages.

More than 1 woman in 10 smoked during pregnancy in many countries despite declines between 2004 and 2010.

Maternal smoking during pregnancy may be considered the most important preventable factor associated with adverse pregnancy outcomes. It is a well-established risk factor for adverse perinatal outcomes. It can impair normal fetal growth and development and thus increase the risk of low birth weight, preterm birth, intrauterine growth restriction, and some congenital anomalies. Smoking cessation is one of the most effective interventions for improving mothers' and children's health and thus serves as an indicator of the quality of antenatal preventive healthcare services. Smoking during pregnancy or in the last trimester varied from under 5% in Lithuania and Sweden to 14% in Catalonia in Spain, 15% in Northern Ireland, 16% in Wales, 17% in France, and 19% in Scotland. Countries that had data points for 2004 and 2010 reported slightly lower proportions of smokers in the last trimester in 2010 — by about 1-3%. In France, the Netherlands, and the UK, the decrease was more pronounced. Some countries were not able

to provide data on smoking Belgium, Ireland, Greece, Italy, Hungary, Austria, Portugal, Romania, Slovakia, Iceland, and Switzerland. In many countries, the quality of data needs to be improved, and this indicator is likely underestimated. Given the adverse effects of smoking on fetal and infant health and since pregnancy care is considered an ideal setting for intervention, having high quality and comparable information on smoking before and during pregnancy should be a priority.

Monitoring social status and pregnancy outcomes is a challenge in Europe.

Social disadvantage remains a major determinant of poor perinatal outcome and requires effective action. Many perinatal health indicators, including maternal mortality, preterm birth, congenital anomalies, and duration of breast feeding, are inversely related to variables that are proxy measures of social disadvantage, such as the mother's level of education and the parents' occupational classification. The distribution of mothers' levels of education varies widely between the European countries that provided data for this indicator; for instance, between 22 and 61% are reported to have some postsecondary education. Many countries cannot provide data on mothers' educational levels, which was one of the reasons that EURO-PERISTAT added a second indicator of social status, parents' occupational classification, to its list of indicators. Further research will be required into the possibility of effectively comparing measures of education level and occupational class as it seems unlikely that the countries that do not record mothers' educational levels will do so in the near future. However, even if educational and occupational levels are not comparable, collecting these data — either or both, according to availability — will make it possible to compare fetal and neonatal mortality outcomes between these groups within countries and call attention to the differences related to social factors. EURO-PERISTAT is currently analysing these data for 2010, and results will be issued shortly.

Foreign-born women constitute a large proportion of pregnant women in many countries.

International migration to Europe may be accompanied by health disparities in perinatal outcomes between migrants and women born in receiving countries and also between groups of migrants. The percentage of foreign-born mothers ranged from lows of 3% (the Czech Republic) to over 60% (in Luxembourg and the Brussels region of Belgium), and the proportion of women with a foreign nationality from less than 1% in Iceland and Poland to 30% in Latvia. The proportions of foreign-born or foreign-nationality mothers in most countries in western Europe exceeded 20%. Data are available in many countries to permit an analysis of health outcomes by mothers' countries or regions of birth. This will be one of the themes pursued in the future by the EURO-PERISTAT network.

More than 1 in 10 pregnant women are obese in countries with data, but many countries do not monitor this indicator.

Maternal weight before and during pregnancy can affect the course of pregnancy, its outcome, and the offspring's lifelong health, yet 18 countries have no available national data on the body mass index of pregnant women. Both underweight and overweight women experience higher rates of adverse outcomes. In countries that could provide data, from 2.5 to 8.7% of delivering mothers were underweight; the highest proportions were in Poland (8.7%), France (8.3%), and Wallonia (7.1%), and the lowest in Sweden (2.5%), Scotland (2.6%), Finland (3.6%), and Germany (3.6%). Obese women accounted for 7.1 (Poland) to 20.7% (Scotland) of all pregnant women. In most countries, more than 10% of childbearing women are obese. This indicator should be monitored in more European countries in view of the possible changes in proportions of underweight, overweight, and obese women in the upcoming generations of women of childbearing age and the impact of these changes on perinatal health outcomes and long-term health.



HEALTH SERVICES AND CARE

Artificial reproductive techniques (ART) are used in up to 5 to 6% of all deliveries; differences in multiple birth rates reflect, in part, the impact of these practices.

Up to 5 to 6% of births in some countries may occur after use of some form of ART, although the use of the less invasive procedures is under-reported in most data systems or not reported at all. Births after in vitro fertilisation (IVF) account for 2 to 4% of all births.

One of the consequences of ART is an increase in multiple pregnancies, unless only one embryo is transferred. Babies from multiple pregnancies have a 10-fold risk of preterm birth and are 4 times more likely to die in the neonatal period. Multiples have higher risks of congenital anomalies and growth restriction, and their mothers higher risks of morbidity and mortality. There are wide differences in multiple birth rates in Europe — from lows of 9 to 13 per 1000 women with live births or stillbirths in Romania, Latvia, Lithuania, and Poland to more than 20 per 1000 in Brussels, the Czech Republic, Denmark, Cyprus, Spain, and Malta. These differences reflect the age distribution of the European population: the incidence of multiple pregnancy is higher for older mothers, separately from their higher prevalence of subfertility and higher utilisation rate of ART. Twin birth rates decreased in Denmark, the Netherlands, and Norway, which had the highest twinning rates in 2004. The twinning rate increased slightly in Finland, Sweden, and Northern Ireland, and increased further in the other countries. Many countries are implementing policies to prevent multiple pregnancies in assisted conception, and the decrease in twin rates observed in some countries may be the result of these policies.

Most women begin antenatal care in the first trimester, but differences in the organisation of health systems make it difficult to compare data about late care between countries.

The vast majority of women begin antenatal care during the first trimester; care begins in the second or third trimester for 2% (Poland) to 33% (Malta) of all women. Half the countries reported between 4 and 7% of women with care starting after the first trimester (10 of 19). The percentage of women with no antenatal care at all ranges from 0 to 2.8%. Some of the variation in late care is related to differences in how timing of antenatal care is recorded. In systems where the majority of antenatal care takes place outside hospital, it may be the first visit to hospital rather than the first contact with a health care provider during pregnancy which is recorded. Nonetheless, given the importance of starting care early in pregnancy, this variation raises questions about whether the most vulnerable women in each country have access to appropriate health care. Using this indicator in conjunction with mothers' educational level and country of birth could provide a useful basis for comparing the ability of healthcare systems to provide access to care for all pregnant women.

Congenital anomaly screening differs across Europe.

In Europe some congenital anomalies are very commonly diagnosed through antenatal screening programmes. For some anomalies, antenatal diagnosis leads to better preparation of families and health services for an affected baby and can improve the care provided. For other anomalies, antenatal diagnosis is commonly followed by the option of termination of pregnancy for fetal anomaly. Data from EUROCAT illustrate wide-ranging differences in antenatal screening policies and how their implementation can affect differences between European countries in their antenatal diagnosis rates.

Variations in caesarean section rates testify to differences in approaches to obstetric care.

The variation in caesarean section rates in Europe reflects the differences in approaches to childbirth in Europe. The risk factors for caesarean section — such as maternal age or parity — are not sufficiently marked to explain the wide disparities. Countries with high proportions of older mothers have both high (Italy and Portugal) and lower (the Netherlands and Finland) rates. Cyprus had the highest overall caesarean rate, at 52.2%, followed by Italy with 38.0%, Romania with 36.9%, and Portugal with 36.3%. Germany, Luxembourg, Malta, Poland, and Switzerland also had rates of 30% or higher. Everywhere else, rates were below 30%. The Netherlands, Slovenia, Finland, Sweden, Iceland, and Norway had rates below 20%.

Caesarean rates have risen almost everywhere, especially in eastern Europe.

Apart from slight reductions in Finland and Sweden, caesarean rates rose everywhere between 2004 and 2010. Increases occurred among countries with both high and low levels of caesarean deliveries in 2004. Increases ranged from under 0.2% in Italy to over 7% in Lithuania, Slovakia, and Poland. In general, increases were most marked in the countries of central and eastern Europe and in Germany and Austria.

Variations in obstetric practices raise questions about how scientific evidence is integrated into clinical decisions.

In addition to the wide variations reported above for caesarean deliveries, other obstetric practices differ in Europe. Rates of instrumental vaginal delivery exceeded 10% in Ireland, the Flanders region of Belgium, the Czech Republic, Spain, France, Luxembourg, the Netherlands, Portugal, the 4 countries of the United Kingdom, and Switzerland and accounted for fewer than 2% of deliveries in the Czech Republic, Latvia, Lithuania, Poland, and Romania, and at least 2% but fewer than 5% in Estonia, Italy, Cyprus, and Slovenia. Episiotomy rates ranged from 5% to 70% of vaginal deliveries. They were around 70% in Cyprus, Poland, Portugal, and Romania, 43-58% in Wallonia and Flanders in Belgium and in Spain, 16-36% in Wales, Scotland, Finland, Norway, Estonia, France, Switzerland, Germany, Malta, Slovenia, Luxembourg, the Brussels region in Belgium, Latvia, and England, and 5-7% in Denmark, Sweden, and Iceland. Episiotomy rates have fallen or stayed the same in many countries with data from 2004, with the exception of England, Scotland, and the Netherlands, where they rose.

Multiple models of obstetric and neonatal care provision exist in Europe; understanding their strengths and weaknesses could help to improve healthcare systems in all countries.

The organisation of delivery and postpartum services is an important domain for public policy. Most pregnant women have normal pregnancies requiring little or no obstetric intervention. However, when risks arise, access to highly specialised care can be essential for both mother and baby. Organising access to risk-appropriate health care for mothers and babies is thus a central pillar of a successful perinatal health system and one in which government policy and regulation play an important role. Data from this report find wide differences in the ways that European countries have addressed this challenge.

Some countries concentrate care in large units, while others provide care in small ones. Overall, few births occurred in maternity units with fewer than 500 births in 2010, but this varied considerably by country, as did the care provided in small units. For example, in the UK and some Nordic countries, care in small units is provided by midwives for women with uncomplicated pregnancies. In contrast, in Cyprus, which has a very high caesarean section rate, 61.9% of births took place in units of this size, while in 8 countries, from 10 to 20% of births did. At the other end



of the size spectrum, more than a quarter of births in Denmark, Sweden, and England took place in units with more than 5000 births, while Slovenia, Latvia, Scotland, and Ireland had even larger proportions of births in units with more than 5000 births; in 14 countries or regions, more than a third of births took place in units with 3000 or more births.

In most European countries, less than 1% of births took place at home. In England, this figure was 2.5%, in Wales 3.7%, in Iceland 1.8%, and in Scotland 1.4%. In the Netherlands, where home births have been a usual option for women with uncomplicated pregnancies, 16.3% of all births occurred at home. This is, however, a substantial change from 2004, when this proportion exceeded 30%. Women in the Netherlands now also have the option of giving birth in a birth centre (a homelike setting) under care of a primary midwife; there are 26 birth centres in the country, and 11.4% of births occurred in them. Almost all birth centres are adjacent to or in hospitals. Similar facilities exist in some hospitals in the UK, but births in them cannot usually be identified separately.

The regionalisation of care for high-risk births is associated with better survival for very preterm infants. Many, but not all, countries in Europe have clearly designated levels of care that make it possible to assess whether high-risk babies are born in specialised maternity units with on-site neonatal intensive care. Most of these countries also have data on their place of birth. The proportion of very preterm babies born in the most specialised units varies widely. It would be useful to develop a common European classification for maternity and neonatal units to facilitate monitoring the care of these high-risk babies. Whether these classifications exist or not, it is important for countries to be able to monitor where these infants are born.

The percentage of babies breast fed at birth ranges from 54% to 99%.

Breast feeding provides benefits for babies including important nutritional advantages and improved resistance to infections. Success of breast feeding during the first 48 hours after birth depends on public health policies and healthcare practices during pregnancy and in the immediate postpartum. Data on breast feeding at birth are available from 19 countries or regions. More than 95% of babies received some breast milk at birth in the Czech Republic, Latvia, Portugal, and Slovenia. Rates were lowest in Ireland, Scotland, Cyprus, France, and Malta (54-69%). Data collection in every country and greater precision and consistency in defining the modes of breast feeding are necessary to assess the efficacy of national policies and to know to what extent the recommendations to promote it are achieved.

IV. NEXT STEPS IN PERINATAL HEALTH REPORTING IN EUROPE

This report demonstrates the feasibility and value of using statistical indicators to monitor perinatal health at a European level. Our results also illustrate, however, that continuing international collaboration is needed to improve the consistency of definitions and to prioritise the development of methods for collecting data for many perinatal health indicators. Many of the questions about mothers' and babies' health raised by this report will remain unanswered unless health information systems are improved and extended to record key data items.

Investments in national surveillance systems are needed; no country was able to provide all the data required to compile the full set of EURO-PERISTAT indicators, and availability of some key indicators was poor.

Even though the availability of indicators improved between 2004 and 2010, no country could

provide the full set of EURO-PERISTAT indicators. Indicators with limited availability include those needed to monitor prevention policies: smoking during pregnancy, maternal underweight and overweight, timing of antenatal care initiation, breast feeding, and measures of social status. Data on maternal health are also lacking. The quality of data for these indicators and use of different definitions in some countries also impedes comparisons between countries. A European-wide perinatal survey would be one way to get a good baseline for essential indicators on maternal risk factors and care and to develop better common definitions that could be integrated into routine systems.

Routine systems for ascertainment of very preterm births and maternal deaths require improvement.

Standardising the definition of stillbirths and enabling them to be distinguished from terminations of pregnancy is a priority for international comparisons, since the current guidelines are inadequate. Routine systems tend to under-report maternal mortality. Further work to enhance data about maternal deaths is essential, for example, by using data linkage and by creating specific systems to ascertain and analyse the causes of a wider range of pregnancy-related deaths.

Wider use of data linkage, building on methods already in use in Europe, would yield immediate gains for perinatal health monitoring in many countries.

Linking of data from two or more routine systems can extend the scope, coverage, and quality of perinatal data, as can be seen from the experience of the many countries which already link data either routinely or for specific projects. Both national and international efforts are necessary to remove the obstacles to combining data from statistical and healthcare organisations, such as difficulties of coordination between different administrations. Challenges can arise from European Data Protection legislation and differences between member states in how they choose to implement it. Data linkage and the associated need for data protection is an area where countries have a lot to learn from each other and can benefit from sharing experiences.

A sustainable European surveillance system requires an active network of clinicians, researchers, and statisticians from all countries.

The skills and motivation that underpin high quality health information are strong in Europe. That we are able, in this report, to provide comprehensive data from 29 countries in Europe on a large spectrum of indicators describing perinatal health testifies to the commitment of our network members to having comparable European data on mothers and children during pregnancy, childbirth, and the postpartum period. The efforts of our Scientific Committee members and data providers have been impressive; many of our indicators require additional data analysis beyond what is routinely produced nationally; our members have participated in multiple rounds of data checking and provided their opinions and insights into these data in several meetings. Furthermore, our Scientific Committee members have guided us through complex situations as national health information systems reorganise and institutions change. Maintaining and reinforcing the EURO-PERISTAT network is thus central to our strategy for achieving sustainable health reporting in Europe.



V. CONCLUSION

The EURO-PERISTAT network developed an action plan for sustainable perinatal health reporting in 2010 which endorsed the idea of producing a comprehensive European perinatal health report every 4 or 5 years. If this path is followed, the next report would cover data from 2014 or 2015 and be issued in 2017 or 2018.

Whether this aim is achievable depends mainly on the availability of political and financial support at both European and national levels. Currently, the future of health surveillance in Europe is uncertain. The new EU health programme Health for Growth 2014-2020 does not prioritise programmes to reinforce information systems and many health information projects, including the European Community Health Indicators Monitoring project (ECHIM), have been discontinued because of absence of funding. More generally, there is concern that the current health agenda — as set out in the new research programme Horizon 2020 — gives no encouragement or support to research on public health, health systems, or health policy.

Nonetheless, these issues are a priority in many countries and on the European level, as shown by our experience with the first *European Perinatal Health Report*. Data from this report were widely used by health providers, planners, policy makers, researchers, and users across Europe and beyond. The report was downloaded more than 8000 times from our website. More than 100 media articles reported its publication. Individual European countries increasingly rely on this reference list of indicators to evaluate their policy initiatives and benchmark their performance (see Chapter 2 for some examples).

Our indicators have been analysed by our team and others to gain insight into the factors that affect the health of women and children in Europe. The EURO-PERISTAT network has published 20 articles in peer-reviewed journals based on these data (see our website www.euro-peristat.com for a full list of articles). Others have also used the EURO-PERISTAT data — which are made available freely on our website — for research on perinatal health in their own countries. We expect that research on these new data from 2010 — which will allow exploration of the reasons for time trends in maternal and health system risk factors as well as health outcomes — will further highlight the value of having comparable data from the countries in Europe.

