

**EDITORIAL****PERINATAL HEALTH INDICATORS.  
DIFFERENCES BETWEEN THE INFORMATION RECORDED BY THE NATIONAL  
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The search for objective measures of population health status has been a public health tradition for the last two centuries. Initially, the description and analysis of the health status was focused on mortality and survival rates. Eventually, the need to consider other health status dimensions was recognized, changing from the individual-level characteristic of the most mainstream medicine, to addressing disease control having a wider vision of the concept of health and of population social determinants<sup>1</sup>.

The knowledge of health levels, its trends and the distribution of the sanitary situation of the population, as well as its determinants, makes for a scheme of priorities and the assignment of the resources to improve health policy. For this reason, the information for decision-making is focused on the evaluation of the health status and multiple biological, demographic, social and sanitary factors<sup>2</sup>.

Spain has a national system of health indicators that provides a periodic analysis of the

sanitary situation, giving information about the magnitude of a great variety of health problems and its time evolution. This allows managing its trend and geographic distribution<sup>2</sup>. There are different health indicators selected by National and Regional Ministries of Health (Key Indicators of the National Health System<sup>3</sup>) derived from the application of the program of the World Health Organization Health for All<sup>4</sup>. These indicators are considered a reflection of the current population health in a country, representing the whole sum of economic, educational, nutritional factors and of access to social protection networks<sup>5</sup>. The most commonly used are about morbidity and mortality. Maternal and child health indicators take a special place in addition to indicators about life expectancy, infectious diseases, vaccination, obesity and life habits<sup>2</sup>. Perinatal health group includes indicators that evaluate the most complete picture of the maternal health and perinatal standards concerning the prenatal attention, the childbirth and the maternal and neonatal morbi-mortality, among others.

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While neonatal mortality rate is commonly related to pregnant women attention quality and neonatal care, the factors that contribute to post-neonatal mortality have more to do with parental socioeconomic status. The birth weight emerges as the most significant and consistent indicator of survival in the first year of life. Thus, infants born at low birth weight (less than 2,500 grams or 5.5 pounds) and especially very low birth weight (less than 1,500 grams or 3.25 pounds) are more likely than infants of normal birth weight to die in the first year of life and to experience long-range physical and developmental health problems<sup>6</sup>.

The majority of the very low birth weight infants are born extremely preterm (<28 weeks of pregnancy), whereas low birth weight infants include a mix of different factors as moderate prematurity (32-37 weeks), intrauterine growth restriction, gestational hypertensive disorders, toxins exposure (tobacco smoke) and, importantly, the inadequate nutritional status and weight gain during pregnancy. Further, it seems that maternal obesity is associated with higher infant weight and lower prevalence of exclusive breastfeeding, all of them nutritional risk factors in the short and long term<sup>7</sup>.

The birth weight documentation in Spain started in 1980, currently through Statistical Bulletin of Childbirth, Births and Abortions<sup>2</sup>. The system of sanitary information of the National Health System<sup>8</sup> and its Statistical Site<sup>9</sup> offer public access to the information about trends in health status indicators in Spain and their magnitude in the context of the European Union<sup>10</sup>.

It is necessary to emphasize that the mean weight of the Spanish infants has dropped in the last twenty years<sup>2</sup>. Furthermore, the percentage of infants with a weight of 2.500 grams or more decreased in most of the countries of the European Union. In the same way, 8,1 % of the newborn in 2011 had a weight lower than 2.500 grams (2,9 % more than in 1990). Spain is the second-highest

low weight infant percentage country in Europe and its rate keeps rising. In fact, compared to 2004, Spain and Luxembourg have the highest number of low birth weight infants<sup>11</sup>. This upward trend is supposed to be defined by an increase of premature infants, since the majority presents low birth weight<sup>12</sup>. For this reason, it would be advisable to use relative weight indicators including both variables (weight and gestational age). This allows us to categorise infants in small, appropriate or large for gestational age. We need reliable strategies to standardize the clinical practice for the right statistic translation afterwards. The nutritional, socioeconomic and migratory characteristics define population health phenotype as dynamic and changeable. Its idiosyncrasy makes mandatory to know the number of infants considered as small for gestational age (SGA). This clinical condition could change according to the reference growth curve used and would be necessary to use accurate fetal and neonatal graphs adapted for our population. The correct identification of these infants since prenatal stage will provide a better assessment of short and long-term risks as well as an improvement of their outcome<sup>13</sup>.

Spanish Health Information System includes the Statistical Bulletin of Childbirths, processed by the National Statistical Institute (INE). This document collects data about maternal age and socioeconomic status as well as infant weight and gestational age at birth. Nevertheless, the comparison with other European countries official reports reveals the need to pay attention particularly in Spain to the indicators of birth weight and gestational age<sup>14</sup>. An indispensable requirement to carry out a proper vigilance of the perinatal and reproductive health it is to have effective and efficient database<sup>15</sup>.

The second European perinatal health report questioned the reliability of the information provided of the birth weight and gestational age, due to the high percentage

of absent information and an incoherent relation between the birth weight and gestational age<sup>1,15</sup>. This fact also is suggested in the study published by Rio et al. in the immigrant population of Catalonia<sup>16</sup>. According to this, there are few validation studies that impact to corroborate an improvement in the quality of the available information by this source, in spite of its broader use in Spain<sup>16</sup>.

In this respect, it is very interesting the study published in this magazine number<sup>17</sup>, in which the degree of conformity is evaluated between the information that the parents contribute to the Statistical Bulletin of Childbirths elaborated by the Spanish National Statistical Institute (INE) and the available information in the maternity hospital where the infant was born, regarding to certain indicators of perinatal health: birth weight and the gestational age. This study was performed with perinatal data of a population larger than 5,000 infants and introduces relative magnitudes, as new element, since the classification of these children in small, appropriate or large for gestational age, could be the best indicator of perinatal health as we remarked before<sup>13</sup>. The study concludes that the INE's data overestimates the prevalence of small for gestational age infants, due to missing data and misreported information. This would be strongly associated with parental socioeconomic characteristics, as concluded in other previous studies<sup>15,16</sup>. In the light of these results it could be advisable to monitor all the information contributed to the INE, particularly if parents come from certain risk and disadvantaged ethnic groups. It also would be necessary to evaluate the possibility of contributing them directly from the local maternity centres where the births take place, in order to unify the data as well as reducing the mismatching.

Current surveillance data about perinatal health are insufficient to manage the needs of the population in order to implement

healthcare strategies for mother and infants. It is necessary to introduce new perinatal health indicators and on the other hand we should homogenize and acquire external international data to improve quality and make the information reliable. There are some differences among European countries about conceptual definitions and the data collecting networks that make difficult to unify and clarify health indicators. The second European Perinatal Health Report (Euro-Peristat)<sup>15</sup>, published in May 2013, leads to a step forwards developing and monitoring a list of new recommended health indicators and integrating information into European statistical systems<sup>18</sup>. However, it is necessary to insist on an improvement of the data documentation to give official reports quality for population health research, particularly when comparing perinatal health indicator among different population groups. In the same way, it would be recommendable further investigations to manage quality on official data<sup>16</sup>.

## BIBLIOGRAPHY

1. Muñoz Bravo J, Maeso Martínez P, Belinchón Carmona M, Tamarit Cuadrado J. (2010). Indicadores de salud en personas con discapacidad intelectual. Informe final. Madrid: FEAPS. [Cited on January 15, 2015]. Available in [http://www.feaps.org/biblioteca/documentos/indicadores\\_salud.pdf](http://www.feaps.org/biblioteca/documentos/indicadores_salud.pdf)
2. Ministerio de Sanidad, Servicios Sociales e Igualdad. Indicadores de Salud. Evolución de los indicadores del estado de salud en España y su magnitud en el contexto de la Unión Europea. Madrid: Ministerio de Sanidad, Servicios Sociales e Igualdad; 2014. [Cited on January 15, 2015]. Available in : [http://www.msssi.gob.es/estadEstudios/estadisticas/inforRecopilaciones/docs/Resumen\\_Indicadores\\_2013.pdf](http://www.msssi.gob.es/estadEstudios/estadisticas/inforRecopilaciones/docs/Resumen_Indicadores_2013.pdf)
3. Ministerio de Sanidad, Servicios Sociales e Igualdad. Indicadores de Salud. Available in : [http://www.msssi.gob.es/estadEstudios/estadisticas/sisInfSanSNS/inclasSNS\\_DB.htm](http://www.msssi.gob.es/estadEstudios/estadisticas/sisInfSanSNS/inclasSNS_DB.htm)
4. European health for all database, Copenhagen: WHO Regional Office for Europe; 2003. [Cited on January 18, 2015]. Available in: <http://data.euro.who.int/hfad/>
5. González R. Salud Materno-Infantil en las Américas. Rev Chil Obstet Ginecol. 2010; 75( 6 ): 411-421.

6. Ayerza Casas A, Samper Villagrasa MP, Rodríguez Martínez G, Ariño Galve I, Ventura Faci P. Desarrollo neurológico en prematuros de muy bajo peso tras ser dados de alta de la Unidad Neonatal. *Rev Esp Pediatr* 2008;64(6):426-431.
7. Ayerza Casas A, Rodríguez Martínez G, Samper Villagrasa MP, Murillo Arnal P, Álvarez Sauras ML, Moreno Aznar LA, Olivares López JL y Grupo Colaborativo CALINA. Nutritional characteristics of newborns of overweight and obese mothers. *An Pediatr (Barc)*. 2011;75:175-181.
8. Boletín Oficial del Estado. Ley 16/2003, de 28 de mayo, de cohesión y calidad del Sistema Nacional de Salud. BOE núm. 128 de 29/05/2003.
9. Ministerio de Sanidad, Servicios Sociales e Igualdad. Portal estadístico del Sistema Nacional de Salud. Available in: <http://www.msssi.gob.es/estadEstudios/estadisticas/sisInfSanSNS/home.htm>
10. Alfaro Latorre M. Utilizando el sistema de información sanitaria del SNS [Internet]. Madrid:Escuela Nacional de Sanidad; 2012 [Cited on January 18, 2015]. Tema 2.5. Available in: [http://e-spacio.uned.es/fez/eserv.php?pid=bibliuned:500569&dsID=n2.5\\_Utilizando\\_Sistema\\_de\\_Informaci\\_n\\_Sanitaria\\_del\\_SNS.pdf](http://e-spacio.uned.es/fez/eserv.php?pid=bibliuned:500569&dsID=n2.5_Utilizando_Sistema_de_Informaci_n_Sanitaria_del_SNS.pdf)
11. Graafmans WC, Richardus JH, Macfarlane A, Rebagliato M, Blondel B, Verloove-Vanhorick SP, Mackenbach JP, EuroNatal Working Group. Comparability of published perinatal mortality rates in Western Europe: the quantitative impact of differences in gestational age and birthweight criteria. *BJOG*. 2001; 108:1237-1245.
12. González-González NL, Medina V, Jiménez A, Gómez Arias J, Ruano A, Perales A, et al. Base de datos perinatales nacionales 2004. *Prog Obstet Ginecol*. 2006;49:645-655.
13. Ayerza Casas A, Rodríguez Martínez G, Samper Villagrasa MP, Ventura Faci P. To born small for gestational age may depend on the growth curve used. *Nutr Hosp*. 2011; 26:752-758.
14. Instituto Nacional de Estadística. Movimiento Natural de la Población. Metodología. [Cited 16 January 2015]. Available in: <http://www.ine.es/metodologia/t20/t203030166.pdf>.
15. Gissler M, Mohangoo AD, Blondel B, Chalmers J, Macfarlane A, Gaizauskiene A, Gatt M, Lack N, Sakkeus L, Zeitlin J; Euro-Peristat Group. Perinatal health monitoring in Europe: results from the EURO-PERIS-TAT project. *Inform Health Soc Care*. 2010;35:64-79.
16. Río I, Castelló A, Jané M, Prats R, Barona C, Más R, Rebagliato M, Zurriaga O, Bolúmar F. Calidad de los datos utilizados para el cálculo de indicadores de salud reproductiva y perinatal en población autóctona e inmigrante. *Gac Sanit*. 2010; 24: 172-177.
17. Juárez SP. La calidad de los datos del INE para la estimación de los indicadores de salud perinatal: pequeño y grande para su edad gestacional. *Rev Esp Salud Pública*. 2015; 89:
18. Klaucke DN. Evaluating public health surveillance. En: Teutsch SM, Churchill RE, editores. *Principles and practice of public health surveillance*. New York: Oxford University Press; 1994.