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Review

Births in Italy: a neonatologist's view

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Proceedings

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From the womb to the adult
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Abstract

The complexity of care needs that characterize economically advanced societies requires a systemic approach to the organization of health services so as to enable them to meet the diverse health needs of the population, in line with their economic sustainability.

The proper functioning of the service network is related to the ability to change our way of thinking and to the development of health services by adapting them to the rapid and profound changes characterizing the social fabric.

The current organization of the maternity facilities network in Italy shows strong regional differences and raises many concerns when we analyze the data in the tenth Report on Births in Italy, prepared by the Statistics Office with 2011 data from the information flow of the Certificate of Attendance at Childbirth (CeDAP).

This survey is the richest national source of health, epidemiological, and socio-demographic information on births, and therefore represents a very important tool for health planning, at both a national and, especially, a regional level.

Keywords

Care network, regional differences, pregnancies, deliveries, newborns.

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Introduction

The complexity of care needs that characterize economically advanced societies requires a systemic approach to the organization of health services so as to enable them to meet the diverse health needs of the population, in line with their economic sustainability.

In recent years, a network of organizational models was designed along these lines, using a "hub and spoke" model to concentrate high-complexity care in centers of excellence (hub) supported by the network of services (spokes) responsible for the initial patient contact and their transfer to referral centers when a certain threshold of severity in clinical care has been exceeded.

Behind the "hub and spoke" model is the concept that links within the same specialty in different hospitals are more important than those between different specialties within the same hospital. This integrated network model shifts the focus from an individual service to the entire care pathway, ensuring that this can take place in a unified and integrated way, even if individual services are provided by different structures.

One essential prerequisite is the ability to integrate the various services distributed within a defined geographical area (provincial, regional, or other large area).

The complex nature of a child's care needs does not limit organizational aspects to a single definition of a network of hospitals that provide varying levels of care, nor to the exclusive integration of hospital and territorial services, such as the definition of a birth pathway within the enterprise. This is true especially for newborn's care. Thinking systemically means defining structured pathways capable of responding to the complicated care needs that characterize, for example, the experiences of infants with rare or complex diseases and their families. In these cases, it is necessary to integrate different services and professionals in order to make possible suitable care pathways that are appropriate for the individual child and his/her family.

The organization of a neonatal care network also means setting up adequate data collection so that it can be used for epidemiological purposes by monitoring specific health phenomena and planning new care pathways.

The proper functioning of the service network is related to the ability to change our way of thinking and to the development of health services by adapting them to the rapid and profound changes characterizing the social fabric.

As described, although representing a course of action already underway in some regions, some concerns emerge when we look at the data contained in the tenth Report on Births in Italy, prepared by the Statistics Office with the data from the flow of information from the 2011 Certificates of Assistance at Childbirth (CeDAP) [1].

This survey is the richest national source of health, epidemiological, and socio-demographic information on births, and therefore represents a very important tool for health planning, at both a national and, especially, a regional level.

Demographic context

In 2011, the estimated average number of children per woman (total fertility rate) dropped to 1.39 in Italy.

After a period of steady growth beginning in the mid-1990s, the birth rate since 2009 has seen a gradual decline in all areas of the country.

This phenomenon, whose main cause is the structural imbalance linked to the reproductive output of several generations of Italian women, had so far been offset by female foreign nationals. In recent years, however, as a result of the difficult economic situation, there has been a decrease in the fertility of immigrant women.

The national birth rate was 9.1 per thousand, with variations ranging from 7.3 births per thousand in Liguria to 10.5 per thousand in the Autonomous Province of Bolzano.

The infant mortality rate came to 3.01 children per thousand live births. Over the past 10 years, this rate has continued to decline throughout Italy, although we have seen a slowdown of this trend in recent years. Considerable regional differences remain, with the southern regions above all at a disadvantage.

Mothers

In 2011, 19% of the births were to non-Italian mothers. This phenomenon was more prevalent

in those areas of the country with a greater regular foreign presence, i.e., the North-Central where more than 25% of births are to non-Italian mothers and especially in Emilia Romagna and Lombardy, where 28% of the births are to immigrant mothers. The geographical areas of origin most representative are Africa (26.1%) and the EU (26%), with mothers of Asian and South American origin accounting for 18.2% and 8.3% of non-Italian births, respectively.

As regards age, the data for 2011 confirmed that more than 60% of births by Italian women were 30-39 years old (with a mean age of 32.6 years), while mothers in other geographic areas were mainly aged between 20 and 29 years.

Pregnancies

More than four obstetric visits were performed in 85% of pregnancies and more than three sonograms were performed in 73.1% of pregnancies (the value recommended by the Ministry of Health's pregnancy care protocols).

The collected data showed once again the phenomenon of excessive medicalization and overuse of diagnostic services in pregnancy. In particular, the number of ultrasound examinations performed does not appear related to the progression of the pregnancy, but rather to a non-essential purpose. 2.8% of Italian women had their first visit after 11 weeks, while this percentage rises to 13.7% for immigrant women. Women with low education levels made their first visits later than women with a medium to high education level. The percentage of women with an elementary school education or less who had made their first visits by the 12th week of gestation was 10.9%, while the percentage for women with more education was 2.8%. The women's young ages, particularly mothers under the age of 20 years, were associated with an increased prospect of missed (3.3%) or overdue check-ups (first visit after the eleventh week of gestation in 13.6% of the cases). As regards invasive prenatal diagnostic techniques, 12.4 amniocentesis tests were performed on average for every 100 births. Nationally, the removal of amniotic fluid was performed in 35.9% of cases in mothers older than 40 years.

The use of a medically assisted procreation technique (MAP) was carried out on average for every 1.43 pregnancies per 100. The most common technique was *in vitro* fertilization with the subsequent transfer of embryos into the uterus (IVF), followed by the *in vitro* fertilization method of injecting sperm into the cytoplasm (ICSI).

Deliveries

The data for 2011 showed that, nationally, 88% of all births took place in public health institutions, 11.9% in private hospitals, and only 0.1% elsewhere (other health structures, at home, etc.).

The analysis of the national data is misleading. In those regions where the presence of accredited private facilities in respect to public ones was relevant (a very prevalent phenomenon in southern Italy), the percentages were substantially different.

The analysis of the supply network where deliveries took place in the year 2011 showed a total number of maternity facilities equal to 567 nationwide.

Depending on the numerosity of births per year, five size classes of maternity facilities were taken into consideration:

- fewer than 500 deliveries per year;
- 500-799 deliveries per year;
- 800-999 deliveries per year;
- 1,000-2,499 deliveries per year;
- ≥ 2,500 deliveries per year.

61.8% of births took place in facilities with at least 1,000 deliveries per year. Such structures represent 33.7% of the total maternity facilities.

Instead, 9.5% of births took place in facilities with fewer than 500 deliveries.

The regional distributions by delivery class and by maternity facility class showed different situations at a regional level.

More precisely, over 70% of births in the northern regions took place in large maternity facilities (with at least 1,000 deliveries per year). These structures represented more than 40% of the birthing centers in each region.

The southern regions recorded a contrasting organization regarding the supply network in which over 40% of births took place in maternity facilities with fewer than 1,000 deliveries per year. This percentage reaches 63% especially in Sicily, while 43% of deliveries took place in maternity facilities with fewer than 800 deliveries per year.

These data make clear the extremely limited application, especially in certain regions, of national legislation relating to the size of maternity facilities [2].

Confirming the trend in previous years, 36.7% of deliveries in 2011 were by caesarean section. However, the significant regional disparities do not change the fact that there is an excessive use of surgical deliveries in Italy.

In maternity facilities with fewer than 800 deliveries per year, the incidence of caesarean sections was significantly greater than what was observed on average at the national level. In facilities with fewer than 500 deliveries per year, caesarean delivery was performed in 42.3% of cases, and in 41.7% in facilities with 500-800 deliveries per year.

The phenomenon was also related to the higher concentration of private structures in the classes of small maternity facilities.

With respect to place of delivery, there was a high tendency to use caesarean sections in accredited private hospitals in which this procedure was used in approximately 56.9% of the deliveries, as compared to 33.9% in public hospitals.

Caesarean sections were more common in Italian women in respect to immigrant women: 38.6% versus 28.2%, respectively.

There were 336,376 vaginal deliveries in 2011, with 21.5% by immigrant mothers. The distribution by age and citizenship shows that among Italian mothers having vaginal births in 2011, 72.1% were more than 30 years of age. Instead, this percentage was 44.0% for immigrant mothers. The baby's father was present at birth (excluding caesareans) with the woman in 90.6% of the cases, followed by a family member (8.15% of the cases) or another trusted person (1.26 % of the case).

Newborns

Municipal registries recorded a total of 546,607, births in 2011 while 541,206 were noted through CeDAP (99% of total births).

For the regional distribution of births according to birthweight, the following weight classes were considered: less than 1,500 grams, 1,500-2,499 grams, 2,500-3,299, 3,300-3,999, and more than 3,999 grams.

The birth distribution by birthweight was almost the same as that recorded in the previous year. Weights less than 1,500 grams were observed in 1% of births, with 6.2% weighing between 1,500 and 2,499 grams, 87.5% between 2,500 and 3,999 grams, and 5.3% more than 4,000 grams. For 2011, term infants weighing less than 2,500 grams represented approximately 3.03% of the cases.

The data related to length of gestation were analyzed by dividing the weeks of gestation according to the classification in the 2013 European Perinatal Health Report into the following five classes: 22-27 weeks of gestation (extremely pre-term); 28-31 (very pre-term); 32-36 (moderately pre-term); 37-42 (per-term); and more than 42 weeks of gestation (post-term).

Nationally, the percentage of pre-term births was 6.6%, with extremely pre-term and very pre-term births corresponding overall to 0.9%. 93.3% of births took place between the 37th and the 42nd weeks.

99.3% of births reported an Apgar score of 7-10 at the national level, and only 0.7% of infants were severely or moderately depressed.

1,463 stillbirths were recorded, corresponding to a stillbirth rate equal to 2.70 stillbirths per 1,000 births, with 6,680 cases of diagnosed malformations recorded at birth. Indication of the cause was present in only 22.8% of the stillbirths and in 44.3% of children born with birth defects, respectively.

Conclusions

The CeDAP National Report showed that the availability of reliable data is essential to support public health policies.

The current organization of the maternity facility network in Italy shows significant regional differences and raises many concerns when we analyze the data from the tenth Report on Births in Italy, prepared by the Statistics Office with 2011 data from the information flow of the Certificate Assistance at Childbirth (CeDAP).

These data make clear the extremely limited application, especially in certain regions, of national legislation relating to the size of maternity facilities, an unacceptable aspect from an ethical point of view as well as from that of the principle of equal rights that should characterize citizens in the same country.

The causes of this phenomenon can be traced to several factors. In addition to social and economic issues, one element playing a decisive role is represented by the limited perinatal care structure. In the central and southern regions, there are still numerous small maternity wards that often lack equipment and specialized personnel and are unable to deal with emergency situations. Despite numerous proposals from scientific companies aimed at rationalizing neonatal care, thanks also to the consolidation of nearby small maternity wards, regional governments, under pressure from parochial and electoral interests, have proved themselves incapable of closing small structures often located only a few kilometers apart and whose existence can be justified only in specific geographical situations.

It is hoped that the information presented in the report may constitute an increasingly valuable learning tool for the various institutions responsible for defining and implementing maternity care health policies, for professionals who work in the field, and for users of the National Health Service.

Declaration of interest

The Author declares that there is no conflict of interest.

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