

## VITAL STATISTICS

## Recent evolution of neonatal and postneonatal mortality in Mexico, 1990-2011

Sonia Fernández Cantón,<sup>1</sup> Ana María Hernández Martínez,<sup>1</sup> Ricardo Viguri Uribe<sup>2</sup>

In a previous contribution of this section of the *Boletín Médico Hospital Infantil de México*, recent developments in mortality of children <5 years of age was addressed and whose volume, structure and level represent a fundamental indicator of health and wellbeing in society.<sup>1</sup> In this segment of the population, the behavior of infant mortality is notable because of its relevance, i.e., those deaths that occur before the child reaches the age of 1 year. Depending on the age at which the child dies, these deaths are classified into two groups: neonatal mortality (deaths occurring <28 days) and postnatal mortality (deaths of children between 28 days and 1 year old). It is important to separately analyze each group because the factors that cause these deaths vary considerably.

Precisely because of the changing impact of these factors, the proportional contribution of neonatal and postneonatal mortality to infant mortality is not constant over time, noting significant changes over the years (Figure 1). According to the latest available data, of the 28,772 infant deaths registered in the year 2011, 60% of deaths (17,360) occurred in the first 28 days after birth, i.e., during the neonatal period. Moreover, the remaining 37% (10,656 deaths) corresponded to the postneonatal stage with the difference of 3% due to deaths of children whose age was not specified (Table 1). It is noteworthy that in 1980 these percentages were reversed,

i.e., 40% were neonatal deaths and ~60% were postnatal. The concordance in both figures occurred between the years 1990 and 1991 (Figure 1). Regarding the evolution of the rates, there was a steady decline in all categories (the three groups analyzed), even though each has different rates of change. For example, between 1990 and 2011, neonatal mortality rates decreased by 30%, from 13 to 9 deaths/1000 births, whereas postnatal mortality decreased to 60%, from 14 to 5.6 deaths/1000 births. During the same period (1990-2011), the infant mortality rate dropped from 27 to 15 deaths/1000 live births in children <1 year of age, i.e., showing a decrease of 44%. Moreover, a universally accepted behavior is that neonatal mortality is proportionately greater as the infant mortality rate becomes lower. This is because, by reducing this mortality, some risks, especially those associated with congenital factors are concentrated during the first 4 weeks of life. Such

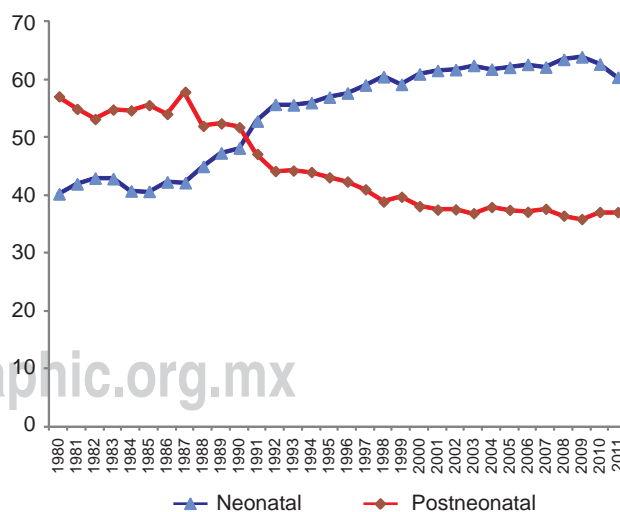


Figure 1. Relative weight of neonatal and postneonatal mortality with respect to infant mortality (México, 1980-2011).

<sup>1</sup> Dirección de Información Epidemiológica  
Secretaría de Salud

<sup>2</sup> Departamento de Ediciones Médicas  
Hospital Infantil de México Federico Gómez

México D.F., México

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**Table 1.** Evolution of neonatal and postnatal mortality México, 1990-2011

Year	Infant mortality		Neonatal mortality*			Postnatal mortality**			NS
	Number	Rate 1/	Number	Rate 1/	% 2/	Number	Rate 1/	% 2/	
1990	65,497	2704.0	31,503	1300.6	48.1	33,864	1398.0	51.7	130
1991	57,091	2355.9	30,122	1243.0	52.8	26,891	1109.7	47.1	78
1992	52,502	2170.0	29,213	1207.4	55.6	23,174	957.8	44.1	115
1993	49,631	2060.0	27,578	1144.6	55.6	21,948	911.0	44.2	105
1994	49,305	2056.4	27,581	1150.4	55.9	21,678	904.2	44.0	46
1995	48,023	2031.2	27,322	1155.6	56.9	20,672	874.4	43.0	29
1996	45,707	1961.3	26,334	1130.0	57.6	19,344	830.0	42.3	29
1997	44,377	1942.1	26,180	1145.7	59.0	18,181	795.6	41.0	16
1998	42,183	1837.1	25,491	1110.1	60.4	16,395	714.0	38.9	297
1999	40,283	1713.9	23,808	1012.9	59.1	15,990	680.3	39.7	485
2000	38,621	1601.7	23,522	975.5	60.9	14,697	609.5	38.1	402
2001	35,911	1571.1	22,089	966.4	61.5	13,456	588.7	37.5	366
2002	36,567	1673.5	22,543	1031.7	61.6	13,713	627.6	37.5	311
2003	33,355	1590.5	20,806	992.1	62.4	12,290	586.0	36.8	259
2004	32,764	1610.5	20,227	994.2	61.7	12,423	610.6	37.9	114
2005	32,603	1621.8	20,228	1006.2	62.0	12,203	607.0	37.4	172
2006	30,899	1553.0	19,330	971.5	62.6	11,459	575.9	37.1	110
2007	30,425	1543.1	18,894	958.2	62.1	11,443	580.4	37.6	88
2008	29,537	1510.6	18,731	958.0	63.4	10,758	550.2	36.4	48
2009	28,988	1494.1	18,514	954.3	63.9	10,389	535.5	35.8	85
2010	28,865	1498.6	18,074	938.3	62.6	10,694	555.2	37.0	97
2011	28,772	1503.7	17,360	907.3	60.3	10,656	556.9	37.0	756
Decrease 1990 - 2011	69.5		51.9			80.5			

Source: Dirección General de Información en Salud (DGIS). Database of deaths 1979-2011. Sistema Nacional de Información en Salud (SINAIS). Secretaría de Salud. Demographic indicators CONTEO 2005, 1990-2030. Conteo 1990-2012, CONAPO. 1/ 100,000 births 2/Related to infant mortality \* <27 days \*\* 28 days-11 months. NS, not specified.

is the case of the problems associated with pregnancy, child-birth and birth defects or various types of diseases. In 2011, among the most frequent causes of death according to the International Classification of Disease (ICD-10) were asphyxia and birth trauma, low birth weight, prematurity and congenital cardiac malformations followed by abdominal wall defects. The approach to these problems involves greater difficulties in terms of intervention, both in the type of program (reinforcement of birth control programs, early detection of perinatal risk), training (courses in neonatal resuscitation) and investment in technologies, as well as more specialized centers. In terms of postneonatal deaths, these depend mainly on exogenous factors related to the environment in which the child develops (such as hygiene and nutritional status). In this sense and according to the ICD-10, the main causes of death in this age group are respiratory diseases, intestinal infections, certain congenital anomalies (malformations of the heart and

the nervous system in a large proportion) and nutritional deficiencies, among others. Control of these diseases is relatively simple. It depends directly on the improvement in the living conditions of children, sanitation and health programs such as immunization and control of diarrhea and acute respiratory infections. Prevention efforts currently undertaken by major health institutions in Mexico are highly valuable instruments in this process.

*Correspondence:* Dra. Sonia B. Fernández Cantón  
E-mail: sfernandez@dgepi.salud.org.mx; sonia\_fernandez@prodigy.net.mx

## REFERENCES

1. Fernández-Cantón S, Hernández-Martínez AM, Viguri-Uribe R. Mortalidad de la población de menores de cinco años en México durante 2011. Bol Med Hosp Infant Mex 2013;70:66-69.