

Major causes of death in children under five years by sanitary jurisdiction. Yucatán 2010-2014

RODRÍGUEZ-ANGULO, Elsa María*†, MARTÍN-LÓPEZ, Ana Laura, ANDUEZA-PECH, María Guadalupe and OJEDA-RODRÍGUEZ, Ricardo

Universidad Autónoma de Yucatán. Calle 60 491, Centro, 97000 Mérida, Yuc.

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Abstract

Under-five deaths are a public health problem in the world. In 2012, 6.6 million children died and 44% during the first 28 days of life. The main causes were prematurity, suffocation or trauma in childbirth, pneumonia and diarrheal diseases. In Mexico the infant mortality rate is 14.3 per 1000 births. In Yucatan the causes of mortality by Sanitary Jurisdiction are unknown. This study reports the main clinical causes of death in children under five, occurring in each of the three Sanitary Jurisdictions in Yucatan, from 2010 to 2014.

Causes, Deaths, Under-five

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* Correspondence to Author (email: rangulo@correo.uady.mx)

† Researcher contributing first author.

Introduction

Under-five mortality is a public health problem and is considered a fundamental indicator of health and well-being in society. According to the WHO, 44% of deaths occur in the neonatal period. The majority of neonatal deaths are due to premature births, asphyxia during childbirth and infections. After this stage, pneumonia, diarrhea and malaria are the main causes in children under five years of age. In Mexico, infant mortality has registered an important decrease in recent decades: in 1970, 68.4 children under one year of age died for every thousand births; currently, 14.3 children die, mainly in localities with less access to health services. In Yucatan, the general causes that occur in the State are known, but they have not been regionalized by Sanitary Jurisdiction. The purpose of this work is to describe the main causes of death in children under five years of age in the State of Yucatán by Sanitary Jurisdiction.

Justification

Mortality in children under five is an indicator of quality of life and risk, fully reflects the socioeconomic panorama of a country; measures the care maintained during pregnancy, childbirth and child care, its interrelation with the environment, with the degree of socio-economic and cultural development of a community; It is directly related to the levels of poverty and quality of free medical care.

The inequalities are so wide between the different regions of the planet, which has led the United Nations to include the reduction of infant mortality, as one of the eight Millennium Development Goals.

In different countries around the world, actions have been taken to reduce the mortality rates of this age group.

However, despite the efforts made, some countries have not reached the established goal, as is the case with Mexico, and Yucatán has been one of the states that has not been able to keep down the number of deaths in children under five, representing 1.54% of the total deaths of this population at the national level.

Currently in the state of Yucatan there is only general information about the main causes of death in children under five years of age; even with this type of information, no documents have been found that describe the behavior of under-five mortality in the state of Yucatán, by health jurisdiction. The importance of the contribution of this study through the identification of causes by Sanitary Jurisdiction, provides basic information to continue with risk studies by geographic area, in order to prioritize preventive strategies.

Problem

Early childhood, from 0 to 5 years of age, represents a decisive stage in the development of the physical, intellectual and emotional capacities of each child, and is the most vulnerable stage of growth.

In the world in 2012 6.6 million children died before reaching the age of five; almost all of these deaths (99%) occurred in low and middle income countries. The main causes were prematurity, asphyxia or traumatism of childbirth, pneumonia, and diarrheal diseases. Malaria remained a leading cause of death in sub-Saharan Africa, accounting for 15% of under-five deaths. Worldwide, in 2012, 44% of deaths of children under five occurred within the first 28 days of life, that is, the neonatal period. The most important cause was prematurity, which caused 35% of deaths in this period.

UNICEF mentions the mortality rate of children under five as a key indicator of children's well-being, including health and nutritional status.

It is also a key indicator of the coverage of child survival interventions and, more broadly, of social and economic development. Millennium Development Goal 4 (MDG 4) is to reduce the under-five mortality rate globally by two-thirds between 1990 and 2015, the world has made substantial progress, reducing the 49% rate of 90 (89, 92) deaths per 1,000 births to 46% (44, 48 deaths) in 2013. The world is also reducing under-five mortality faster than at any other time during the past two decades. The global rate of reduction has steadily accelerated since 1990-1995 - more than triple from 1.2 percent to 4.0 percent in 2005-2013.

Despite these achievements, child survival remains an urgent concern. The number of deaths of children under five in the last two decades is staggering: between 1990 and 2013, 223 million children worldwide died before the age of five, more than the current population of Brazil, the fifth most populous country of the world. Progress has been insufficient, and MDG 4 risks losing itself globally.

In the new agenda, MDG 4 is a priority again. At the national level, historical trends show that progress in the reduction for most countries has been too slow and that only 12 of the 60 countries with high mortality rates under the age of five (at least 40 deaths per every 1,000 live births) are on track to achieve MDG 4 if current trends continue. Every day, 17,000 children die before the age of five, most of them from preventable causes and treatable diseases, even though knowledge and technologies for life-saving interventions are available.

In Mexico, infant mortality has registered an important decrease in recent decades: in 1970, 68.4 children under one year of age died for every thousand births; At present, the estimated rate for the triennium 2011 to 2013 is 14.3; being the smallest localities where infant mortality occurs to a greater extent.

Currently in the state of Yucatan there is only general information about the main causes of death in children under 5 years old, which can be found on the website of the National Institute of Statistics and Geography (INEGI), however, there is no detailed information of the behavior of the causes in the municipalities, by Sanitary Jurisdiction. That is why the following question has been asked: What are the main causes of death in children under five in each of the three Sanitary Jurisdictions of the State of Yucatan from 2010 to 2014?

Objectives

General Objective

Describe the main causes of under-five mortality in the State of Yucatan from 2010 to 2014.

Specific Objectives

1. Identify the municipalities that belong to each of the three Sanitary Jurisdictions in Yucatan.
2. Describe the main causes of death in children under five years of age during the period from 2010 to 2014.

Theoretical framework

Newly born

Approximately 3 million infants die each year during their first month of life, and the number of stillbirths is similar. During the first month, almost half of the deaths take place in the first 24 hours of life, and 75% during the first week. The 48 hours after birth is the most important time for the survival of the newborn. It is in this period when the mother and the child must be followed up to avoid and treat diseases.

Before delivery, the mother can improve the chances of survival and the health of her child by attending prenatal care consultations, vaccinating against tetanus and avoiding the use of tobacco and alcohol.

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At the time of delivery, the chances of survival increase considerably with the presence of a qualified midwife. After delivery, essential care for the newborn should follow the next steps:

- ensure breathing;
- immediately start exclusively breastfeeding;
- keep the child warm; Y
- Clean your hands before touching it.

It is also very important to recognize and treat diseases that the newborn may suffer, as it can become seriously ill and die quickly if the disease is not detected and treated properly. Sick infants should be referred immediately to a qualified health care provider.

Children under five years old

More than 70% of deaths of children under the age of five occur in the African and South-East Asia Regions. In sub-Saharan Africa, the probability of children dying before the age of five is 16 times higher than in developed regions. Nearly half of under-five deaths occur in just five countries: China, India, Nigeria, Pakistan and the Democratic Republic of the Congo.

Children are at higher risk of dying before they reach their fifth birthday if they are born in rural areas or poor households or if their mothers have been deprived of basic education.

More than half of the deaths of children under the age of five are due to preventable and treatable diseases through simple and affordable interventions. Strengthening health systems so that all children can access such interventions will save the lives of many young children.

Malnourished children, especially those with severe acute malnutrition, are more likely to die from common diseases in childhood such as diarrhea, pneumonia and malaria.

Various factors related to nutrition contribute to approximately 45% of the deaths of children under the age of five.

Global response: Millennium Development Goals 4 and 5

ODM 4: reduce by two thirds, between 1990 and 2015, the mortality of children under five years. The achievement of the MDG of reducing infant mortality will mean reaching universal coverage with effective and affordable crucial interventions regarding: mother and newborn care; feeding of the infant and young child; vaccines; prevention and treatment of cases of pneumonia and septicemia; fight against malaria; and HIV / AIDS prevention and care. In countries with high mortality rates, these interventions could reduce the number of deaths to less than half.

To carry out these interventions, WHO promotes four main strategies:

- Appropriate home care and timely treatment of complications in newborns;
- Integrated attention to childhood diseases in all children under five years of age;
- Expanded immunization program;
- Infant and young child feeding.

ODM 5: To improve maternal health. These strategies related to children's health are complemented by interventions aimed at maternal health, particularly qualified care during pregnancy and childbirth. More than half of the deaths of children under the age of five are due to preventable and treatable diseases with simple and affordable interventions. Strengthening health systems so that these interventions benefit all children will save many young lives.

Mortality in Children under five in Mexico

In Mexico there are different programs that address determinants that negatively affect child welfare such as poverty, poor education, lack of access to health services as well as risk conditions such as adolescent pregnancy, sexually transmitted infections, addictions and interpersonal violence. However, in the country the monitoring and surveillance of indicators of child welfare is still inconstant and insufficiently systematic. Given the above, it is necessary to promote population monitoring strategies of the relevant indicators in order to position child welfare in the political agenda and promote evidence-based decision-making to impact the quality of life and well-being of children from Mexico.

As for the mortality of children under one year, between 1990 and 2011, the rate is reduced overall by approximately 46% (from 2,800 to 1,520 deaths per hundred thousand births), even though 90% of this reduction occurs between 1990 and 2000. The mortality rate remains almost stable in recent years. From 2007 to date, the reduction in the number of deaths is just 1,653 deaths, with the figure for 2011 being 28,772 deaths, only 93 less than the previous year.

A similar situation occurs with the group of 1 to 4 years, whose mortality drops by 66% between 1990 and 2000 (the rate decreases from 221 to 76 deaths per hundred thousand inhabitants of that age). However, it only decreases 4% in 2000 and the current figure (the rate goes down from 76 to 73 deaths per hundred thousand, with a slight increase in 2009). The number of deaths in 2011 is 5,574, that is, 77 fewer than those registered in 2010.

In all cases, the distribution by sex is maintained over time.

The deaths of men are more frequent, in such a way that the male mortality rate is approximately 127 per 100 deaths of women. In terms of general mortality, the relative weight of children under five is almost 6% to date. This means that out of every 100 deaths that occurred in the country during 2011, six were children under the age of five. This figure contrasts with the 20% that occurred 20 years ago and the 48% that was observed in 1940.

Among the 5 leading causes of death in our country, according to data from INEGI 2012, the following stand out:

- In children under one year:

- 1) Conditions originated in the perinatal period.
- 2) Respiratory difficulty of the newborn and other respiratory disorders.
- 3) Congenital malformations.
- 4) Influenza and pneumonia.
- 5) Accidents.

- In children from 1 to 4 years old:

- 1) Accidents.
- 2) Congenital malformations.
- 3) Malignant tumors.
- 4) Influenza and pneumonia.
- 5) Intestinal infectious diseases.

Neonatal Mortality (deaths under 28 days)

A universally accepted behavior is that neonatal mortality is proportionately greater as the infant mortality rate is lower.

This happens because, as mortality decreases, some risks, especially those linked to congenital factors, are concentrated during the first four weeks of life. Such is the case of problems related to pregnancy, childbirth and congenital diseases or malformations of various types. For 2011, among the most frequent causes of death - according to the International Classification of Diseases (ICD-10) - appear asphyxia and trauma at birth, low birth weight, prematurity and congenital malformations of the heart, followed by defects of the abdominal wall. Addressing these problems implies greater difficulties in terms of intervention, both programmatic (reinforcement of birth control programs, timely detection of perinatal risk), training (neonatal resuscitation courses) and investments of a technological nature, as well as more specialized facilities.

Postneonatal Mortality (deaths of children between 28 days and one year of age)

Regarding deaths during the post-neonatal period, 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 same ICD-10, among the main causes of mortality in this age group are respiratory diseases, intestinal infections, certain congenital anomalies (in a large proportion malformations of the heart and nervous system) and deficiencies in nutrition, among others. The control of these diseases is relatively simpler, since it directly depends on the improvement in the child's living conditions, environmental sanitation and health programs, such as vaccination and control of diarrhea and acute respiratory infections. The prevention actions currently undertaken by the main health institutions in Mexico are very valuable instruments in this process.

Mortality children from one to four years

Accidents

These are often the leading causes of death in children and adolescents. Motor vehicle traffic accidents, those occurring in the home (related to falls, burns, and poisonings) and the "other accidents" make up the analysis material of this contribution. Considering the year 2000 as a starting point, during the last 14 years, on average, a little more than 4,500 accidental deaths have occurred annually in the population under 15 years of age.

In this sense, the group of children from 1 to 4 years old stands out (with an average rate of 17.4 per hundred thousand) for a double reason: first, because they are the ones who concentrate most of the deaths, representing close to one third of deaths of children under 15 years of age; and second, because it is the trend that shows the lowest percentage of decrease (31% between 2000 and 2013).

Regarding the classification of accidents, the most relevant are those of traffic in motor vehicles, grouping about one third of the deaths in the period (31.3%). They are followed by those related to drowning and submersion (13.8%), accidental falls (3.7%) and poisonings and accidents related to fire, smoke and flames, with very similar percentages (2.4%, approximately). The remaining 46.5% of deaths correspond to the residual category "other accidents" that group multiple causes with different disaggregation.

Finally, it should be taken into account that the number of deaths only shows a small fraction of the real magnitude of the problem, since it has been calculated that "for every child who dies due to an accident, 45 children require hospitalization, 1,300 children are treated in an emergency service and 2,600 children are treated at home".

Infectious diseases

Diseases fortunately today preventable by vaccination such as whooping cough, tuberculosis, meningitis, measles, diphtheria and smallpox were always among the leading causes of infant mortality. Smallpox was not only preventable through vaccination, but eradicated in Mexico since 1950 and in the world until 1980.

Respiratory and intestinal diseases

As for the diarrheas and pneumonias that although they are still present among the leading causes of death, the current figure does not compare with those of previous decades. In 2008, 725 children died, now classified as intestinal infectious diseases. In 1980, the infant deaths charged by this same condition was of the order of 20,877, with a rate of 862.9 for every 100 thousand live births, the rate of 2008 corresponded to 37.1, also, for every 100 thousand births.

For this new millennium, accidents and malignant tumors among children under 5 years of age occupied and occupy a preponderant place. Congenital malformations, deformities and chromosomal abnormalities, as well as certain conditions during the perinatal period remain a constant among the leading causes of infant death to this day.

Methodology

Quantitative methodology was used to describe the five main causes of death in children under five years of age.

Kind of investigation

- The design and type of the study was observational, descriptive, transversal, and retrospective.

- Universe: Children under 5 years of age who died between the years 2010-2014 in the State of Yucatán.
- Population: Children under 5 registered in the database of the Ministry of Health, deceased between 2010 and 2014 from the State of Yucatan.
- Inclusion criteria:
 - Children under 5 years of age who died between 2010-2014, residents of any of the municipalities of the state of Yucatan, registered in the database of the Ministry of Health.

Theoretical Methods

The 106 municipalities of the state of Yucatan were included.

To determine the number of children who died in the state, and to which age group they belonged (<1 year or 1-4 years), the INEGI page was used in the query of basic tabulated results. The data of causes of mortality of children under 5 years of age in each municipality were obtained from a database provided by the Ministry of Health, in which we were informed about the causes of death in each of the municipalities, which occurred in the years 2010-2014, as well as the number of deaths of each municipality per year.

The deaths in the database were in accordance with the ICD-10, subsequently each disease was grouped according to an encoding forming a group of similar diseases, these codes are used by the International Statistical Classification of Diseases and Related Health Problems. In this way the main causes of death per year of each of the municipalities of the State were obtained.

Results

- There were 2,668 deaths in children under five years of age, in the 106 municipalities of the state of Yucatan, from 2010 to 2014, of which 1,660 (62.2%) occupied the first five causes of death. Jurisdiction 1 presented the highest number of cases (Figure 1).

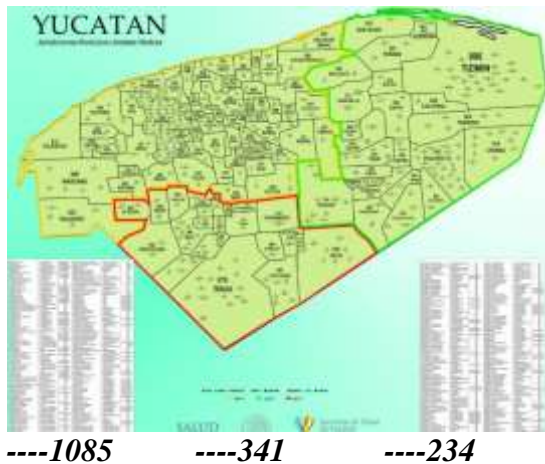


Figure 1 Number of first five causes of death of children under five years of age by Sanitary Jurisdiction. 2010-2014.

Fuente: Base de datos SSY. 2010-2014

- Perinatal conditions and congenital malformations were the main causes of death in the three jurisdictions (Table 1).

Jurisdicción 1	Jurisdicción 2	Jurisdicción 3
Afecciones perinatales 499 (46%)	Afecciones perinatales 146 (43%)	Afecciones perinatales 118 (50%)
Malformaciones congénitas 372 (34%)	Malformaciones congénitas 101 (29%)	Malformaciones congénitas 74 (32%)
Desórdenes relacionados con el embarazo 101 (10%)	Enfermedades infecciosas intestinales 36 (11%)	Enfermedades infecciosas intestinales 17 (7%)
Otras enfermedades bacterianas 68 (6%)	Gripe y Neumonía 34 (10%)	Gripe y Neumonía 13 (6%)
Caídas y accidentes 45 (4%)	Otras enfermedades bacterianas 24 (7%)	Desórdenes relacionados con el embarazo 12 (5%)
Total 1085 100%	Total 341 100%	Total 234 100%

Table 1 First five causes of mortality in children under five years by Sanitary Jurisdiction. Yucatán 2010-2014.

Source: Mortality database. Secretary of Health of Yucatán, 2010-2014.

Conclusions

The first cause of mortality in children under five years in Yucatan in the period studied were the conditions of perinatal origin, so that the population should be made aware and the information should arrive in a timely and efficient way about the alarm data of these diseases in particular. The information to pregnant women and relatives must be a key point for prevention.

It will be important to study not only the biological causes, but the social determinants that influence the prevalence of these causes in order to build preventive strategies. Access to quality care will be another point of study in the various communities of the State.

We must take into account that in Yucatan, the customs and traditions of the Mayan people towards reproduction prevail; and although many of them are not a risk for perinatal conditions, the community should have the opportunity to know that there are warning signs that can warn when a risk is present to prevent them. There are still populations where many customs and traditions are carried out to make "remedies"; there are beliefs about the "evils of the eye" that "lurk" children at their young age, so the population should be made aware of when and at what time they should seek help from a medical service. Emphasis should also be placed on the importance of prenatal check-ups and the age at which the municipality's reproductive life begins, since the main group affected and where there is a high number of deaths is in children under 1 year of age, and as Main causes are perinatal disorders and congenital malformations could be related to problems of nutrition, lack of vitamins and minerals during pregnancy, high-risk pregnancies due to the age of the pregnant woman, lack of prenatal control, among other factors. Although more studies are required.

The goal for child welfare should not only be physical survival, but also the development of the physical, social, emotional and cognitive potential of Mexican children, from a wide range of sectors including health, nutrition, stimulation, protection and education. It seeks to achieve a broader and more detailed understanding of the level of well-being that exists among Mexican girls and boys to allow the implementation of improvements in prevention and care actions that are carried out as well as ensuring the quality of life for all children from Mexico.

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