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## **Newborn Care in Chile**

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### **Introduction**

Birth is a physiological process loaded with emotions, sensations and feelings often beyond any description for those who experience it: mother, father, baby, and members of the health care team. The role of the midwife nurse is to promote health of the mother and child, as well as guide, facilitate, and help to strengthen the relationship between mother, father and their newborn infants, both those who are healthy and those who must be hospitalized because of health problems. This paper presents an overview of the role of the nurse in neonatal care in Chile. The paper begins with a description of the system of basic and specialty nursing education in Chile, and then presents an overview of neonatal morbidity and mortality statistics in Chile. The paper concludes with a description of the role of the nurse in neonatal care, and a discussion of future trends in neonatal nursing in Chile.

### **Nursing Education in Chile**

Chile has three principal levels of education and training: Universities, Professional Institutes and Technical Training Centers. When the students finish High School need, an exam to enter to the professional education called university sufficiency test (PSU).

The professional nursing education in Chile has undergraduate programs of five years duration a Nursing Bachelor Degree is obtained at four years and Professional Title at five years. There are 63 (25 schools) undergraduate programs in Chile and five are accredited by the National Commission (CNAP). There are also ten Obstetrics and Child Care Programs and one Nursing Midwifery Program. However, there is still a nursing shortage.

Postgraduate Programs consist of many Continuing Education Programs, only five Nursing Schools have Specialization and the topics are adult and children intensive care, nephrology care, mental health care, cardiology care and oncology care. Three Nursing Schools have Master Degree Programs. One Nursing School has a Doctoral Program.

The nursing associations are Chilean College of Nursing, Chilean Association of Nursing Schools (ACHIEEN) and Scientific Associations (Nursing Pediatric, Intensive Care, and Nursing Cardiologic). The Chilean Association of Nursing Schools is working towards a national nursing exam that provides a certificate of professional sufficiency. There are no national nursing registrations. There is only certification of Postgraduate Programs at National Commission (CNAP)

In Chile, Universities offer diverse specialization programs for these professionals. The Catholic University offers an one-year program giving a wide and comprehensive vision of health problems presented by the newborn requiring hospitalization in neonatal units. It focuses on specialized nursing care of these problems, incorporating parental and family support. The program provides health care management concepts needed to improve quality care in high-risk newborn health care units. Content includes the design of follow-up systems to be applied after discharge, emphasizing teamwork, the opportune derivation and parental capacity and autonomy in the care of their offspring. There is the opportunity to acquire abilities in handling the latest generation technologies used in the diagnosis and treatment of the high-risk and critical health newborn and finally, it provides the elements that will help the nurse to face situations involving emotional risk for her and health care personnel.

There is also a three-month diploma program for experienced clinical nurses and midwives who wish to update their knowledge; the purpose is to train these professionals in the care of the critically ill newborn and in the handling of front line technology used in the neonatal intensive care units.

## Neonatal Morbidity and Mortality in Chile

The neonatal health care system in Chile involves care during labor and delivery, care during the immediate post-partum period, and care following hospital discharge during neonatal period (the first month of life). A total of 99.8% of deliveries in Chile occur in public or private health care facilities<sup>3</sup> assisted by midwives and/or midwife nurses.

In Chile, when the newborn presents with health problems, he or she is hospitalized in a tertiary center for their care in Neonatal Intensive Care Units (NICU). Thanks to the medical and technological advances, every day, there are smaller weight and gestational age newborns who survive, "creating the need for perinatal health care teams to care for the child's growth and integral development process"<sup>4</sup> and where nurses and midwives provide specialized and integral care to the newborn and their family.

Among the 234,486 children born alive, approximately 1.5% weighed less than 1,500gm and/or had a gestation period of less than 32 weeks. The infant mortality rate for year 2003 was 7.8 per 1,000 inhabitants and the newborn mortality rate of 4.9 per thousand. Those who weigh less than 1,500 gr. or have less than 32 weeks in gestation contribute to 30% of infant mortality<sup>3</sup>.

Data taken from the National Follow-up Commission at the Ministry of Health<sup>4</sup> reveal that survival is lower in the South of Chile, where the risk of dying is 36 times greater in children weighing less than 750 gr. and 43 % of deaths happen on the first day of life (see Table 1). The limit of survival significance is 26 weeks of gestational age, thanks to technological advances, to the health care quality and the introduction of lung surfactants, among other measures (see Table 2). The groups of greater impact in child mortality are premature births and newborn with congenital malformations<sup>4</sup>. (See Graph 3).

**Table 1: Survival by Weight, Chile 2000.**

| Weight (gm.)  | N     | X           | Gestational Age | Survival (Chile 2000) |
|---------------|-------|-------------|-----------------|-----------------------|
| 1,250 - 1,500 | 599   | 1,375 + 75  | 31 + 2          | 90%                   |
| 1,000 - 1,249 | 462   | 1,127 + 74  | 29 + 2          |                       |
| 750 - 999     | 359   | 879 + 71    | 27 + 2          | 57%                   |
| < 750         | 232   | 648 + 68    | 25 + 2          |                       |
| Total         | 1,652 | 1,095 + 268 | 29 + 3          | 71%                   |

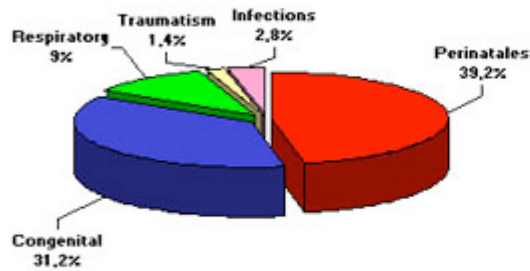
Source: *Revista Chilena de Ginecología y Obstetricia*, Vol 67, N°2, pp. 100-105, Junio 2002.

**Table 2: Survival by Gestational Age (GA), Chile 2000.**

| GA (weeks) | Survival % | Total (1477) |
|------------|------------|--------------|
| < 24       | 0          | 55           |
| 24         | 10.9       | 64           |
| 25         | 18.2       | 103          |
| 26         | 49.6       | 131          |
| 27         | 64.8       | 126          |
| 28         | 73.9       | 236          |
| 29         | 83.6       | 205          |
| 30         | 84.4       | 325          |
| 31         | 88         | 232          |

Source: *Revista Chilena de Ginecología y Obstetricia*, Vol 67, N°2, pp. 100-105, Junio 2002.

Graph 3: Main causes of infant mortality (is this infant or child mortality – please clarify, Patty).



The organization of Neonatal Services in Santiago, Chile consists of 8 Neonatal Intensive Care Units (NICU) with a capacity of 83 intensive care cradle / incubators and 132 intermediate care cradle / incubators<sup>6</sup>.

The Reference Standard, given by the Central Level Health Authorities, is one intensive cradle / incubators for every 1,000 childbirths and two intermediate cradle / incubators for every 1,000 childbirths. In our country, 75% of the children born alive are public health system beneficiaries<sup>6</sup>.

In general, Chile provides neonatology health care services at tertiary level hospitals or at high complexity units attached to maternity units and they are divided according to the complexity or the critical conditions of the newborn. Thus, we have:

**Immediate attention rooms:** next to the delivery room, with cradles prepared for resuscitation where newborns receive immediate care (cord tie, secretion aspiration, BCG vaccine, cutaneous cleanup, etc.). If hospitalization is required, neonates are taken to the unit corresponding to the seriousness of their condition. All children are evaluated by medical professionals and midwife-nurses. All procedures are performed by the midwife-nurse, where observation, knowledge and anticipation in a dangerously unstable period are all essential and where deep physiological changes happen during the reorganization of the corporal systems and behavior for the adaptation to extrauterine life. Neonates remain approximately 2 hours in this room. In other centers, this care is provided in a multiple-bed room to facilitate early attachment and strengthening of the affective bond.

**Basic care rooms:** are used for newborns with less complex problems, such as: metabolic alterations, minor infections and thermoregulation problems

**Intermediate care rooms:** are used for newborns with medium complexity health problems, such as hypoglycemia, sepsis, respiratory problems that do not require attended ventilation, among others.

**Intensive care rooms:** are used for seriously ill newborns or those with very low weight at birth who require ventilation support, post surgery recovery, great malformations.

### Neonatal Nursing:

Technological advances and the survival of ever smaller weight and gestational age newborns demand from for the midwife-nurse a high degree of specialization in the care of the seriously ill newborn, with unique responsibilities and abilities while they must also integrate the family at every moment of its care. This implies a solid theoretical education and a continuous reflection on practice, in order to develop critical thinking and to support the care given to the newborn and family.

NICU midwife-nurses must anticipate the practical problems that may come up, and they also share a significant responsibility in the care and handling of increasingly sophisticated, and complex equipment used by neonates (monitors, respirators, ECMO, among others).

## **Neonatal Nursing in Chile:**

Neonatal care in Chile is generally provided by midwife-nurses who have four main roles: administration, assistance, education, and investigation. In the administrative area of neonatology services, it is generally the midwife-nurse who supervises fulfillment of the activities assigned to personnel reporting to her and performs more complex activities according to the plans made for each shift and in fulfillment of medical orders; there are also nurses who only carry out administrative programming work and supervise health team functions.

In the assistance area, midwife-nurses must perform direct nursing care and procedures, and must have sufficient knowledge to evaluate maternal and newborn risk factors and to make suitable nursing diagnoses. They also provide individualized attention according to necessary priorities in the seriously ill newborn, while evaluating and reevaluating the baby at all times, offering timely, efficient, effective and comprehensive health care that addresses the health needs of the infant and family, and fosters teamwork.

Midwife-nurses provide 24-hour care of the newborn along with paramedic technicians (support personnel prepared with a two-year education at technical institutes). Paramedic technicians collaborate in all activities, especially in basic care (changing, feeding, bathing, routine controls) and support nursing procedures.

The educational role of the neonatal nurse is very well developed and is a fundamental tool for the health care of premature babies, to prevent these newborn's specific problems, anticipating their risks and acting at the right time and efficiently with the required family involvement

Research is the least developed area. Nurses conduct research during their practice and they exercise critical thought, but they have very few publications. During the undergraduate and postgraduate program, the student learns about evidence, how to use it, and they must do a systematic review about the any neonatal topic such as physical care or development care. In their clinical work the nurses and midwife-nurses use protocols based in evidence, such as those in the Cochrane Library. The nurses participate in many congresses and events in this area in Chile and other countries, but theirs publications are very few in national journals, and do not occur in indexed journals.

The principal focus of the nurses scientific publications are psychosocial topics. Most are published in Latin American Journals because in it is difficult to publish in another language as English is a barrier for us.

## **Neonatal Follow-up:**

Once babies who weigh less than 1,500 gm and/or who are less than 32 weeks are discharged from neonatal units, they must be followed up specialized polyclinics, with the purpose of completing treatments or solve health problems derived from the premature condition. During the follow-up, the nurse's roll is to promote integration between the diverse activities carried out by the health team and the family.

With this training, midwife-nurses perform the four functions of their role: to assist as health care supplier, to educate parents and health team members, to administer and manage health care, to conduct research, and also to support, pivot, train and defend user rights, working in a team where the shared goal of all their members is to promote healthy lifestyles leading to full development while granting a better quality of life for the newborn and his or her family.

## **Conclusions:**

Neonatal care is very complex and requires great ability. The nurse midwife needs to observe the infant and take part in the recovery, support and education of the family, and to recognize stages of crisis in the parents. Nurses need to get to know the family through domiciliary visits and to give integral care to infants of very low birth weight and some special conditions, for example children with chronic respiratory problems who require oxygen therapy for a long time for their recovery at home. In addition nurses must work as part of a team, know the causes and complications in special situations, and initiate the transfer to specialized centers when required and provide support and continuous education to the family to develop the infant's potential to the maximum.

**References:**

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2. Caballero, Erika y Fernández, Patricia, Programa Policlínico de Seguimiento del Recién Nacido Prematuro, Hospital Dr. Sótero del Río, Pontificia Universidad Católica de Chile. 1995.
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5. Morgues, Mónica, Pitaluga, Enrica, Vernal, Patricia, Henríquez Maria Teresa, Vega S y Tohá, Dolores, Comisión Nacional de Seguimiento del Prematuro, Revista Chilena de Ginecología y Obstetricia, Vol. 67 N°2, pp. 100-105, Junio 2002.
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**Mother and son in Basic care room**



Nurse consults during the follow up (evaluación de desarrollo sicomotor y educación basada en el modelo de autocuidado) con autorización de los padres

Name: Ian Lucas

Weight: 640 grs

Gestational age: 27 sem

Date of birth: 15 august 2005

Chronological age 6 month



Immediate Care Room



Preterm infant in Intermediate Care



Intensive Care Rooms

Sótero del Rio Hospital, this is an Public hospital



Baby with mechanical ventilation in intensive care

This website will highlight various country activities of the international neonatal nursing community. If you would like to have your country or activities highlighted or you are interested in becoming a regional representative or want COINN's help on a project please send information to us at: [info@coinnurses.org](mailto:info@coinnurses.org).