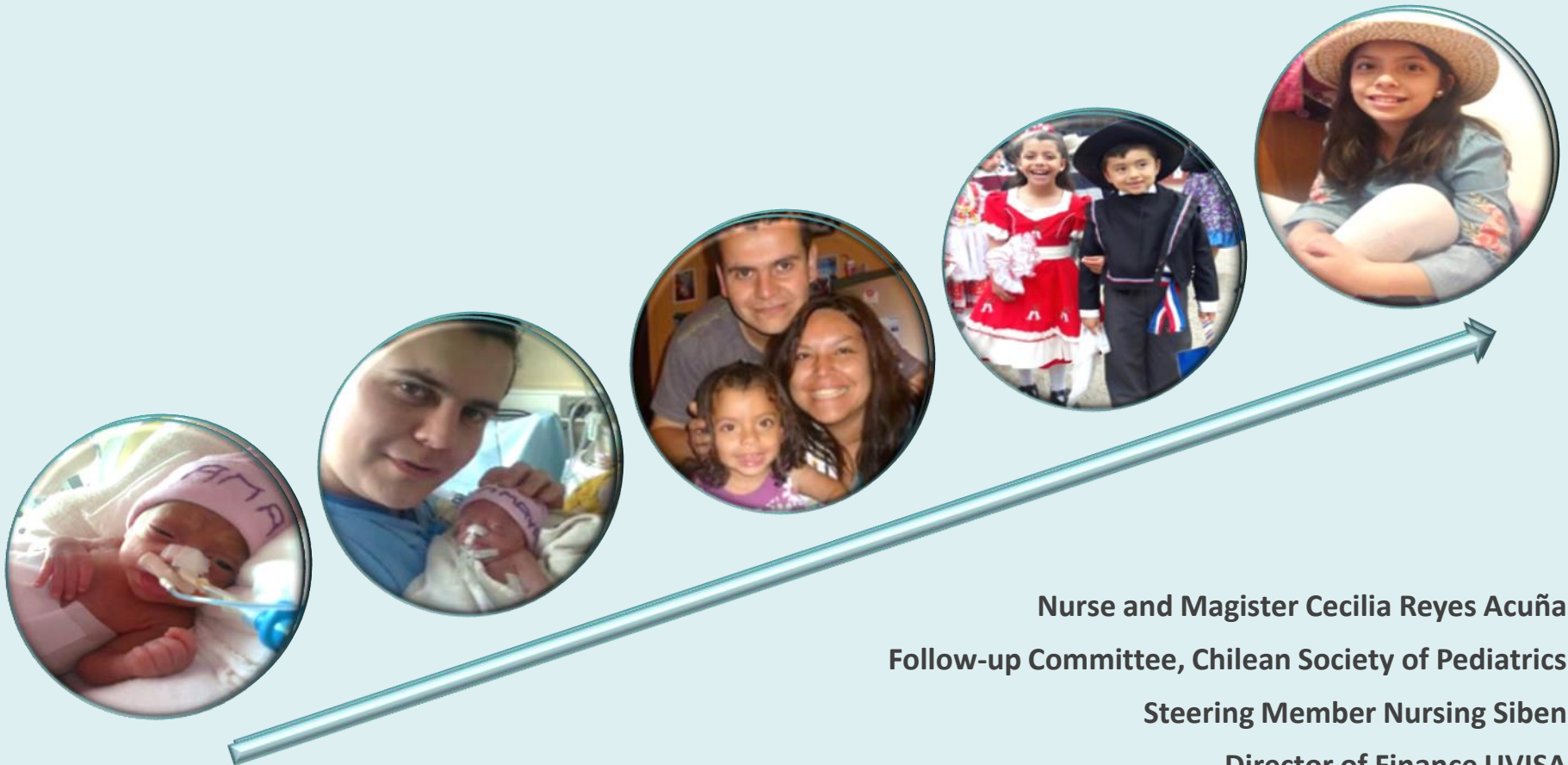


# XII INTERNATIONAL CONGRESS ON KMC /INK 2018

## Kangaroo Mother Care and Neuroprotection of the premature brain

### FOLLOW UP OF PREMATURE CHILDREN IN CHILE



**Nurse and Magister Cecilia Reyes Acuña**  
**Follow-up Committee, Chilean Society of Pediatrics**  
**Steering Member Nursing Siben**  
**Director of Finance UVISA**  
[www.uvisa.cl](http://www.uvisa.cl)

# CHILI

## GEOPOLITIC ORGANIZATION

15 Regions

and

National health system with

29 Health Services

183 hospitals (26.372 beds)

1805 APS establishments

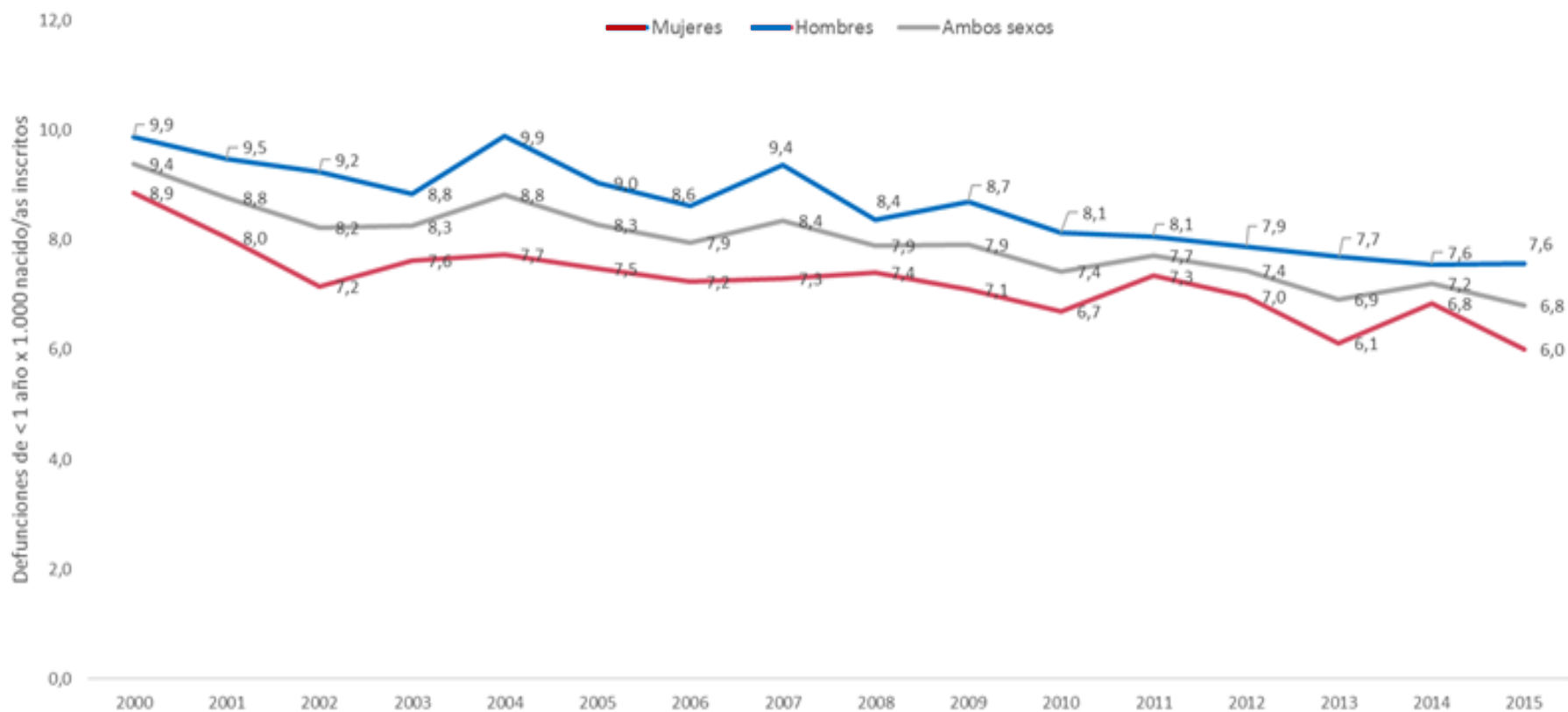


# Epidemiological Background



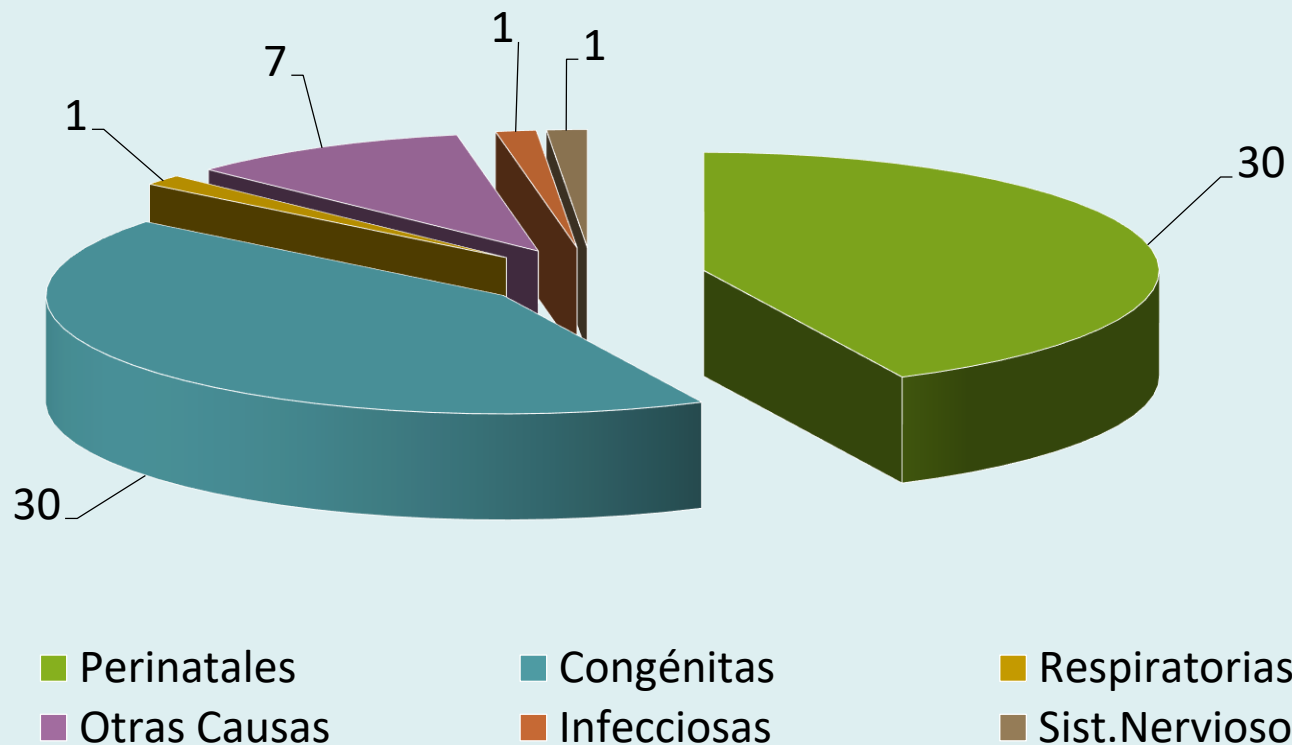
- Chili in 2016, 237,749 children were born,
- Of these, 19,175 were preterm with less than 36 weeks of gestational age.
- The extreme premature infants were 2,955 (born with less than 32 weeks of gestational age).
- Extreme prematurity is the leading cause of neonatal morbidity and mortality in Chile.
- Preterm infants account for 83% of perinatal mortality among children under one year of age

Mortalidad infantil por Sexo, Chile, serie 2000-2015



Fuente: DEIS, MINSAL

# Infant Mortality according to groups of causes. Chile 2016



# Factors that have contributed to the reduction of Infant Mortality in Chile

Implementation of strategies to reduce preventable deaths: IRA, diarrhea, accidents

Increase in professional care coverage for childbirth

Obligatory audits of infant and maternal death

Increase in prenatal care coverage

Primary care coverage and access to hospitalization

Winter Campaigns

Renovation of equipment in neonatology

Greater endowment of neonatal RRHH in Regional Hospitals

**Reduction of Infant Mortality in Chile**

Training in neonatal resuscitation

Strengthening of national reference centers and creation of regional development centers

Incorporation of pathologies related to prematurity at GES

Better environmental conditions and education

Home visits to vulnerable groups: premature, malnourished, high social vulnerability

Creation of the SNS (1952)

Implementation of the PNAC since the 1960s

Development of the Expanded Program of Immunizations (EPI)

National program for the use of surfactant

IRA Rooms

# Some history of the Monitoring of Premature Children in Chile



# First stage



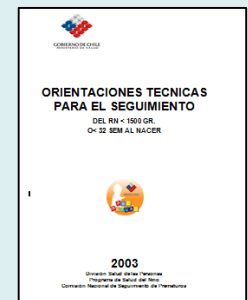
- In 1994, a group of neonatal academic experts, researchers dedicated to the care of premature children in their first years of life, was formed.
- They begin to unify views regarding the reality of children in the country and the most appropriate way to address their problems.
- Present their first results to the care and scientific community
- They make a proposal of work to the Ministry



# Second stage

A national commission for monitoring premature babies is formed in the Minsal, which develops the following strategies and activities:

- Technical standards for monitoring premature children
- Structure a national network of polyclinics for monitoring premature babies
- Training to the network and annual meetings.
- Preparation of a national registration system
- Creation of a web page
- Modification of the National Plan of complementary feeding with special milks for the premature ones in its first year of life.
- Edit a Five-Year Report



**Coordinators National Commission for Premature Follow-up: Dr. Mónica Morgues and Enf. Cecilia Reyes**

**Members of the National Follow-up Commission: Dr. E. Pittaluga (SSMSO); MT. Henrriquez and S. Vega (SSMOCC); P. Vernal (SSMN)**

- **Arica:** Dra. Leonor Schennone
- **Iquique:** Dr. Manrique Caamaño; Dra. Evelyn Born.
- **Antofagasta:** Dra. Carmen Díaz Quiroz.
- **Atacama:** Dr. Omar Luz Hidalgo.
- **Coquimbo:** Dr. Fernando Carvajal Encina; Dr D. Fuentes; P. Vargas
- **Aconcagua:** Dra. Paulina Moncada
- **Viña del Mar – Quillota:** Dra. Marisol Escobar M.
- **Valparaiso - San Antonio:** Dra. María Isabel Saldes
- **Lib. Bdo. O Higgins:** Dr. Alexis Diaz; Dra. Sandra Migone Repetto.
- **Maule:** Dr. Víctor Manuel Farfan; Dra A.Canesa Y Dr P. Pavez.
- **Talcahuano:** Dra Cecilia Enrriquez y María Eliana Godoy.
- **Concepción:** Dra. Mónica Simon Y Dra. Lila Campos.
- **Arauco:** Dra Nélida Sepúlveda y Dr. Pablo Jorquera.
- **Ñuble:** Dra. Mónica Gajardo Castro.
- **Bio- Bio:** Dr. Cristián Rivera
- **Araucanía Sur:** Dr. Jorge Rudolph. SCh.
- **Araucanía Norte:** Dra Alicia Cantos.
- **Valdivia:** Dra Viviana Paez Fuschslocher.
- **Osorno:** Dr. Andres Fuschlocher.
- **Llanchipal:** Dra. María Inés Lagos.
- **Aysén:** Enf. Marco Acuña Briones.
- **Magallanes:** Enf. Patricia Ruiz Vera.
- **SSMC:** Verónica Peña. Katherine Rossel.
- **SSMS:** Rodrigo Salas.
- **SSMO:** Lilian Rubio. Jaime Alarcon



# FIRST NATIONAL NETWORK TRAINING



# WEB

Microsoft Internet Explorer window showing the website **prematuros.cl**. The page title is **PROGRAMA SEGUIMIENTO DE PREMATUROS Chile**.

Navigation menu: **PROGRAMA SEGUIMIENTO** | **GUIAS PRACTICA CLINICA** | **ENFERMERIA NEONATAL** | **KINESIOLOGIA NEONATAL**

Sub-menu: **PADRES** | **G E S** | **SEGUIMIENTO** | **CURSOS** | **NEOPAGINA** | **HUMOR** | **REFLEXIONES**

Month: **JULIO 2006**

Search: **prematuros.cl** [Buscar]

Image:

Text: **Seguimiento Prematuro menor de 1.500 grs. y/o menor de 32 semanas**

<b>UNA HISTORIA DE OPTIMISMO</b> Una historia de optimismo en Hospital de La Serena - Chile. <a href="#">Leer...</a>	<b>SERVICIO NEONATOLOGÍA</b> Presentación Serv. Neonatología, Hospital San Juan de Dios, La Serena-Chile <a href="#">Leer...</a>
<b>APENDICITIS NEONATAL</b> Dos casos clínicos diagnosticados en el Hospital de La Serena Chile. <a href="#">Leer...</a>	<b>CUATRILLIZOS</b> Cuatrillizos en La Serena. Desafío superado. <a href="#">Leer...</a>
<b>HOSPITAL DE OVALLE</b> Reseña Unidad de Neonatología de Hospital de Ovalle - Chile <a href="#">Leer...</a>	<b>POLICLÍNICO DE PREMATUROS</b> Policlínico de Prematuros en el Hospital de Ovalle - Chile. <a href="#">Leer...</a>
<b>PRUEBAS DIAGNOSTICAS</b> Comprensión y aplicación de pruebas diagnósticas. <a href="#">Leer...</a>	<b>TERAPEUTICA BASADA EN EVIDENCIA</b> Decisiones terapéuticas basadas en evidencia. <a href="#">Leer...</a>
<b>SOBREVIDA EN MENORES DE 1500 GRs.</b> Resultados R.N. menores 1500 grs en UCIN Hospital de La serena - Chile <a href="#">Leer...</a>	<b>PROTOCOLO DE SURFACTANTE</b> Nuevos Protocolos de administración de Surfactante e Indometacina. <a href="#">Leer...</a>
<b>INOTROPOS</b> Cuál inótropo usar en soporte circulatorio y en qué neonatos ? <a href="#">Leer...</a>	<b>PRESIÓN ARTERIAL</b> Alteraciones de la presión arterial en el neonato. <a href="#">Leer...</a>

Footer: **Internet** | **Inicio** | **Adobe Reader - [CNN...]** | **Informe Redes Asiste...** | **Quinquenio** | **prematuros - Microso...** | **ES** | **17:06**

# Atención Preferencial desde el año 2000.

**PROTOKOLO DE SEGUIMIENTO** (Data llenarse antes del alta de Neonatología)

**I INFORMACION GENERAL** NOMBRE: \_\_\_\_\_ SEXO: \_\_\_\_\_  
NOMBRE DEL PADRE: \_\_\_\_\_ APELLIDO MATERNO: \_\_\_\_\_  
NOMBRE DEL RESPONSABLE: \_\_\_\_\_ F. COMI: \_\_\_\_\_  
DIRECCION: \_\_\_\_\_ PARENTESCO: \_\_\_\_\_  
FORMA DE CONTACTO: \_\_\_\_\_ CUIDADOR: \_\_\_\_\_  
FECHA DE NACIMIENTO: \_\_\_\_\_ HOSPITAL: \_\_\_\_\_ TRASPASO: \_\_\_\_\_  
PESO: \_\_\_\_\_ CMH (CMH): \_\_\_\_\_ FECHA DE ALTA: \_\_\_\_\_

**II DATOS DE EMERGENCIAS Y FOLIOLETRICO** NPOE FIGURA: \_\_\_\_\_  
FECHA DE INGRESO A FOLIO: \_\_\_\_\_ CMH (CMH): \_\_\_\_\_  
FECHA DE FOLIO: \_\_\_\_\_ CMH (CMH): \_\_\_\_\_

**III FECHA DE ATENCIONES Y AVISOS**

**CONTROLES PROGRAMADOS**

FECHA	AVISOS	AVISOS	AVISOS	AVISOS	AVISOS	AVISOS	AVISOS	AVISOS	AVISOS
01									
02									
03									
04									
05									
06									
07									
08									
09									
10									
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23									
24									
25									
26									
27									
28									
29									
30									
31									

**EVOLUCION FISIOLÓGICA**

**REHABILITACION**

**MORBILIDAD**

**CALENDARIO DE VISITAS PAU (antes de alta)**

**BCC** \_\_\_\_\_  
**FOLIO** \_\_\_\_\_  
**DPE** \_\_\_\_\_  
**HUB** \_\_\_\_\_  
**TRIVIBUCA** \_\_\_\_\_

**TEST DE BAYLEY (1 a 2 años)** \_\_\_\_\_  
**TEST DE WISCOTT (3 a 5 años)** \_\_\_\_\_



Tomado de Seguimiento del prematuro Minsal

# **FOLLOWING POLICLINIC OF PREMATURE CHILDREN**

## **What is the follow-up?**

**It is the comprehensive long-term health care (up to 9 years) granted to premature children (less than 1500 gs and / or less than 32 SEG) by a multidisciplinary team, which conducts periodic evaluations with a preventive, recovery and of rehabilitation.**

**It is carried out through the public and private attention network, coordinating the levels of care, placing the center of care for the premature child and their families. It uses public and private resources as well as community organizations.**

# Purpose of Tracking of Premature Children

To optimize the health status of children with a birth weight of less than 1500 grs and / or under 32 weeks of age to favor their incorporation into society, with the maximum of their potentialities.



# FOLLOW-UP OBJECTIVES

- Contribute to the integral development of premature children and promote their proper insertion in society.
- Unify and regulate clinical criteria for care.
- Improve the quality of care.
- Optimize the coordination of the different levels of the SNSS.
- Obtain information on the health situation of the premature babies upon discharge from the neonatal units and their subsequent development.



# PREMATURE MONITORING POLICLINIC

**How?**



**Design of a Monitoring Program**

- Flexible
- Accessible
- In response to the child's needs
- It must include rehabilitation strategy

## **COORDINATION**

- Between levels of care
- With the Health Directors
- With the different specialists
- With the Educators
- With the Community

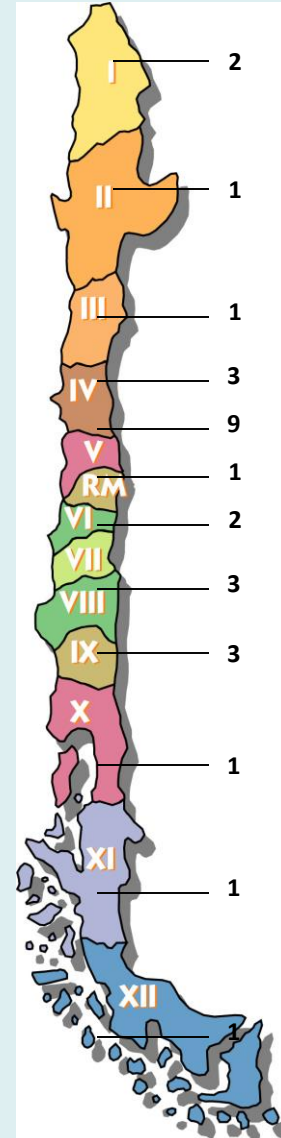
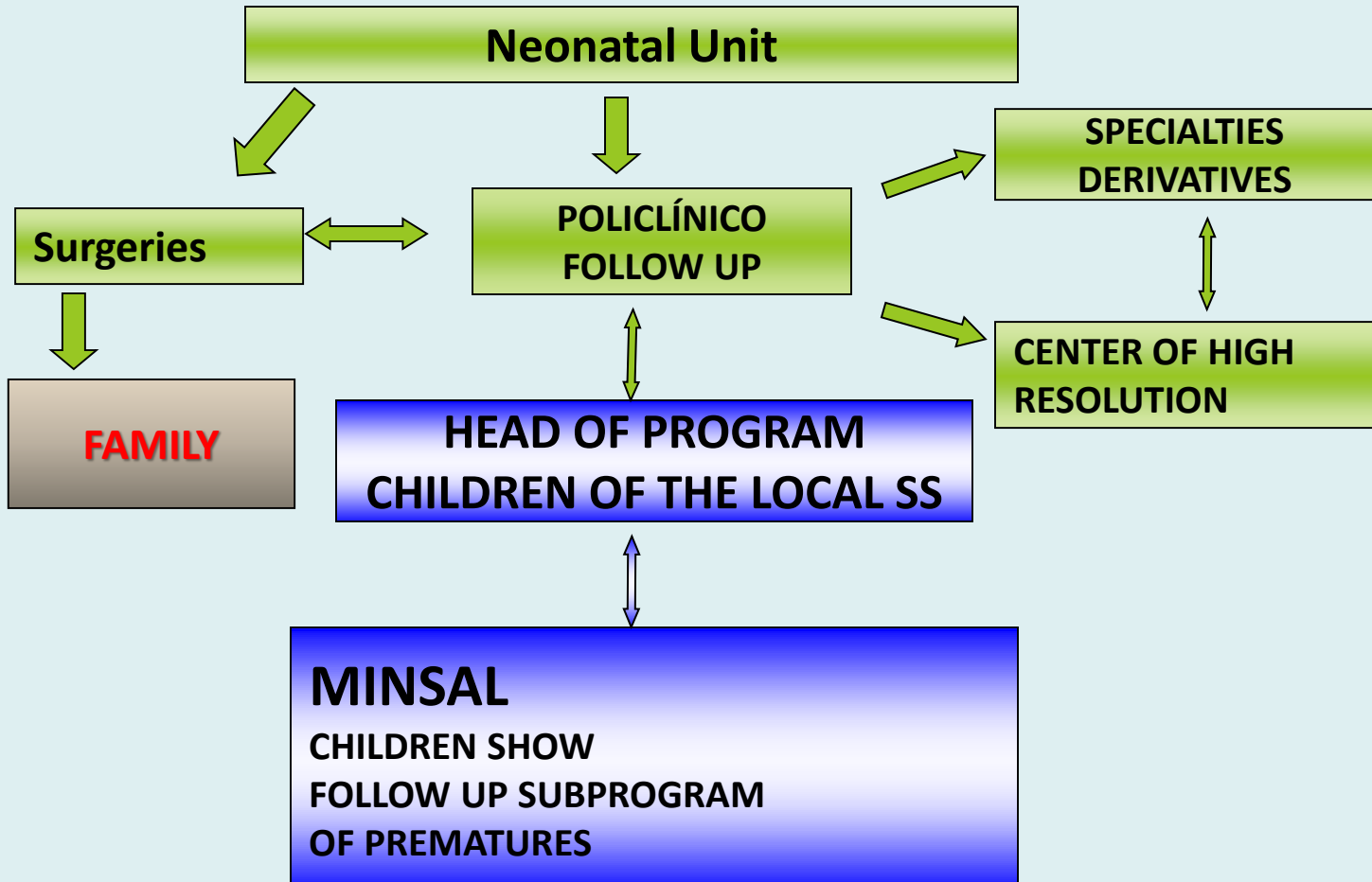


# Some aspects developed

- **Clínicos**
  - Identification of medical and developmental problems
  - Refer timely
- **Education and Support**
  - Family
  - Healthcare professionals
- **Investigation**
  - Intervention Protocols
  - Document forecast
- **Optimize coordination**
  - Different levels of attention
  - Between SS and private
  - With other sectors

# Model Monitoring in Chile

## Integration with Primary Care and family according to residence.



# Monitoring of the RNMBP: assumptions

- The discharge of neonatal units does not mean the resolution of your health problems.
- RNMBP children have a higher risk of neurosensory and respiratory disorders:
  - Attention deficit.
  - Behavioral alterations.
  - Deficit in the DSM
  - Motor disorders of different severity.
  - Cerebral palsy.
  - Hearing loss and sensorineural deafness.
  - Visual alterations secondary to ROP or therapy that can lead to blindness.
  - Bronchopulmonary dysplasia
- Greater frequency of hospitalizations and death by IRA.



# Attention Schedule

	DAYS			S	MONTHS															
	7	14	40		1	2	3	4	5	6	7	8	9	10	11	12	15	18	21	24
APS Doctor Nurse							DSM				DSM							DSM		
CDT																				
NEURO																				
PHONO																				
DSM																				
OTHER			OFT						Otorrino									OFT		BAYLEY

\*\*The nurse evaluates lactation in controls prior to 40 weeks, 1 month or when necessary.

# Attention Schedule



	YEARS											
	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	8	9
APS				DS M								
CDT		DS M										A
PHONO												L
NEURO												T
OTHER					C.I.							A

\* The control in APS can be ½ years or years according to the office.

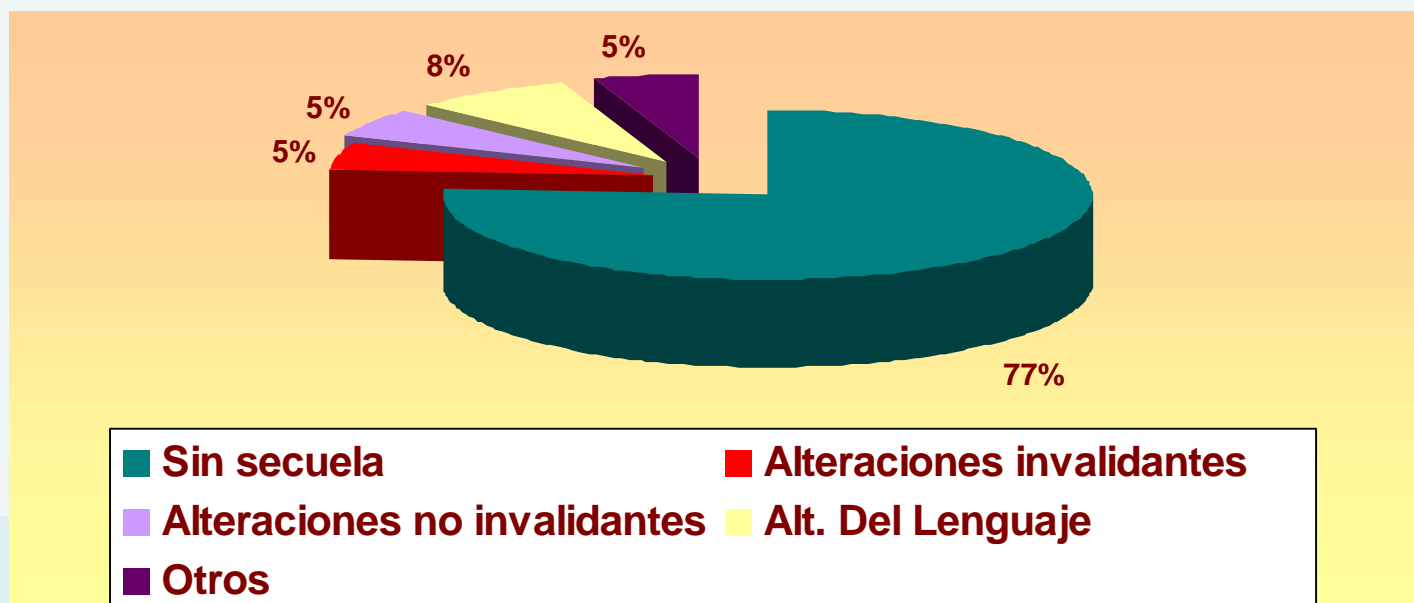
\*\* The nurse conducts health checks.

# Multidisciplinary team



# Neurological Problems Tracking

- **National statistics :( National Monitoring Commission)**
  - **Preterm infants born during the year 2000 were studied at 2a of life in 5 centers of the country with coverage > 80%.  
A total of 365 children met (304 informed)**

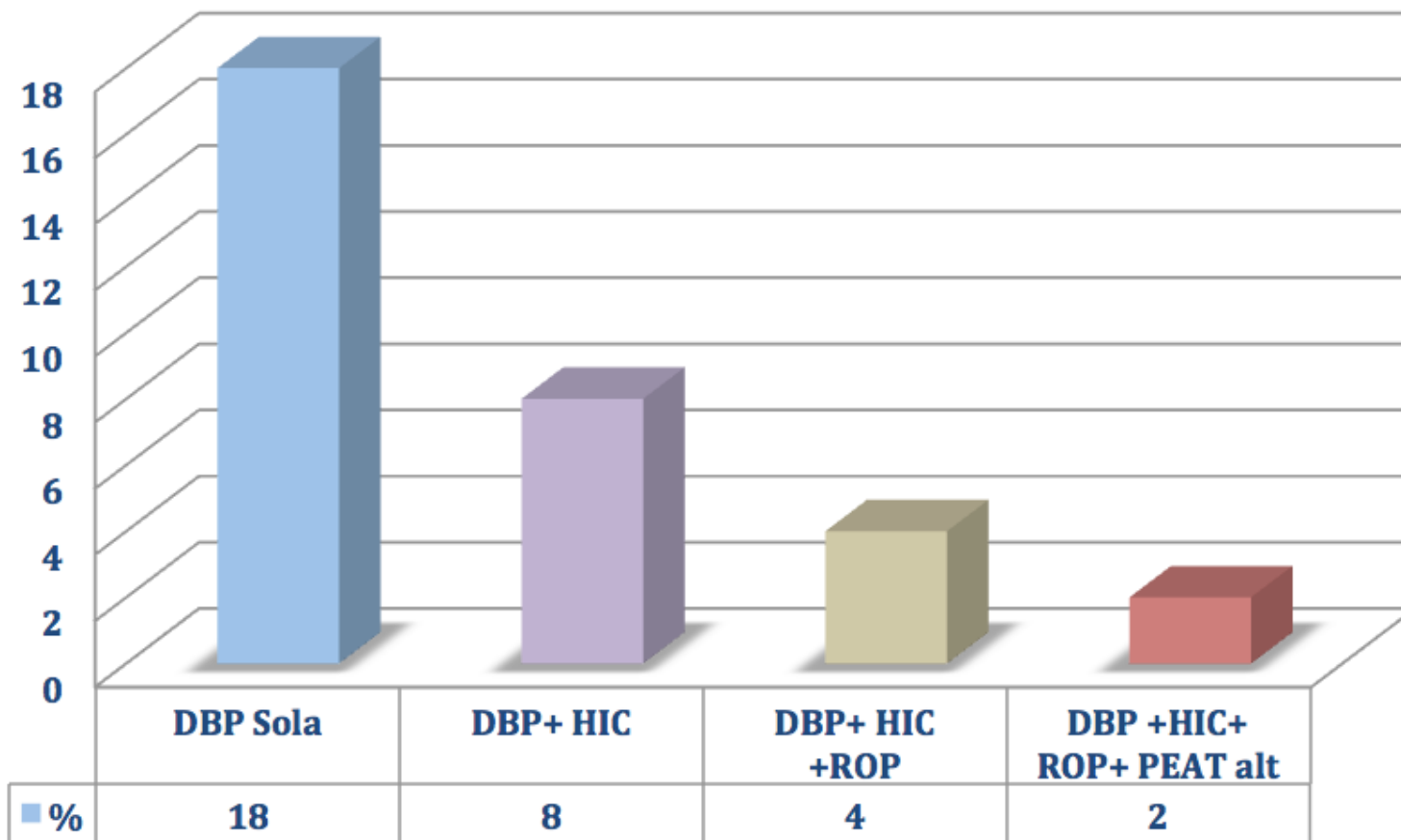




# Multiple commitments(2016)



**Grafico 12: % de niños que ingresan a seguimiento con más de 1 área comprometida.**



# EXTREME PREMATURE TRILLIZES OF VIÑA DEL MAR



# Current situation



# Third Stage



## 1.- Incorporation into the GES:

- Retinopathy of the Premature (ROP) and avoid its main sequel, blindness.
- Hearing loss: from the research to the cochlear implant
- Bronchopulmonary dysplasia



**2.- Development of other strategies:** use of Palivizumab, vaccination against pneumococcus, home oxygen and the extension of maternity leave for mothers of premature babies and maternal labor rest during the first year in the most complex cases (worked with the Superintendency of Social Security).

**3.- Creation of the Monitoring Committee in the Chilean Society of Pediatrics**

# SOMETHING OF WHAT WE HAVE LEARNED



- The existence of neonatal networks allow to improve survival by promoting the best practices.
- The place where you are born is important in the survival of the newborn (Plan the place of birth → premature birth).
- The intensive care environment and family involvement also affect the outcome of physical and neurological development.  
→ Importance of education
- The promotion of attachment and breastfeeding is paramount

# Explicit Health Guarantees (GES)

## Acceso

Es el derecho a recibir las atenciones y las distintas intervenciones sanitarias, en la forma y condiciones establecidas para cada problema de Salud AUGE.

Es el derecho a recibir las atenciones garantizadas dentro de plazos establecidos.

## Calidad

## Protección Financiera

Es el derecho a que se determine el valor que a la persona le corresponde pagar por las atenciones (de acuerdo al Arancel GES, las normas que rigen el cálculo del copago y los topes máximos autorizados).

Es el derecho a recibir las atenciones garantizadas dentro de plazos establecidos.

## Oportunidad

# NEONATAL NETWORKS ASSOCIATED WITH EXPLICIT HEALTH GUARANTEES (GES)

## I ASSOCIATED WITH THE PREMATUREZ

1. Prevention Preterm Labor
2. Retinopathy of the Premature
3. Deep Bilateral Hearing Loss

## II RESPIRATORY DIFFICULTY SYNDROME

1. High Frequency Ventilation
2. Nitric oxide
3. Ecmo
4. Diaphragmatic hernia

## III CONGENITAL CARDIOPATIAS OPERABLE

## IV LABIOPALATINA FISSURE

## V HYPOACUSIA IN THE MINOR OF 2 YEARS



# ¿Si el niño o niña nace prematuro, pesa menos de 1.500 gramos al nacer y/o nace de menos de 32 semanas de gestación y presenta problema en su retina, sordera o displasia broncopulmonar?

## 1 Hijos prematuros con retinopatía

- a) Se garantiza, a través de un examen de fondo de ojo, la confirmación diagnóstica dentro de 56 días desde el nacimiento.
- b) Dentro de 72 horas luego de confirmado el diagnóstico accederá a cirugía con rayo láser o a crioterapia. Se garantiza cirugía vitreoretinal si hay indicación.
- c) Dentro de 60 días, desde la indicación, se garantiza el acceso a anteojos.



## 2

### Hijos prematuros con sordera

- a) Todo niño nacido con menos de 1.500 gramos y/o antes de 32 semanas de gestación tendrá garantizado un examen de diagnóstico auditivo.
- b) Dentro de los tres meses de edad corregida y con examen de diagnóstico auditivo alterado, el niño o niña tendrá la confirmación diagnóstica de la enfermedad.
- c) Confirmada la enfermedad y dentro de los seis meses de edad corregida se asegura la implantación de un audífono. De ser necesario el médico indicará la realización de una cirugía coclear. En ambos casos se garantiza la atención con fonoaudiólogo.



## 3

### Hijos prematuros con displasia broncopulmonar

- a) En la unidad de neonatología del hospital y en no más de 24 horas de confirmado el diagnóstico, el niño o niña tendrá derecho a tratamiento del daño pulmonar detectado. Se garantiza el acceso a fármacos. Tendrá acceso a oxígeno domiciliario según indicación y tratamiento por kinesiólogo en el consultorio.
- b) Dentro de 14 días después del alta el recién nacido tendrá garantizado el control con médico especialista.

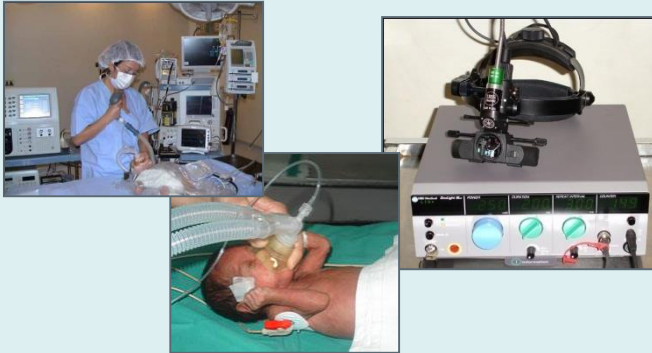
Contempla también el acceso a fonoaudiólogo y a intervención sicosocial grupal.



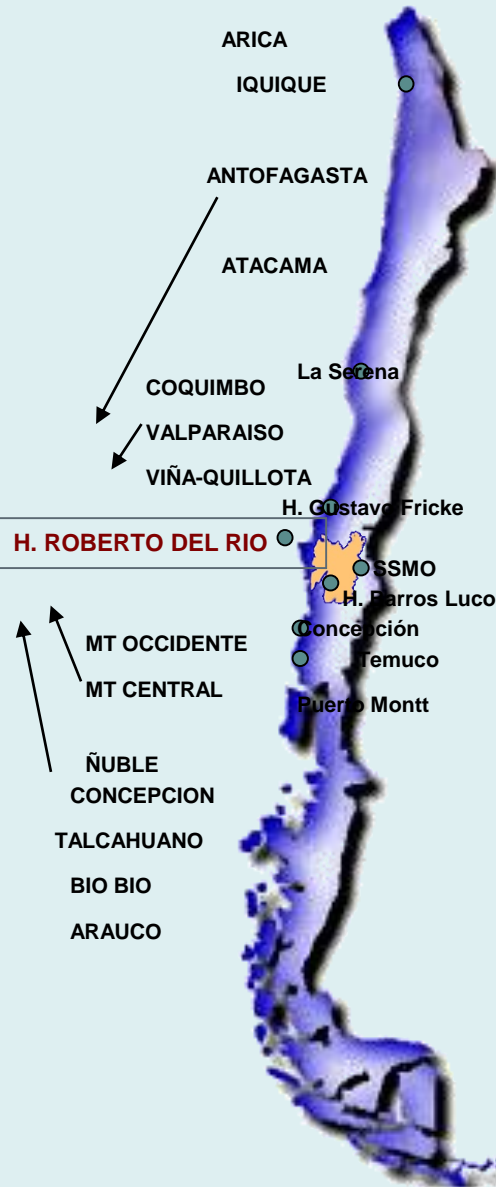
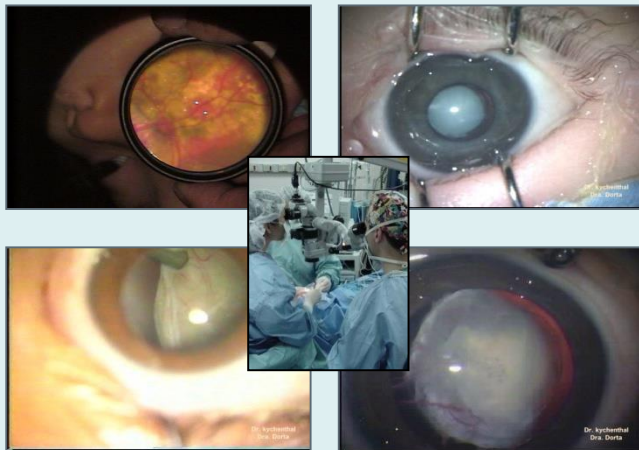


# SNSS network for Dg. and Treatment of ROP

Diagnostic Confirmation Center and laser treatment



Confirmation Center Diagnosis and laser treatment  
Center for vitreo-retinal children's surgery



## Chili:

- 30 Health Services.
- 30 screening centers (neo)
- 9 photocoagulation centers
- 1 center of vitreo-retinal surgery S. public.



Ophthalmological monitoring

## RESULTS RETINOPATHY OF PREMATURE

2012 BENEFITS	N°
Retinopathy of the Premature: Suspicion and Confirmation of Retinopathy	1.674
Retinopathy of the Premature: Laser photocoagulation	128
Retinopathy of the Premature: Vitreoretinal Surgery	6
Surgical Post Follow-up Retinopathy of the Premature 1st year	43
Follow-up Post-surgical Retinopathy of the Premature 2nd year	12
Follow-up Non-Surgical Patients Retinopathy of the Premature	255



## RESULTS BRONCOPULMONARY DYSPLASIA OF PREMATURE

2012 BENEFITS	N°
Bronchopulmonary Dysplasia of prematurity: Bronchopulmonary Dysplasia Treatment	656
Follow-up Patients Bronchopulmonary Dysplasia 1st year	2.203
Follow-up Patients Bronchopulmonary Dysplasia 2nd year	392

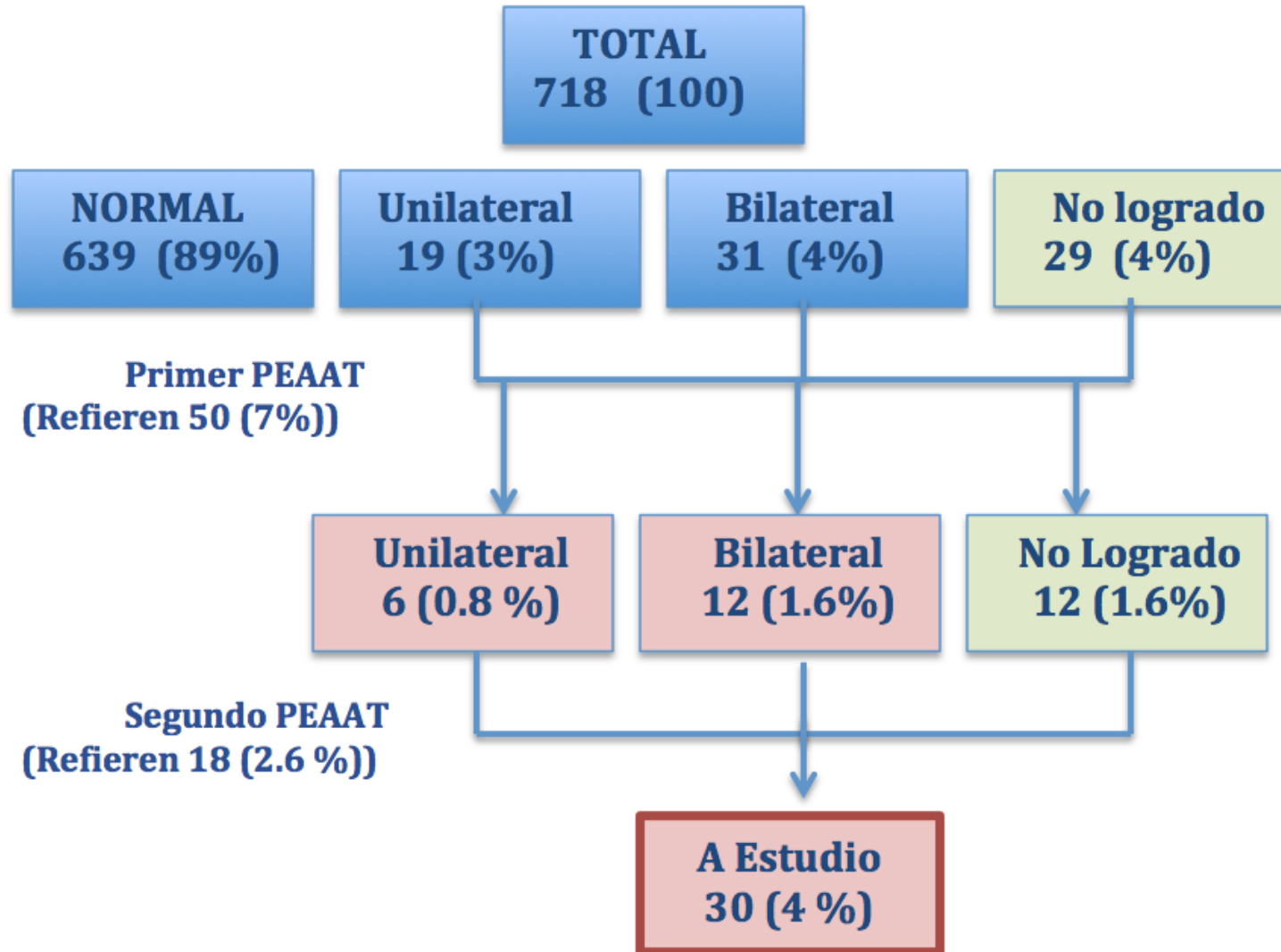
## RESULTS HYPOACUSIA NEUROSENSORIAL BILATERAL PREMATURO

2012 BENEFITS	N°
Bilateral Neurosensory Hearing Loss of the Premature: Automated Auditory Premature Screening	1.384
Bilateral Neurosensory Hearing Loss of the Premature: Confirmation Hearing loss of prematurity	763
Bilateral Neurosensory Hearing Loss of the Premature: Bilateral Auditory Implementation	10
Bilateral Neurosensory Hearing Loss of the Premature: Cochlear Implant	-
Bilateral Neurosensory Hearing Loss of the Premature: Rehabilitation Hearing Loss of the Premature (hearing aid and cochlear implant) 1st year	9
Bilateral Neurosensory Hearing Loss of the Premature: Rehabilitation Hearing Loss of the Premature (hearing aid and cochlear implant) 2nd year	1

# Auditory screening



( Pacientes con información. 689/1250)



# Some advances

- Extension of monitoring network
- Improvement of survival since 2000, producing a break at 25 weeks
- As of the year 2003, survival is presented in the SNSS at 23 weeks
- Apgar and antenatal corticoids were the most important interventions in the improvement of survival.
- Admit health problems of premature children to the GES Improvement in the implementation of neonatal units, with equipment and HR, decreasing gaps
- Health teams training: neonatal resuscitation
- Development of Standards and protocols
- Review and update of records systems
- National Food Program Change
- Access to Palivizumab, vaccines against pneumococcus, etc.





Martin Ignacio Cabezas Martinez

24.864.305 - 6

Nacimiento: 15-01-2015    Sexo: Niño

Gemelaridad:  Sí  No    Tipo:

Estatura: 35    Peso: 0,851

Edad Cronológica: 9 Meses 10 Dias

Edad Corregida: 6 meses 2 dias



RNPT AEG 26 Sem.

Calificación Curva de Crecimiento Intrauterino

Fecha de 40 semanas 23-04-2015

- Buscar
- Inicio
- Siguiente
- Anterior
- Ver Todos

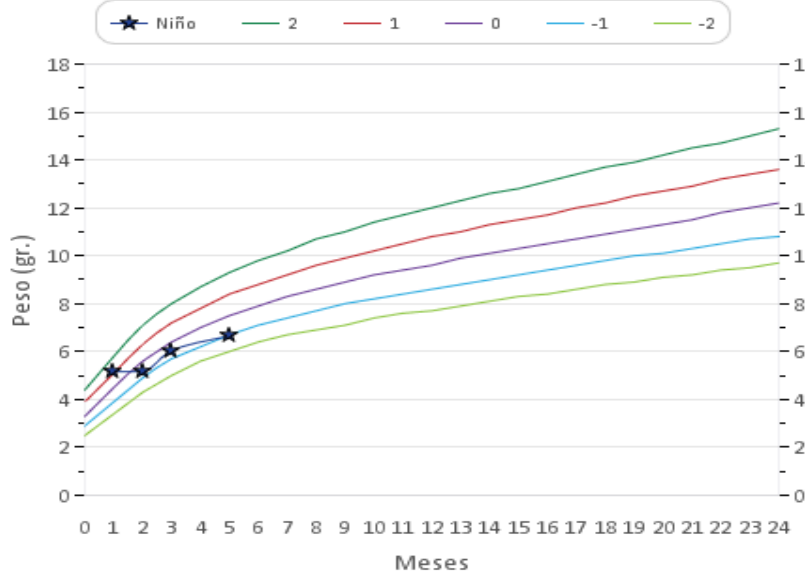
[Ver Diagnósticos](#)

P / E

T / E

P / T

CC / E



ZSCORE = -0,89

### Revisión de Controles

[+ Agregar Control](#)

Para agregar un nuevo control presione "Agregar Control"

- 40 Semanas
- 1 Mes    3 Meses
  - 6 Meses    9 Meses
  - 12 Meses    15 Meses
  - 18 Meses    24 Meses
  - 2,5 Años    3 Años
  - 5 Años    4 Años
  - 6 Años    7 Años
  - 8 Años    Todos

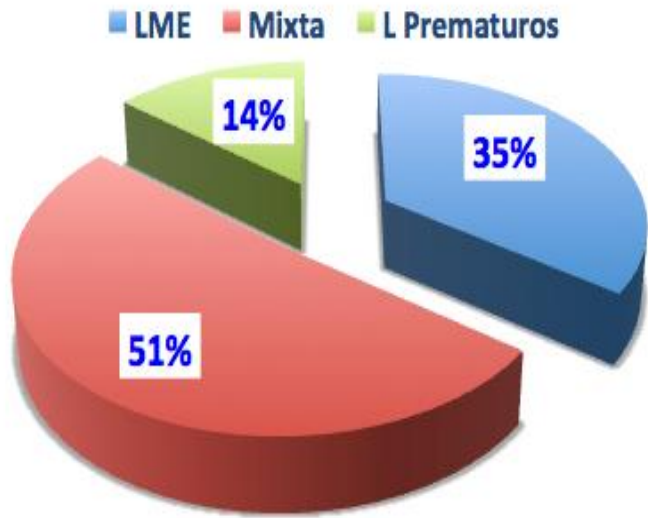
### DIAGNÓSTICOS

Fecha	Tipo	Diagnóstico	Neo	Cie
18-06-2015	Nefro-Urológicos	Infección urinaria a E Coli Blee (+)		
18-06-2015	Neurológicos	Encefalomalacia quística		
18-06-2015	Neurológicos	Status convulsivo	NEUR29	G 41.9
18-06-2015	Neurológicos	Trombosis seno venoso cerebral		
18-06-2015	Cardiológicos	Ductus cerrado farmacológicamente	CARD15	Q 25.0
18-06-2015	Respiratorios	Displasia broncopulmonar mod.	RESP26	P 27.1

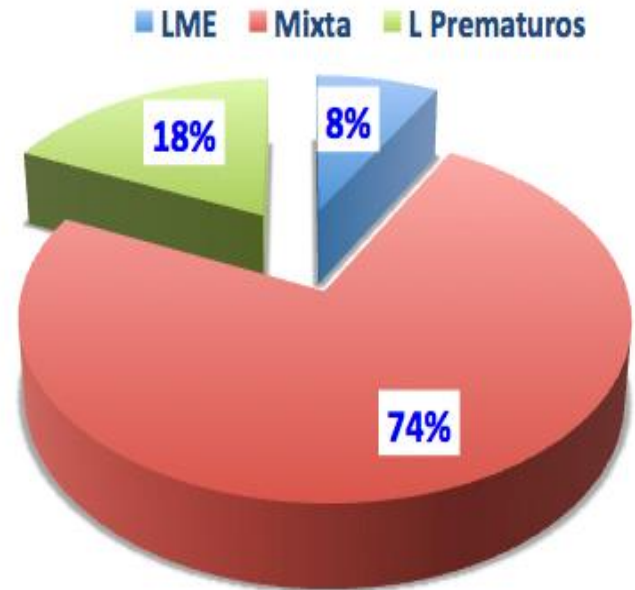


# Type of Feeding 2016

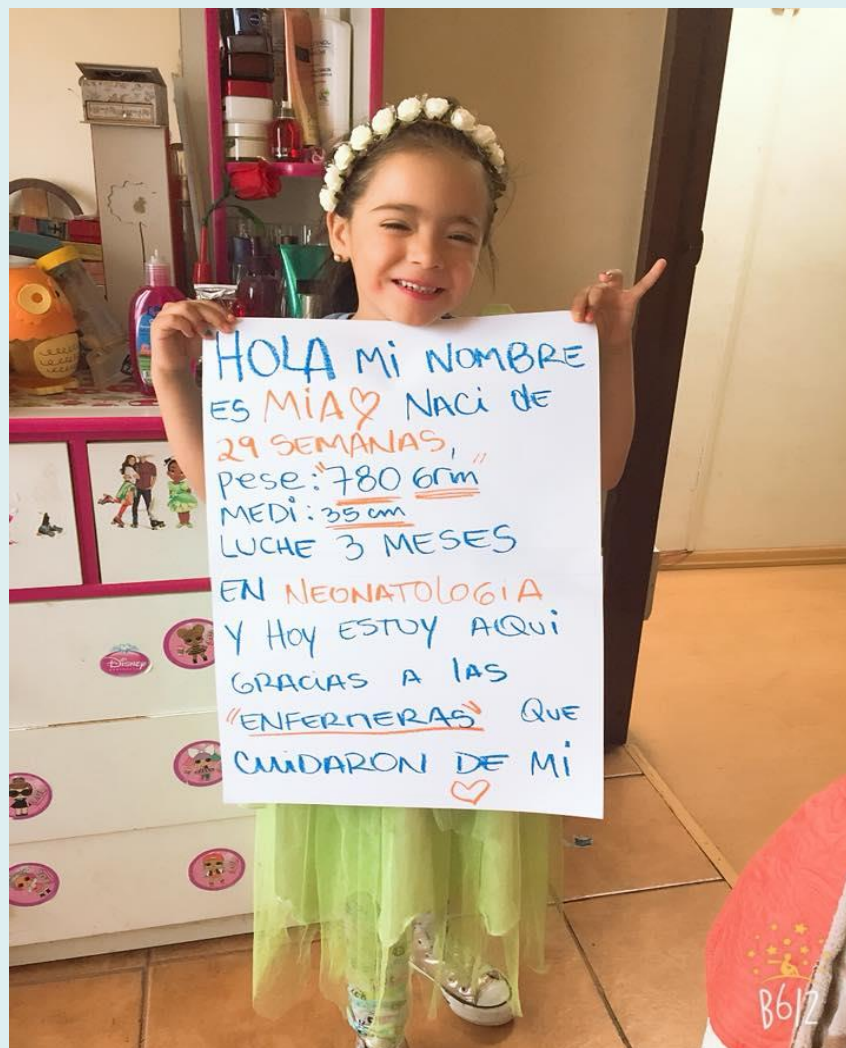
## Tipo de alimentación al Inicio despues de nacer



## Tipo de alimentación al Alta







HOLA mi NOMBRE  
ES MIA ♡ NACI DE  
29 SEMANAS,  
pese: 780 grm  
MED: 35 cm  
LUCHE 3 MESES  
EN NEONATOLOGIA  
Y Hoy ESTOY AQUI  
GRACIAS A LAS  
"ENFERMERAS" QUE  
CUIDARON DE MI ♡

# WEEKLY CELEBRATION OF PREMATURE





**Informe Técnico N° 1**  
**COMITÉ DE SEGUIMIENTO DEL RN DE ALTO RIESGO**  
**SOCHIPE**



**Como llegan los Prematuros < de 32 sem.**  
**y/o < 1500 g. a las los Policlínicos de**  
**Seguimiento?**

**Situación 10 años después de Iniciado el**  
**AUGE para los prematuros.**

2016



2016

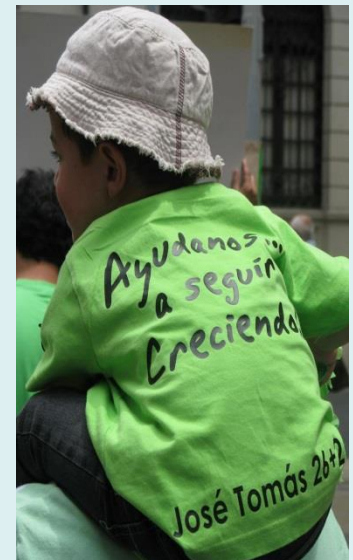
***How do the premature babies  
arrive at the beginning of their  
follow-up?***

***Dr. Mónica Morgues***

***Director of the Monitoring  
Committee Of the high risk RN.***

# The pending: tasks in development

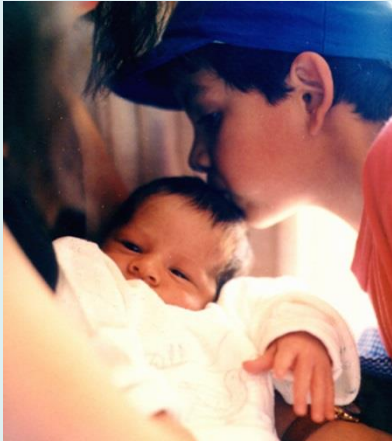
- Neurodevelopment: From prevention to rehabilitation with standards, protocols, qualified HR, etc.
- Extension of the existing GES: eg access to rehabilitation, change of processors to implanted children
- Facilitate the stay of parents in neonatology
- Training and education for family and caregivers
- Have the necessary HR to strengthen the multidisciplinary work in neonatology and the polyclinic follow-up
- Dissemination of existing coverage and benefits



# The pending: in development

- Implement a unique "official" registry system
- Strengthen work with PHC
- Monitoring compliance with GES guarantees
- Develop research to know the status of premature babies at different ages.
- Inter-sectorial work to facilitate their development and insertion into society.
- Review legal and insurance aspects.





**QUESTIONS**



**THANKS**

