

El recién nacido prematuro en el siglo XXI

Ruth del Río

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Universitat de Barcelona



**CURSO INTERNACIONAL DE NEONATOLOGIA
Y MATRONERIA NEONATAL**

PUERTO MONTT 10 Y 11 DE NOVIEMBRE 2017

AUDITORIO UNIVERSIDAD SAN SEBASTIAN - SEDE PATAGONIA



Ningún conflicto de interés...

World Prematurity Day, November 17th

1 baby in 10 is born premature. Worldwide.



En el Siglo XX ...



“Soy vulnerable”



THE NURSING

THE FEEDING AND HYGIENE OF
PREMATURE & FULL-TERM INFANTS

BY

PIERRE BUDIN

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CLINIQUE FARBIER; MEMBER OF THE ACADEMY OF MEDICINE

Authorised Translation

BY

WILLIAM J. MALONEY, M.B., Ch.B.

FELLOW OF THE OBSTETRICAL SOCIETY OF EDINBURGH; KYLIES SCHOLAR,
HOULDSWORTH RESEARCH SCHOLAR, ETC.

WITH AN INTRODUCTION BY

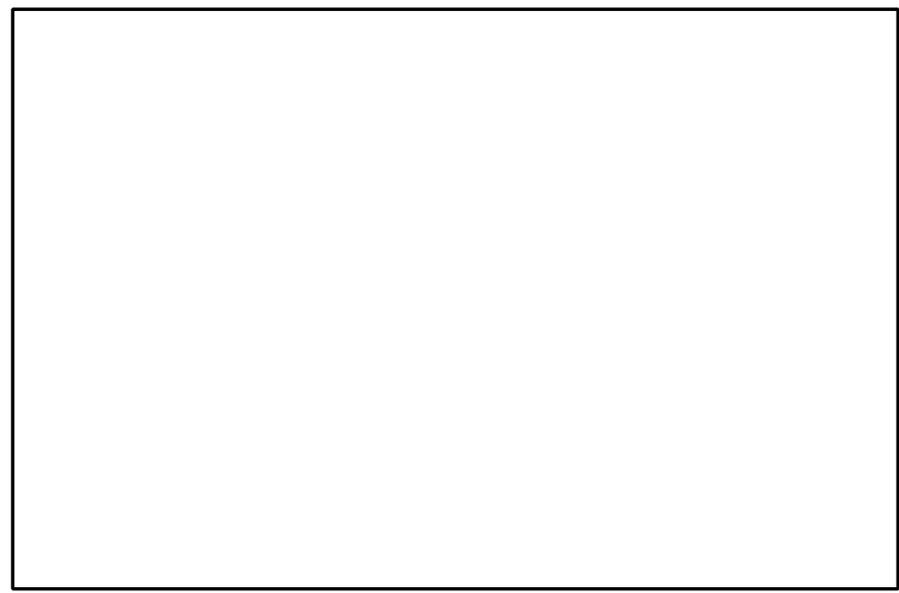
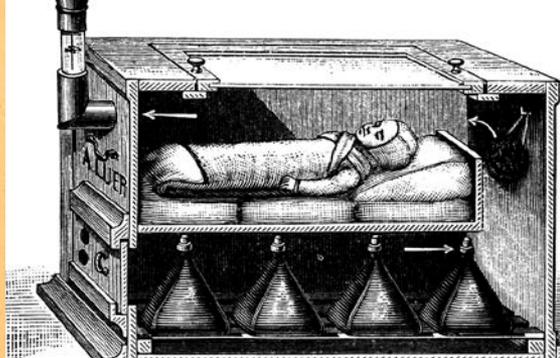
SIR ALEXANDER R. SIMPSON, M.D., LL.D., D.Sc.

EMERITUS PROFESSOR OF MIDWIFERY AND DISEASES OF WOMEN AND CHILDREN,
UNIVERSITY OF EDINBURGH

ONE HUNDRED AND ELEVEN DIAGRAMS IN COLOUR
AND OTHER ILLUSTRATIONS

LONDON

THE CAXTON PUBLISHING COMPANY



Couney at Chicago, 1933

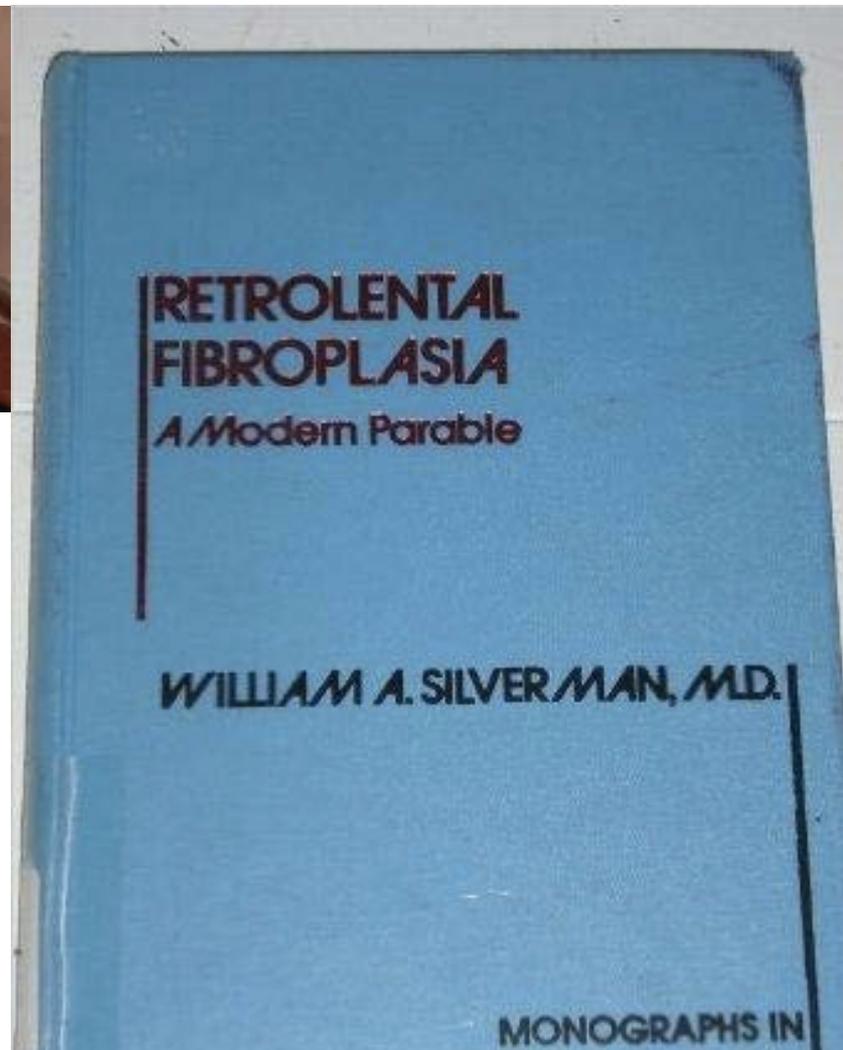


The effects of corticosteroid administration before preterm delivery: an overview of the evidence from controlled trials

PATRICIA CROWLEY, IAIN CHALMERS, MARC J. N. C. KEIRSE

Table 5. Effect of corticosteroids before preterm delivery on early neonatal deaths

Study	Treated n	Treated (%)	Control n	Control (%)	Odds ratios and 95% CI			
					Numerical	Graphical		
						0.1	0.5	1 2 10
Liggins & Howie (1972)	36/532	(6.77)	60/538	(11.15)	0.58 (0.38-0.89)	[Forest plot point]		
Block <i>et al.</i> (1977)	1/69	(1.45)	5/61	(8.20)	0.22 (0.04-1.12)	[Forest plot point]		
Schutte <i>et al.</i> (1979)	3/64	(4.69)	12/58	(20.69)	0.23 (0.08-0.67)	[Forest plot point]		
Taeusch <i>et al.</i> (1979)	5/56	(8.93)	7/71	(9.86)	0.90 (0.27-2.96)	[Forest plot point]		
Doran <i>et al.</i> (1980)	2/81	(2.47)	10/63	(15.87)	0.18 (0.05-0.57)	[Forest plot point]		
Teramo <i>et al.</i> (1980)	0/38	(0.00)	0/42	(0.00)	1.00 (1.00-1.00)	[Forest plot point]		
Gamsu <i>et al.</i> (1989)	14/131	(10.69)	20/157	(14.60)	0.70 (0.34-1.44)	[Forest plot point]		
Collaborative Group (1981)	36/371	(9.70)	37/372	(9.95)	0.97 (0.60-1.58)	[Forest plot point]		
Morales <i>et al.</i> (1986)	7/123	(5.79)	13/124	(10.48)	0.54 (0.22-1.33)	[Forest plot point]		
Papageorgiou <i>et al.</i> (1979)	1/71	(1.41)	5/75	(6.67)	0.27 (0.05-1.36)	[Forest plot point]		
Morrison <i>et al.</i> (1978)	2/67	(2.99)	7/59	(11.86)	0.26 (0.07-1.03)	[Forest plot point]		
Schmidt <i>et al.</i> (1984)	5/34	(14.71)	5/31	(16.13)	0.90 (0.24-3.42)	[Forest plot point]		
Typical odds ratio					0.59 (0.47-0.75)	[Forest plot line]		



Rey-Martinez Kangaroo Mother Program: An Alternative Way of Caring for Low Birth Weight Infants? One Year Mortality in a Two Cohort Study

Nathalie Charpak, MD*; Juan G. Ruiz-Peláez, MD, MMedSci†; and Yves Charpak MD, PhD§



Feature

Endeavour Vol.33 No.2

Full text provided by www.sciencedirect.com

ScienceDirect

From breast to bottle: a history of modern infant feeding

Linda Bryder

The History Department, The University of Auckland, Private Bag 92019, Auckland, 1142, New Zealand

The Glaxo logo in a stylized, cursive font.

Glaxo

BUILDS BONNIE BABIES

A Trial Tin of GLAXO, together with a small GLAXO Baby Book, will be sent post free, on receipt of a post card to GLAXO, mentioning this publication.

GLAXO
Dept. 71, 155 GREAT PORTLAND STREET
LONDON



don in the 1910s. Wellcome

Library, London.

El siglo XX...



FIGURE 1 Early 20th century demonstration of the gavage feeding technique for premature infants (Hess 1922).



En el HJSD...

El siglo XX...



En el HSJD... (sin comentarios)

En el Siglo XXI ...

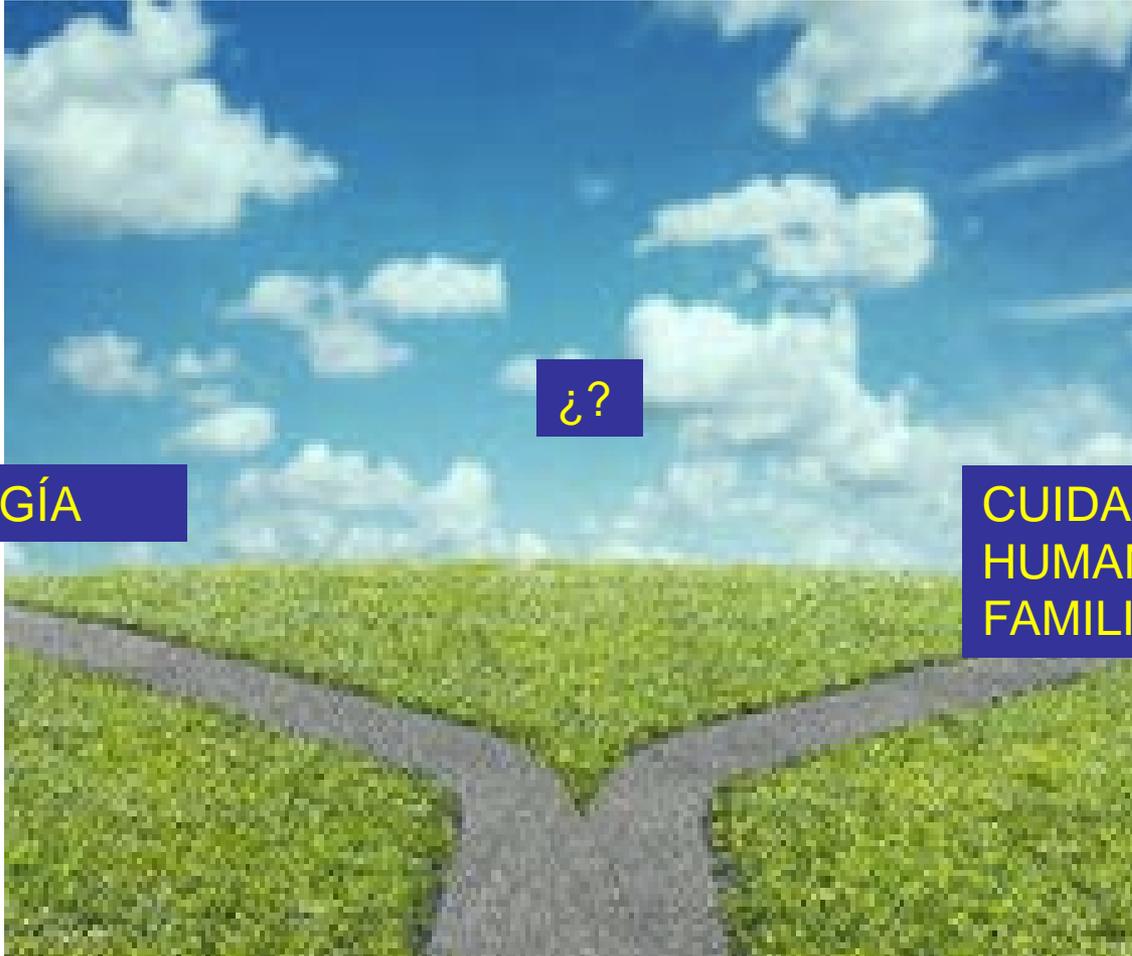
-Neonatólogo 55 años: “la genética que ahora está empezando... y las células madre”

-Enfermera neonatal: “Más tecnología y menos tocar al niño”

-Obstetricia: “evitar que nazcan prematuros; tratar mejor la infección que nos trae de cabeza”

-Madre de recién nacido prematuro: “respetar al niño” “cuidados más humanizados”





TECNOLOGÍA

CUIDADOS MÁS
HUMANIZADOS +
FAMILIAS



En el siglo XXI...

1. TECNOLOGÍA

2. INVESTIGACIÓN CLÍNICA DE CALIDAD

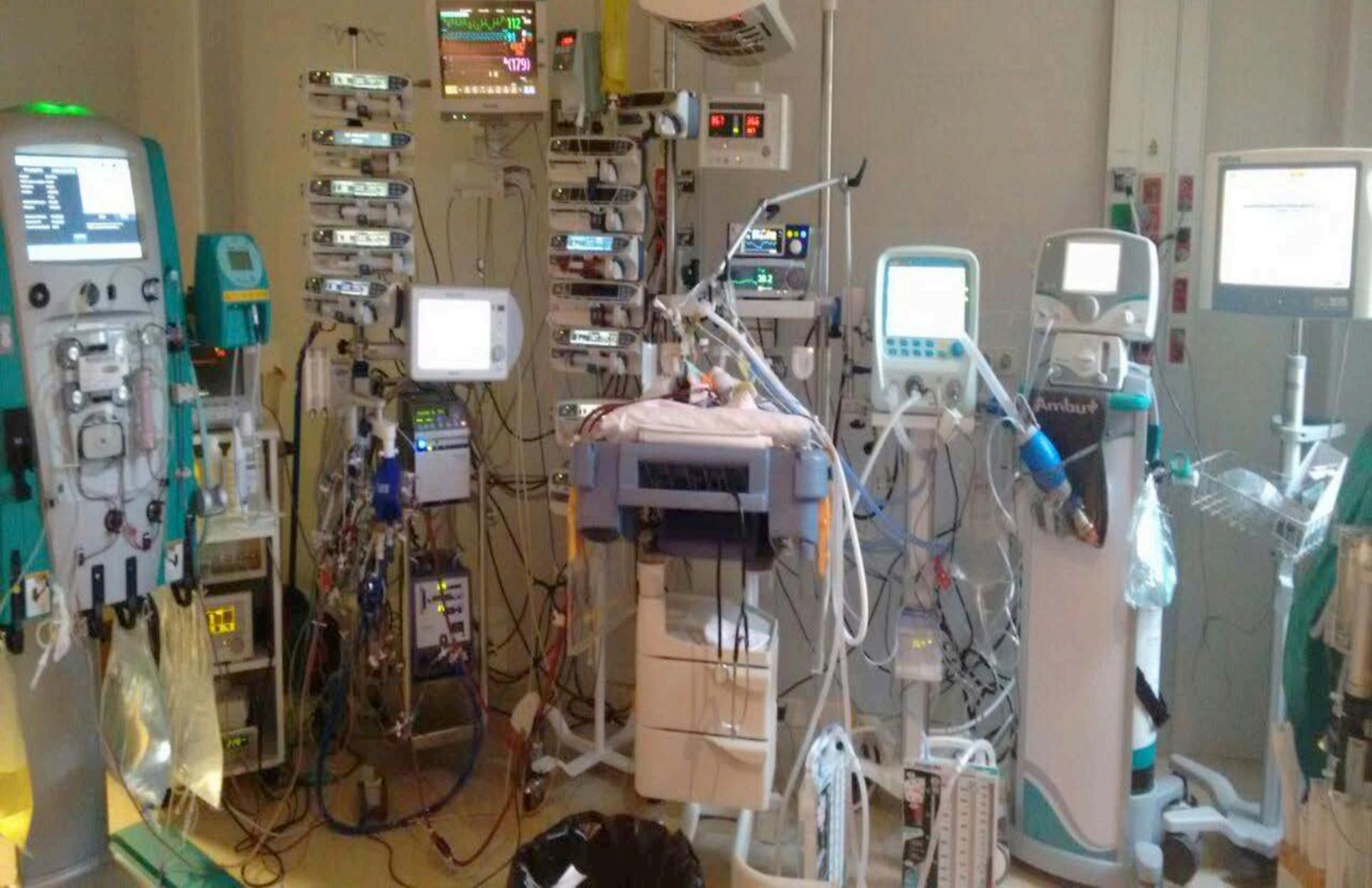
3. GENÉTICA

4. RETOS (HEREDADOS DEL SIGLO XX)

5. FAMILIAS



1. En el siglo XXI, nuevas tecnologías...



Menos invasivas...



Menos invasivas...



Empleo GNAF HSJD 2006-2016, comparación con VON



Center 251 and Network Values
Respiratory Care - All VLBW Infants
High Flow Nasal Cannula
Birth Year

Birth	Center			Network		
	Cases	N	%	%	Q1	Q3
2006	0	93	0.0%	39.1%	5.9%	62.5%
2007	0	79	0.0%	44.5%	6.9%	66.2%
2008	14	98	14.3%	46.9%	9.3%	69.6%
2009	27	73	37.0%	48.1%	11.1%	72.2%
2010	30	72	41.7%	50.0%	10.9%	72.1%
2011	32	53	60.4%	51.2%	15.8%	73.8%
2012	40	84	47.6%	50.8%	18.2%	73.8%
2013	37	82	45.1%	51.4%	23.8%	73.5%
2014	34	62	54.8%	53.4%	27.0%	73.8%
2015	31	59	52.5%	52.7%	27.0%	73.7%
2016	46	66	69.7%	53.1%	27.7%	74.2%
All	319	856	37.3%	49.5%	18.2%	66.8%

Menos invasiva...



Cánulas RAM



Menos invasividad en el diagnóstico...



Menos invasividad en el diagnóstico...



Ecografía pulmonar



Ecocardiografía funcional



Canalización de vías,
punción lumbar



Comprobación
posición de catéteres



- Routine Ultrasonography in the neonatal intensive care unit. Chen et al. Medicine 2017; 90-92.
- Prospective investigations of a novel ultrasound assisted lumbar puncture technique. Gorn et al. Academic emergency medicine 2017;1.



B-Tecnología para la docencia-SIMULACIÓN



Sala de simulación
Darwin, HSJD

Dra M Reyné

B-Tecnología para probar espacios



Simulación HSJD



C- Tecnología en el diagnóstico

Machine Readable Extract of EHR

ICD9	Feature	ICD9	Time Stamp
Patient's Problems			
U01.010 - Abnormality of low pressure system (3 items)			
U01.0101	U01.0101	U01.0101	1/1/2014
U01.0102	U01.0102	U01.0102	2/1/2014
U01.0103	U01.0103	U01.0103	3/1/2014

8000 diagnósticos posibles generados en Ordenador (ALGORITMOS)

Rn transferido con convulsiones desde las 12 horas de vida en San Diego

- Abnormality of the nervous system
- Drowsiness
- Reduced consciousness/confusion
- Sepsis
- Abnormality of head or neck
- Abnormality of the head
- Facial erythema
- Encephalopathy
- Myoclonus
- Acidosis
- Metabolic acidosis
- Morphological abnormality of the cerebellum
- Abnormality of the cerebrum
- Generalized tonic-clonic seizures
- Abnormality of the respiratory system
- Abnormality of the upper respiratory tract
- Pulmonary hypoplasia
- Generalized seizures
- Eeg abnormality
- Falls
- Decreased activity of the pyruvate dehydrogenase (pdh) complex
- Lactic acidosis
- Involuntary movements
- Abnormality of amino acid metabolism
- Malnutrition
- Congenital lactic acidosis
- Thoracic hypoplasia
- Absent palmar crease
- Abnormality of the mitochondrion
- Allergy
- Low csf 5-methyltetrahydrofolate
- Abnormality of movement
- Folate deficiency

De Kingsmore, VON Annual Congress Chicago 2017

D-Tecnología-Telemedicina

Journal of Perinatology (2012) 32, 55–63
© 2012 Nature America, Inc. All rights reserved. 0743-8346/12
www.nature.com/jp



ORIGINAL ARTICLE

The use of mobile robotic telemedicine technology in the neonatal intensive care unit

A Garingo^{1,2}, P Friedlich^{1,2}, L Tesoriero^{1,2}, S Patil^{1,2}, P Jackson^{1,2} and I Seri^{1,2}

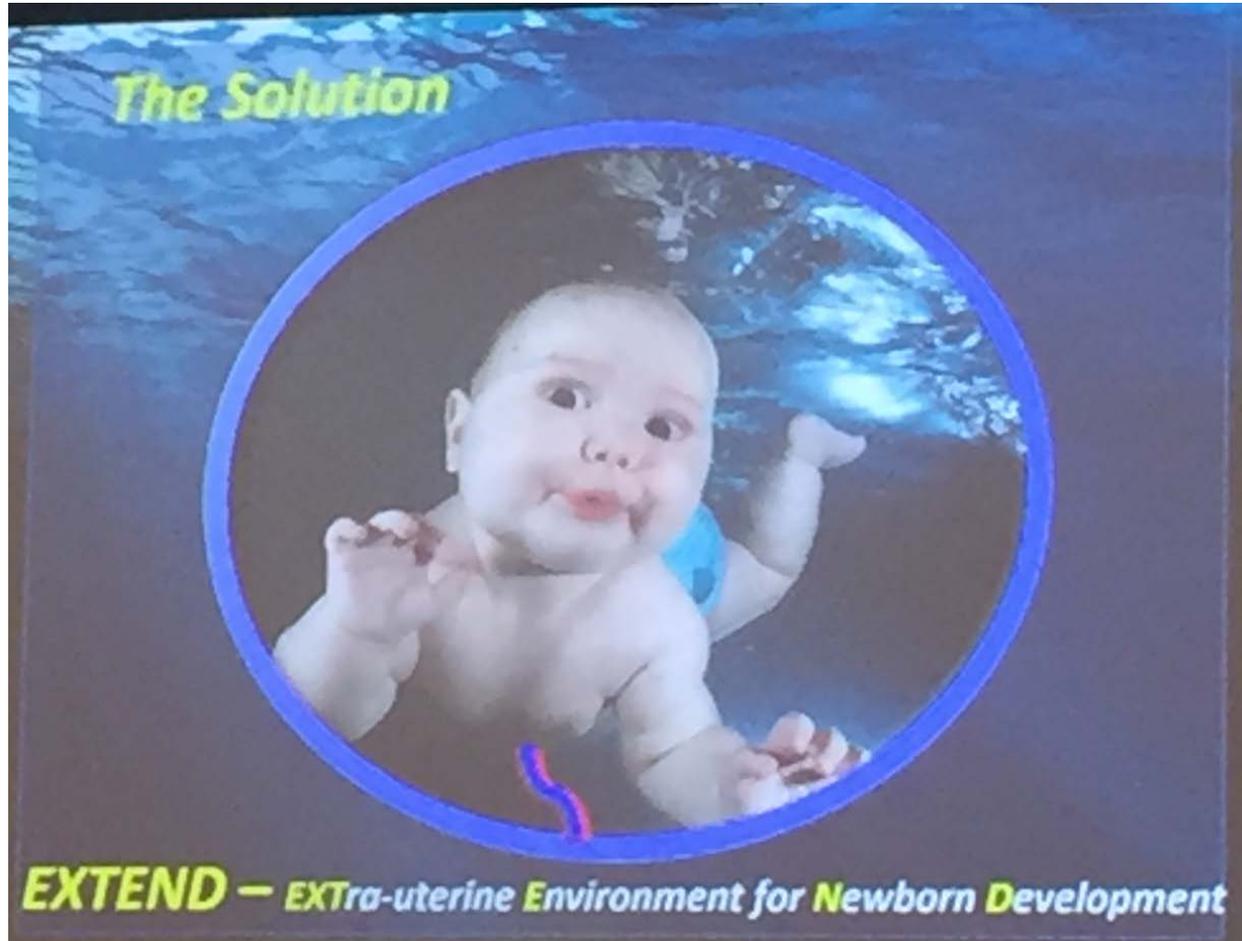
¹Center for Fetal and Neonatal Medicine and the USC Division of Neonatal Medicine, Children's Hospital Los Angeles, Los Angeles, CA, USA and ²Department of Pediatrics, Keck School of Medicine, University of Southern California, Los Angeles, CA, USA

“Tele mentoring” desde centros más pequeños a centros de referencia... Pero también facilitando menos médicos dentro de las Unidades?



Figure 1 Telemedicine equipment (mobile robot) at patient's bedside. The robot is equipped with a pan-tilt-zoom head with a video camera, microphone, and liquid crystal display (LCD) screen and motorized platform and operates under the control of the physician at a remote site. The operator's face is projected on the screen creating a more human-type physical presence at the bedside. The operator's computer screen is also projected in the left lower corner of the screen of the robot, so that the bedside caregiver also sees what the operator of the robot is looking at on the screen of his/her station's computer at the remote site (see text for details).

Tecnología de ciencia ficción?



De Flake, VON Annual Congress Chicago 2017



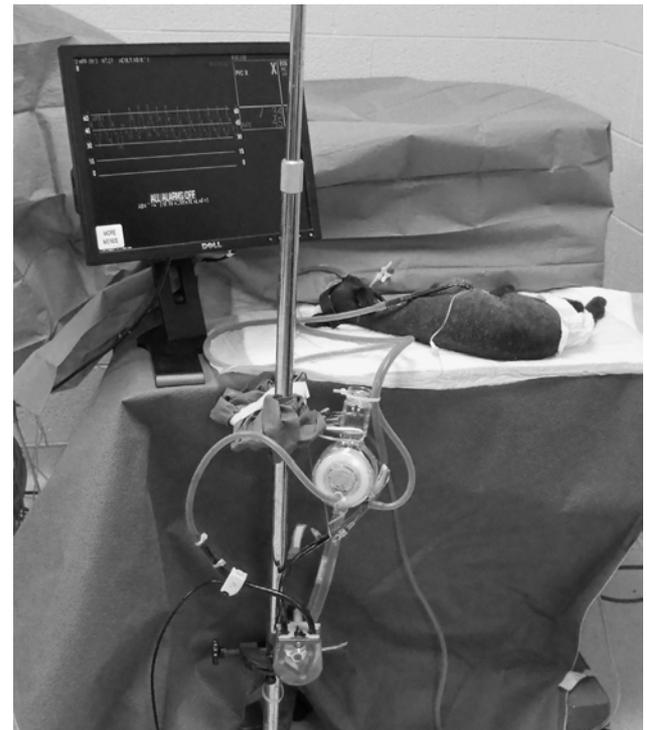
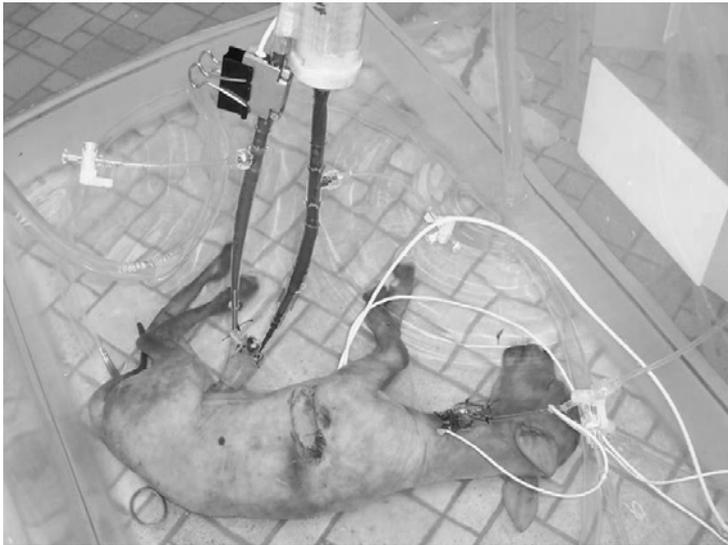
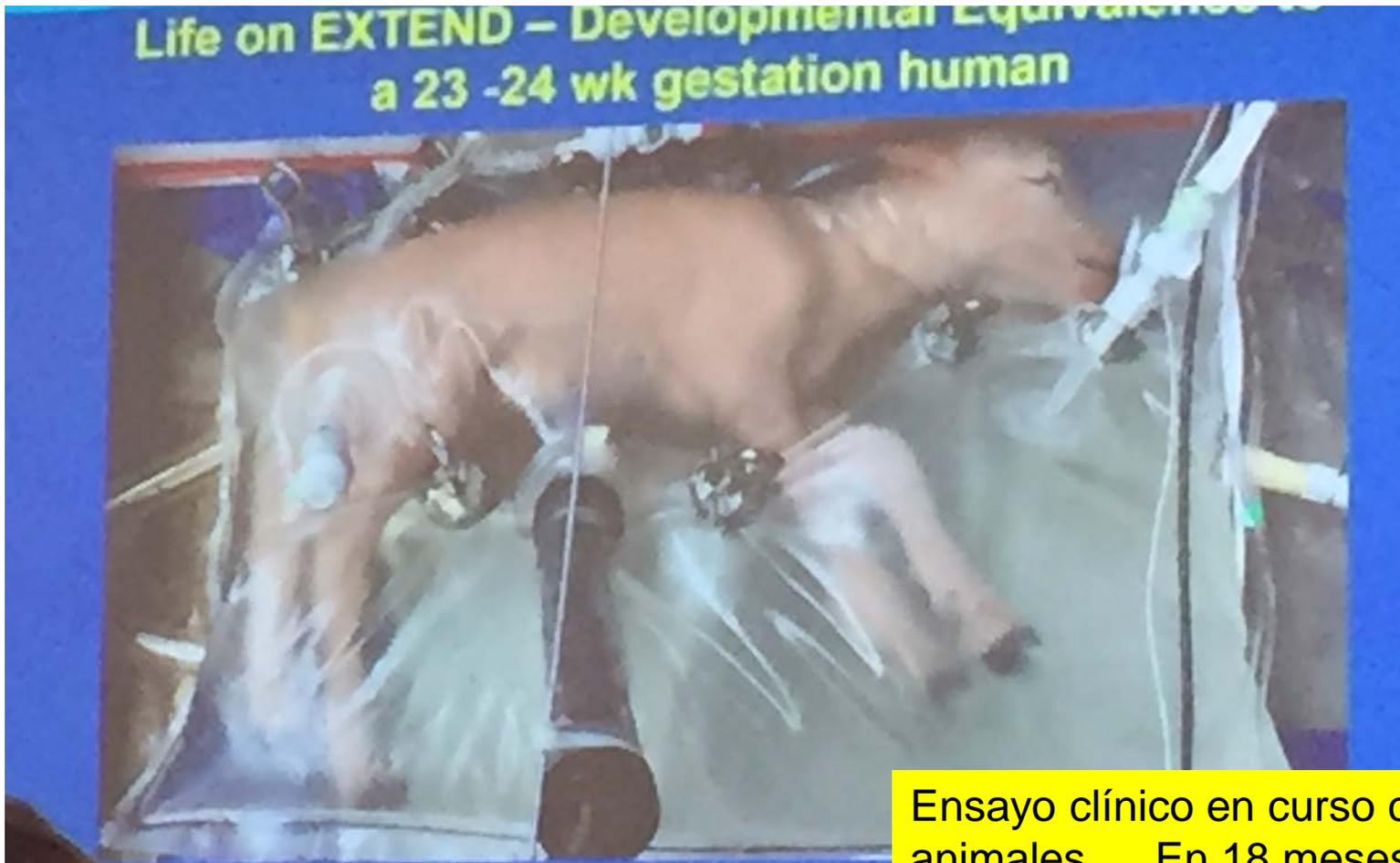


Fig. 2 – Premature lamb on artificial placenta (consisting of pump, gas exchange device, heat exchanger, and blood pressure monitor).

Brave new world of Fetal Therapy. Extrauterine incubation as a bridge to viability in sheep. A Flake



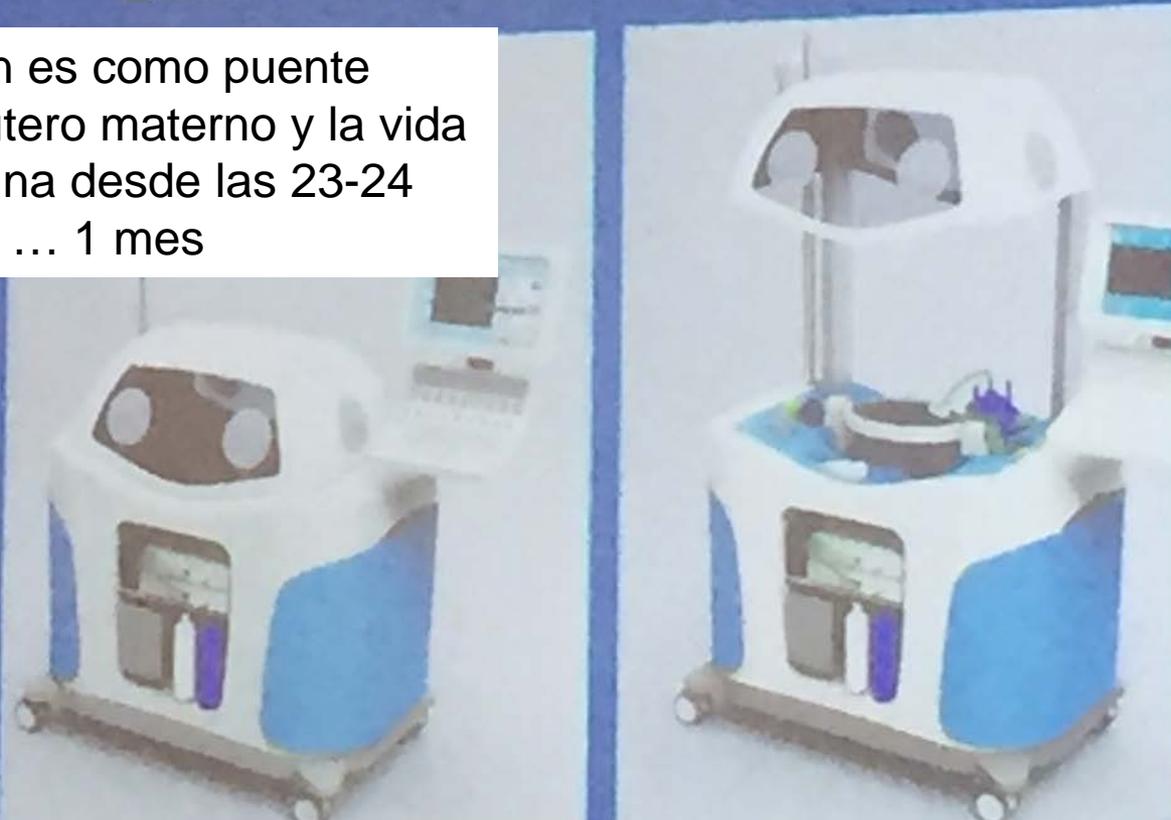
Ensayo clínico en curso con animales.... En 18 meses en humanos.

GRETA

Brave new world of Fetal Therapy. Extrauterine incubation as a bridge to viability in sheep. A Flake

EXTEND Device Design Concept

-Intención es como puente entre el útero materno y la vida extrauterina desde las 23-24 semanas ... 1 mes



Brave new world of Fetal Therapy.
Extrauterine incubation as a bridge to
viability in sheep. A Flake

- <https://youtu.be/MbgHbYXs3cM>

2. Investigación clínica , calidad asistencial, seguridad del paciente

THE INFLUENCE OF THE THERMAL ENVIRONMENT UPON THE SURVIVAL OF NEWLY BORN PREMATURE INFANTS

William A. Silverman, John W. Fertig and Agnes P. Berger

Pediatrics 1958;22;876

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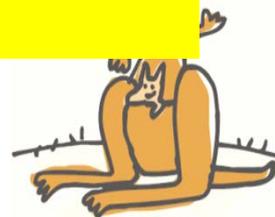
879

“hypothermic” controls.

Seventy-six of the ninety-one infants who were placed in “normothermic” incubators survived the trial period (83.5%). Sixty-two of the “hypothermic” infants survived the trial (68.1%). The data for the various weight groups are given in Table III. Adjustment of these survival rates simultaneously for the disparity in the position or route of delivery and age on admission left them practically unaltered (83.3% vs. 68.5%): A simultaneous classification of the two tempera-

-Intento de realizar un ensayo clínico

-Sobres sellados para los diferentes pesos, se les asigna durante 5 días ambiente “frío-T⁰ incubadora 28,7°C” o “normotérmico-T^a incubadora 31,9°C” ...y ven resultados



2. Investigación clínica , calidad asistencial, seguridad del paciente

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TABLE III
SURVIVAL RATES BY BIRTHWEIGHT GROUPS

Birthweight	Number of Infants	Survival Rate	
		"Normo-thermic" Incubator	"Hypo-thermic" Incubator
		(%)	(%)
1,501+ gm	84	92.9	78.6
1,001-1,500 gm	70	85.7	77.1
<1,001 gm	28	50	14.3

In each birthweight category survival was greater among infants in "normothermic" incubators.



2. Investigación clínica y calidad asistencial



Center 251 and Network Values
Admissions and Discharges - All VLBW Infants
Admissions - Number of Admissions
Birth Year

Birth Year	Center	Network
	Cases	N
1990	0	2,955
1991	0	3,868
1992	0	5,033
1993	0	6,629
1994	0	8,364
1995	0	10,892
1996	0	15,274
1997	0	20,451
1998	0	24,696
1999	0	27,456
2000	0	30,469
2001	0	31,49
2002	86	33,666
2003	87	36,647
2004	97	40,949
2005	86	46,216
2006	96	50,278
2007	81	54,163
2008	98	57,335
2009	77	58,492
2010	72	57,743
2011	57	59,385
2012	88	59,735
2013	87	60,87
2014	62	61,251
2015	60	62,433
2016	67	64,007
All	1,236	990,807

The EPICure Study: Outcomes to Discharge From Hospital for Infants Born at the Threshold of Viability

Kate Costeloe, FRCP, FRCPCH*; Enid Hennessy, MSc‡; Alan T. Gibson, PhD, FRCP, FRCPCH§;
Neil Marlow, DM, FRCP, FRCPCH||; and Andrew R. Wilkinson, FRCP, FRCPCH¶,
for the EPICure Study Group

TABLE 5. Markers of Condition Over First 12 Hours and Use of Surfactant Therapy

Gestation Completed Weeks	Heart Rate <100 bpm 5 Minutes After Birth		Admission Temperature °C			CRIB Score (9)		Surfactant Therapy		
	Number Positive/ Number Reporting	%	n	Median IQR	% Below 35°C	n	Median IQR	Number Receiving/ Number Reporting	%	% of Those Treated Receiving Animal-Derived Surfactant
21	2/3	66.7	3	32.0	66.7	2	13, 17	2/3	66.7	50.0
22	5/21	23.8	20	34.0 33.4–34.8	80.0	20	14 11–17	16/22	72.7	75.0
23	23/125	18.4	120	34.5 33.5–35.6	58.3	111	13 11–17	102/131	77.9	54.9
24	33/291	11.3	279	35.0 34.1–35.8	42.7	276	12 9–15	259/296	87.5	57.5
25	51/344	14.9	335	35.3 34.8–36.0	29.6	329	8 5–11	303/351	85.4	58.9
Total	114/783	14.6	757	35.0 34.1–35.9	40.4	738	11 8–			

-4004 recién nacidos en UK e Irlanda entre marzo 1995 y Diciembre 1995 entre 20 y 25 semanas EG. 811 ingresan en UCIN

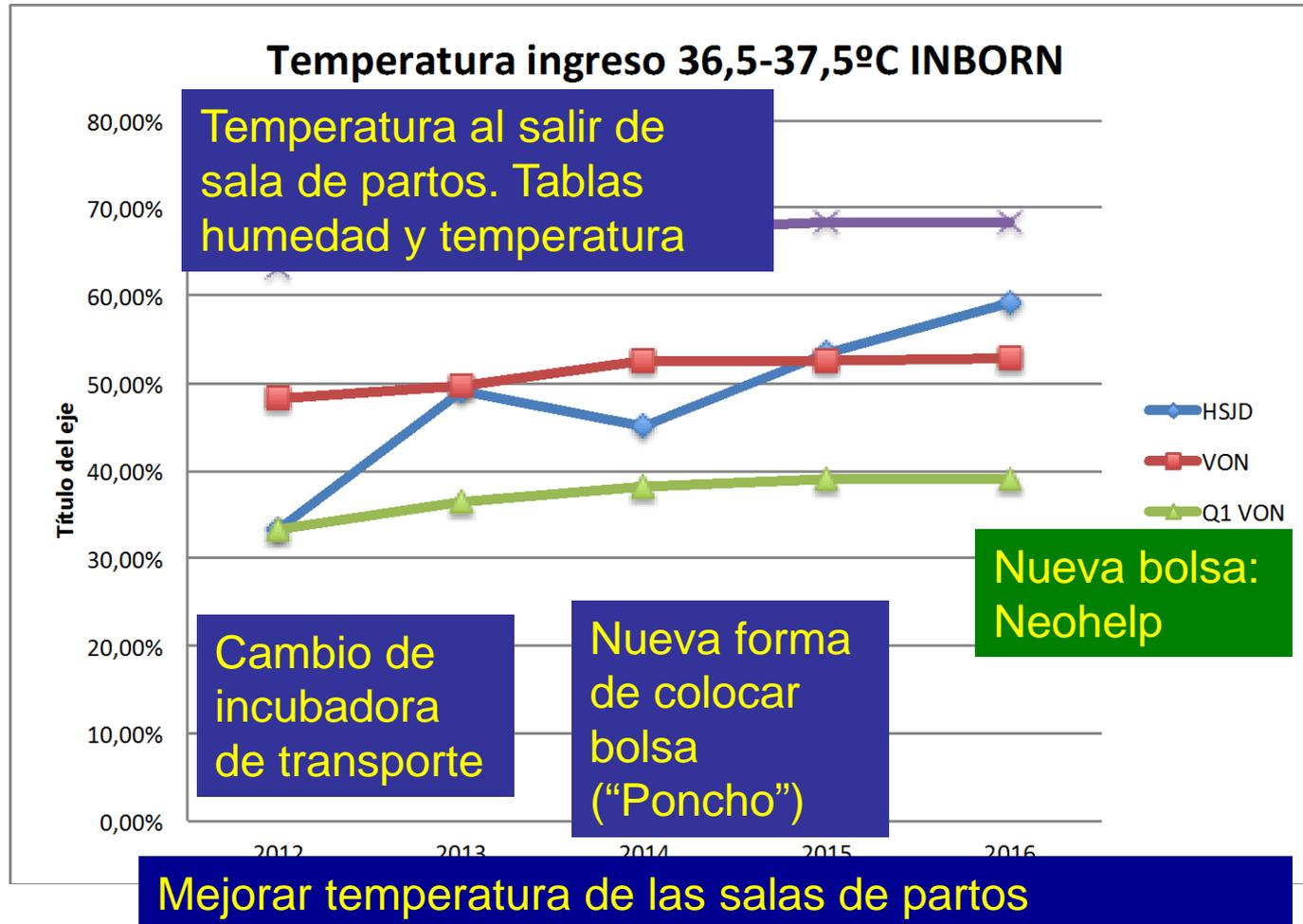
TABLE 9. Results of Univariate and Multivariate Analyses of Factors Associated With Death Before Discharge

Variable (All Yes/No Unless Stated)	(n)	Univariate Analysis		Multivariate Analysis (Variables Known at Birth) n = 781		Multivariate Analysis (All Variables) n = 712	
		OR (95% CI)	P Value	OR (95% CI)	P Value	OR (95% CI)	P Value
Known at birth							
Gestation (per wk)	(811)	.47 (.38–.57)	<.0005	.47 (.38–.58)	<.0005		
Birth weight (per 100 g)	(811)	.60 (.53–.68)	<.0005				
Birth weight for gestation (per 100 g)	(811)	.68 (.59–.79)	<.0005	.68 (.58–.79)	<.0005		
Multiple	(811)	1.39 (1.01–1.90)	.044	1.55 (1.08–2.22)	.018		
Male sex							.008
Any obstetric problems							
Preeclampsia							
PROM (>24 h)							
Cervical suture	(798)	.57 (.34–.97)	.040				
APH	(798)	1.33 (.97–1.84)	.081				
Chorioamnionitis	(798)	.47 (.33–.68)	<.0005	.49 (.32–.73)	.001	.51 (.32–.82)	.005
Antenatal steroid	(800)	.38 (.28–.53)	<.0005	.50 (.35–.73)	<.0005	.57 (.38–.85)	.006
Tocolytics	(792)	.57 (.41–.79)	.001	.66 (.45–.97)	.034		
Maternal age (per y)	(801)	.98 (.96–1.01)	.460				
Ethnic group = white	(811)	1.13 (.81–1.59)	.130				
Postnatal variables							
Cesarean vs vaginal delivery	(805)	1.07 (.73–1.58)	.720				
HR at 5 min <100 bpm	(811)	3.21 (1.95–5.28)	<.0005			1.99 (1.07–3.67)	.029
Admission temperature $\geq 35^{\circ}\text{C}$	(757)	.31 (.23–.43)	<.0005			.58 (.39–.85)	.006
CRIB score (per point; 9)	(738)	1.35 (1.29–1.42)	<.0005			1.31 (1.25–1.38)	<.0005
Postnatal transfer	(804)	1.32 (.87–2.01)	.190				
Surfactant therapy	(811)	.95 (.64–1.41)	.790				

Aumento de mortalidad de 28% por cada grado de temperatura MENOS al ingreso!!!

OR indicates odds ratio of dying; APH, antepartum hemorrhage.

El caso de la temperatura de ingreso



Grupo Temperatura: C Baquero, R Alfaro, G Torres, I Caperote, E Blanco, C Corral. Grupo poncho: C Collazos, E Lamonja, S Egea, I Casal.

PROYECTO DE MEJORÍA DE TRATAMIENTO Y CUIDADOS EN LAS PRIMERAS 72 HORAS

PIEL

Prenatal

CUIDADO
POSTURAL

RCP Y SALA DE
PARTOS

NUEVOS
LÍMITES DE
SPO2

CLAMPAJE
TARDÍO

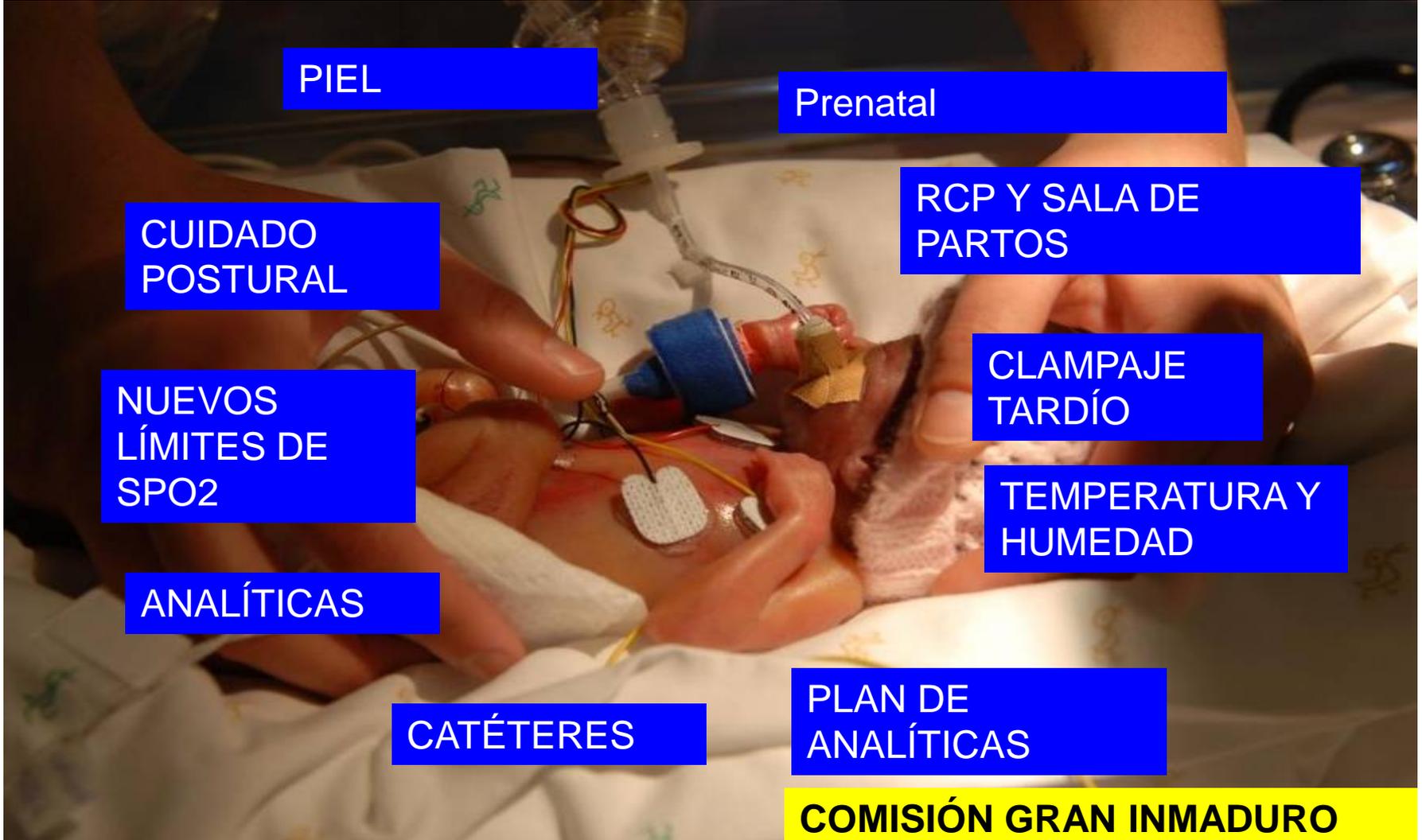
TEMPERATURA Y
HUMEDAD

ANALÍTICAS

CATÉTERES

PLAN DE
ANALÍTICAS

COMISIÓN GRAN INMADURO



PROYECTO DE MEJORÍA DE TRATAMIENTO Y CUIDADOS EN LAS PRIMERAS 72 HORAS

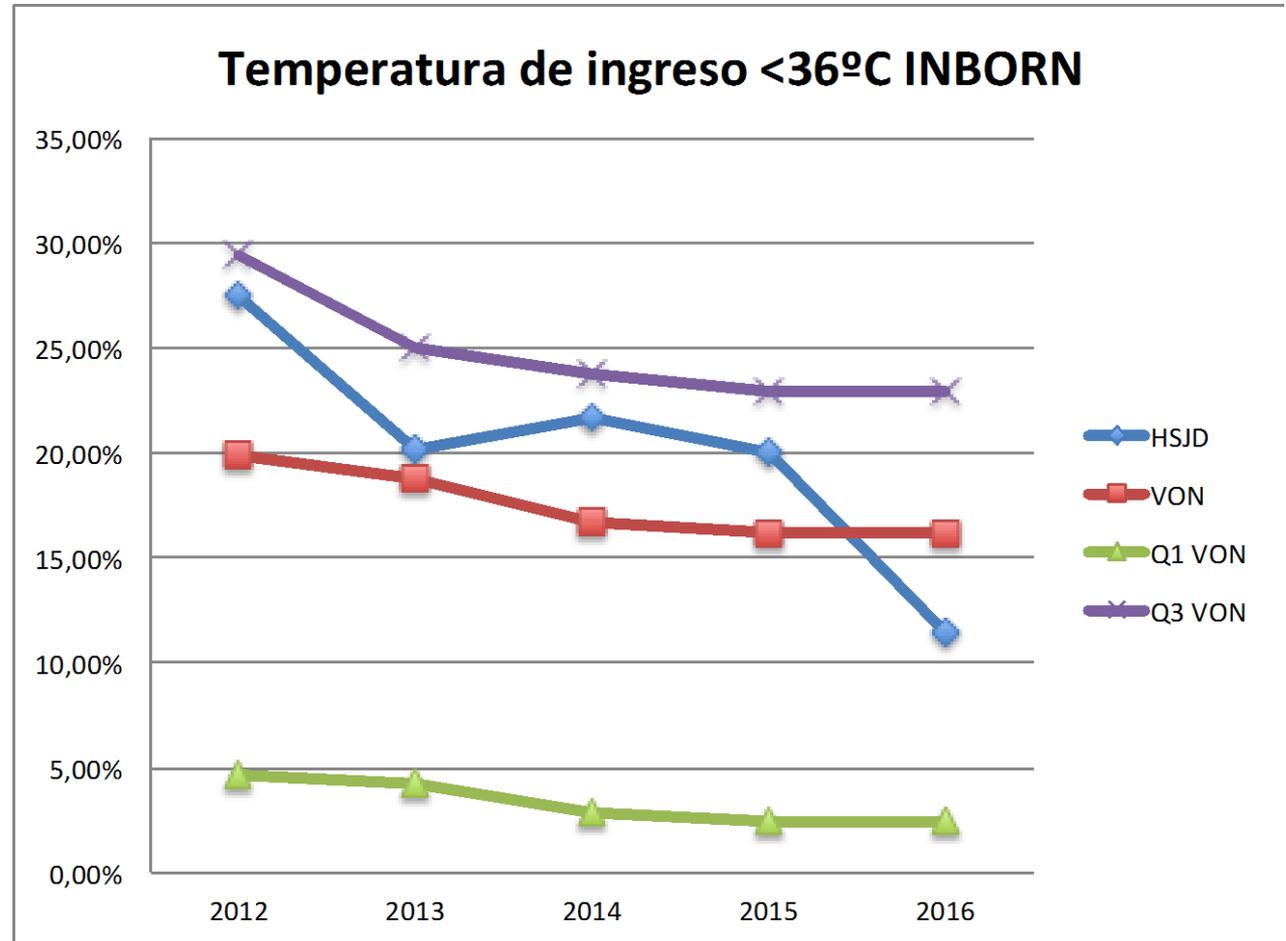


EL SIGLO XXI NECESITA EQUIPOS CLÍNICOS MULTIDISCIPLINARES IMPLICADOS EN LA MEJORÍA CONCRETA DE LOS PROBLEMAS REALES

El caso de la temperatura de ingreso

**CUESTA
MUCHO
BAJAR UN
PORCENTAJE...**

**PERO MERECE
LA PENA**



2. Genética

1860

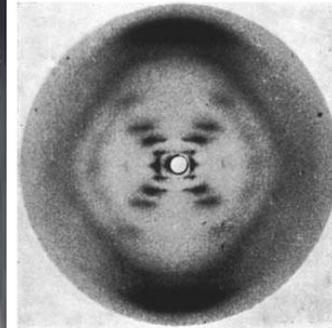


		gametos			
		AB $\frac{1}{4}$	Ab $\frac{1}{4}$	ab $\frac{1}{4}$	aB $\frac{1}{4}$
♀ gametos	AB $\frac{1}{4}$	AABB $\frac{1}{16}$ 	AABb $\frac{1}{16}$ 	AaBb $\frac{1}{16}$ 	AaBB $\frac{1}{16}$ 
	Ab $\frac{1}{4}$	AABb $\frac{1}{16}$ 	AAbb $\frac{1}{16}$ 	Aabb $\frac{1}{16}$ 	AaBb $\frac{1}{16}$ 
	ab $\frac{1}{4}$	AaBb $\frac{1}{16}$ 	Aabb $\frac{1}{16}$ 	aabb $\frac{1}{16}$ 	aaBb $\frac{1}{16}$ 
	aB $\frac{1}{4}$	AaBB $\frac{1}{16}$ 	AaBb $\frac{1}{16}$ 	aaBb $\frac{1}{16}$ 	aaBB $\frac{1}{16}$ 

9  : 3  : 3  : 1 

 Lisa, amarilla  Rugosa, amarilla
 Lisa, verde  Rugosa, verde

1950



1980



2000

1953, secuencia de DNA identificada
 2003, Se completa proyecto Genoma humano
 2053, ????



2.Genética

Cariotipo



Microarray
(resolución 10-30kb)

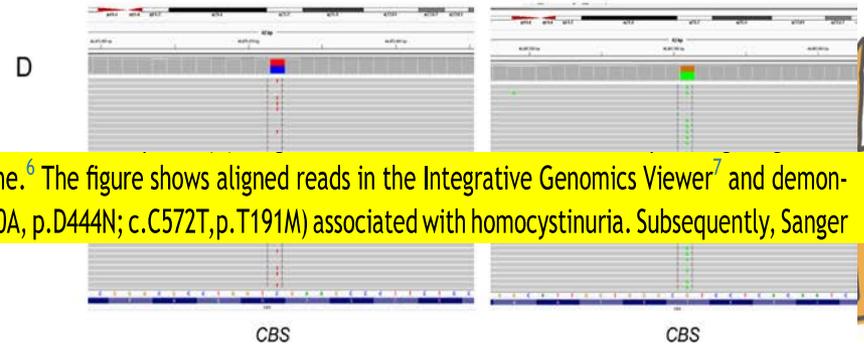
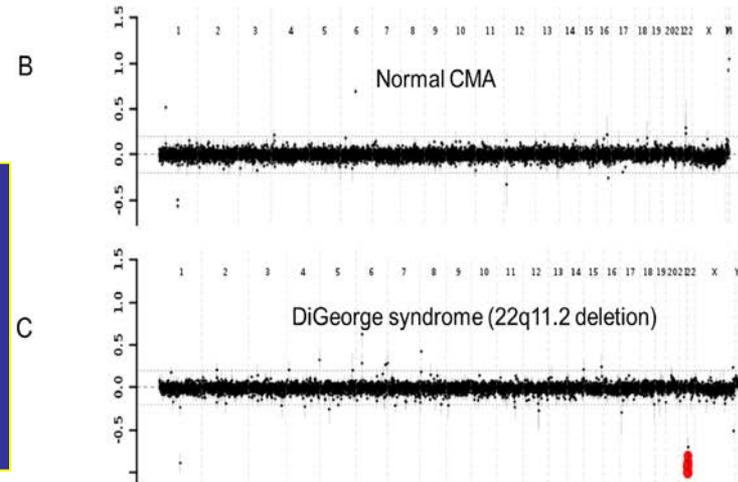
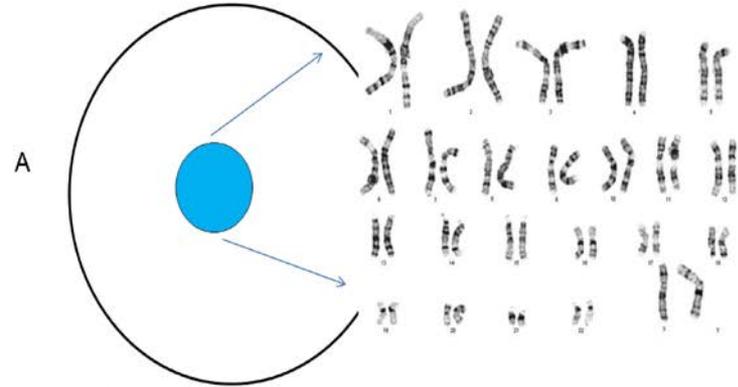


Exoma
(180000 exones)



Genoma completo

Hallazgos de alteraciones con significación desconocida



hg19 with a previously described analysis pipeline.⁶ The figure shows aligned reads in the Integrative Genomics Viewer⁷ and demonstrates two heterozygous variants in CBS (c.G1330A, p.D444N; c.C572T, p.T191M) associated with homocystinuria. Subsequently, Sanger

2.Genética

Cariotipo



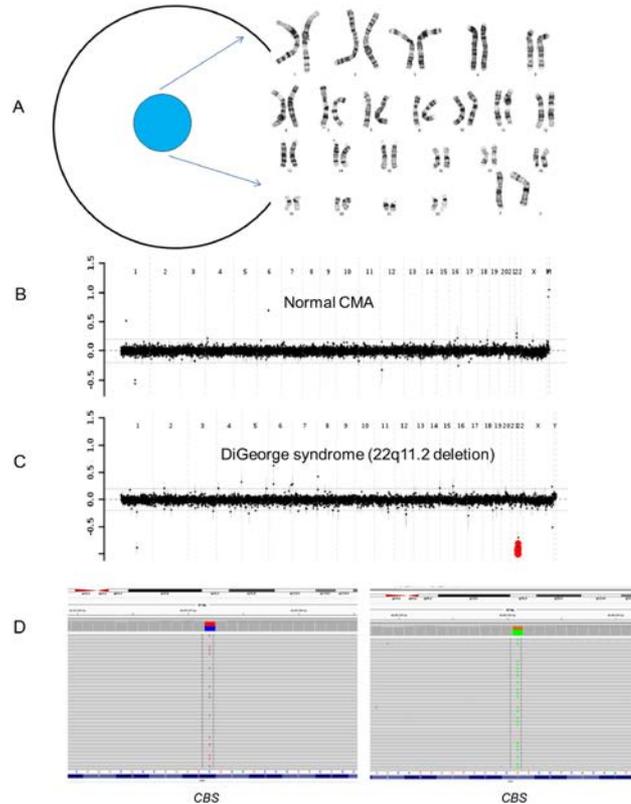
Microarray
(resolución n 10-30kb)



Exoma
(180000 exones)



Genoma completo



Genoma humano-3 billones de nucleótidos

Locus: posición en un cromosoma

Alelo: variación en un gen en un cierto locus

Single Nucleotide polymorphism-SNP

Variant of Unknown

significance-VUS
Copy number variant-CNV

Genome Wide association-GWAS

Genomas múltiples...
MICROBIOMA-GENOMA

FASCINANTE...PERO
NECESIDAD DE UNA
FORMACIÓN ESPECÍFICA



) 6 2 3 – 6 3 1

BOX 1: PRECISION MEDICAL MANAGEMENT
FOLLOWING RAPID GENETIC DISEASE DIAGNOSIS IN
THE NICU

1. Psychosocial benefits for parents (answers, knowledge of prognosis, planning, psychological and religious support).
2. Precision treatments for affected infants that prevent death, diminish disease severity, delay progression or improve quality of life.
4. Earlier avoidance of futile or painful treatments, unnecessary or invasive testing, and planning of withdrawal of care.
5. Time to plan and implement investigative new treatments.
6. Basis for increased coordination of care among providers.
7. Genetic counseling regarding recurrence risk.
8. Parental referral to specific support groups.
9. Reduced lifetime cost of care.

ase diagnosis in the NICU.

edicine.

“MEDICINA DE
PRECISIÓN”



Genetic Testing Is Providing New Hope for Babies Born with Mysterious Ailments



Time Magazine, 21 Sept 2017

-Convulsiones neonatales... genoma completo... Diagnóstico de Sd de Otahara con una mutación de novo en 68 horas
(Rady Children's hospital, San Diego)

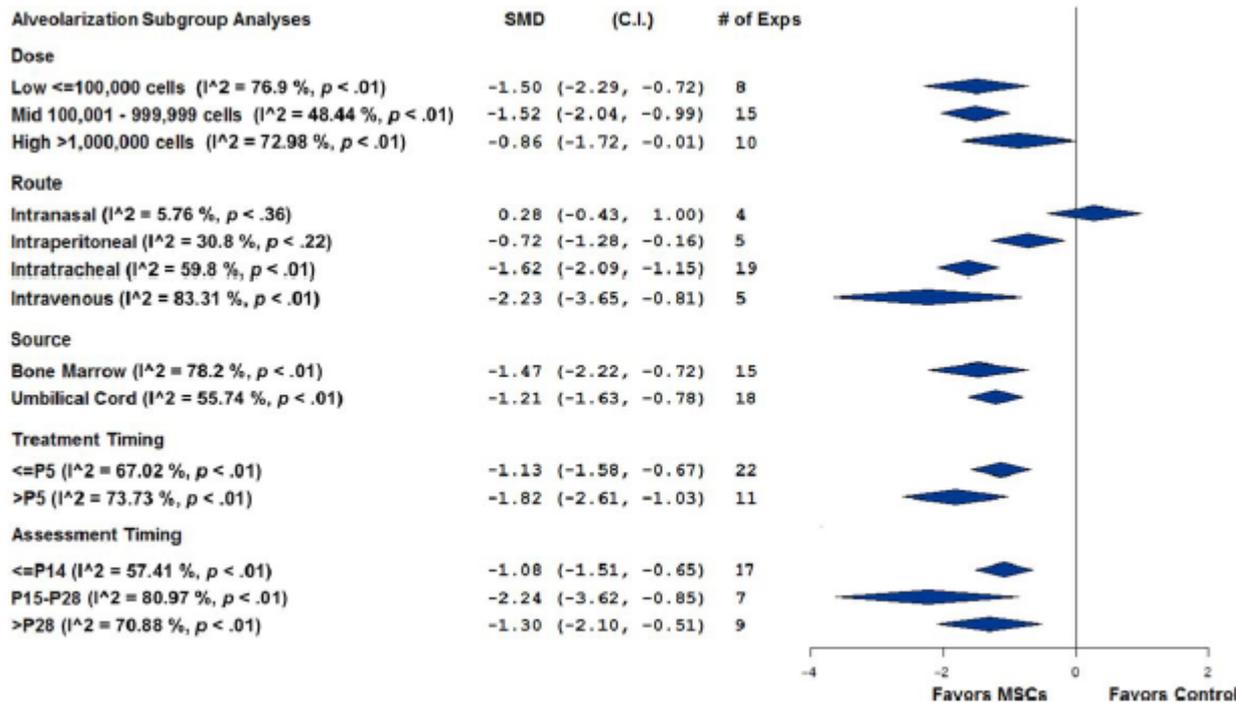
-Cambian tto a CBZ y Fenitoína con resultado



4. Células madre

Mesenchymal Stromal Cell Therapy in Bronchopulmonary Dysplasia: Systematic Review and Meta-Analysis of Preclinical Studies

STEM CELLS TRANSLATIONAL MEDICINE 2017;00:00-00 www.StemCellsTM.com



-Modelos animales de DBP (Ratones)

-Mejor IV que IT

-No efectos adversos referidos

-Efectos tanto de MSC como el empleo de su medio de cultivo en alveolarización, inflamación, HTP y angiogénesis

Figure 4. Subgroup analyses of MSCs in animal model of bronchopulmonary dysplasia for the primary outcome of alveolarization. Abbreviations: MSC, mesenchymal stromal cells; SMD, standardized mean difference.

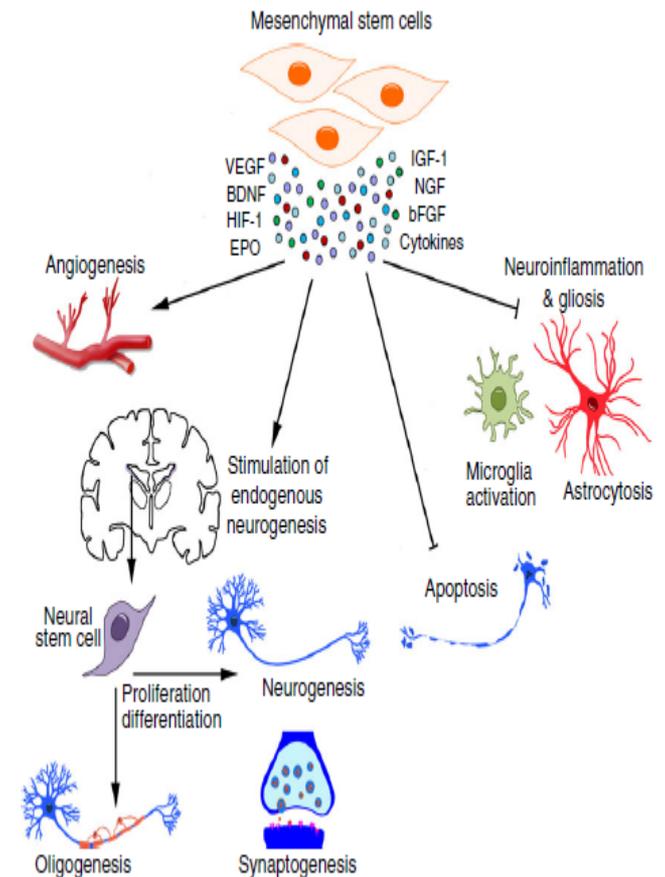
4. Células madre

Repair of neonatal brain injury: bringing stem cell-based therapy into clinical practice

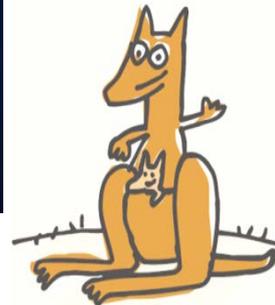
NIENKE WAGENAAR¹ | CORA H NIJBOER² | FRANK VAN BEL¹

Developmental Medicine & Child Neurology 2017, 59: 997–1003

- Administración sistémica o local (inyección directa, intranasal) Dosis depende de vía de administración
- Ventana para efectividad elevada (en estudios animales hasta 10 días después de hipoxia isquemia)
- Efectos adversos (neoplasias) No en modelos animales neonatales ni en adultos
- Estudios en curso para HIE, infarto, HIV, hidrocefalia...)



5. Retos (heredados del siglo XX)



5. Retos-resistencia a antimicrobianos

Bad Bugs, No Drugs: No ESKAPE! An Update
from the Infectious Diseases Society of America

Helen W. Boucher,¹ George H. Talbot,² John S. Bradley,^{3,4} John E. Edwards, Jr,^{5,6,7} David Gilbert,⁸ Louis B. Rice,^{9,10}
Michael Scheld,¹¹ Brad Spellberg,^{5,6,7} and John Bartlett¹²

EL PAÍS

INTERNACIONAL

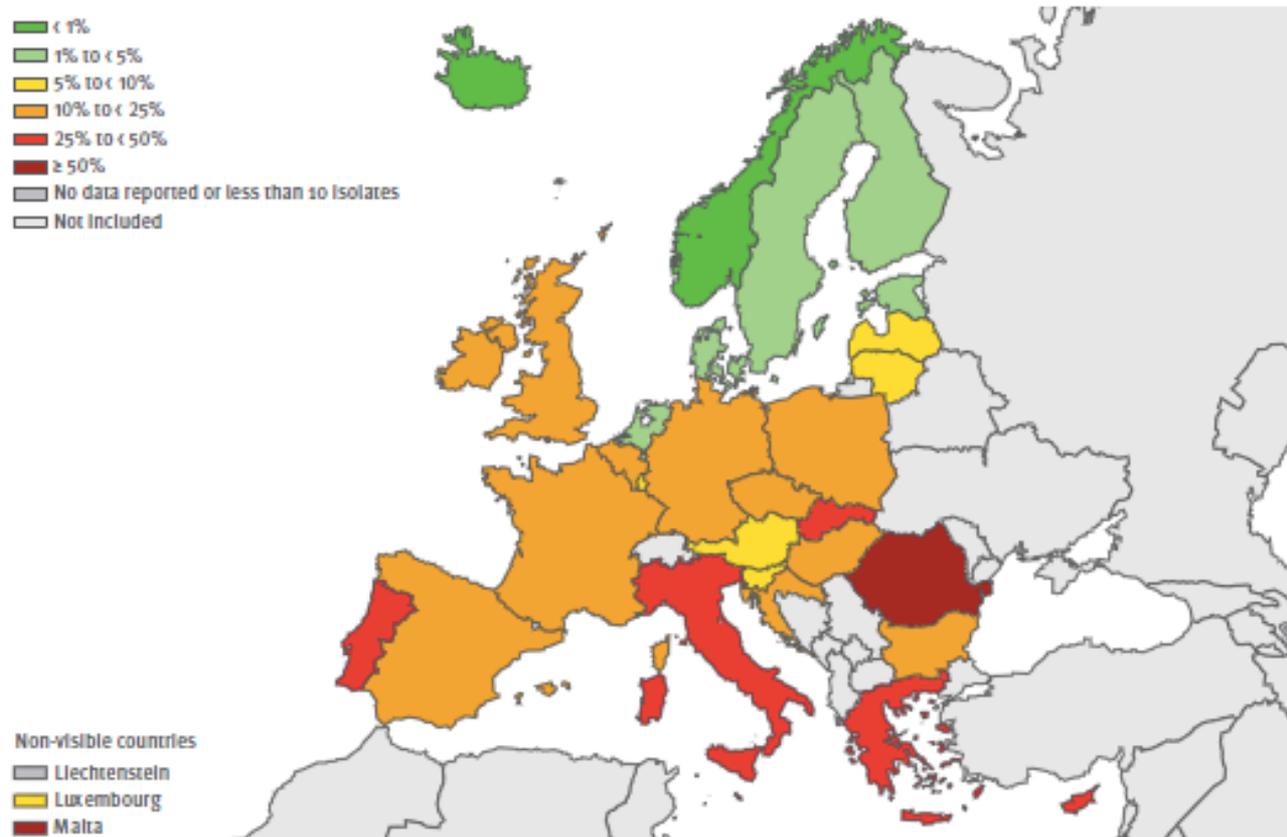
EUROPA EE UU MÉXICO AMÉRICA LATINA ORIENTE PRÓXIMO ASIA ÁFRICA FOTOS OPINIÓN BLOGS TITULARES »

Una mujer muere en EE UU por una bacteria resistente “a todo”

La septuagenaria había sido ingresada en India varias veces antes de volver a su país

Diferencias de resistencias a antimicrobianos en los diferentes países

Figure 3.23. *Staphylococcus aureus*. Percentage (%) of invasive isolates resistant to meticillin (MRSA), by country, EU/EEA countries, 2013



Resistencias a antimicrobianos

- **Mayoría de antibióticos prescritos en un país los reciben los animales... (70-80%)**
 - Para promocionar crecimiento
 - Para evitar contagio de infecciones (aglomeración en granjas)
- Problema GLOBAL político-sanitario



Resistencia a AB e industria

The global challenge of new classes of antibacterial agents: an industry perspective
Prabhavathi Fernandes

Current Opinion in Pharmacology 2015, 24:7–11

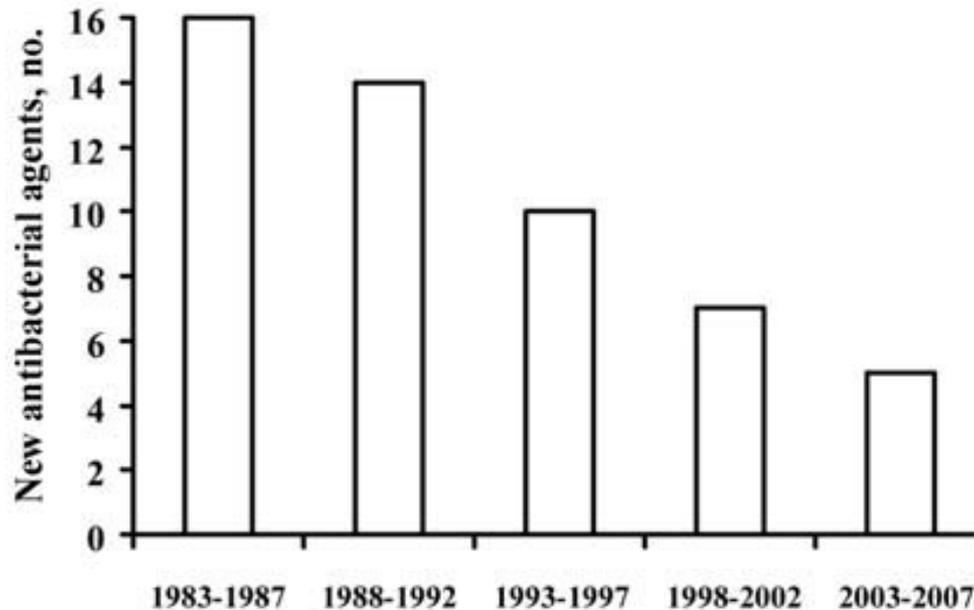
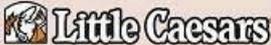


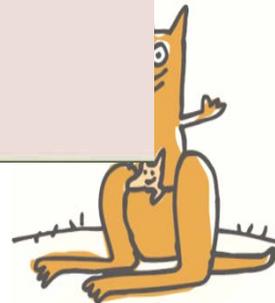
Figure 1. New antibacterial agents approved in the United States, 1983–2007, per 5-year period [2, 3].

Resistencia a antimicrobianos: qué hacer como consumidores...

2017 Scorecard on Antibiotics Policies & Practices

A	 				
B+		B		B-	 
C+		C			
D+	 	D	   		
F	 				
	 				

De J Newland, VON Annual Congress Chicago 2017



6. Las familias INTEGRADAS en la Unidad



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[For Parents](#)



Get Started with
Implementing
FICare »



6. Las familias INTEGRADAS en la Unidad

BIRTH 21:1 March 1994

39

40

The Mother-Infant Unit at Tallinn Children's Hospital, Estonia: A Truly Baby-Friendly Unit

Adik Levin, MD, PhD

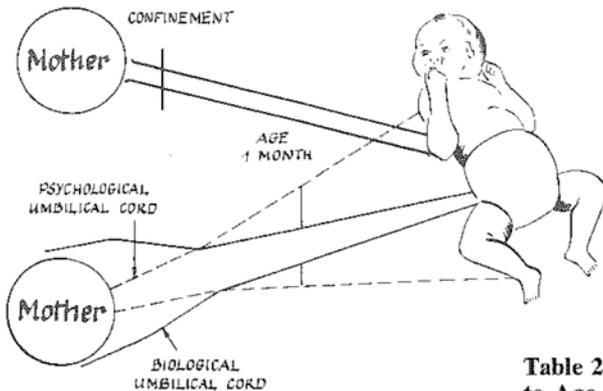


Fig. 1. Schematic representation of the connection between the baby and mother after delivery.

Table 2. Weight Gain in Preterm Infants Cared for by Mothers and Nurses from Admission to Age 30 Days by Birth Order

	Weight Gain (Gm) From Admission to Age 20 Days			Weight Gain (Gm) From Admission to Age 30 Days			Weight Gain (Gm) From Admission to Age 30 Days		
	Primary Caregiver		p	Primary Caregiver		p	Primary Caregiver		p
	Mother	Nurse		Mother	Nurse		Mother	Nurse	
1st child in family	322.7* (20.79)† (n = 19)	235.7 (29.7) (n = 19)	<0.01	455.0 (18.8) (n = 19)	249.6 (23.7) (n = 19)	<0.001	769.6 (20.9) (n = 19)	490.7 (34.5) (n = 19)	<0.001
2nd child in family	423.6 (33.2) (n = 20)	234.9 (35.6) (n = 11)	<0.001	353.6 (30.8) (n = 20)	204.8 (55.2) (n = 11)	<0.001	763.4 (42.7) (n = 20)	438.4 (51.9) (n = 11)	<0.001

* Mean.

† Standard deviation.

• Lee “Changing the paradigm for improving neonatal care” FAMILY INTEGRATED CARE

- Estudio piloto, marzo 2011. **FAMILIA INTEGRADA** en la Unidad neonatal. Enfermería “entrena” las competencias de los padres siguiendo un programa estructurado
- Prospectivo, caso control. 12 meses
- 40 casos, 80 controles pareados. 4 camas dentro de la UCIN
- Padres tenían que estar al menos 8 horas/día
- Inclusión: menos 35 semanas con soporte respiratorio “bajo” (CPAP o menos). Exclusión: paliativos, pacientes inestables, críticos...

A pilot cohort analytic study of Family Integrated Care in a Canadian neonatal intensive care unit

Karel O'Brien^{1,2*}, Marianne Bracht², Kristy Macdonell², Tammy McBride², Kate Robson², Lori O'Leary², Kristen Christie², Mary Galarza², Tenzin Dicky², Adik Levin³, Shoo K Lee^{2,4}

O'Brien et al. *BMC Pregnancy and Childbirth* 2013, **13**(Suppl 1):S12
<http://www.biomedcentral.com/1471-2393/13/S1/S12>

Outcomes

Infant Outcomes	FIcare group Mean (sd)	Controls Mean (sd)	P-value
Zwt21-Zwt 1	0.61(0.44)	0.49(0.41)	0.26
Discharge weight gain	25% ↑	,	<0.05
21 day wt gain (g/kg/day)	21.6 (6.4) 9% ↑	20.3 (6.6)	0.48
Breastfeeding	85% ↑	42%	<0.05
Nosocomial infection	0 ↓	6(9.7%)	0.59
ROP	0 ↓	8(14.3%)	<0.05
Incident reports Per 1000 patient days	0.84 25% ↓	1.15	0.73

MOUNT SINAI HOSPITAL
Joseph and Wolf Lebovic Health Complex

-Padres con
 Ficare: **Menos**
ROP, menos
infección
nosocomial, más
lactancia materna

- También menos
 estrés parental
 (escala PSS)

B- Familias en nuevos espacios...

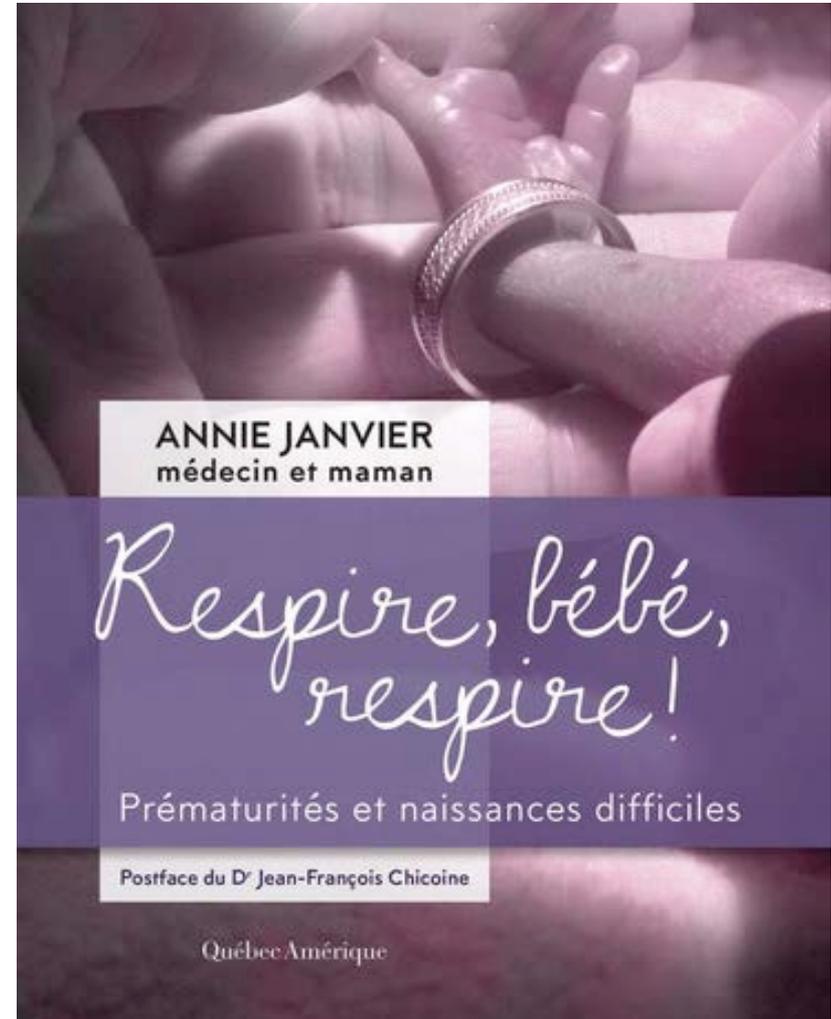


“Nosotros damos forma a los edificios y más tarde ellos nos dan forma a nosotros”

W Churchill, ex-prematuro



... C- Familias que son la parte fundamental de la UCIN



Term MRI for small preterm babies: do parents really want to know and why has nobody asked them?

Rebecca Pearce, Jason Baardsnes (jason.baardsnes@cnrc-nrc.gc.ca)

Life Sciences, NRC Human Health Therapeutics Portfolio, National Research Council Canada, Montréal, QC, Canada

-” Maren fue dada de alta del hospital con 4 meses de vida. Durante el primer año estábamos petrificados e hipervigilantes Miraba a los ojos? Cogía cosas? Mostraba signos de ataxia...??”

“La RM de Maren no nos dio ninguna información sobre como es hoy --- sólo sirvió para aterrorizarnos”

Mareen tiene ahora 2 años y ninguna discapacidad...Sabemos que pueden aparecer alteraciones en su desarrollo posterior pero ninguna RM podría predecir este tipo de alteraciones.

-Mirando nuestra experiencia creemos que los padres deberían recibir un consentimiento informado antes de realizar una RM. Si los médicos creen que necesitan la información derivada de la RM, los padres deben poder elegir si quieren o no conocer esta información...”

Received

11 June 2012; accepted 15 June 2012.



Las familias integradas en la Unidad

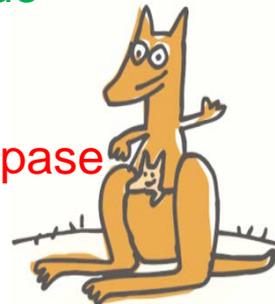
- Apoyando a otras familias
- Integradas en los proyectos de mejoría de calidad asistencia
- En los **pases de visita**

Parental presence on neonatal intensive care unit
clinical bedside rounds: randomised trial and focus
group discussion

Mohamed E Abdel-Latif,^{1,2} Danette Boswell,¹ Margaret Broom,¹ Judith Smith,¹
Deborah Davis^{3,4}

Abdel-Latif ME, et al. *Arch Dis Child Fetal Neonatal Ed* 2015;**100**:F203–F209. doi:10.1136/archdischild-2014-306724

- ”Comprenden mejor problemas del niño”
- ”Derecho a estar presentes”
- ”Refuerza su papel de padres”
- Confidencialidad**
- Labor educativa del pase de visita (residentes)**



ORIGINAL ARTICLE

Views of parents and health-care providers regarding parental presence at bedside rounds in a neonatal intensive care unit

MJ Grzyb^{1,2}, H Coo¹, L Rühland¹ and K Dow^{1,2}

Journal of Perinatology (2014) 34, 143–148

© 2014 Nature America, Inc. All rights reserved 0743-8346/14

www.nature.com/jp

Table 2. Views of parents who attended bedside rounds at least once during their child's stay in the Neonatal Intensive Care Unit (n = 64)

Statement	n (%)				
	Strongly agree	Somewhat agree	Neutral	Somewhat disagree	Strongly disagree
I liked being present during rounds.	57 (89)	6 (9)	1 (2)	0 (0)	0 (0)
It was helpful to hear the entire presentation and discussion of my child during rounds.	54 (86)	7 (11)	2 (3)	0 (0)	0 (0)
The discussion during rounds was more confusing than helpful.	1 (2)	4 (6)	7 (11)	18 (28)	34 (53)
Introductions at rounds helped me identify the members of the health-care team.	28 (44)	17 (27)	12 (19)	4 (6)	2 (3)
Being present during rounds gave me more confidence in the health-care team.	42 (66)	14 (22)	7 (11)	1 (2)	0 (0)
If there is bad news, I would prefer that I be told after, not during, rounds.	16 (25)	8 (12)	12 (19)	9 (14)	19 (30)
I would prefer for the plan of care to be explained to me by one individual after rounds.	15 (23)	10 (16)	20 (31)	9 (14)	10 (16)
I felt comfortable asking questions during rounds.	35 (55)	18 (28)	5 (8)	4 (6)	2 (3)
My being present for rounds improved the care of my child.	18 (28)	10 (16)	26 (41)	5 (8)	5 (8)
If I had not been present for rounds I would have missed important information.	26 (41)	17 (27)	9 (14)	6 (9)	6 (9)
I arranged my day so that I could be present for rounds.	18 (29)	12 (19)	20 (32)	4 (6)	8 (13)
I found it upsetting when there was uncertainty expressed about the care or condition of my child during rounds.	6 (9)	16 (25)	22 (34)	8 (12)	12 (19)
I felt ignored during rounds.	3 (5)	4 (6)	8 (12)	15 (23)	34 (53)
I felt there were too many people present on rounds.	1 (2)	10 (16)	16 (25)	8 (12)	29 (45)
I had adequate time to ask questions during rounds.	27 (42)	19 (30)	8 (12)	8 (12)	2 (3)
Too many medical terms were used during rounds.	5 (8)	6 (9)	12 (19)	19 (30)	22 (34)
Attending rounds helped me to be less worried about my child.	32 (50)	22 (34)	6 (9)	3 (5)	1 (2)

Note: Sixty-one parents responded to all statements.

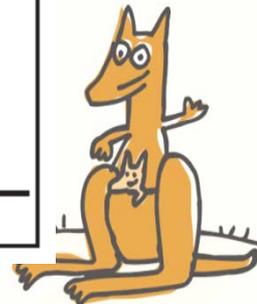


Table 4. Comparison of medical trainees' (n = 67) and nurses' (n = 28) views regarding parental presence at bedside rounds

Statement	n (%)					P-value ^a
	Strongly agree	Somewhat agree	Neutral	Somewhat disagree	Strongly disagree	
<i>I prefer parents to be present on rounds</i>						
Medical trainees	7 (10)	19 (28)	26 (39)	15 (22)	0 (0)	0.02
Nurses	3 (11)	15 (54)	6 (21)	4 (14)	0 (0)	
<i>Communication with parents is improved when they are present on rounds</i>						
Medical trainees	14 (22)	33 (51)	8 (12)	12 (18)	3 (4)	0.19
Nurses	5 (19)	18 (67)	2 (8)	7 (27)	2 (8)	
<i>Patient care is improved when parents are present on rounds</i>						
Medical trainees	7 (10)	21 (31)	21 (31)	17 (25)	2 (3)	0.93
Nurses	1 (4)	10 (37)	7 (25)	7 (25)	3 (11)	
<i>I spend less time explaining patients' status and plan of care outside of rounds</i>						
Medical trainees	6 (9)	22 (33)	19 (28)	17 (25)	3 (4)	0.02
Nurses	4 (14)	15 (54)	11 (39)	7 (25)	2 (7)	
<i>Rounds take longer when parents are present</i>						
Medical Trainees	3 (4)	36 (54)	11 (16)	15 (22)	3 (4)	0.12
Nurses	11 (39)	10 (36)	6 (21)	11 (39)	0 (0)	
<i>I think it is a problem that rounds take longer because parents are present^b</i>						
Medical Trainees	0 (0)	6 (16)	4 (10)	12 (30)	5 (13)	0.19
Nurses	3 (14)	4 (19)	3 (12)	11 (41)	7 (25)	
<i>I think discussion among staff about a patient's condition is inhibited when parents attend rounds.</i>						
Medical Trainees	9 (13)	40 (60)	10 (15)	6 (9)	2 (3)	0.71
Nurses	9 (35)	11 (42)	3 (12)	3 (12)	0 (0)	

-Residentes: prefieren que los padres no estén-... menos educación, sensación de sentirse evaluados...
-Enfermería prefiere que estén
-Los dos refieren como inconveniente que **pase es más largo...**

Note: Sixty-three medical trainees and 25 nurses responded to all statements.
^aBased on dichotomizing responses as Agree or Neutral/Disagree and using Pearson's χ^2 or Fisher's Exact test.
^bAsked only to those who responded 'Strongly agree' or 'Agree' to rounds take longer when parents are present



“Shared decision making” ... Moore

EARLY INTENSIVE CARE



This is a photo of an extremely premature baby born at 24 weeks and receiving early intensive care.

EARLY INTENSIVE CARE

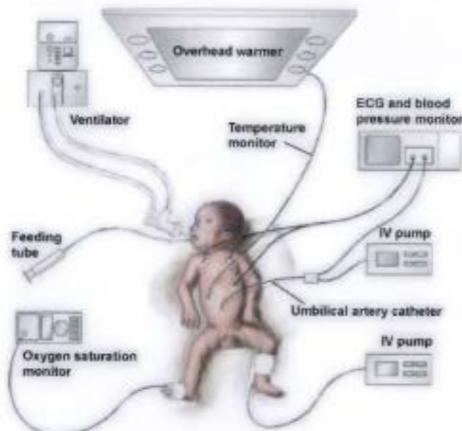


Extremely premature babies are only a little longer than the palm of your hand.

PALLIATIVE CARE



Palliative care gives you time to hold your baby, who will be wrapped in blankets and given comfort.



- **Resuscitation:** YES
Will include one or more of: bag and mask ventilation, continuous positive airway pressure (CPAP), intubation, mechanical ventilation, intravenous access, chest compressions and epinephrine
- **Painful procedures:** YES
- **Duration of care for the baby:** Months in the NICU (neonatal intensive care unit).
- **Support Available:** YES



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SURVIVAL

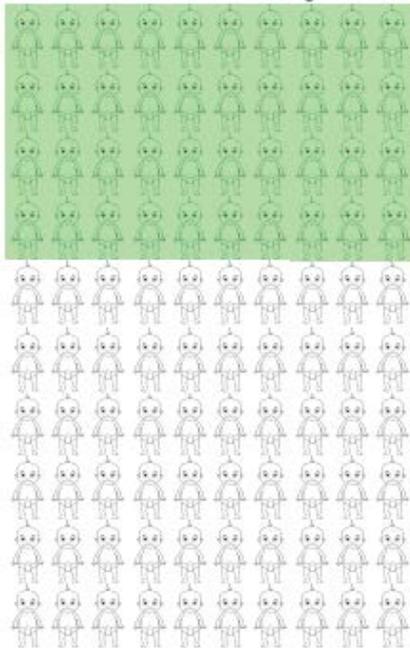
In Canada

23 WEEKS

Survival of babies born at 23 weeks who receive early intensive care

40 out of 100 babies will LIVE
60 out of 100 babies will DIE

Range: 34-45%



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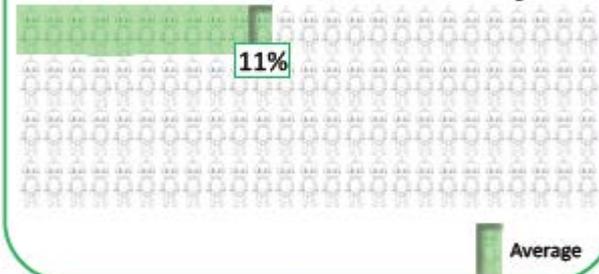
DISABILITY

23 WEEKS

Disability of babies born at 23 weeks who receive early intensive care and survive

MAJOR DISABILITY

Range: 4-26%

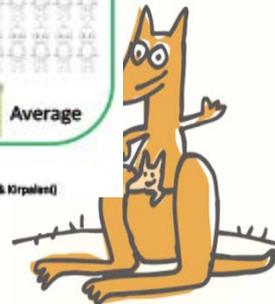


POSSIBLY MAJOR TO MAJOR DISABILITY

Range: 25-54%



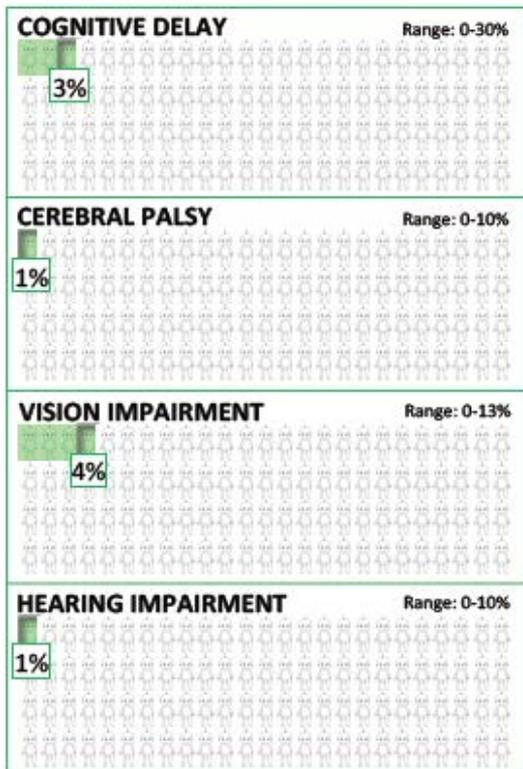
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MAJOR DISABILITY

23 WEEKS

Major disability of babies born at 23 weeks who receive early intensive care and survive



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 diagrams modified with permission © 2011 Guillen & Kirpalani

Average

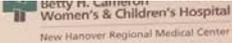
Disability	Most common	Less common	Least common	
	Cognitive Function	Movement or Motor	Hearing	Vision
Mild	Learning difficulties	Clumsy, difficulties with paper and pencil	Mild hearing loss	Needs glasses
Possibly Major	Slower than average; learns with support	Cerebral palsy; expected to walk with help	Hearing loss; corrected with hearing aids	Poor eyesight, even with glasses
Major	Very slow, needs lifelong care	Cerebral palsy; cannot walk without help or cannot walk	Deaf; cannot hear even with hearing aids	Blind

The graphs on the following page illustrate the estimated risk of major and possibly major disability for babies born at 22 to 25 weeks of gestation who are alive at school age (4-8 years old). Note that the darkened bar refers to the babies born at 24 weeks.

Moore et al
www.sdmforepi.com



Familias integradas en la unidad



Betty H. Cameron
Women's & Children's Hospital
New Hanover Regional Medical Center

Partnering with Parents

NICU FAMILY SUPPORT PROGRAMS 2017

WEEKLY SUPPORT	MONTHLY SUPPORT	SEASONAL SUPPORT
<p>PARENT TO PARENT ROUNDING</p> <ul style="list-style-type: none"> Family Consultants and Chaplain attend medical rounds weekly NICU family presence encouraged during daily medical rounds  <p>NICU FAMILY MEALS</p> <ul style="list-style-type: none"> Monday - Rise & Shine breakfast Wednesday - NICU Lunch Club Thursday - NICU Family Dinner  <p>ANTEPARTUM SUPPORT</p> <ul style="list-style-type: none"> Peer to peer support NICU tours for antepartum families Craft cart activities 	<p>NEONATAL FAMILY ADVISORY COUNCIL</p>  <p>Founded in 2010, the Neonatal Family Advisory Council is comprised of former NICU families and hospital staff. The council meets monthly as a group, in addition to working in the unit, to inspire families and staff through education and support programs. They collaborate to drive change, share observations and make suggestions to increase parent involvement on the care team. Members also provide the family voice in quality improvement initiatives.</p> <p>SIBLING STORY TIME</p> <ul style="list-style-type: none"> Stories, crafts and snacks for NICU siblings 	<p>NICU FAMILY GARDEN</p> <ul style="list-style-type: none"> Garden grown for NICU families by former NICU families Seasonal planting events  <p>HOLIDAY CELEBRATIONS</p> <ul style="list-style-type: none"> 5 seasonal holiday celebrations for NICU families and staff  <p>KANGAROO-A-THON</p> <ul style="list-style-type: none"> 2 kangaroo a-thon's per year Plush kangaroo gift for first skin-to-skin hold 
<p>ALISON MARTIN alison.martin@cvohnc.org Coastal Carolina Neonatology NICU Family Support Coordinator Co-Chair Neonatal Family Advisory Council</p> <p>ALISON'S STORY</p>  <p>Meeting our son today, you wouldn't guess that he entered the world at just over 25 weeks gestation. Born weighing barely two pounds, our micro-preemie faced many medical challenges during his 81-day NICU stay. Although many years have passed since he came home, we are so grateful for his outstanding care and it inspired us to share our struggles and successes to provide hope, support and encouragement to current NICU families and staff.</p> <p>WHAT I WISH I WOULD HAVE KNOWN IN THE NICU</p> <ul style="list-style-type: none"> That my baby would be OK Felt less guilty and believed this wasn't my fault Been more open about my grief, fear and isolation Asked for help communicating with family and friends to ease challenge of telling our story "over and over" again Known that someday we would embrace our journey and use it to help others <p>CHALLENGES DURING THE FIRST YEAR AT HOME</p> <ul style="list-style-type: none"> Fear of leaving the NICU and medical team Balancing life at home Great fear of germs and infection Practicing self-care and addressing post-traumatic stress Months on oxygen and monitors at home <p>SUCCESS AT HOME DURING THE FIRST YEAR AND BEYOND</p> <ul style="list-style-type: none"> We appreciated our thriving cherub as a true miracle Challenged holding and feeding our son and watching him grow Grateful our family was finally complete and we could give the love, support and encouragement our child needed to maximize his potential in life We are proud of the healthy and vibrant young man our son has become. He is a wonderful and dedicated brother, student, athlete and friend  <p>SPECIAL INTERESTS</p> <ul style="list-style-type: none"> Support for the micro-preemie family Developmental follow-up care Quality Improvement 	<p>Parent Event & Unit Support</p> <ul style="list-style-type: none"> NICU Family reunion- 400 guests Retirement celebration honoring NICU nurse's 45-year career Raffle for NICU families affected by Hurricane Matthew \$12,000 Green Clips grant award for family lounge upgrades Screen and live interview for Foundation Radiothon NICUVIEW cameras in all patient rooms Patent name tags/N-100  <p>Work in Progress</p> <ul style="list-style-type: none"> NICU family common area improvements New furnishings, game consoles, TV's Plants & artwork Advisory Council website updates Friends of Family Council Fund Parent to parent study program Add family advisors to developmental, practice councils and physician led quality teams 	<p>RACHEL LEVIN Rachel.Levin@nhrc.org Betty H. Cameron Women's and Children's Hospital at NHRMC Women's & Children's Family Coordinator Chair Neonatal Family Advisory Council</p> <p>RACHEL'S STORY</p>  <p>I was led to this "work" by the medical journey of our son Myles. He began his life in the NICU with multiple heart defects, Down syndrome, and clubfoot. By age 5 months, Myles had already received the first of 4 heart surgeries, had weekly castings and achilles release surgery. He struggled with feeding issues and was diagnosed with eosinophilic esophagitis. The NHRMC medical team supported us every step of the way as a valued member of the care team, and Myles is thriving beyond belief! The opportunity to support other families on a similar path has been the most rewarding experience of my lifetime.</p> <p>WHAT I WISH I WOULD HAVE KNOWN IN THE NICU</p> <ul style="list-style-type: none"> To trust my instincts as a mother and feel comfortable voicing my feelings It's a waste of precious time to live in fear of what might happen or worry about things he might never do All his outcomes have turned out well. He does everything I had hoped for and more. <p>CHALLENGES DURING THE FIRST YEAR AT HOME</p> <ul style="list-style-type: none"> Afraid of being alone with Myles without any alarms Fears his heart would fail or he would stop-breathing and I couldn't save him Struggled with depression about his first open-heart surgery at 3 months We both faced challenges with PTSD symptoms post heart surgeries <p>SUCCESS AT HOME DURING THE FIRST YEAR AND BEYOND</p> <ul style="list-style-type: none"> Myles successfully breastfed for over 2 years Pumping pre and post surgeries when he couldn't feed, kept me sane and functioning Breastfeeding made me feel less helpless and had a magical way of calming us both down Myles is thriving, is physically healthy, and loves sports This journey, while difficult, is also a gift, opening me to a deep compassion for other parents walking this path  <p>SPECIAL INTERESTS</p> <ul style="list-style-type: none"> Breastfeeding and pumping Heart defects and genetic anomalies Peer to peer support

VON Annual Congress Chicago 2017



Cómo conclusión...





Conclusiones: en el siglo XXI...

-INVESTIGACIÓN BÁSICA Y CLÍNICA DE CALIDAD

-TECNOLOGÍA y GENÉTICA

-CALIDAD ASISTENCIAL DE EQUIPOS MULTIDISCIPLINARES COMPROMETIDOS

-EL SIGLO DE LAS FAMILIAS

TECNOLOGÍA

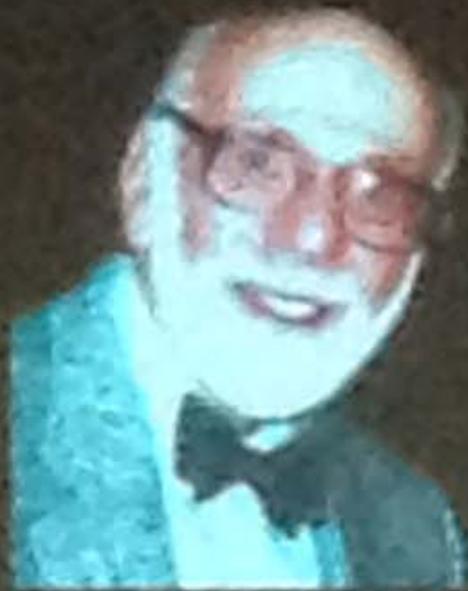
CUIDADOS MÁS HUMANIZADOS + FAMILIAS

-RESOVER RETOS ANTIGUOS Y LOS QUE PUEDAN APARECER



En tiempos de inmediatez...

-No olvidar el peligro de “querer ir demasiado rápido...”



'don't just do something – stand there'
(William Silvermann)



GRACIAS

