

A vibrant field of yellow tulips in full bloom, set against a clear, bright blue sky. The flowers are the central focus, with their petals showing some natural texture and a few small imperfections. The lighting is bright and even, suggesting a sunny day. The text is overlaid on the upper portion of the image.

REPORT 2022

**EpicLatino**

## **ACKNOWLEDGMENTS**

This report is based on the data collected during the year 2022 by 28 newborn units (NICU) from Latin America that belong to the neonatal network EpicLatino. We appreciate the invaluable support of the participating NICUs who contributed this information, and we acknowledge the dedication and work of the researchers, NICU directors, and the people who have entered the information into the database. Additionally, we appreciate the support given by Dr. Shoo Lee, former director of the Maternal-Infant Research Center at Mount Sinai Hospital, scientific director CIHR Institute of Human Development, Child and Youth Health, an Associate Member of the Lunenfeld-Tanenbaum Research Institute, and professor at the University of Toronto for his help, leadership and financial support through the CIHR grant, for the development of this project. Dr. Shoo Lee, has been named to the Order of Canada, the country's highest honor for his lifetime achievement. We thank also Amara Rivero for her important collaboration in the reception and organization of the database.

## **STRUCTURE OF THE NEONATAL EPICLATINO NETWORK**

The EpicLatino neonatal network is a group of Latin American researchers and neonatologists who work on projects related to perinatal and neonatal care. It was founded in 2015 by Drs. Carlos Fajardo, Angela Hoyos, Carolina Villegas, Fernando Aguinaga, María Inés Martinini and Mariela Fernández. Thanks to the contacts with the Canadian neonatal network (CNN), data collection has been carried out under this network's program, translated into Spanish. Thanks to this system, the units that were already collecting information contributed their database of several years. This network maintains a standard database that allows researchers to participate in collaborative projects, both national and international. Health professionals, researchers and administrators can actively participate in different research projects related to clinical aspects, health services, health policies, etc. focused on improving the quality of care, efficacy, and effectiveness of neonatal care.

### **The Latin American Epic Neonatal Network Foundation**

Board of directors:     Dr. Carlos Fajardo                     Dra. Angela Hoyos  
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Review committee: Drs. Carlos Fajardo, Pablo Vasquez and Angela Hoyos

<b>Acronym</b>	<b>Institutions</b>	<b>Above sea level (m)</b>	<b>Place</b>	<b>Investigators</b>	<b>Site Characteristics</b>
CCPN	Colsanitas – Clínica Pediátrica UCI Neonatal	2640	Bogotá, Colombia	Dr. Juan Carlos Beltrán	All no readmission
CDC	Clínica del Country	2640	Bogotá, Colombia	Dr. Angela Hoyos	All with readmissions
CDSC	Clínica Dávila	570	Santiago, Chile	Dr. Manuel Becerra	< 33 weeks with readmissions
CHMH	Centenario H de Esp Miguel Hidalgo	1885	Aguascalientes, Mexico	Drs. Manuel Bernal Benitez, Jose Ruben and Hyernandez Patiño	All with readmissions
CLC	Clínica la Colina	2640	Bogotá, Colombia	Drs. Martha Colon, Ximena Soler	< 36 weeks without readmissions
CMISL	Clínica Materno Infantil San Luis	959	Bucaramanga, Colombia	Dr Martha Lucía Africano, Nurse: Luz Marina Ramírez	All no readmission
CS	Clínica Somer	2113	Rio Negro, Colombia	Drs. Edwin Antonio González, Luisa Medina Nurse: Luz Beatriz Sáenz	< 38 weeks without readmissions
CSB	Clínica Santa Bárbara	2850	Quito, Ecuador	Drs. Edgar Jara Muñoz Natalia Sánchez and Pamela Izquierdo	All no readmission
CSFP	Clínica San Felipe	3	Lima, Perú	Drs. Jaime Zegarra and Fabiola Rivera	Selected < 36 weeks without readmissions
CSMS	Clínica de Santa María de Santiago	570	Santiago, Chile	Drs. María Carolina Gandolfi, Luisina Martínez	< 33 weeks without readmissions
CUC	Clínica Universitaria Colombia	2640	Bogotá, Colombia	Drs. Leslie Martinez Ginna Blanco Caviedes	Selected < 36 weeks without readmissions
CV	Clínica Vespucio	570	Santiago, Chile	Dr. Iván Morera	< 33 weeks without readmissions
HCI	Hospital Civil de Ipiales E.S.E	2898	Ipiales, Colombia	Drs. Carlos Guillermo Burbano	< 34 weeks with readmissions
HCMP	Hospital Central Dr. Ignacio Morones Prieto	1850	San Luis Potosí, México	Dr. Carolina Villegas	All no readmission

<b>Acronym</b>	<b>Institutions</b>	<b>Above sea level (m)</b>	<b>Place</b>	<b>Investigators</b>	<b>Site Characteristics</b>
HDC	S.E.S. Hospital de Caldas	2150	Manizales, Colombia	Dr. Oscar Julián López Uribe y enfermera Diana Marcela López	< 38 weeks without readmissions
HDLV	Hospital de los Valles	2850	Quito, Ecuador	Dr. Verónica Delgado.	< 36 weeks without readmissions
HEM	Hospital Español de Mendoza	746	Mendoza, Argentina	Drs. Horacio Roge, Damián Pretz and Daniel Agost	All no readmission
HGM	Hospital General EISS de Manta	6	Manta, Ecuador	Dr. Karla Zambrano.	All with readmission
HILP	Hospital Italiano de La Plata	10	La Plata, Argentina	Drs. Guillermo Agustin Zambosco and Maricel Uria	< 37 weeks without readmissions
HMC	Hospital Militar Central	2640	Bogotá, Colombia	Drs. Claudia Alarcón, Jorge López and Alejandro Colmenares	< 33 weeks without readmissions
HMT	Hospital Metropolitano	2850	Quito, Ecuador	Drs. Fernando Aguinaga, Verónica Guzmán and Francis Ponce	All no readmission
HRPG	H Regional DR Rafael Pascacio Gamboa	522	Tuxtla Gutiérrez, México	Dr. María de la Luz Sánchez Tirado	All with readmission
HRU	Hospital Regional Universitario de Colima	570	Colima, Mexico	Dr. Juana de la Luz Castellanos	All no readmission
HSJ	Hospital San José	2640	Bogotá, Colombia	Drs. Diana Arias and Bladimir Marin Montoya	< 35 weeks without readmissions
HSVP	Hospital Departamental San Vicente de Paul	828	Garzón, Huila, Colombia	Drs. Nidia Patricia Barrera Herrera and Flor Ángela Galindo	< 34 weeks without readmissions
LCMC	Los Cobos Medical Center	2640	Bogotá, Colombia	Dr. Oscar Ovalle and nurse Dayan Vannesa Hernandez	< 35 weeks without readmissions
MNSM	Maternidad Nuestra Sra. de las Mercedes	396	Tucuman, Argentina	Drs. María Inés Martinini, Daniel Amado, María Jorgelina Neme,	All no readmission

<b>Acronym</b>	<b>Institutions</b>	<b>Above sea level (m)</b>	<b>Place</b>	<b>Investigators</b>	<b>Site Characteristics</b>
				Marta Alvarez, Gloria Ferreyra and Maria Cristina Sanchez	
SEHOS	St. Elisabeth Hospital	1	Willemstad, Curaçao	Dr. Naijla Duque	All with readmission

The units which did not complete more than 10 patients  $\leq 32$  weeks gestational age at birth during the year, will not be included in the comparison section between units. Only the patients with all the information are included, except for hypothermia where it is used, we include them if they have data in this area.

## Acronyms used in the document

asl: above sea level  
BPD: Bronchopulmonary Dysplasia  
Birthweight: Weight at birth in grams  
CONS: Staphylococcus coagulase negative  
CPAP: Continuous Airway Pressure  
Gestational Age: Gestational age at birth in weeks  
GBS: Group B Streptococcus  
Gr: grams  
HFOV: High Frequency oscillatory ventilation  
IQR: interquartile range  
IPPV: Intermittent positive pressure ventilation  
IVH: Intraventricular Hemorrhage  
NEC: Necrotizing Enterocolitis  
NICU: Neonatal Intensive care units  
NIVn: nasal noninvasive ventilation  
OTI: Oral Tracheal Intubation  
PDA: Patent ductus arteriosus  
PMA: Postmenstrual age  
PPV: Positive Pressure ventilation  
ROP: Retinopathy of Prematurity  
Staph aureus: Staphylococcus aureus  
TPN: parenteral nutrition  
w: Weeks

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## **GENERAL SUMMARY**

This report is based on data collected during 2022 by 28 newborn third-level care units (NICU) from Latin America and that belong to the EpicLatino neonatal network. For the analysis of the different variables, all the NICUs were included in the database. For comparison between units, only those with more than 10 patients  $\leq 32$  weeks at birth during the year, were included, so data calculated in se comparison section correspond to NICUs as described.

The goals of EpicLatino's neonatal network are:

- To establish and maintain a data source for Latin American Newborn Units.
- To provide the infrastructure to facilitate knowledge on morbidity and mortality and care of newborns in Latin America.
- To facilitate the obtaining of reliable data that produces information and to translate into actions that allow the improvement of neonatal and perinatal health at the local and regional level.
- To establish a Latin American network of researchers interested in neonatal and perinatal care.
- To develop innovative research methods that lead to the improvement of the quality of neonatal and perinatal health care and attention in Latin America.

### **Summary of Results / Methodology**

EpicLatino neonatal network data source: admissions from January 1, 2022 to December 31, 2022.

The total number of eligible admissions from participating centers was 3446, including readmissions; deaths at the delivery room or moribund on admission (16 cases) were not included. Patients without discharge information were excluded (79 cases)

Total number of patients admitted to participating NICUs 3446.

Total number of eligible very premature infants ( $\leq 32$  weeks at birth) 723.

Total number of very low Birthweight infants ( $\leq 1500$  gr at birth) 530.

The Gestational Age in this document refers to full weeks (example week 32 includes children from 32 weeks to 32 weeks and 6 days of gestation). Those children transferred to the normal newborn area (primary care level) were excluded, but those who died during their stay in the unit were included regardless of the time in the unit. The demographic information of the patients, without personal identification data, components of care and the end results upon leaving the hospital were entered into a computer and sent electronically to MiCare, where data was verified; Statistical analysis was performed at the coordinating center in Calgary and Bogotá.

## **BACKGROUND AND OBJECTIVES**

NICUs use the combined capabilities of diverse health care members and advances in technology to provide effective care for newborns. To assist in this task, the EpicLatino neonatal network data source provides ordinal and categorical information to identify variations in issues such as mortality and morbidity and the use of available resources.

Three scores are used, namely: SNAP II, NTISS and TRIPS, which allow adjusting the risk variations in both mortality and morbidity. This adjustment will allow in subsequent analyzes to investigate what specific practices can be changed to improve the quality of care of our newborns.

Using the EPIQ (Evidence-Based Practice Quality Improvement) program allows exploring new methodologies to identify care practices associated with good or poor outcomes and provide a way to improve the quality of evidence-based care.

## **INFORMATION SYSTEMS**

Patient information was collected retrospectively from medical records by researchers or their associates using standardized definitions and protocols present in the network operating manual available to all participating NICUs. This information was entered into a computer using the program that allows for errors to be reviewed locally prior to being sent to the Research Center for Maternal and Child Care (MiCARE) in Toronto. The information of the patients in the different NICUs is available only to the researcher corresponding to each NICU. All data that could identify the patient were removed BEFORE the data was transferred to the coordinating center. The confidentiality of the patients was strictly preserved.

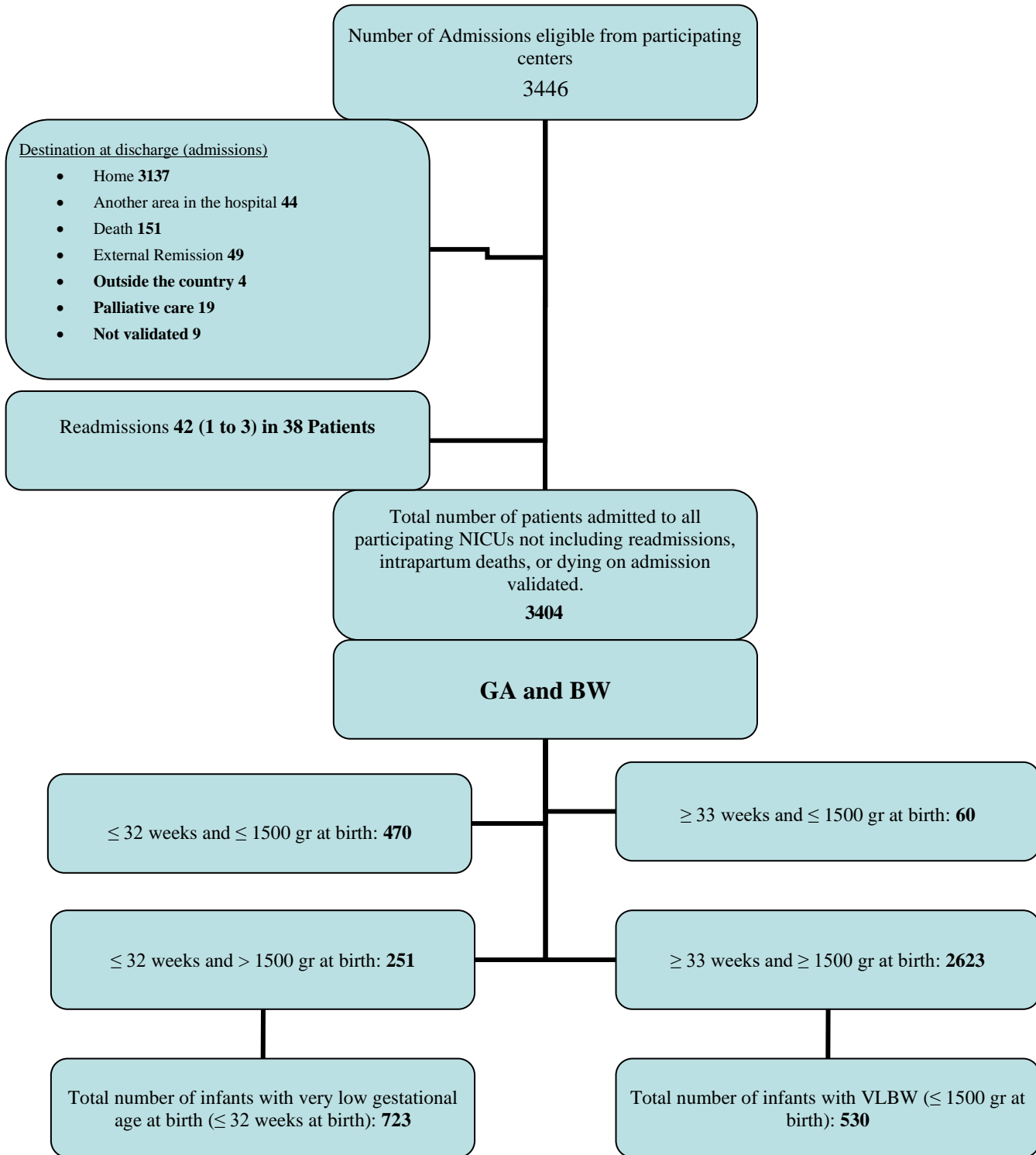
As the responsibility of the local researcher in each participating center, the information is stored in a secure data source of the NICU or in a secure alternative site such as a medical file, a computer area, etc. At the coordinating center, the central data source is stored in a secure computer located on a server and a copy is maintained and secured by the Mount Sinai Hospital's IT and technology department.

At the coordinating center, analyzes by variable, between two variables and multiple variables are conducted both for the entire group and for each individual center. Multiple logistic regression analysis is used to identify risk factors associated with increased mortality and morbidity. The pooled information allows the presentation of graphs of mortality and morbidity results from Gestational Age and Birthweight. Similar systems have been used to guide stratification in randomized studies, assist quality assurance, and predict resource utilization. The STATA 18 Program was used, StataCorp, 4905 Lakeway Drive, College Station, Texas 77845 USA



# A. DESCRIPTIVE ANALYSIS

## DESCRIPTIVE ANALYSIS: GENERAL DATA



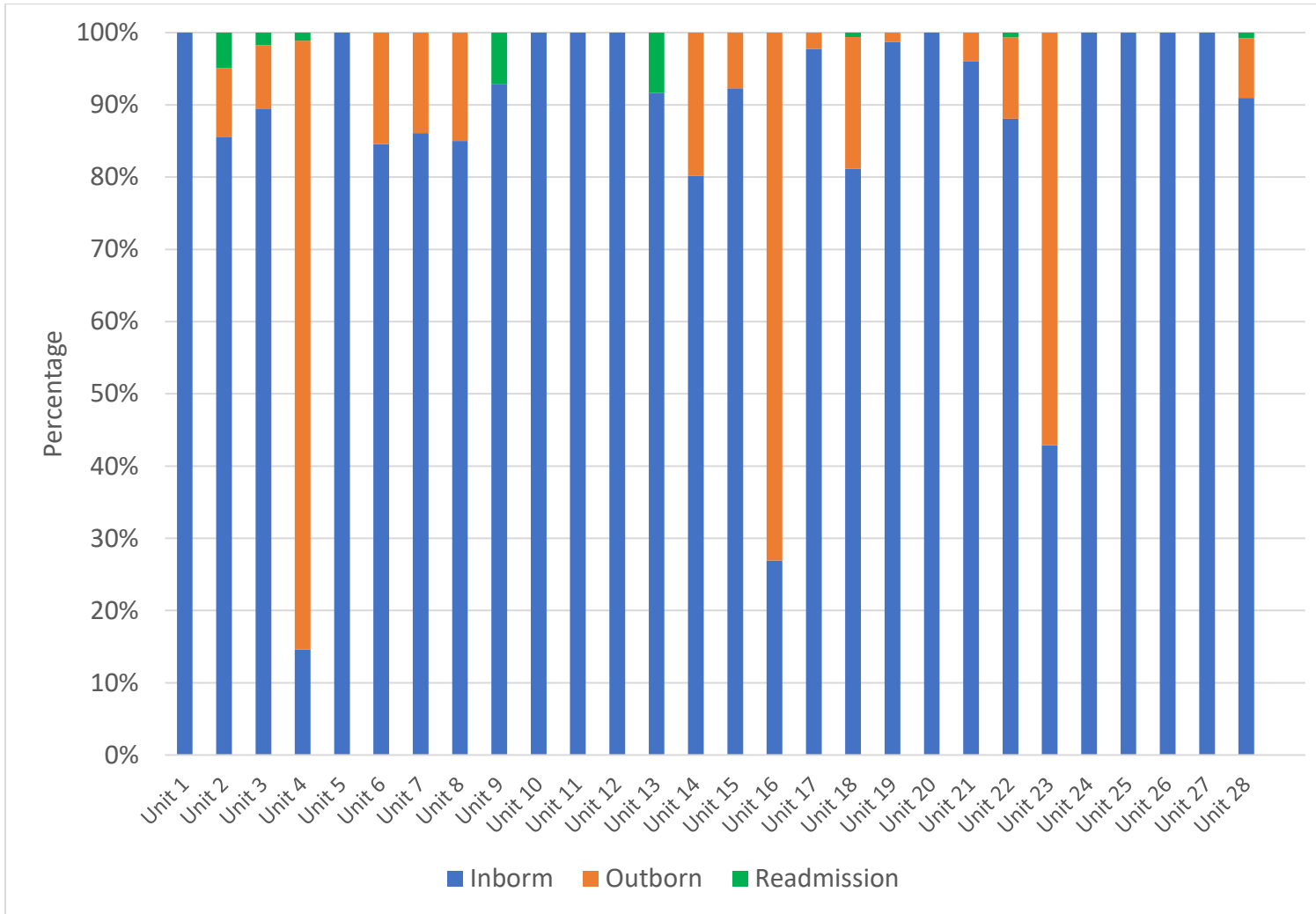
## PRESENTATION 1

**Number of Admissions in the Participating Centers (Table)**

NICUs		Inborn	Outborn	Readmissions	Total validated including readmissions
<b>Unit 1</b>	N	17	0	0	17
	%	100%	0%	0%	
<b>Unit 2</b>	N	505	56	29	561
	%	90%	10%	5%	
<b>Unit 3</b>	N	51	5	1	56
	%	91%	9%	2%	
<b>Unit 4</b>	N	13	75	1	88
	%	15%	85%	1%	
<b>Unit 5</b>	N	20	0	0	20
	%	100%	0%	0%	
<b>Unit 6</b>	N	949	173	0	1122
	%	85%	15%	0%	
<b>Unit 7</b>	N	124	20	0	144
	%	86%	14%	0%	
<b>Unit 8</b>	N	102	18	0	120
	%	85%	15%	0%	
<b>Unit 9</b>	N	13	0	1	13
	%	100%	0%	8%	
<b>Unit 10</b>	N	19	0	0	19
	%	100%	0%	0%	
<b>Unit 11</b>	N	7	0	0	7
	%	100%	0%	0%	
<b>Unit 12</b>	N	14	0	0	14
	%	100%	0%	0%	
<b>Unit 13</b>	N	33	0	3	33
	%	100%	0%	9%	
<b>Unit 14</b>	N	81	20	0	101
	%	80%	20%	0%	
<b>Unit 15</b>	N	12	1	0	13
	%	92%	8%	0%	

NICUs		Inborn	Outborn	Readmissions	Total validated including readmissions
Unit 16	N	7	19	0	26
	%	27%	73%	0%	
Unit 17	N	346	8	0	354
	%	98%	2%	0%	
Unit 18	N	138	31	1	169
	%	82%	18%	1%	
Unit 19	N	76	1	0	77
	%	99%	1%	0%	
Unit 20	N	21	0	0	21
	%	100%	0%	0%	
Unit 21	N	72	3	0	75
	%	96%	4%	0%	
Unit 22	N	133	17	1	150
	%	89%	11%	1%	
Unit 23	N	9	12	0	21
	%	43%	57%	0%	
Unit 24	N	30	0	0	30
	%	100%	0%	0%	
Unit 25	N	13	0	0	13
	%	100%	0%	0%	
Unit 26	N	13	0	0	13
	%	100%	0%	0%	
Unit 27	N	33	0	0	33
	%	100%			
Unit 28	N	121	11	1	132
	%	92%	8%	1%	
Total	N	2972	470	38	3442
	%	4%	14%	1,1%	

**Number of Admissions in the Participating Centers (Graph)**



Comment: This analysis includes 3442 admissions to the participating NICUs during 1 of January 2022 to 31 of December 2022 validated, with 42 readmissions in 38 patients.

## PRESENTATION 2

**Score severity (SNAPE and SNAPE II) by NICUs (table)**

NICU	Admissions With information	Without Information	Mean	
			SNAPE Score	SNAPE II Score
Unit 1	9	8	4.6	4.6
Unit 2	555	6	0.9	1.4
Unit 3	56	0	8.4	15.1
Unit 4	88	0	4.1	7.7
Unit 5	19	1	14.1	16.4
Unit 6	1098	24	2.1	3.1
Unit 7	144	0	4.9	10.3
Unit 8	117	3	0.7	2.4
Unit 9	13	0	6.2	12.0
Unit 10	19	0	12.4	16.3
Unit 11	7	0	2.1	14.4
Unit 12	14	0	7.4	15.9
Unit 13	32	1	8.9	12.2
Unit 14	101	0	7.3	10.9
Unit 15	13	0	7.5	14.5
Unit 16	26	0	14.7	26.2
Unit 17	186	168	0.8	2.1
Unit 18	169	0	0.9	1.5
Unit 19	77	0	3.0	5.0
Unit 20	21	0	3.2	9.9
Unit 21	72	3	8.7	10.7
Unit 22	149	1	9.1	12.2
Unit 23	4	17	0.0	4.5
Unit 24	30	0	2.6	8.4
Unit 25	12	1	9.8	9.8
Unit 26	13	0	15.2	19.5
Unit 27	33	0	5.3	15.5
Unit 28	129	3	3.7	9.4
General/average	3206	236	6.0	10.4

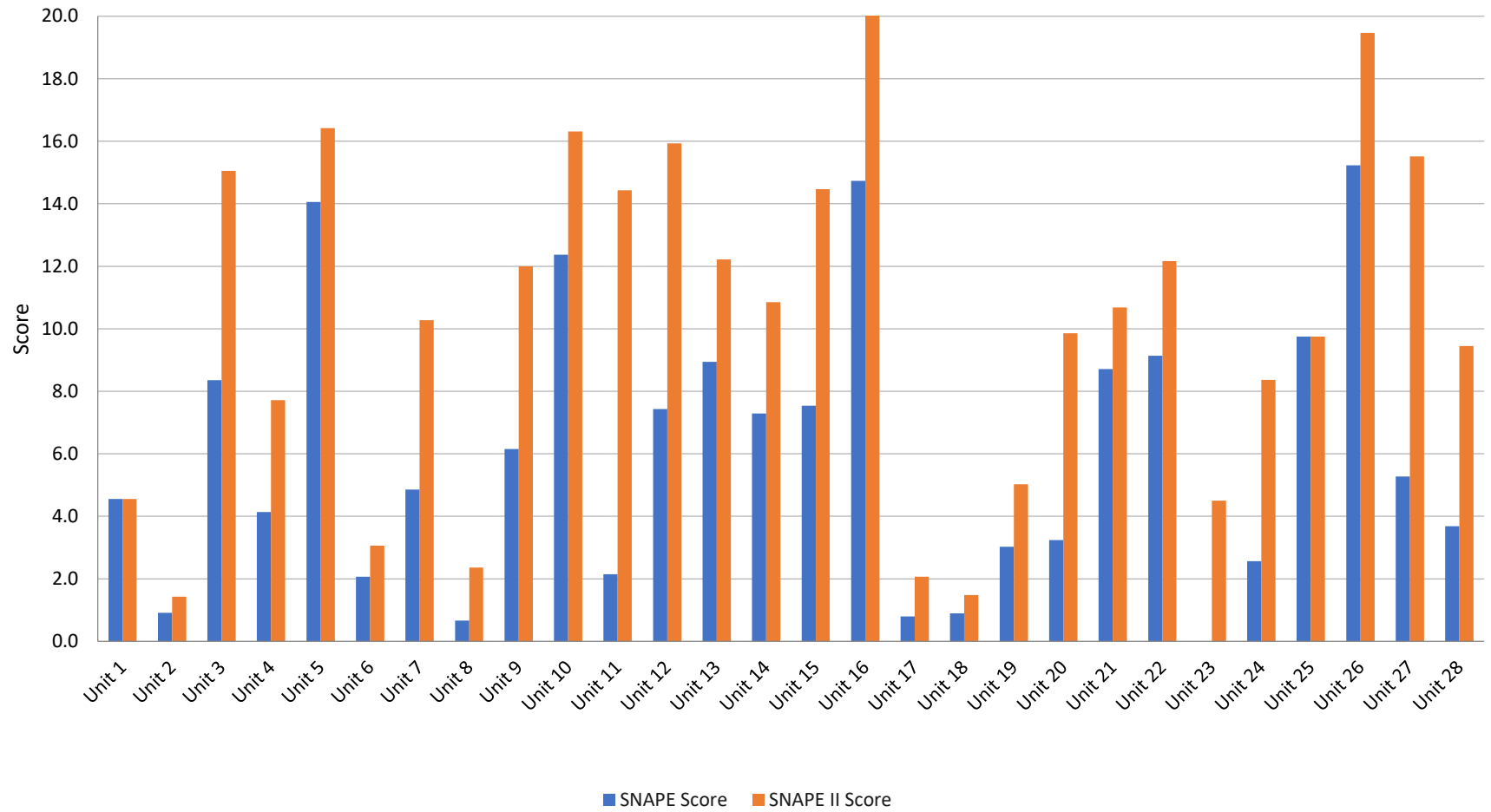
**Comment:** This analysis of Disease severity scores (SNAPE AND SNAPE II) includes 3206 admissions without readmissions (who had complete data). No information 26. Comparison of the severity score between NICUs may show large variations due to the different patient inclusion criteria of each NICU.

The SNAPE calculation includes the following variables:

- Average arterial pressure (mm Hg)
- Lower temperature
- PO<sub>2</sub> (mm Hg) / FiO<sub>2</sub>)
- Lower serum pH
- Multiple seizures
- Diuresis (ml/k/h)

For the calculation of SNAPE II the following variables are added:

- Apgar at 5 minutes
- Birthweight (gr)
- Small for Gestational Age (less than 3rd percentile)



ANALYSIS BASED ON THE NUMBER OF ELIGIBLE NEWBORNS ADMITTED  
TO PARTICIPATING UNITS

### PRESENTATION 3

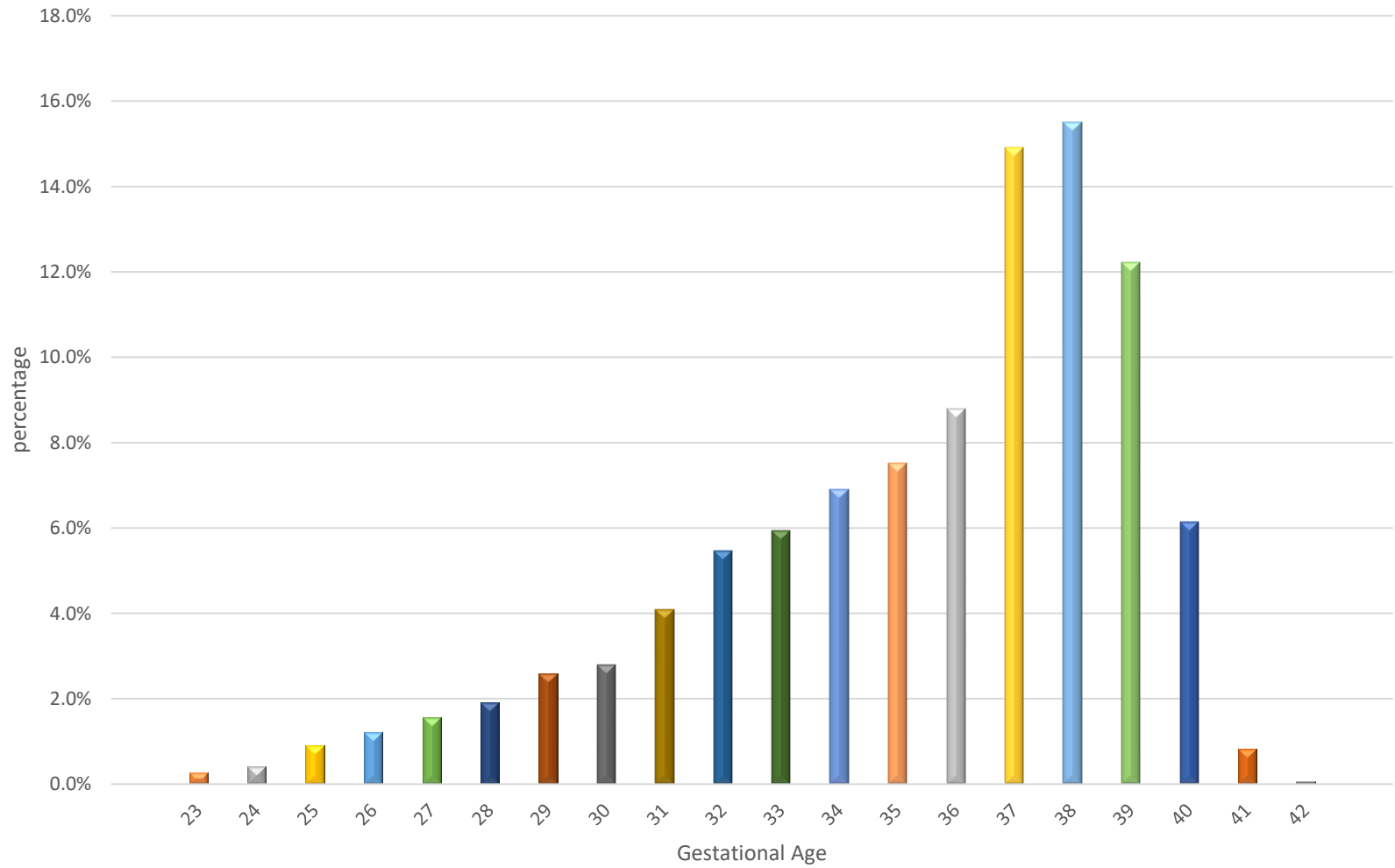
**Distribution of Patients by Gestational Age (Gestational Age) (Table)**

Gestational Age weeks*	n	Percentage	Cumulative Percentage
23	9	0.26%	0.26%
24	14	0.41%	0.68%
25	31	0.91%	1.59%
26	41	1.20%	2.79%
27	53	1.56%	4.35%
28	65	1.91%	6.26%
29	88	2.59%	8.84%
30	95	2.79%	11.63%
31	139	4.08%	15.72%
32	186	5.46%	21.18%
33	202	5.93%	27.12%
34	235	6.90%	34.02%
35	256	7.52%	41.54%
36	299	8.78%	50.32%
37	508	14.92%	65.25%
38	528	15.51%	80.76%
39	416	12.22%	92.98%
40	209	6.14%	99.12%
41	28	0.82%	99.94%
42	2	0.06%	100.00%
Total	3,404		

Comment: The distribution of patients by Gestational Age. Not validated patients and readmissions were excluded.



Distribution of Patients by Gestational Age at Birth) (Graph)



## PRESENTATION 4

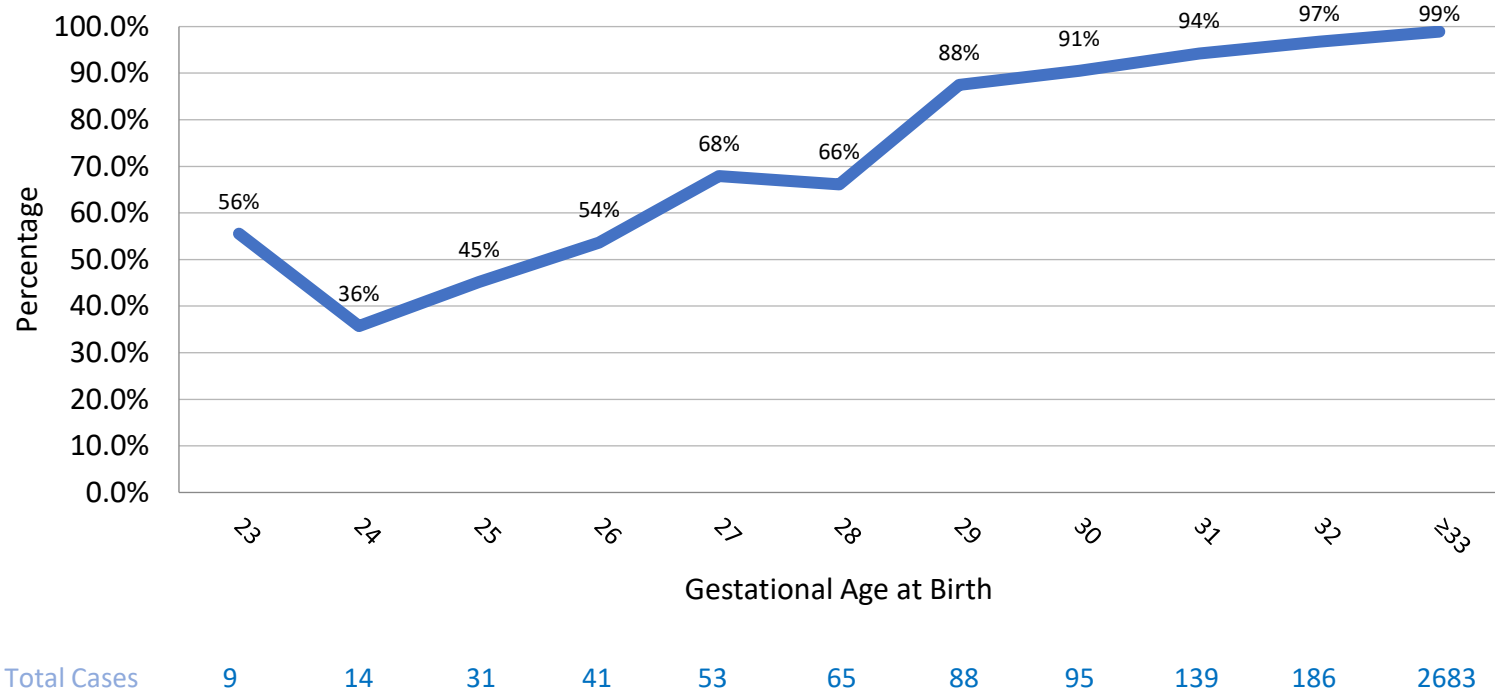
**NICU Discharge Survival by Gestational Age (Gestational Age) at birth (Table)**

Gestational Age weeks	Survived	Deaths	Total	Percentage of survival
23	5	4	9	56%
24	5	9	14	36%
25	14	17	31	45%
26	22	19	41	54%
27	36	17	53	68%
28	43	22	65	66%
29	77	11	88	88%
30	86	9	95	91%
31	131	8	139	94%
32	180	6	186	97%
≥33	2654	29	2683	99%
Total	3253	151	3404	

Discharge with palliative care, transferred and referred patients are included.

Comment: For the survival calculation, patients with complete data were included (validated). Readmissions were excluded. The overall survival was 95.1%. These data should be analyzed with caution because not all NICUs included patients younger than 24 weeks. Another error factor is because many units do not include patients who died in the delivery. The outcome of the transfers is also unknown. Note that only over 27 weeks survival > 50% is achieved except 24 weeks.

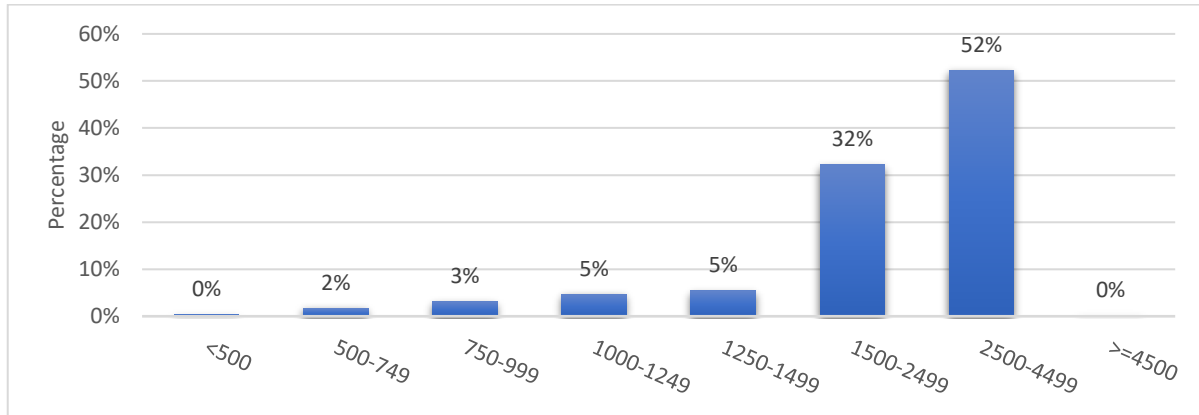
**NICU Discharge Survival by Gestational Age at birth (Graph)**



Transferred and palliative patients are included as survivors. In general, number of patients is too low is smaller infants to reach adequate conclusions.

## PRESENTATION 5

### Distribution of Patients by Birth Weight



Birthweight gr	Total admissions n	Percentage	Accumulated percentage
<500	12	0.4%	0.4%
500-749	59	1.7%	2.1%
750-999	107	3.1%	5.2%
1000-1249	159	4.7%	9.9%
1250-1499	185	5.4%	15.3%
1500-2499	1,095	32.2%	47.5%
2500-4499	1,778	52.2%	99.7%
≥4500	9	0.3%	100.0%
<b>Total</b>	<b>3,404</b>		

Comment: This report should be analyzed with caution because not all NICUs included in their database, the admission of patients under 500 grams and deaths in the delivery room are not included and some only report cases  $\leq$  32 weeks or under 2000 gr. This report includes the data available in the database (validated).

## PRESENTATION 6

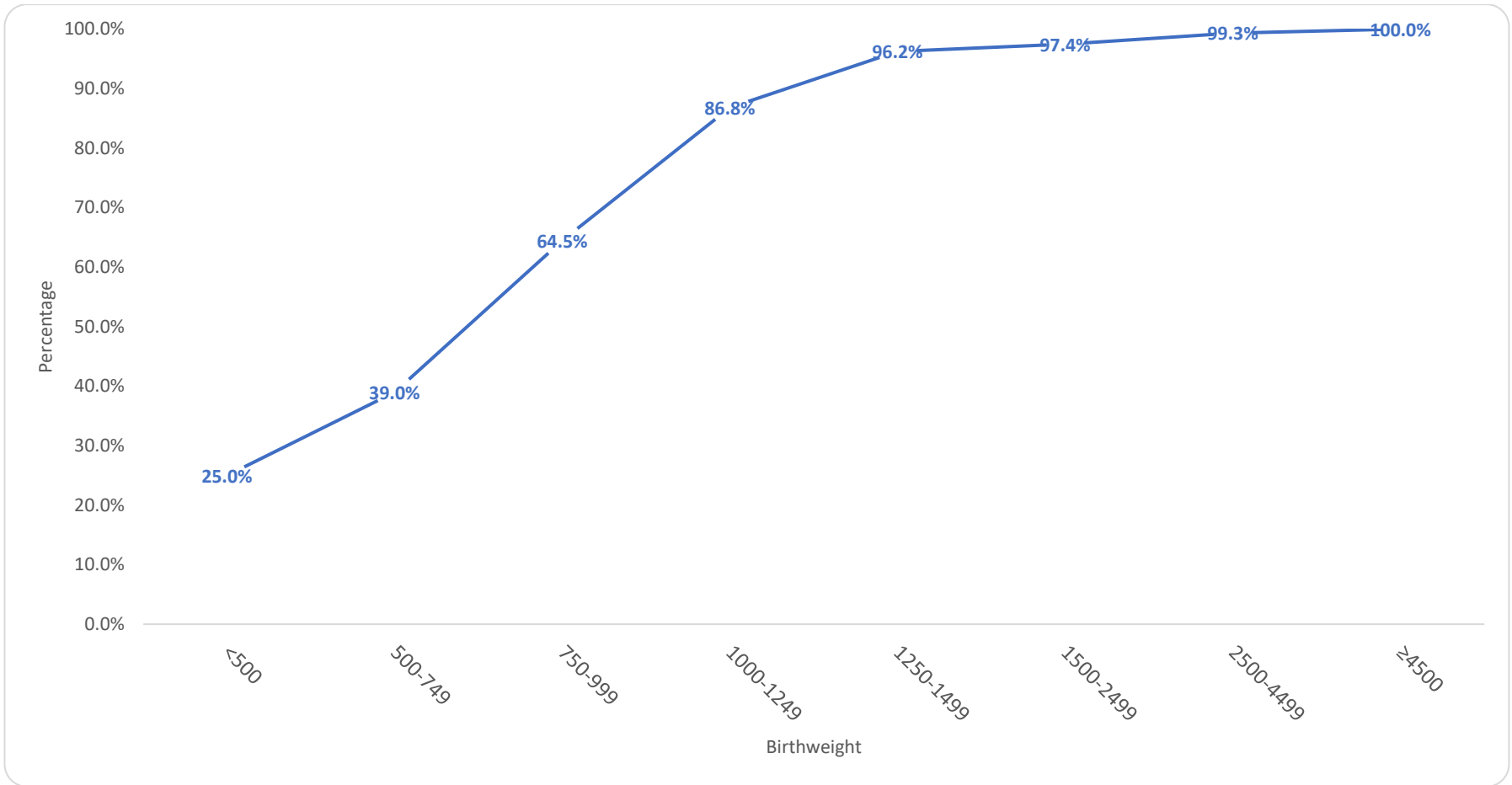
**NICU Discharge Survival by Birthweight (Table)**

Birthweight (g)	Total number of validated patients without readmissions	Mortality	Survived infants	Percentage
<500	12	9	3	25%
500-749	59	36	23	39%
750-999	107	38	69	64%
1000-1249	159	21	138	87%
1250-1499	185	7	178	96%
1500-2499	1,095	28	1,067	97%
2500-4499	1,778	12	1,766	99%
≥4500	9	0	9	100%
<b>Total</b>	<b>3,404</b>	<b>151</b>	<b>3,253</b>	

Transfers and palliative patients are included as survivors; it does not include delivery room deaths.

Comment: This report should be analyzed with caution because not all NICUs included in their database the admission of patients under 500 grams and some only report patients  $\leq$  32 weeks or under 2000 gr. This report includes the data available in the database (validated).

**NICU Discharge Survival by Birthweight**



## PRESENTATION 7

### Maternal Characteristics

	Parameters		Gestational Age (weeks)			Total Babies
			≤ 32	33-36	≥37	
Prenatal Control	No	N	417	543	786	1746
		%	58%	55%	46%	51%
	Yes	N%	204	413	792	1409
		%	28%	42%	47%	41%
	Unknown	N	102	34	113	249
		%	14%	3%	7%	7%
Drugs	No	N	718	986	1.672	3376
		%	99%	100%	99%	99%
	Yes	N	5	4	19	28
		%	1%	0%	1%	1%
Smoking	No	N	720	985	1.669	3374
		%	100%	99%	99%	99%
	Yes	N	3	5	22	30
		%	0%	2%	18%	5%
Hypertension/ Preeclampsia	Yes	N	232	247	99	578
		%	32%	25%	6%	17%
	No	N	455	727	1.521	2703
		%	63%	73%	90%	79%
	Unknown	N	36	16	71	123
		%	5%	2%	4%	4%
Diabetes	Yes	N	61	107	105	273
		%	8%	11%	6%	8%
	No	N	618	865	1.517	3000
		%	85%	87%	90%	88%
	Unknown	N	44	18	69	131
		%	6%	2%	4%	4%

Parameters			Gestational Age (weeks)			Total infants
			≤ 32	33-36	≥37	
Magnesium Sulphate	Yes	N	309	90	8	407
		%	43%	9%	0%	12%
	No	N	355	866	1.608	2829
		%	49%	87%	95%	83%
	Unknown	N	59	34	75	168
		%	8%	3%	4%	5%
Antenatal Steroids	YES	N	531	455	49	1035
		%	73%	46%	3%	30%
	No	N	141	463	1.524	2128
		%	20%	47%	90%	63%
	Unknown	N	51	72	118	241
		%	7%	7%	7%	7%
	Completed course within last week prior to birth	N	252	185	13	450
		%	47%	41%	27%	43%
	Completed course prior to 1 week before birth	N	103	126	27	256
		%	19%	28%	55%	25%
	Completed course but timing unknown	N	29	38	4	71
		%	5%	8%	8%	7%
	Partial within last 24 hours	N	123	77	1	201
		%	23%	17%	2%	19%
Partial > 24 hours ago	N	17	23	3	43	
	%	3%	5%	6%	4%	
Partial course but timing unknown	N	7	6	1	14	
	%	1%	1%	2%	1%	
Delivery Type	Vaginal	N	143	164	430	737
		%	20%	17%	25%	22%
	Cesarean	N	574	819	1243	2636
		%	79%	83%	74%	77%
	Unknown	N	6	7	18	31
		%	1%	1%	1%	1%



Parameters	Frequency	Gestational Age (weeks)			Total Infants	
			≤ 32	33-36		≥37
PRESENTATION	Vertex	n	506	558	863	1927
		%	70%	56%	51%	57%
	Breech	n	73	68	49	190
		%	10%	7%	3%	6%
	Other	n	92	308	714	1114
		%	13%	31%	42%	33%
	Unknown	n	52	56	65	173
		%	7%	6%	4%	5%
PRM	<24 Hours	n	531	851	1,550	2932
		%	73%	86%	92%	86%
	24 Hours-1 Week	n	66	42	22	130
		%	9%	4%	1%	4%
	>1 Week	n	19	13	3	35
		%	3%	1%	0%	1%
	Unknown	n	107	84	116	307
		%	15%	8%	7%	9%
Chorioamnionitis*	Yes	n	50	21	9	80
		%	7%	2%	1%	2%
	No	n	462	538	804	1804
		%	64%	54%	48%	53%
	Unknown	n	211	431	878	1520
		%	29%	44%	52%	45%
	Total	n	723	990	1691	3404
		%				

Comments: Babies are counted, not mothers. Only patients with complete data were included for the analysis (validated). PRM: Premature rupture of membranes.

\* Chorioamnionitis is defined as suspected or confirmed documented in the medical record or the presence of maternal fever and leukocytosis or uterine tenderness.

PRESENTATION 8

Resuscitation (Gestational Age < 31 weeks) (Table)

Characteristics		Gestational Age (weeks)								
		23	24	25	26	27	28	29	30	
Number of Patients	n	10	16	30	41	53	66	88	93	
<b>Palliative Care in the delivery room</b>	n	0	0	0	0	0	0	0	0	
	%	0%	0%	0%	0%	0%	0%	0%	0%	
<b>No Active Resuscitation Needed/Given*</b>	n	1	1	0	1	1	1	6	4	
	%	10,0%	6,3%	0,0%	2,4%	1,9%	1,5%	6,8%	4,3%	
<b>Only CPAP</b>	n	2	1	1	7	16	19	22	36	
	%	20,0%	6,3%	3,3%	17,1%	30,2%	28,8%	25,0%	38,7%	
<b>PPV and Bag Mask</b>	n	1	4	11	19	21	29	33	32	
	%	10,0%	25,0%	36,7%	46,3%	39,6%	43,9%	37,5%	34,4%	
<b>PPV with ET Tube</b>	n	1	10	22	34	39	46	48	40	
	%	10,0%	62,5%	73,3%	82,9%	73,6%	69,7%	54,5%	43,0%	
<b>Chest Compressions</b>	n	0	2	1	6	4	8	4	1	
	%	0,0%	12,5%	3,3%	14,6%	7,5%	12,1%	4,5%	1,1%	
<b>Epinephrine</b>	n	0	2	0	1	1	2	1	1	
	%	0,0%	12,5%	0,0%	2,4%	1,9%	3,0%	1,1%	1,1%	
<b>Unknown specified</b>	n	5	1	2	1	3	2	3	4	
	%	50,0%	6,3%	6,7%	2,4%	5,7%	3,0%	3,4%	4,3%	
<b>Initial FiO<sub>2</sub></b>	21%	n	0	1	0	0	0	1	1	2
		%	0,0%	6,3%	0,0%	0,0%	0,0%	1,5%	1,1%	2,2%
	>21%	n	2	9	13	15	22	32	45	45
		%	20,0%	56,3%	43,3%	36,6%	41,5%	48,5%	51,1%	48,4%
	100%	n	5	2	8	10	13	8	16	10
		%	50,0%	12,5%	26,7%	24,4%	24,5%	12,1%	18,2%	10,8%
	Unknown	n	3	4	9	16	17	25	26	36
		%	30,0%	25,0%	30,0%	39,0%	32,1%	37,9%	29,5%	38,7%

Characteristics		Gestational Age (weeks)								
		23	24	25	26	27	28	29	30	
Number of Patients	n	10	16	30	41	53	66	88	93	
Maximum FiO <sub>2</sub> Used	21%	n	0	0	0	0	0	1	1	2
		%	0,0%	0,0%	0,0%	0,0%	0,0%	1,5%	1,1%	2,2%
	22%-40%	n	0	3	7	13	14	25	29	31
		%	0,0%	18,8%	23,3%	31,7%	26,4%	37,9%	33,0%	33,3%
	41%-70%	n	2	4	5	0	3	3	13	10
		%	20,0%	25,0%	16,7%	0,0%	5,7%	4,5%	14,8%	10,8%
	>70%	n	5	4	8	14	17	11	21	13
		%	50,0%	25,0%	26,7%	34,1%	32,1%	16,7%	23,9%	14,0%
	Without information	n	3	5	10	14	18	26	24	37
		%	30,0%	31,3%	33,3%	34,1%	34,0%	39,4%	27,3%	39,8%

\* Interpretation may mean not required or not offered.

**Comment:** only patients with complete information for analysis were included. The resuscitation time was defined as the first 30 minutes of life, any subsequent resuscitation is not present in these tables. Note that the sum of the percentages may be different from 100% because some patients could have received more than one procedure and some patients do not have information, but the percentage was calculated for each procedure separately.

## PRESENTATION 8A

### Reanimation (Gestational Age $\geq 31$ weeks) (table)

Characteristics		Gestational Age (weeks)							
		31	32	33	34	35	36	$\geq 37$	
<b>Number of Patients</b>	n	139	187	201	234	256	299	1691	
<b>Palliative Care in the delivery room</b>	n	0	0	0	0	0	0	0	
	%	0%	0%	0%	0%	0%	0%	0%	
<b>No Active Resuscitation Needed/Given*</b>	n	22	38	69	92	133	163	1042	
	%	16%	20%	34%	39%	52%	55%	62%	
<b>Only CPAP</b>	n	56	81	63	64	43	44	82	
	%	40%	43%	31%	27%	17%	15%	5%	
<b>PPV and Bag Mask</b>	n	41	37	37	31	40	24	109	
	%	29%	20%	18%	13%	16%	8%	6%	
<b>PPV with ET Tube</b>	N	34	30	27	14	7	8	33	
	%	24%	16%	13%	6%	3%	3%	2%	
<b>Chest Compressions</b>	n	5	1	1	1	1	2	7	
	%	4%	1%	0%	0%	0%	1%	0%	
<b>Epinephrine</b>	n	2	0	1	0	0	1	3	
	%	1%	0%	0%	0%	0%	0%	0%	
<b>Unknown</b>	n	3	9	8	3	1	13	87	
	%	2%	5%	4%	1%	0%	4%	5%	
<b>Initial FiO<sub>2</sub></b>	<b>21%</b>	n	3	8	5	15	10	20	77
		%	2%	4%	2%	6%	4%	7%	5%
	<b>22-99 %</b>	n	69	81	69	67	61	55	354
		%	50%	43%	34%	29%	24%	18%	21%
	<b>100%</b>	n	17	22	18	20	21	12	32
		%	12%	12%	9%	9%	8%	4%	2%
	<b>Unknown</b>	n	50	76	109	132	164	212	1228
		%	36%	41%	54%	56%	64%	71%	73%

Characteristics		Gestational Age (weeks)							
		31	32	33	34	35	36	≥37	
Number of Patients	n	139	187	201	234	256	299	1691	
Maximum FiO <sub>2</sub> Used	<b>21%</b>	n	3	12	7	21	20	29	246
		%	2%	6%	3%	9%	8%	10%	15%
	<b>22%-40%</b>	n	49	54	46	42	25	24	95
		%	35%	29%	23%	18%	10%	8%	6%
	<b>41%-70%</b>	n	14	18	18	8	11	4	24
		%	10%	10%	9%	3%	4%	1%	1%
	<b>&gt;70%</b>	n	21	25	21	21	24	13	34
		%	15%	13%	10%	9%	9%	4%	2%
	<b>No information</b>	n	52	78	109	142	176	229	1292
		%	37%	42%	54%	61%	69%	77%	76%

\* Interpretation may mean not required or not offered.

Comment: only patients with complete information for analysis were included. The resuscitation time was defined as the first 30 minutes of life, any subsequent resuscitation is not present in these tables. Note that the sum of the percentages may be different from 100% because some patients could have received more than one procedure and some patients do not have information, but the percentage was calculated for each procedure separately.

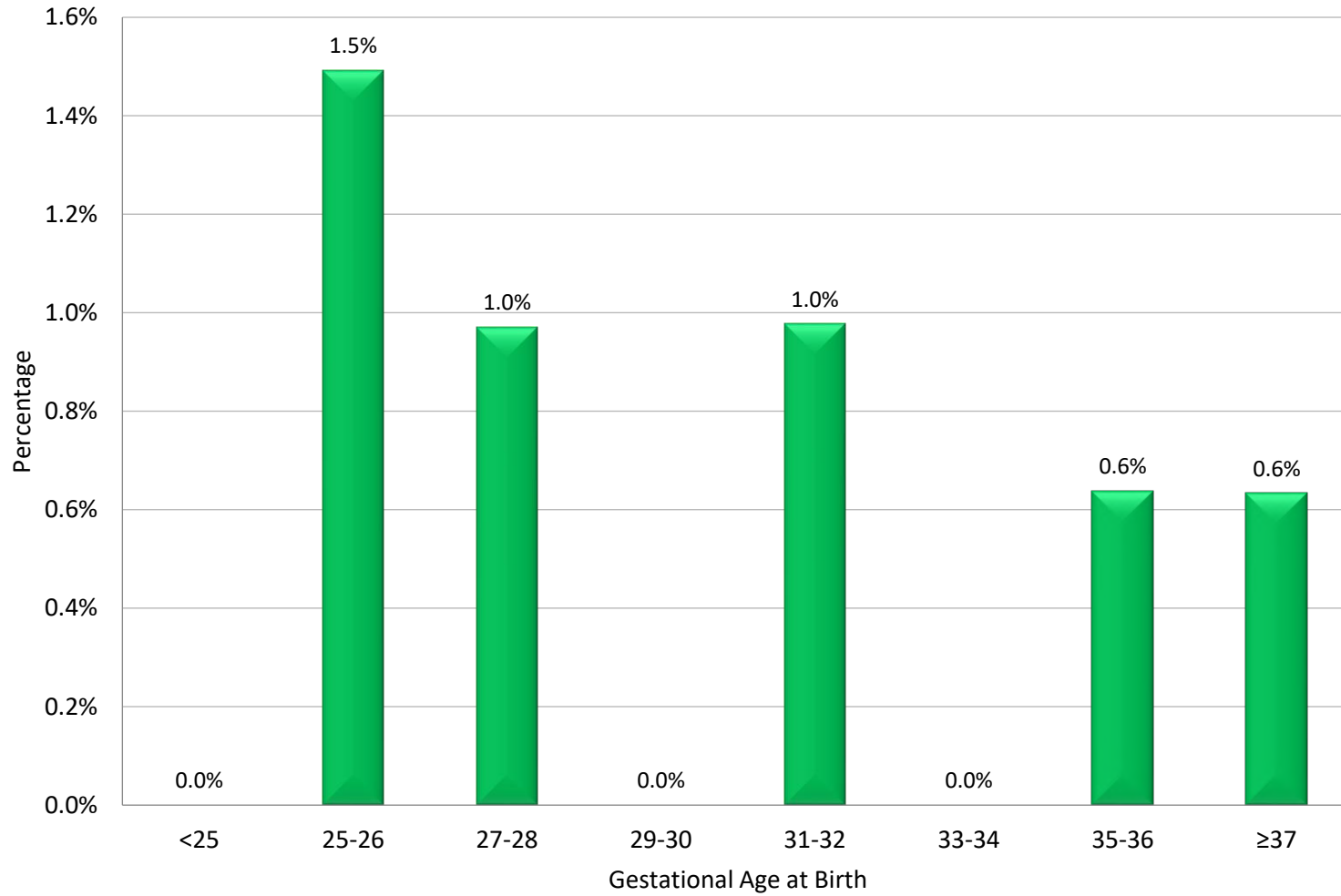
## PRESENTATION 9

**Early Sepsis (by Gestational Age) in < 3 days of birth (table)**

Gestational Age (weeks)	Total number of Infants <3 days of life	Total number of Infants 2 days of life	Percentage of Infected Infants	Total number of Microorganisms	Microorganisms							
					CONS	E coli	<i>Staph. aureus</i>	GBS	Listeria	Other Germs	Other gram -	
<25	25	0	0.0%	0	0	0	0	0	0	0	0	0
25-26	67	1	1.5%	1	0	1	0	0	0	0	0	0
27-28	103	1	1.0%	2	0	0	0	0	0	0	0	2
29-30	166	0	0.0%	0	0	0	0	0	0	0	0	0
31-32	307	3	1.0%	4	0	2	0	0	0	2	0	0
33-34	417	0	0.0%	1	1	0	0	0	0	0	0	0
35-36	470	3	0.6%	3	0	1	0	0	1	1	0	0
≥37	1,105	7	0.6%	7	2	0	2	0	1	0	0	2
<b>Total</b>	2660	15	0.6%	18	3	4	2	0	2	3	0	4

Comment: Early sepsis is considered when there is a blood culture and/or culture of the spinal fluid with bacteria or fungi in the first two days of life. For the analysis of early infection, patients with complete data by Gestational Age at birth were included. Among the other gram-negative germs are *Klebsiella*, *Pseudomonas*, *Serratia* etc. Infections in blood and CSF are counted separately.

**Early Sepsis (by Gestational Age) in < 3 days of birth (graph)**



## PRESENTATION 9A

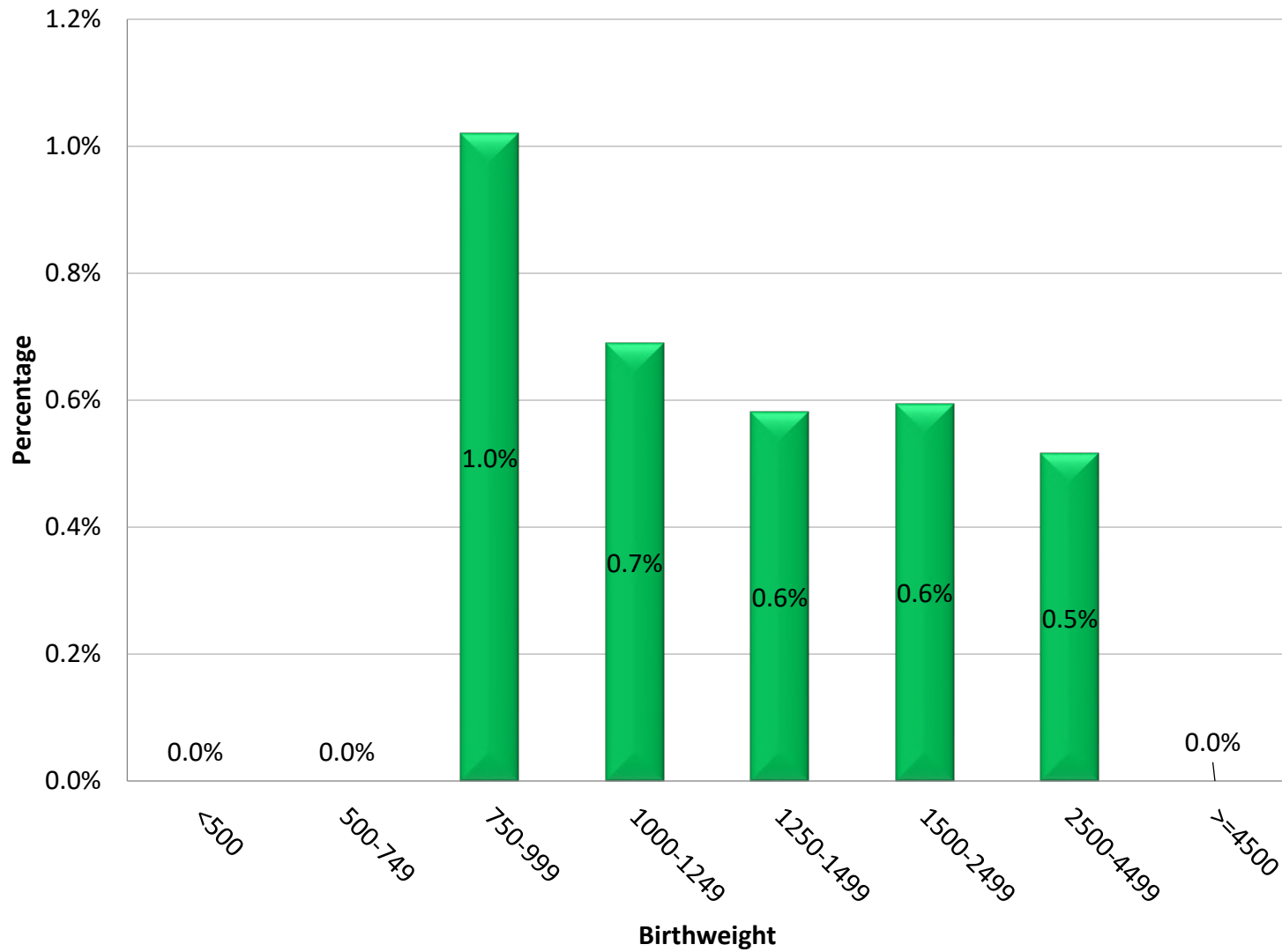
**Early Sepsis (< 3 days of birth/Admission) by Birthweight (table)**

Birthweight (g)	Total number of Infants	Total number of Infected Infants < 3 days of stay	Percentage of Infected Infants	Total number of Microorganisms	Microorganisms							
					CONS	E coli	<i>Staph. aureus</i>	GBS	Listeria	Other Germs	Other Gram -	
<b>&lt;500</b>	11	0	0.0%	0	0	0	0	0	0	0	0	0
<b>500-749</b>	52	0	0.0%	0	0	1	0	0	0	0	0	0
<b>750-999</b>	98	1	1.0%	1	0	0	0	0	0	0	0	2
<b>1000-1249</b>	145	1	0.7%	1	0	0	0	0	0	0	0	0
<b>1250-1499</b>	172	1	0.6%	3	0	2	0	0	0	2	0	0
<b>1500-2499</b>	1,010	6	0.6%	9	1	0	0	0	0	0	0	0
<b>2500-4499</b>	1,164	6	0.5%	4	0	1	0	0	1	1	0	0
<b>≥4500</b>	8	0	0.0%	0	2	0	2	0	1	0	0	2
<b>Total</b>	2660	15	0.6%	18	3	4	2	0	2	3	0	4

Comment: only patients with complete information were included. Early sepsis is considered when there is a blood culture and/or positive culture of the spinal fluid for bacteria or fungi in the first two days of birth or admission. Low birthweight mortality may explain the low number of cases. Low number of cases in statistics should be with regarded with caution. CONS: Coagulase Negative Staph. GBS: Group B Strep. Infections in blood and CSF are counted separately.



Early Sepsis (< 3 days of birth/Admission) by Birthweight (graph)



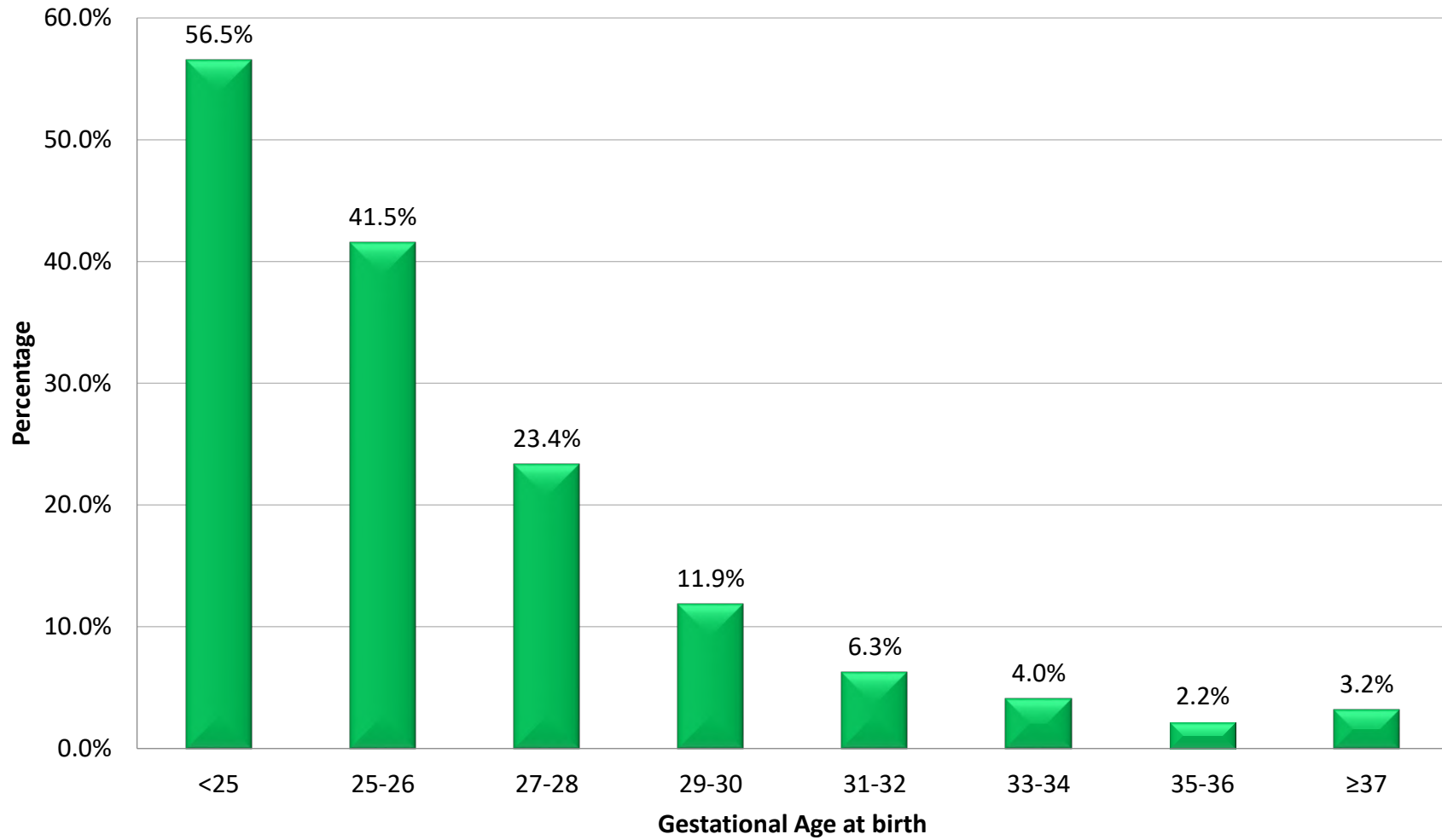
## PRESENTATION 10

**Late Onset Sepsis or Associated with Health Care (by Gestational Age) (table)**

Gestational Age (weeks)	Total number of Infants > 2 days	Total number of Infected Infants >2 days of stay	Percentage of Infected Infants	Total number of Microorganisms	Microorganisms					
					CONS	<i>E. Coli</i>	<i>Staph. aureus</i>	Fungi	Other Gram -	Other Organism
<25	23	13	56.5%	29	7	0	6	2	8	6
25-26	65	27	41.5%	43	9	5	8	4	14	3
27-28	107	25	23.4%	46	16	11	0	3	14	2
29-30	177	21	11.9%	31	11	0	2	1	10	7
31-32	320	20	6.3%	24	10	2	3	1	6	2
33-34	420	17	4.0%	21	6	0	1	1	10	3
35-36	463	10	2.2%	11	5	0	1	0	3	2
≥37	1034	33	3.2%	38	8	10	2	0	13	5
<b>Total</b>	2609	166	6.4%	243	72	28	23	12	78	30

Comment: only patients with complete information were included. Late sepsis or associated with health care is considered when there is a positive blood culture or culture of spinal fluid for bacteria or fungi after the second day of life. Infants who died or left in the first two days of birth were excluded. Other Gram-negative bacteria correspond to: *Klebsiella*, *Serratia*, *Pseudomona*, etc. The incidence may be underestimated due to high mortality in the lower gestational ages. Infections in blood and CSF are counted separately.

Late Sepsis or Associated with Health Care (by Gestational Age) (graph)



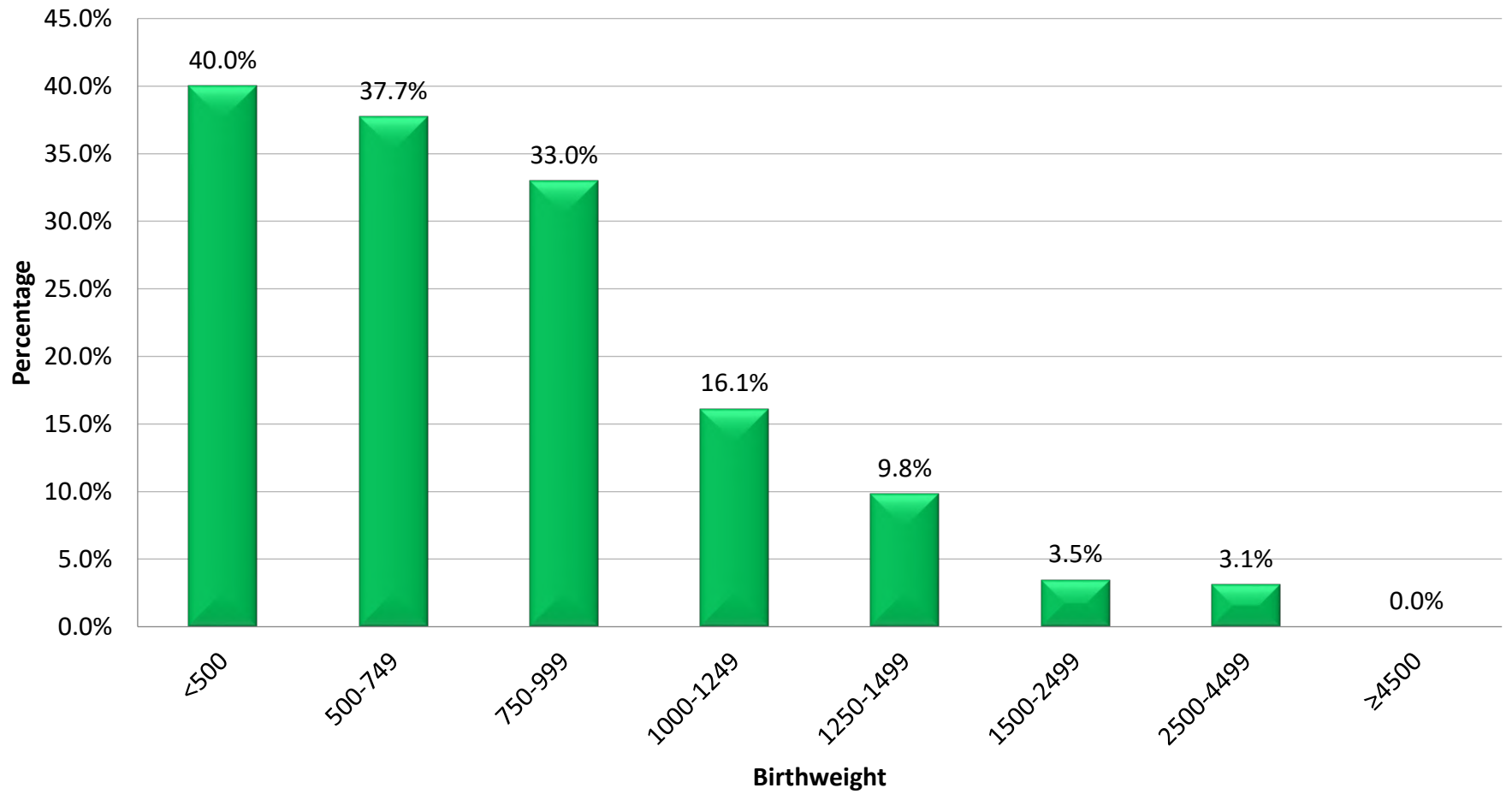
## PRESENTATION 11

**Late Onset Sepsis or Associated with Health Care (by Birthweight)\* (Table)**

Birthweight	Total number of Infants >2 days	Total number of Infected Infants >2 days of stay/birth	Percentage of Infected Infants	Total number of Microorganisms	Microorganisms					
					CONS	<i>E coli</i>	<i>Other Gram -</i>	<i>Staph. aureus</i>	Fungi	Other Germs
<b>&lt;500</b>	5	2	40.0%	3	0	0	1	1	0	1
<b>500-749</b>	53	20	37.7%	33	8	0	10	9	3	3
<b>750-999</b>	97	32	33.0%	59	19	4	19	3	6	8
<b>1000-1249</b>	155	25	16.1%	43	13	6	16	3	1	4
<b>1250-1499</b>	183	18	9.8%	25	9	6	5	1	0	4
<b>1500-2499</b>	1011	35	3.5%	43	16	2	15	4	2	4
<b>2500-4499</b>	1098	34	3.1%	37	7	10	12	2	0	6
<b>≥4500</b>	7	0	0.0%	0	0	0	0	0	0	0
<b>Total</b>	2609	166	6.4%	243	72	28	78	23	12	30

Comment: only patients with complete information were included. Late sepsis or associated with health care is considered when there is a positive blood culture or culture of spinal fluid for bacteria or fungi after the second day of life. Infants who died or left in the first two days of birth were excluded. Other Gram-negative bacteria correspond to: *Klebsiella*, *Serratia*, *Pseudomona*, etc. The incidence may be underestimated due to high mortality in the lower gestational ages. Infections in blood and CSF are counted separately.

Late Sepsis or Associated with Health Care (by Birthweight) (Graph)



## PRESENTATION 12

**Other Diagnosis / Interventions / Procedures by Gestational Age groups (table)**

Characteristics		Gestational Age at Birth								Total	
		<25	25-26	27-28	29-30	31-32	33-34	35-36	≥37		
Total	n	26	71	119	181	326	435	555	1,691	3,404	
<b>Prophylactic</b>	<b>Indomethacin</b>	n	1	0	0	0	0	1	0	0	2
		%	4%	0%	0%	0%	0%	0%	0%	0%	0%
	<b>Probiotics</b>	n	3	11	15	25	39	84	86	354	617
		%	12%	15%	13%	14%	12%	19%	15%	21%	18%
<b>RDS</b>	<b>No</b>	n	7	21	32	44	161	304	467	1563	2,599
		%	27%	30%	27%	24%	49%	70%	84%	92%	76%
	<b>Definite</b>	n	16	50	73	117	134	90	71	108	659
		%	62%	70%	61%	65%	41%	21%	13%	6%	19%
	<b>Uncertain</b>	n	3	0	12	18	31	38	17	17	136
		%	12%	0%	10%	10%	10%	9%	3%	1%	4%
	<b>NA / Unknown</b>	n	0	0	2	2	0	3	0	3	10
		%	0%	0%	2%	1%	0%	1%	0%	0%	0%
<b>Surfactant</b>	n	19	56	77	108	107	65	24	14	470	
	%	73%	79%	65%	60%	33%	15%	4%	1%	14%	
<b>Pneumothorax<sup>s</sup></b>	<b>Diagnostic</b>	n	1	6	8	7	9	6	3	23	63
		%	4%	8%	7%	4%	3%	1%	1%	1%	2%
	<b>Observation</b>	n	0	0	1	0	1	3	1	10	16
		%	0%	0%	13%	0%	11%	50%	33%	43%	0%
	<b>Needle/Paracentesis/ Chest tube</b>	n	1	5	7	7	8	4	1	13	46
		%	100%	83%	88%	100%	89%	67%	33%	57%	1.4%

Characteristics		Gestational Age at Birth								Total
		<25	25-26	27-28	29-30	31-32	33-34	35-36	≥37	
<b>Total</b>	<b>n</b>	<b>26</b>	<b>71</b>	<b>119</b>	<b>181</b>	<b>326</b>	<b>435</b>	<b>555</b>	<b>1,691</b>	<b>3,404</b>
<b>Seizures Suspected/ definite</b>	<b>n</b>	7	9	7	6	6	4	7	36	82
	<b>%</b>	27%	13%	6%	3%	2%	1%	1%	2%	2%

Comment: Only patients with complete validated data without readmissions were included for this analysis. Percentages < 0.5% appear as 0% by approximation. The percentage of each procedure was calculated on the total number of patients. Some patients received more than one procedure. In pneumothorax treatment, patients with complete data were included, the difference in percentages not reported corresponds to patients without treatment data

## PRESENTATION 12A

### Other Diagnosis / Interventions / Procedures by Gestational Age Groups Continuation

Characteristics		Gestational Age at Birth								Total	
		<25	25-26	27-28	29-30	31-32	33-34	35-36	≥37		
		n	26	71	119	181	326	435	555	1,691	3,404
<b>Surgery</b>	<b>Laparotomy</b>	n	3	1	2	3	5	3	4	16	37
		%	11.5%	1.4%	1.7%	1.7%	1.5%	0.7%	0.7%	0.9%	1.1%
	<b>Thoracotomy</b>	n	0	3	1	2	3	1	2	4	16
		%	0.0%	4.2%	0.8%	1.1%	0.9%	0.2%	0.4%	0.2%	0.5%
	<b>Shunt VP</b>	n	0	0	0	0	1	0	0	0	1
		%	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%
<b>Gastrointestinal Perforation</b>	<b>Spontaneous</b>	n	1	1	2	3	1	1	1	0	10
		%	3.8%	1.4%	1.7%	1.7%	0.3%	0.2%	0.2%	0.0%	0.3%
	<b>Related to NEC</b>	n	3	3	2	2	4	0	1	0	15
		%	11.5%	4.2%	1.7%	1.1%	1.2%	0.0%	0.2%	0.0%	0.4%
	<b>Unknown</b>	n	0	0	2	0	0	1	3	1	7
		%	0.0%	0.0%	1.7%	0.0%	0.0%	0.2%	0.5%	0.1%	0.2%
<b>Stenosis Acquired</b>		n	0	1	0	0	0	0	1	0	2
		%	0.0%	1.4%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.1%
<b>Exchange Transfusion</b>		n	0	0	0	0	1	1	0	4	6
		%	0.0%	0.0%	0.0%	0.0%	0.3%	0.2%	0.0%	0.2%	0.2%
<b>Congenital Anomalies*</b>	<b>Major</b>	n	1	1	4	7	9	13	17	70	122
		%	3.8%	1.4%	3.4%	3.9%	2.8%	3.0%	3.1%	4.1%	3.6%
	<b>Minor</b>	n	1	3	3	6	5	7	12	27	64
		%	3.8%	4.2%	2.5%	3.3%	1.5%	1.6%	2.2%	1.6%	1.9%

**Comment:** only patients with complete information were included. The percentage of each procedure was calculated over the total number of patients in each group. Some patients received more than one procedure. In treatment of pneumothorax, the difference in percentages not reported corresponds to patients without information of the treatment. \*Congenital Anomalies are defined as major and minor according to CNN report 2013 modified, link: <http://www.canadianneonatalnetwork.org> Report 2013, Appendix p. 124. Patients may have more than one malformation.



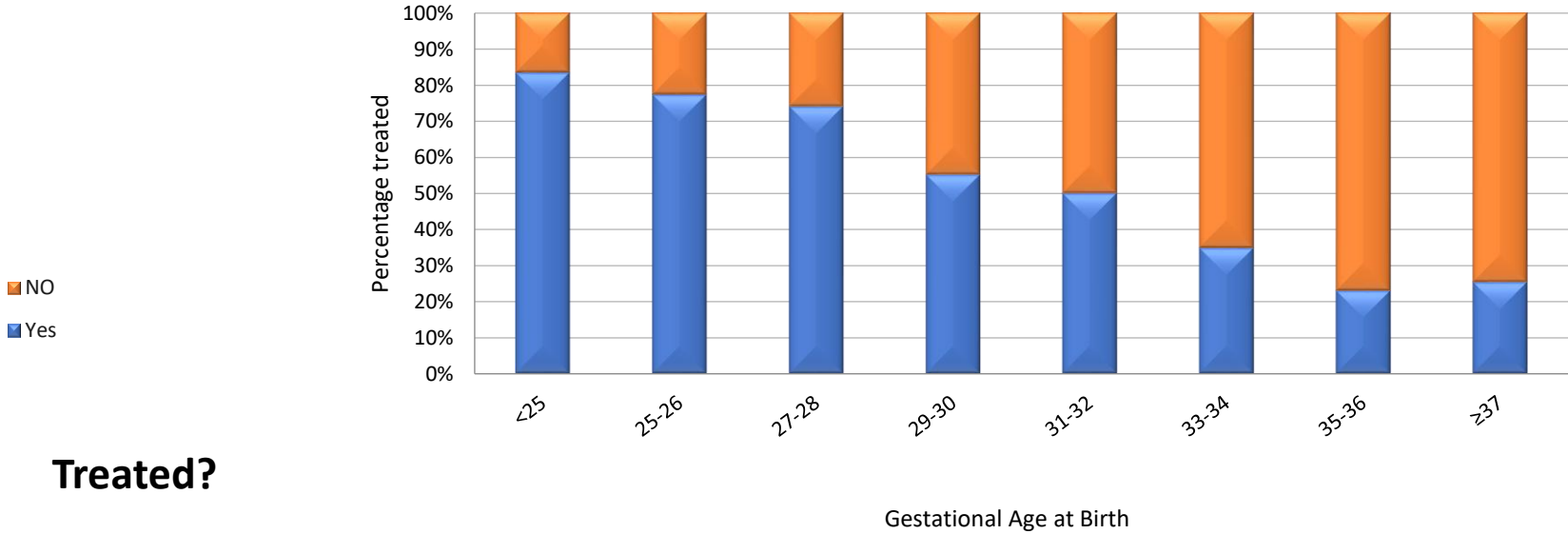
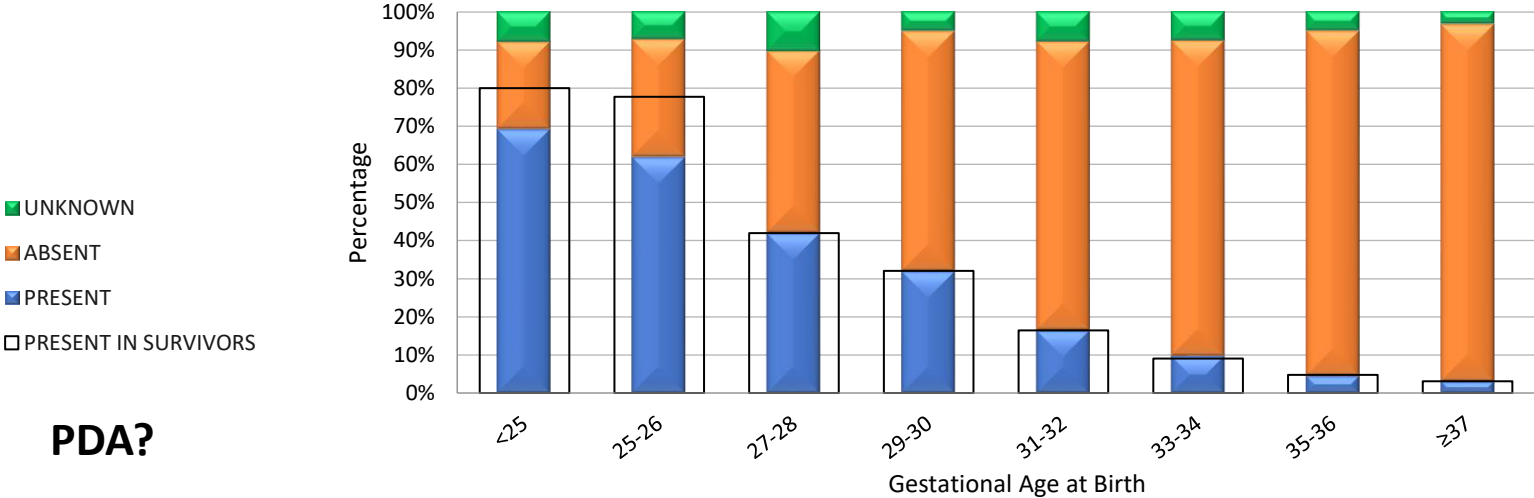
## PRESENTATION 13

### Presence and treatment for Patent Ductus Arteriosus (by Gestational Age at birth)

Gestational Age (weeks)	n		PDA*				PDA Treated	
			Present	Present in survivors	Absent	Unknown/Without information	Yes	No
<25	n	26	18	8	6	2	15	3
	%		69%	80%	23%	8%	83%	17%
25-26	n	71	44	28	22	5	34	10
	%		62%	78%	31%	7%	77%	23%
27-28	n	119	50	28	57	12	37	13
	%		42%	42%	48%	10%	74%	26%
29-30	n	181	58	52	114	9	32	26
	%		32%	32%	63%	5%	55%	45%
31-32	n	326	54	51	247	25	27	27
	%		17%	16%	76%	8%	50%	50%
33-34	n	435	43	39	360	32	15	28
	%		10%	9%	83%	7%	35%	65%
35-36	n	555	26	26	502	27	6	20
	%		5%	5%	90%	5%	23%	77%
≥37	n	1691	55	52	1582	54	14	41
	%		3%	3%	94%	3%	25%	75%
Total	n	3404	307	290	3007	142	142	211
	%		9%	9%	88%	4%	41%	61%

\* It is possible that some cases reported as unknown are due to the lack of taking an echocardiogram, although most units report cases without symptoms as without ductus arteriosus.

### Presence and treatment for Patent Ductus Arteriosus (by Gestational Age at Birth)

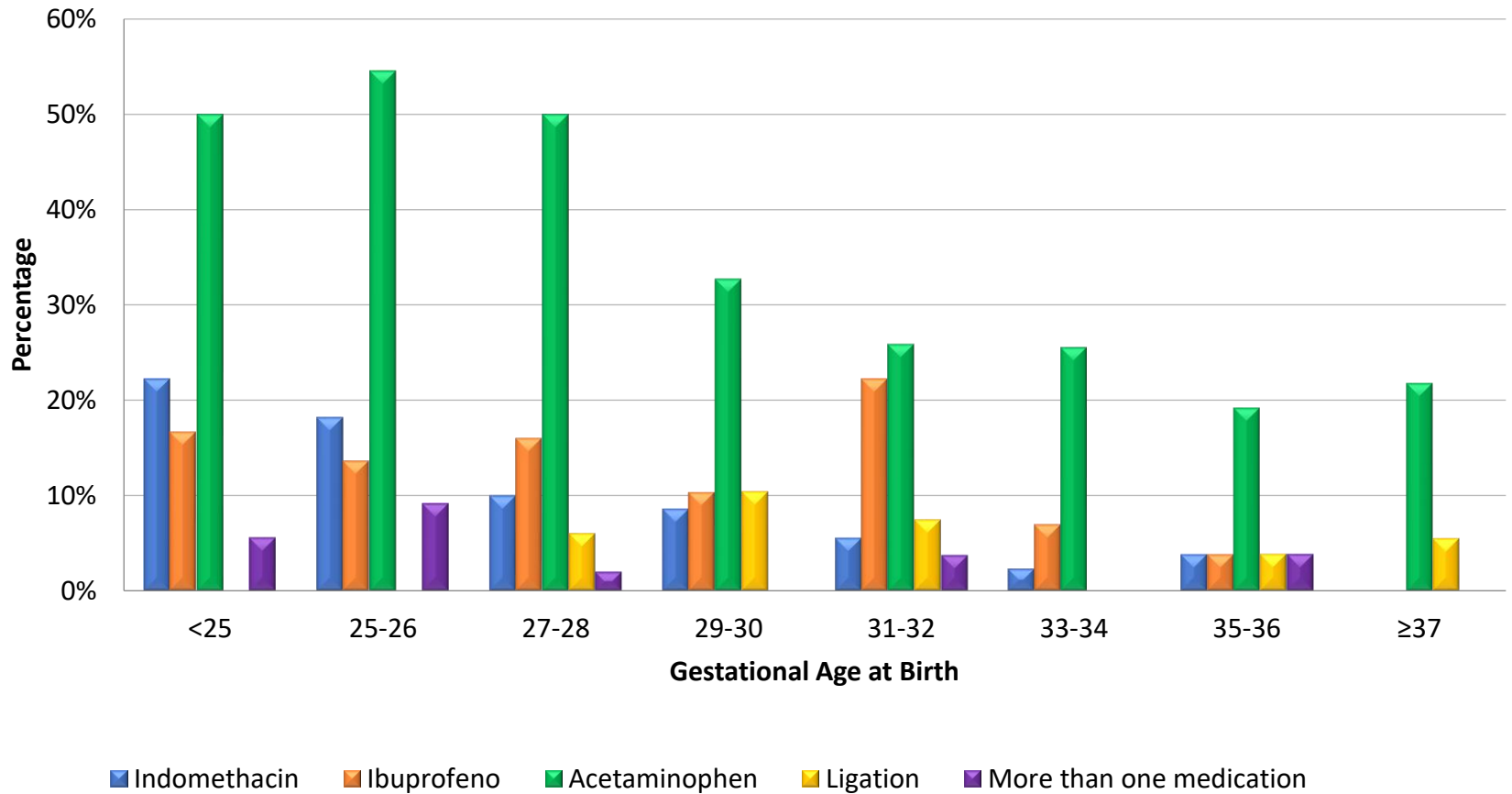


**PRESENTATION 13A**

**Patent Ductus Arteriosus Treatment (by Gestational Age at birth) Continuation.**

Gestational Age (weeks)	Total number of Patients with PDA	Treatment				
		Indomethacin	Ibuprofen	Acetaminophen	Ligation	More than one medication
<b>&lt;25</b>	18	4	3	9	0	1
		22%	17%	50%	0%	6%
<b>25-26</b>	44	8	6	24	0	4
		18%	14%	55%	0%	9%
<b>27-28</b>	50	5	8	25	3	1
		10%	16%	50%	6%	2%
<b>29-30</b>	58	5	6	19	6	0
		9%	10%	33%	10%	0%
<b>31-32</b>	54	3	12	14	4	2
		6%	22%	26%	7%	4%
<b>33-34</b>	43	1	3	11	0	0
		2%	7%	26%	0%	0%
<b>35-36</b>	26	1	1	5	1	1
		4%	4%	19%	4%	4%
<b>≥37</b>	55	0	0	12	3	0
		0%	0%	22%	5%	0%
<b>Total</b>	348	27	39	119	17	10
		8%	11%	34%	5%	3%

**Patent Ductus Arteriosus Type of Treatment (by Gestational Age at birth) (graph).**



Comment: For the PDA analysis, only the patients with complete data were included. The calculation for the PDA treatment was made over the total number the patients with PDA diagnosis in each gestational age group.

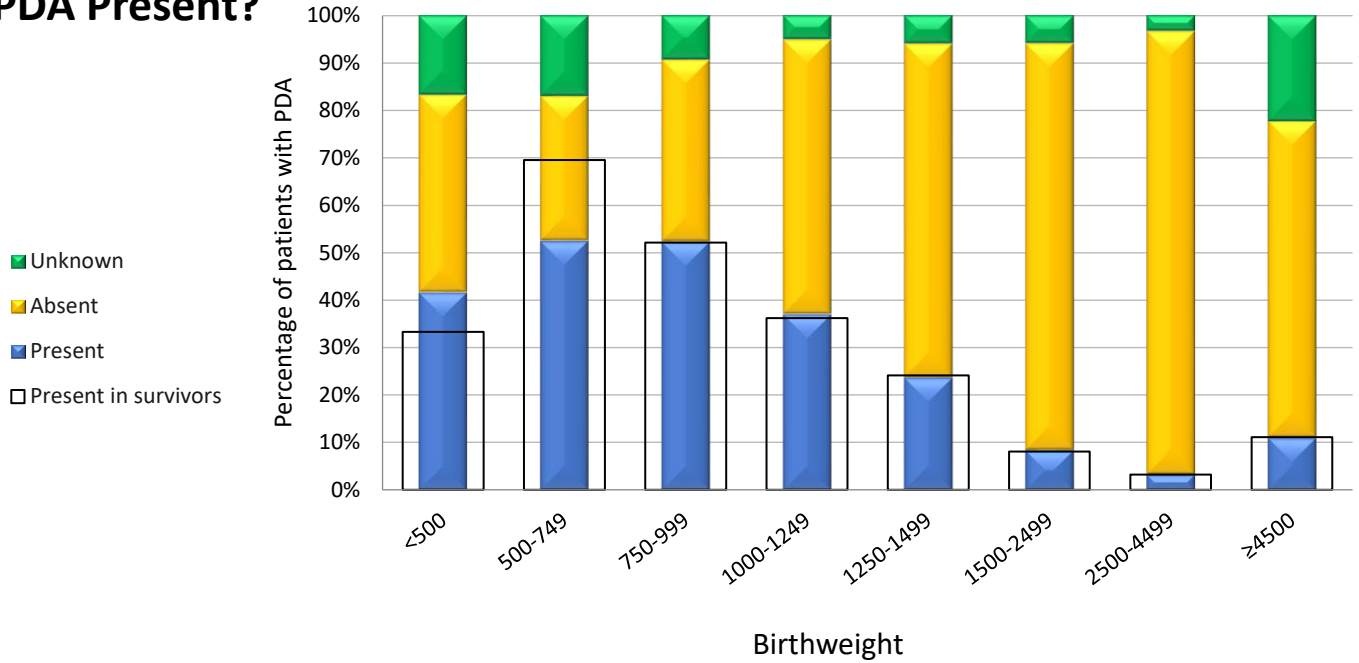
## PRESENTATION 14

**Presence and treatment for Patent Ductus Arteriosus (by Birthweight) (table)**

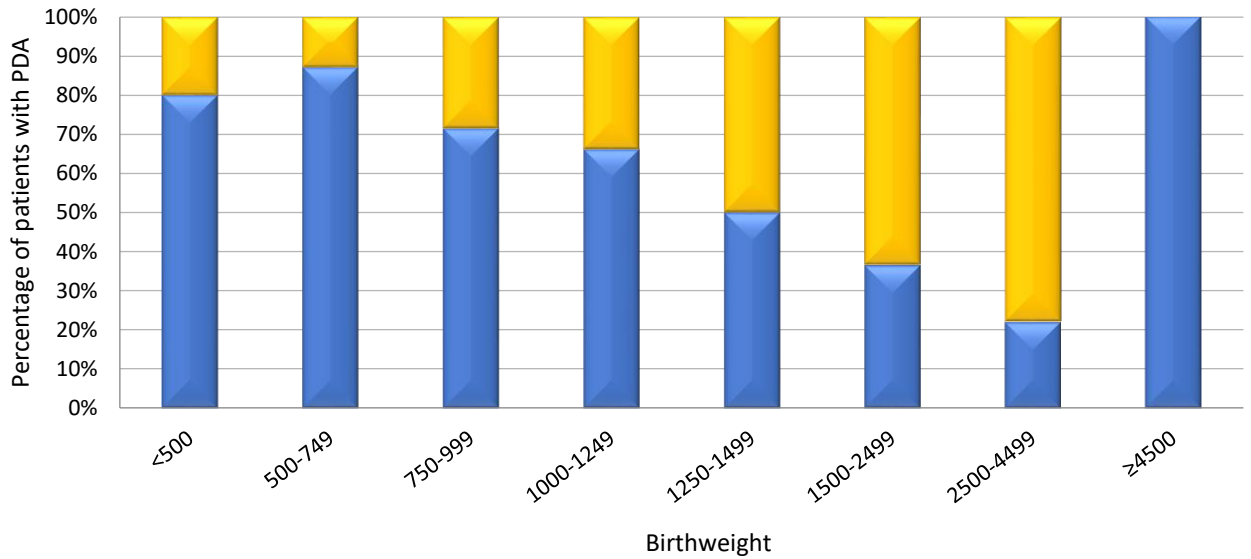
Birthweight (grs)	Total Number of Patients		PDA				Treatment	
			Present	Present in survivors	Absent	Unknown	Yes	No
< 500	n	12	5	1	5	2	4	1
	%		42%	33%	42%	17%	80%	20%
500-749	n	59	31	16	18	10	27	4
	%		53%	70%	31%	17%	87%	13%
750-999	n	107	56	36	41	10	40	16
	%		52%	52%	38%	9%	71%	29%
1000-1249	n	159	59	50	92	8	39	20
	%		37%	36%	58%	5%	66%	34%
1250-1499	n	185	44	43	130	11	22	22
	%		24%	24%	70%	6%	50%	50%
1500-2499	n	1,095	93	86	938	64	34	59
	%		8%	8%	86%	6%	37%	63%
2500-4499	n	1,778	59	57	1660	59	13	46
	%		3%	3%	93%	3%	22%	78%
≥4500	n	9	1	1	6	2	1	0
	%		11%	11%	67%	22%	100%	0%
Total	n	3404	348	290	2,890	166	180	168
	%		10%	9%	85%	5%	52%	48%

## Presence and treatment for Patent Ductus Arteriosus (by Birthweight) (graph)

### PDA Present?



### Treated?



## PRESENTATION 14A

**Type of Treatment for Patent Ductus Arteriosus (by Birthweight) (table)**

Birthweight (gr)	Total number of Patients with PDA	Treatment				
		Indomethacin	Ibuprofen	Acetaminophen	Ligation	More than one medication
<500	12	3	0	1	0	0
		25%	0%	8%	0%	0%
500-749	59	5	1	22	0	1
		8%	2%	37%	0%	2%
750-999	107	6	10	28	1	4
		6%	9%	26%	1%	4%
1000-1249	159	7	13	20	7	2
		4%	8%	13%	4%	1%
1250-1499	185	3	6	14	3	1
	0	2%	3%	8%	2%	1%
1500-2499	1,095	3	8	22	5	1
		0%	1%	2%	0%	0%
2500-4499	1,778	0	1	11	1	0
		0%	0%	1%	0%	0%
≥4500	9	0	0	1	0	0
		0%	0%	11%	0%	0%
Total	3404	27	39	119	17	9
		28%	17%	18%	5%	0%

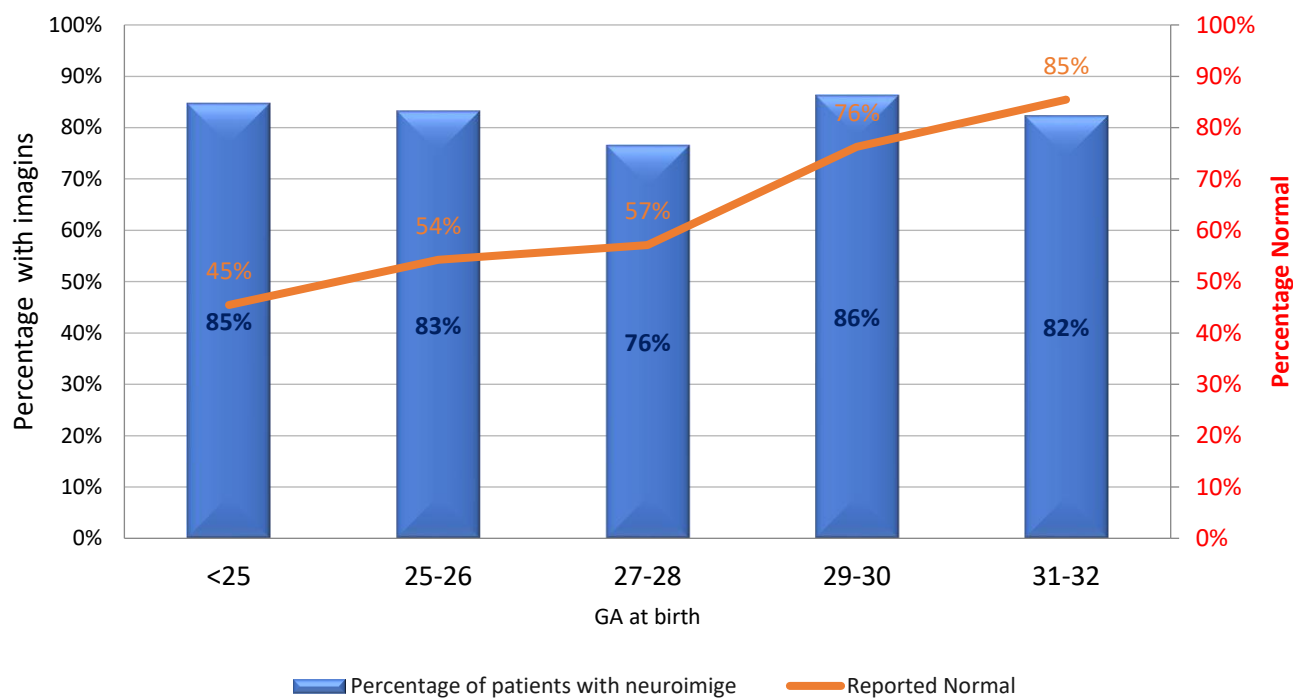
**B. ANALYSIS BASED ON THE NUMBER OF ELIGIBLE NEWBORNS SOME VERY PREMATURE ( $\leq 32$  WEEKS GESTATIONAL AGE) OR VERY LOW WEIGHT NEWBORNS AT BIRTH ( $<1500$  GRAMS AT BIRTH)**



## PRESENTATION 15

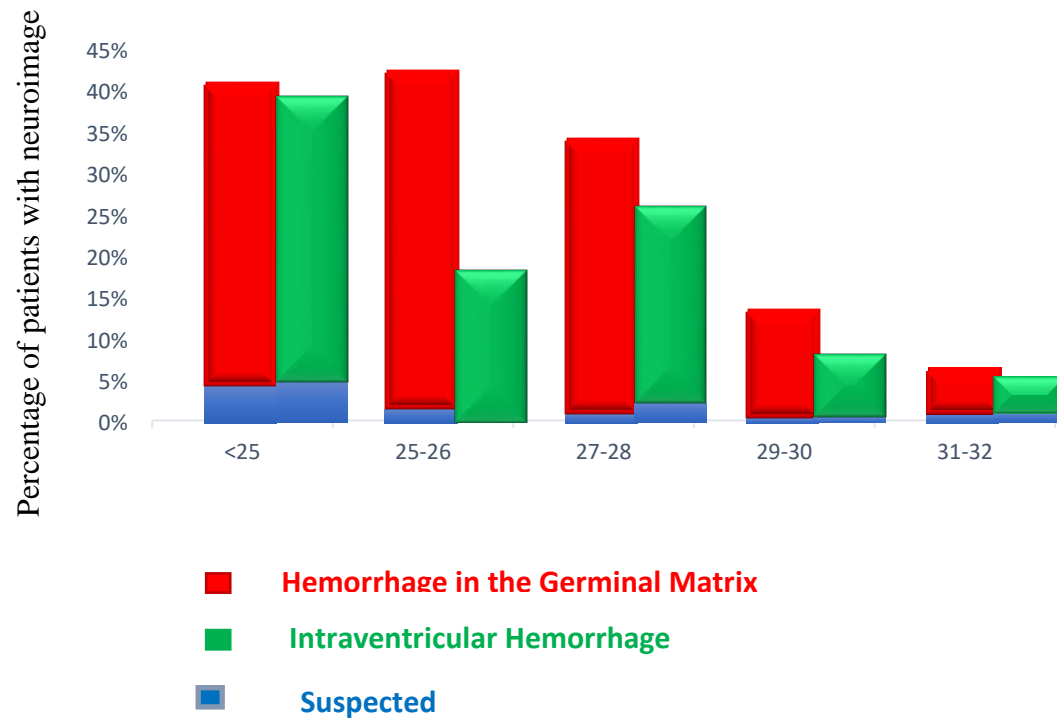
**Findings in Neuroimaging in ≤ 32 weeks (by Gestational Age at birth) (table and graph)**

Gestational Age (weeks)		Total patients	Total Patients with Neuroimaging		Reported Normal	
<b>&lt;25</b>	n %	26	22	85%	10	45%
<b>25-26</b>	n %	71	59	83%	32	54%
<b>27-28</b>	n %	119	91	76%	52	57%
<b>29-30</b>	n %	181	156	86%	119	76%
<b>31-32</b>	n %	326	268	82%	229	85%
<b>Total</b>	n %	723	596	82%	442	74%



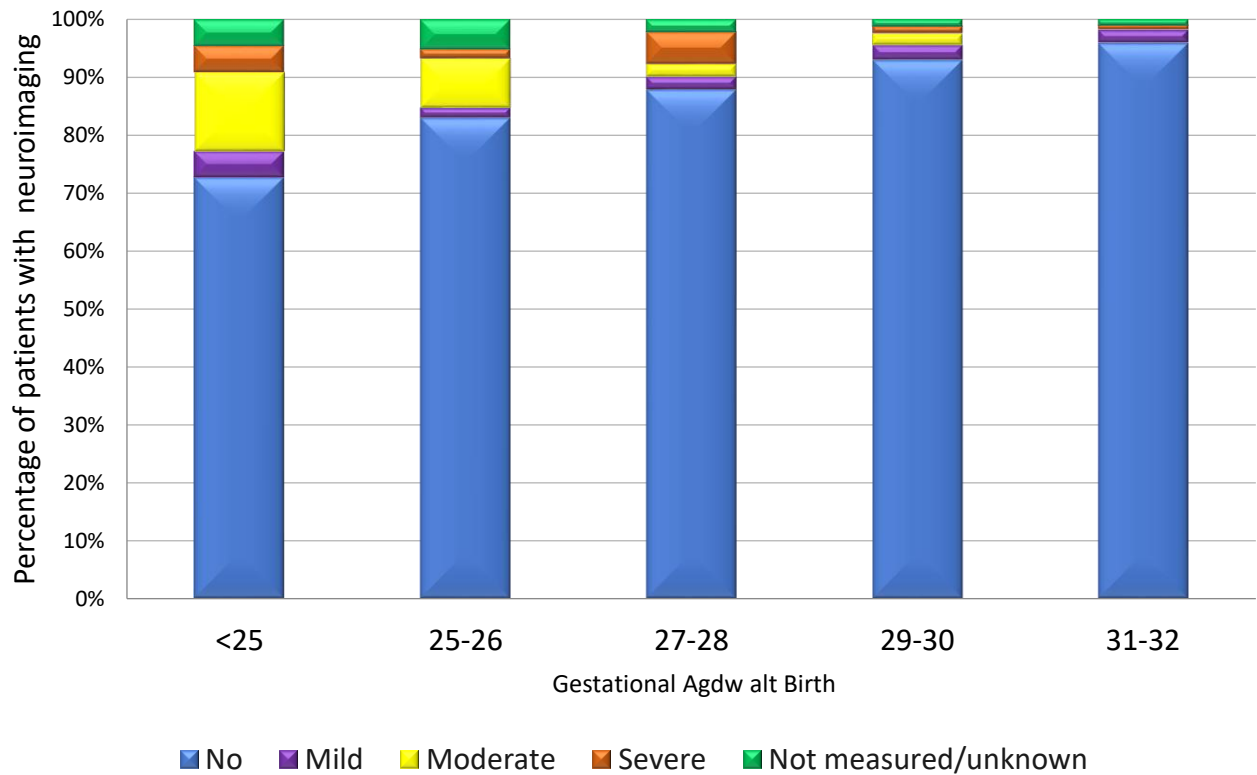
### Hemorrhage Findings in Germinal Matrix and Ventricles in ≤ 32 weeks (by Gestational Age at birth)

Gestational Age (weeks)	Patients with Neuroimaging		Hemorrhage in the Germinal Matrix				Intraventricular Hemorrhage				
			Suspected		Present		Suspected		Present		
<25	n	%	22	1	5%	8	36%	1	5%	7	32%
25-26	n	%	59	1	2%	24	41%	0	0%	10	17%
27-28	n	%	91	1	1%	30	33%	2	2%	20	22%
29-30	n	%	156	1	1%	20	13%	1	1%	11	7%
31-32	n	%	268	3	1%	14	5%	3	1%	11	4%
<b>Total</b>	n	%	596	7	9%	96	16%	7	1%	59	10%



**Ventriculomegaly Findings in Patients with Neuroimaging in ≤ 32 weeks (by Gestational Age at birth) (table/graphic)**

Gestational Age (weeks)			Patients with Neuroimaging	Ventriculomegaly									
				None		Mild		Moderate		Severe		Not measured/unknown	
<b>&lt;25</b>	n	%	22	16	73%	1	5%	3	14%	1	5%	1	5%
<b>25-26</b>	n	%	59	49	83%	1	2%	5	8%	1	2%	3	5%
<b>27-28</b>	n	%	91	80	88%	2	2%	2	2%	5	5%	2	2%
<b>29-30</b>	n	%	156	145	93%	4	3%	3	2%	2	1%	2	1%
<b>31-32</b>	n	%	268	257	96%	6	2%	0	0%	2	1%	3	1%
<b>Total</b>	n	%	596	547	92%	14	2%	13	2%	11	2%	11	2%

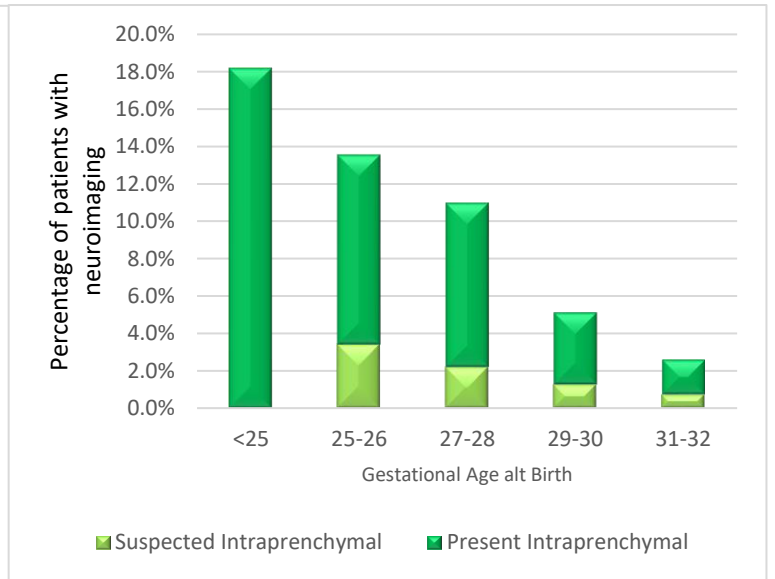
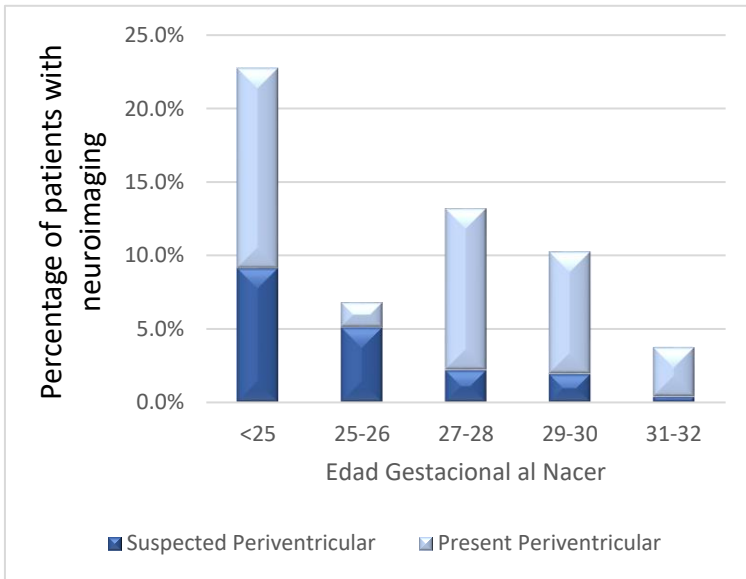


Comment: only patients with complete information were included. Low gestational age deaths affect statistics.

## PRESENTATION 16

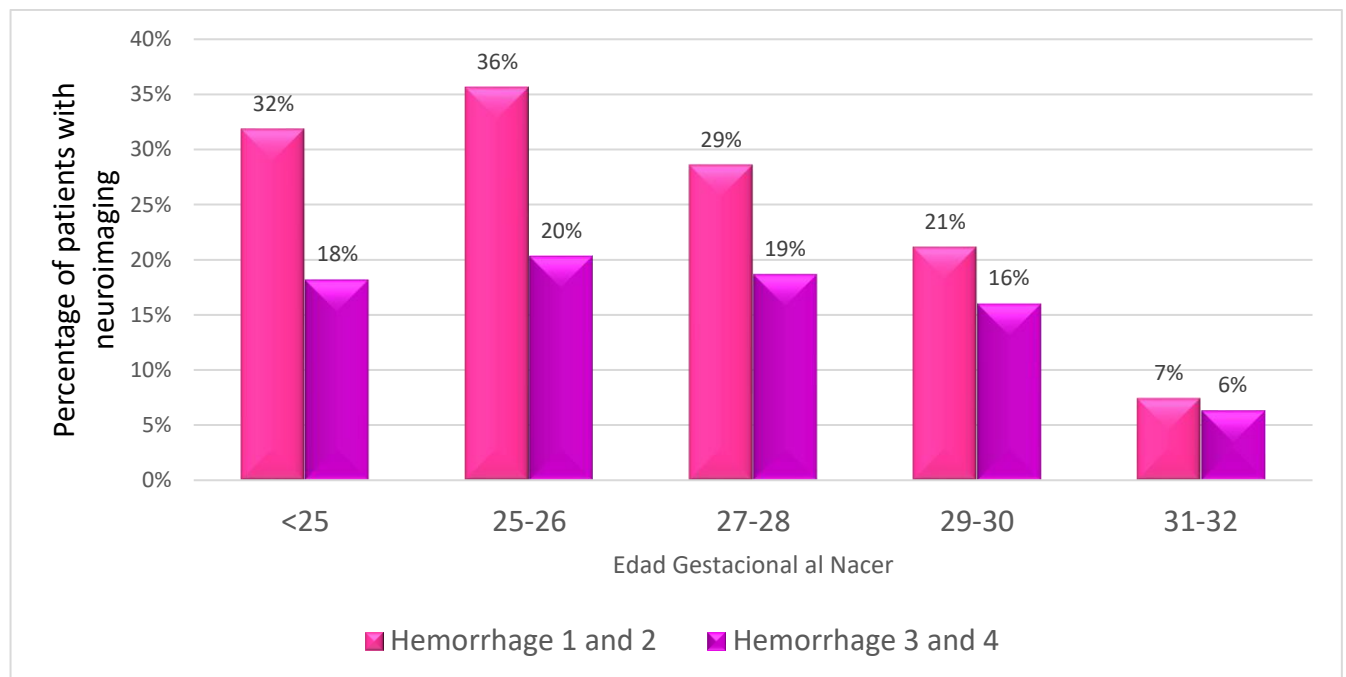
**Findings: periventricular and Intraparenchymal Hemorrhage in ≤ 32 weeks (by Gestational Age at birth) (table and graphic)**

Gestational Age (weeks)			Patients with Neuroimaging		Periventricular Hemorrhage				Intraparenchymal Hemorrhage			
					Suspected		Present		Suspected		Present	
<b>&lt;25</b>	n	%	22	2	9.1%	3	13.6%	0	0.0%	4	18.2%	
<b>25-26</b>	n	%	59	3	5.1%	1	1.7%	2	3.4%	6	10.2%	
<b>27-28</b>	n	%	91	2	2.2%	10	11.0%	2	2.2%	8	8.8%	
<b>29-30</b>	n	%	156	3	1.9%	13	8.3%	2	1.3%	6	3.8%	
<b>31-32</b>	n	%	268	1	0.4%	9	3.4%	2	0.7%	5	1.9%	
<b>Total</b>	n	%	596	11	1.8%	36	6.0%	8	1.3%	29	4.9%	



### Hemorrhage Findings Grade 1 and 2 versus 3 and 4 in ≤ 32 weeks (by Gestational Age at birth)

Gestational Age (weeks)		Patients With Neuroimaging	Hemorrhage 1 and 2		Hemorrhage 3 and 4	
<25	n %	22	7	32%	4	18%
25-26	n %	59	21	36%	12	20%
27-28	n %	91	26	29%	17	19%
29-30	n %	156	33	21%	25	16%
31-32	n %	268	20	7%	17	6%
<b>Total</b>	n %	<b>596</b>	<b>107</b>	<b>18%</b>	<b>75</b>	<b>13%</b>



Comment: only patients with complete information to whom image was taken were included. Grade 1 and 2 is defined when there is hemorrhage in the germinal matrix and/or ventricles, without intra or periventricular dilation or hemorrhage. Grade 3 and 4 when there were ventricular dilation or hemorrhage outside the ventricles.

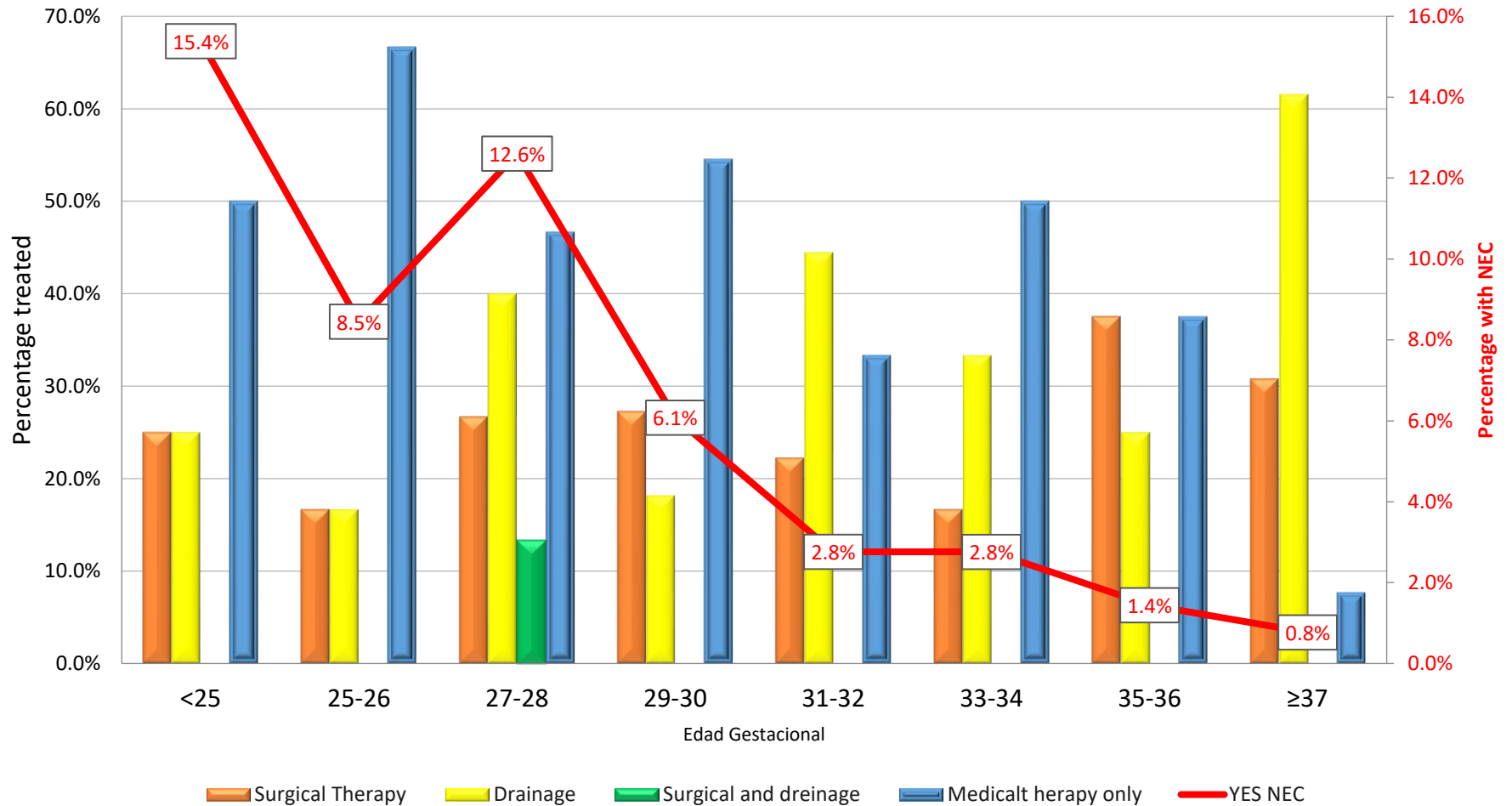
## PRESENTATION 17

**Necrotizing Enterocolitis and Treatment Modalities (by Gestational Age at Birth) (table)**

Gestational Age (weeks)	Total Number of Cases		Yes NEC		Treatment								
					Medical only		Surgical		Drainage		Drainage and Surgical		
<b>&lt;25</b>	n	%	26	4	15.4%	2	50.0%	1	25.0%	1	25.0%	0	
<b>25-26</b>	n	%	71	6	8.5%	4	66.7%	1	16.7%	1	16.7%	0	
<b>27-28</b>	n	%	119	15	12.6%	7	46.7%	4	26.7%	6	40.0%	2	13.3%
<b>29-30</b>	n	%	181	11	6.1%	6	54.5%	3	27.3%	2	18.2%	0	
<b>31-32</b>	n	%	326	9	2.8%	3	33.3%	2	22.2%	4	44.4%	0	
<b>33-34</b>	n	%	435	12	2.8%	6	50.0%	2	16.7%	4	33.3%	0	
<b>35-36</b>	n	%	555	8	1.4%	3	37.5%	3	37.5%	2	25.0%	0	
<b>≥37</b>	n	%	1691	13	0.8%	1	7.7%	4	30.8%	8	61.5%	0	
<b>Total</b>	n	%	3404	78	2%	32	41%	20	26%	28	36%	2	3%

All validated patients from the database of all gestational ages are included and for this reason caution should be exercised in interpreting those > 32 weeks because not all units admit these patients of these ages.

**Necrotizing Enterocolitis (NEC) and Treatment Modalities (by Gestational Age at Birth) (graph)**



Comment: For the Necrotizing Enterocolitis (NEC) analysis, only patients with complete data were included. The definition of NEC was used according to the following criteria: a) Pneumatosis (air within the intestinal wall) or portal/hepatic air diagnosed by radiographs or b) diagnosis of NEC during surgery or autopsy. Diagnosis of "suspected NEC" was not classified as NEC. The treatment percentages were calculated on infants diagnosed with NEC, it may be underestimated at low gestational age due to mortality.

## PRESENTATION 18

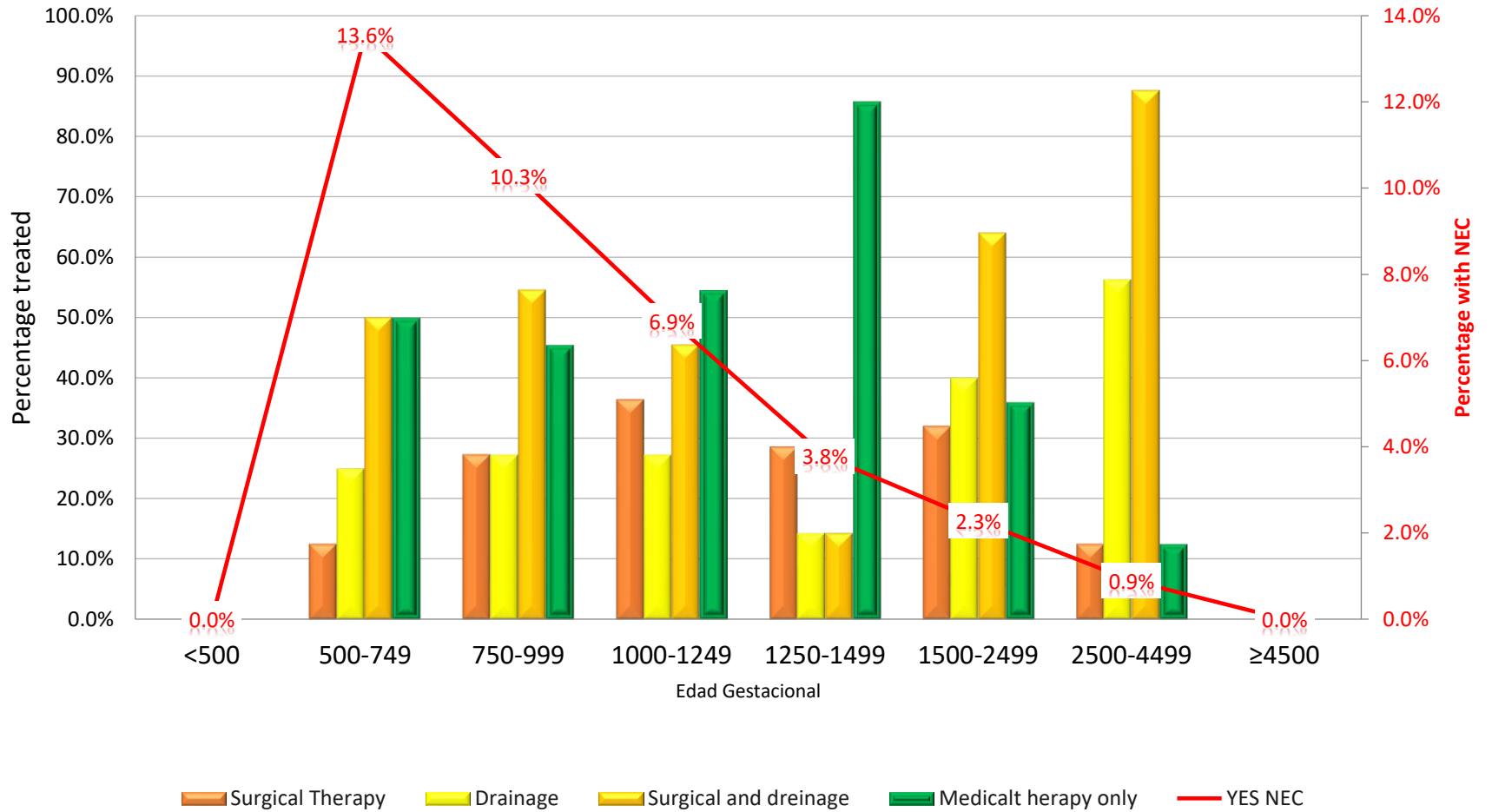
**Necrotizing Enterocolitis and Treatment Modalities (by Birthweight) (table)**

Birthweight (g)	Total No of Cases		Yes NEC		Treatment								
					Medical only		Surgical		Drainage		Drainage and Surgical		
<b>&lt;500</b>	n	%	12	0	0.0%	0		0		0		0	
<b>500-749</b>	n	%	59	8	13.6%	4	50.0%	1	12.5%	2	25.0%	0	0.0%
<b>750-999</b>	n	%	107	11	10.3%	5	45.5%	3	27.3%	3	27.3%	1	9.1%
<b>1000-1249</b>	n	%	159	11	6.9%	6	54.5%	4	36.4%	3	27.3%	1	9.1%
<b>1250-1499</b>	n	%	185	7	3.8%	6	85.7%	2	28.6%	1	14.3%	0	0.0%
<b>1500-2499</b>	n	%	1095	25	2.3%	9	36.0%	8	32.0%	10	40.0%	0	0.0%
<b>2500-4499</b>	n	%	1778	16	0.9%	2	12.5%	2	12.5%	9	56.3%	0	0.0%
<b>≥4500</b>	n	%	9	0	0.0%	0		0		0		0	
<b>Total</b>	n	%	3404	78	2.3%	32	41.0%	20	25.6%	28	35.9%	2	2.6%

Comment: For the Necrotizing Enterocolitis (NEC) analysis, only patients with complete data were included. The definition of NEC was used according to the following criteria: a) Pneumatosis (air within the intestinal wall) or portal/hepatic air diagnosed by radiographs or b) diagnosis of NEC during surgery or autopsy. Diagnosis of "suspected NEC" was not classified as NEC. The treatment percentages were calculated on infants diagnosed with NEC, that may be underestimated at low weights due to mortality. NEC in larger infants may be a different pathology.



**Necrotizing Enterocolitis and Treatment Modalities (by Birthweight) (graph)**



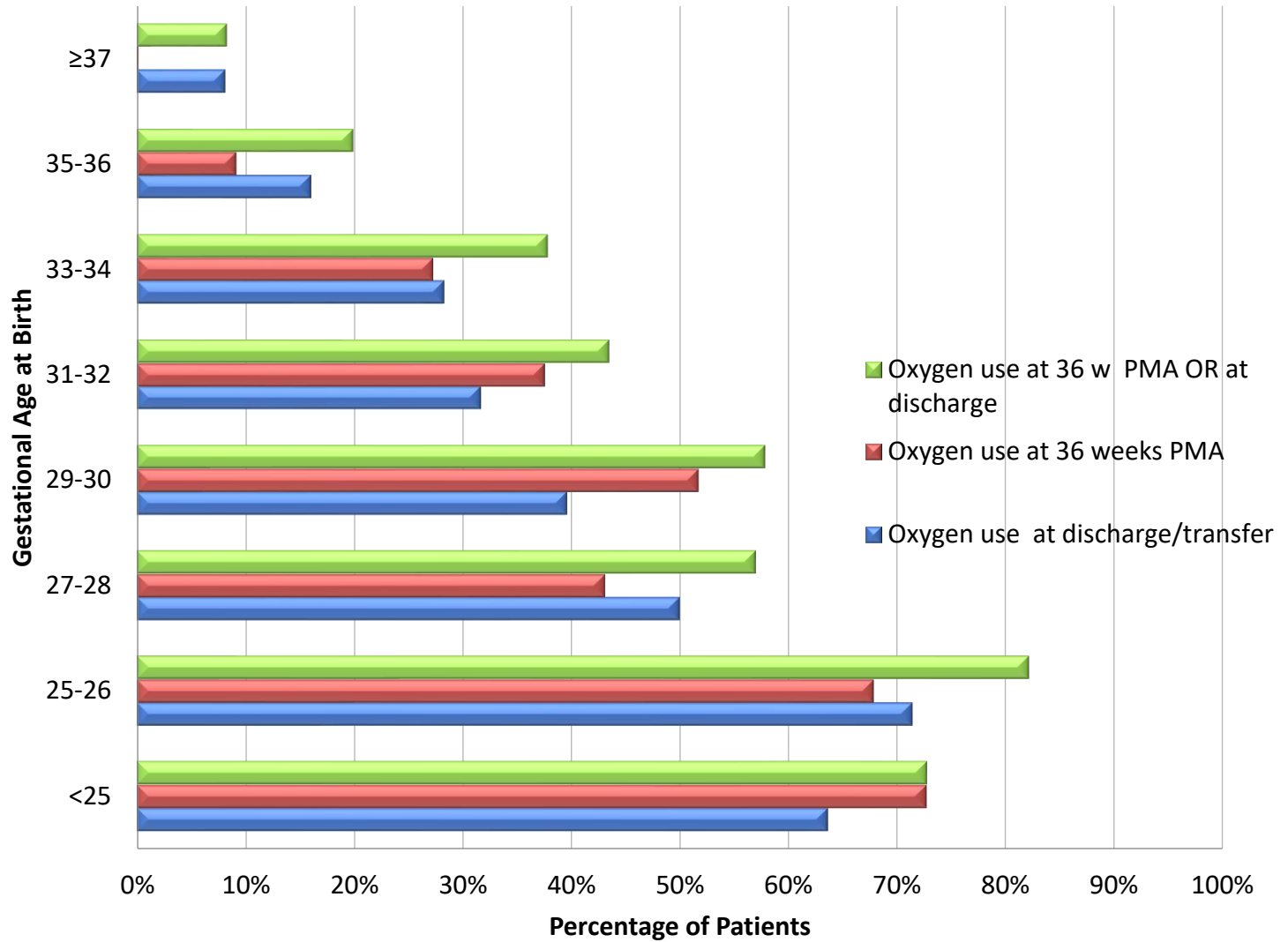
## PRESENTATION 19

**Supplemental Oxygen Requirement (table)**

Gestational Age (weeks)			Total Number of Patients	Patients < 36 weeks PMA at discharge	Number of Patients ≥ 36 weeks PMA at discharge/transfer	Oxygen use in ≥ 36 weeks PMA at discharge/transfer		Oxygen use at 36 weeks PMA in ≥ 36 weeks		Oxygen use at 36 weeks PMA OR at discharge/transfer	
<b>&lt;25</b>	n	%	26	15	11	7	64%	8	73%	8	73%
<b>25-26</b>	n	%	71	43	28	20	71%	19	68%	23	82%
<b>27-28</b>	n	%	119	61	58	29	50%	25	43%	33	57%
<b>29-30</b>	n	%	181	65	116	46	40%	60	52%	67	58%
<b>31-32</b>	n	%	326	121	205	65	32%	77	38%	89	43%
<b>33-34</b>	n	%	435	149	286	81	28%	78	27%	108	38%
<b>35-36</b>	n	%	555	32	523	84	16%	48	9%	104	20%
<b>≥37</b>	n	%	1691		1691	138	8%	3	0%	140	8%
<b>Total</b>	n	%	3404	486	2918	470	16%	318	11%	572	20%

Comment: only patients with complete information were included. w: weeks. PMA: postmenstrual age. The percentage was calculated excluding the total number of patients that were deceased or remitted before 36 weeks at discharge.

**Supplemental Oxygen Requirement (graph)**



Remember the different above the sea level of some of the units. w: weeks. PMA: postmenstrual age.

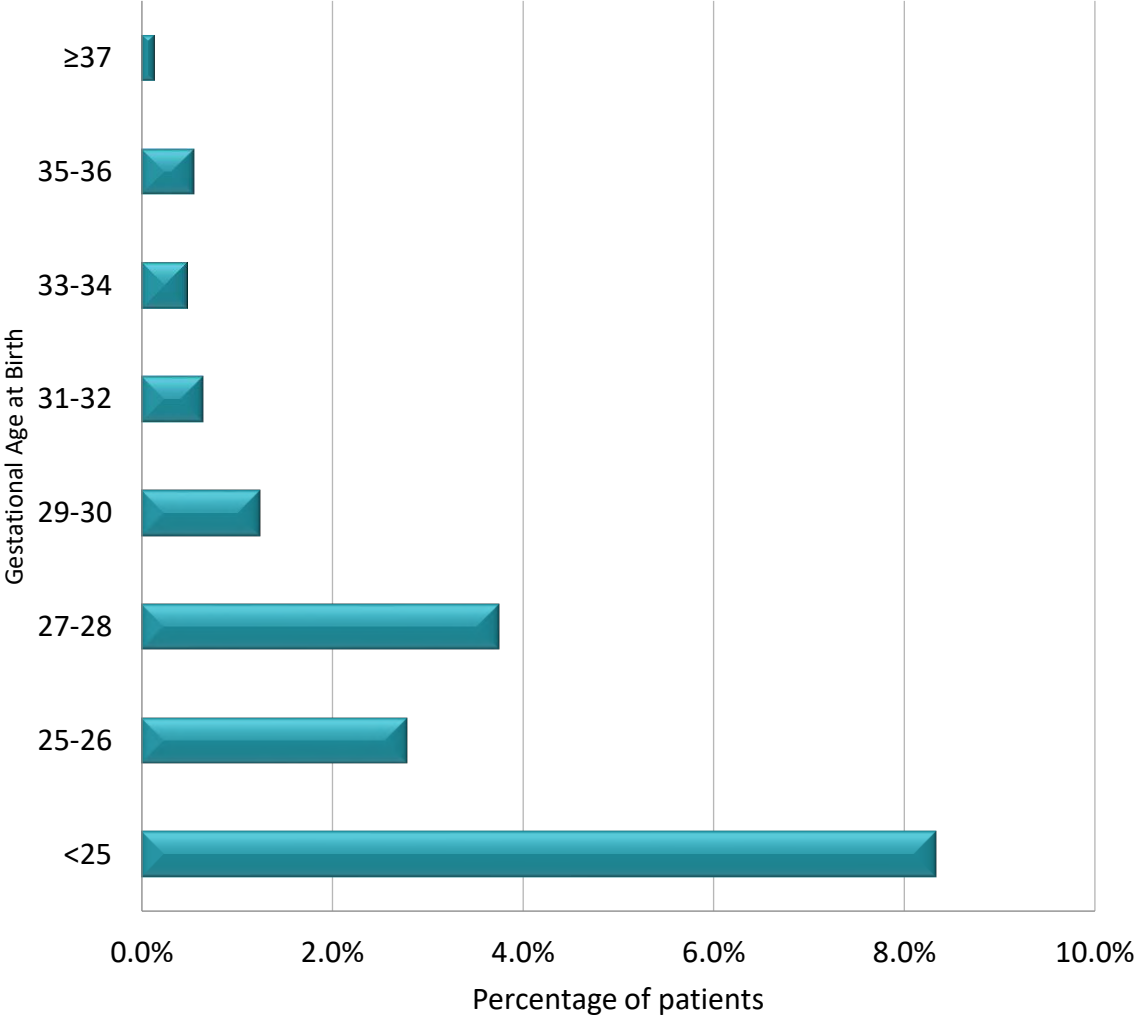
## PRESENTATION 20

### Any Respiratory Support (by Gestational Age) in infants that did not die (table)

Gestational Age (weeks)			Total Number of Patients that did not die	Respiratory support at discharge	
<b>&lt;25</b>	n	%	12	1	8.3%
<b>25-26</b>	n	%	36	1	2.8%
<b>27-28</b>	n	%	80	3	3.8%
<b>29-30</b>	n	%	161	2	1.2%
<b>31-32</b>	n	%	312	2	0.6%
<b>33-34</b>	n	%	427	2	0.5%
<b>35-36</b>	n	%	550	3	0.5%
<b>≥37</b>	n	%	1675	2	0.1%
<b>Total</b>	n	%	3253	16	0.5%

Comment: For the analysis of respiratory support received at discharge, only patients who had complete data were included. Respiratory support is defined as CPAP, noninvasive ventilation or assisted ventilation, it does not include only oxygen or low flow nasal cannula for its administration. Estimates of the percentages of respiratory support received at discharge over the number of infants with known results that did not die.

**Any Respiratory Support Requirement (by Gestational Age) in infants at discharge/transfer in patients that did not die. (graph)**



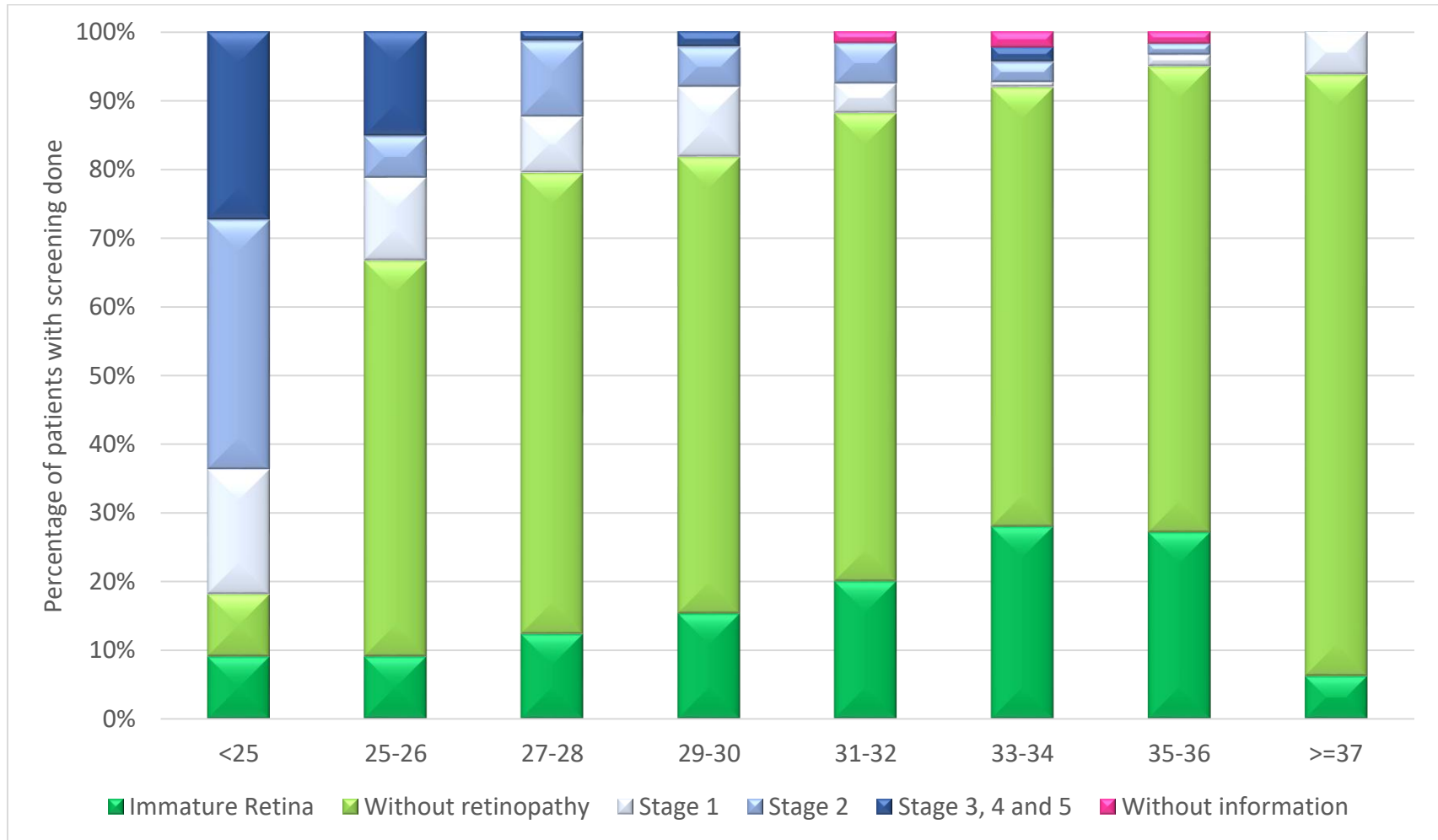
## PRESENTATION 21

**Incidence of Retinopathy of Prematurity (by Gestational Age) (table)**

Gestational Age weeks	Number of Patients	Number of infants with Screening Done		Immature Retina		Retinopathy of Prematurity									
						No		Stage 1		Stage 2		Stage 3, 4 and 5		Without information	
<b>&lt;25</b>	n %	26	11 42%	1	9%	1	9%	2	18%	4	36%	3	27%	0	0.0%
<b>25-26</b>	n %	71	33 46%	3	9%	19	58%	4	12%	2	6%	5	15%	0	0.0%
<b>27-28</b>	n %	119	73 61%	9	12%	49	67%	6	8%	8	11%	1	1%	0	0.0%
<b>29-30</b>	n %	181	137 76%	21	15%	91	66%	14	10%	8	6%	3	2%	0	0.0%
<b>31-32</b>	n %	326	185 57%	37	20%	126	68%	8	4%	11	6%	0	0%	3	1.6%
<b>33-34</b>	n %	435	136 31%	38	28%	87	64%	1	1%	4	3%	3	2%	3	2.2%
<b>35-36</b>	n %	555	59 11%	16	27%	40	68%	1	2%	1	2%	0	0%	1	1.7%
<b>≥37</b>	n %	1691	32 2%	2	6%	28	88%	2	6%	0	0%	0	0%	0	0.0%
<b>Total</b>	n %	3404	666 20%	127	19%	441	66%	38	6%	38	6%	15	2%	7	1.1%

Comment: For the Retinopathy of Prematurity (ROP) analysis, only patients who had complete data were included. The calculation of ROP percentages was made over the number of infants with screening done. The difference between immature retina and no retinopathy is only definition. It is possible that the retinopathies reported in older children are due to another pathology.

Incidence of Retinopathy of Prematurity (by Gestational Age) (graph)



## PRESENTATION 22

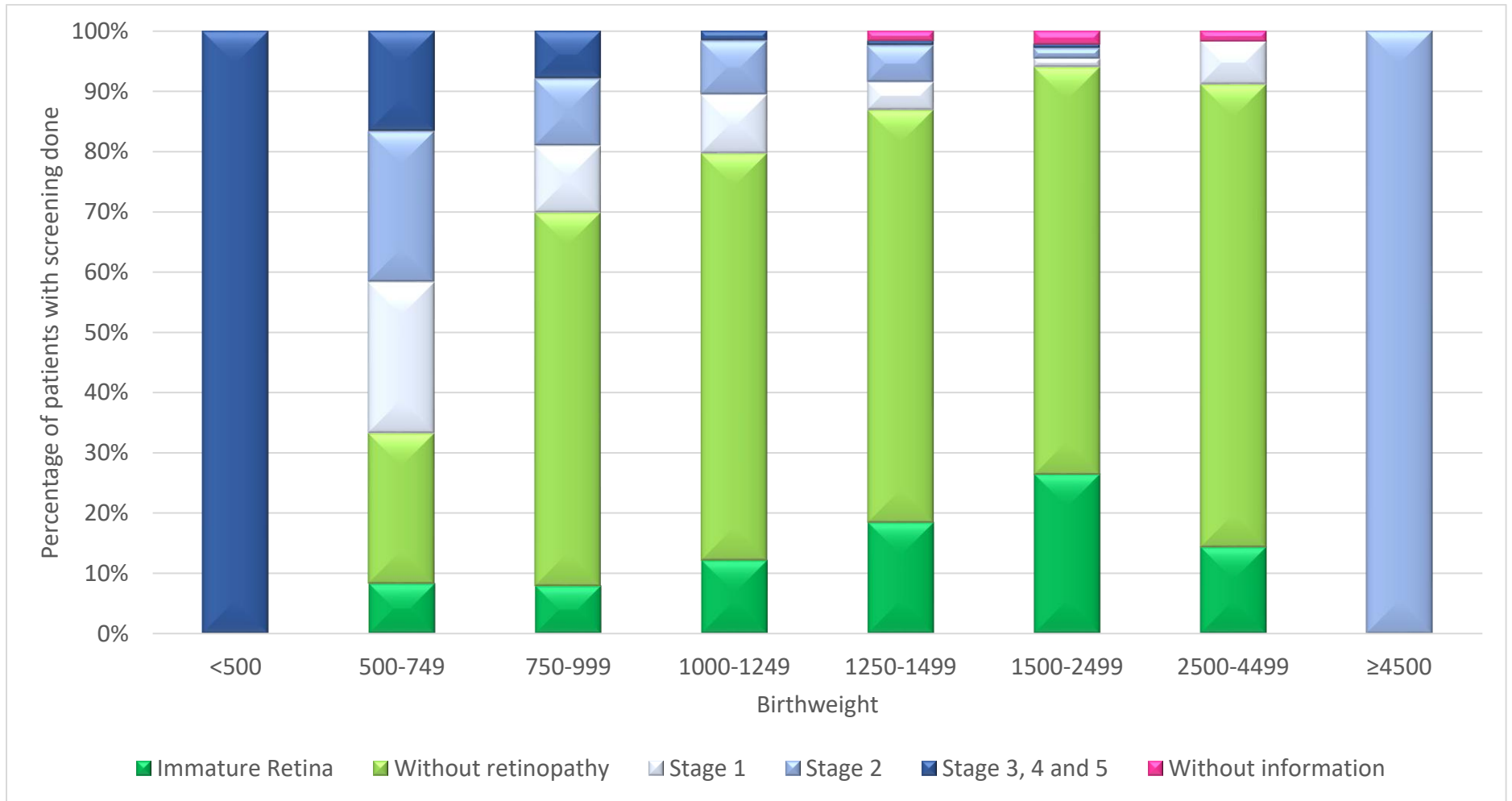
**Retinopathy of Prematurity by Birthweight (table)**

Birthweight (g)	Number of Patients		Number of infants with Screening Done		Immature Retina		Retinopathy of Prematurity										
							No		Stage 1		Stage 2		Stage 3, 4 and 5		Without information		
<b>&lt;500</b>	n	%	12	1	8%	0	0%	0	0.0%	0	0.0%	0	0.0%	1	100.0%	0	0.0%
<b>500-749</b>	n	%	59	24	41%	2	8%	6	25.0%	6	25.0%	6	25.0%	4	16.7%	0	0.0%
<b>750-999</b>	n	%	107	63	59%	5	8%	39	61.9%	7	11.1%	7	11.1%	5	7.9%	0	0.0%
<b>1000-1249</b>	n	%	159	124	78%	15	12%	83	66.9%	12	9.7%	11	8.9%	2	1.6%	1	0.8%
<b>1250-1499</b>	n	%	185	131	71%	24	18%	89	67.9%	6	4.6%	8	6.1%	1	0.8%	3	2.3%
<b>1500-2499</b>	n	%	1095	280	26%	75	27%	192	68.6%	4	1.4%	5	1.8%	2	0.7%	2	0.7%
<b>2500-4499</b>	n	%	1778	42	2%	6	14%	32	76.2%	3	7.1%	0	0.0%	0	0.0%	1	2.4%
<b>≥4500</b>	n	%	9	1	11%	0	0%	0	0.0%	0	0.0%	1	100.0%	0	0.0%	0	0.0%
<b>Total</b>	n	%	3404	666	20%	127	19%	441	66.2%	38	5.7%	38	5.7%	15	2.3%	7	1.1%

Comment: For the Retinopathy of Prematurity (ROP) analysis, only patients who had complete data were included. The calculation of ROP percentages was made over the number of infants with screening done. The difference between immature retina and no retinopathy is only definition. It is possible that the retinopathies reported in older children are due to another pathology.



**Incidence of Retinopathy of Prematurity by Birthweight (graph)**



## PRESENTATION 23

**Therapy Cryo/Laser /Anti-VEGF in infants with Retinopathy of Prematurity (by Gestational Age) (table)**

Gestational Age (weeks)	Number of Admissions	Number of infants with Screening Done		ROP Therapy		ROP Therapy						
						Cryo	Laser	Anti- VEGF	Both laser and Anti-VEGF			
<b>&lt;25</b> n %	26	11	42%	2	18%	0	1	50%	1	50%	0	
<b>25-26</b> n %	71	33	46%	6	18%	0	2	33%	4	67%	0	
<b>27-28</b> n %	119	73	61%	4	5%	0	0	0%	4	100%	0	
<b>29-30</b> n %	181	137	76%	5	4%	0	3	60%	2	40%	0	
<b>31-32</b> n %	326	185	57%	1	1%	0	1	100%	0	0%	0	
<b>33-34</b> n %	435	136	31%	2	1%	0	0	0%	2	100%	0	
<b>35-36</b> n %	555	59	11%	0	0%	0	0		0		0	
<b>≥37</b> n %	1691	32	2%	1	3%	0	1	100%	1	100%	1	100%
<b>Total</b> n %	3404	666	20%	21	3%	0	8	38%	14	67%	1	5%

Comment: For the analysis of ROP therapy, only patients who had screening done were included and percentage was calculated over the total number of patients treated. Due to the low number of patients, caution is required interpret the percentages.

## PRESENTATION 24

**Therapy Cryo/Laser /Anti-VEGF in infants with Retinopathy of Prematurity (by Birthweight) (table)**

BIRTHWEIGHT (gr)	Number of Admissions	Number of infants with Screening Done	ROP Therapy	ROP Therapy							
				Cryo	Laser	Anti- VEGF	Both laser and Anti-VEGF				
<b>&lt;500</b> n %	12	1 8%	1 100.0%	0	0 0%	1 100%	0 0%				
<b>500-749</b> n %	59	24 41%	5 20.8%	0	2 40%	3 60%	0 0%				
<b>750-999</b> n %	107	63 59%	7 11.1%	0	2 29%	5 71%	0 0%				
<b>1000-1249</b> n %	159	124 78%	3 2.4%	0	3 100%	0 0%	0 0%				
<b>1250-1499</b> n %	185	131 71%	3 2.3%	0	0 0%	3 100%	0 0%				
<b>1500-2499</b> n %	1095	280 26%	1 0.4%	0	0 0%	1 100%	0 0%				
<b>2500-4499</b> n %	1778	42 2%	1 2.4%	0	1 100%	1 100%	1 100%				
<b>≥4500</b> n %	9	1 11%	0 0.0%	0	0	0	0				
<b>Total</b> n %	3404	666 20%	21 3%	0	8 33%	14 67%	1 5%				

Comment: For the analysis of ROP therapy, only patients who had screening done were included and percentage was calculated over the total number of patients treated. Due to the low number of patients in some groups, caution is required interpret the percentages.

## PRESENTATION 25

**Number of Significant Morbidities by Gestational Age in Patients that did not Die (Six Morbidities) (table)**

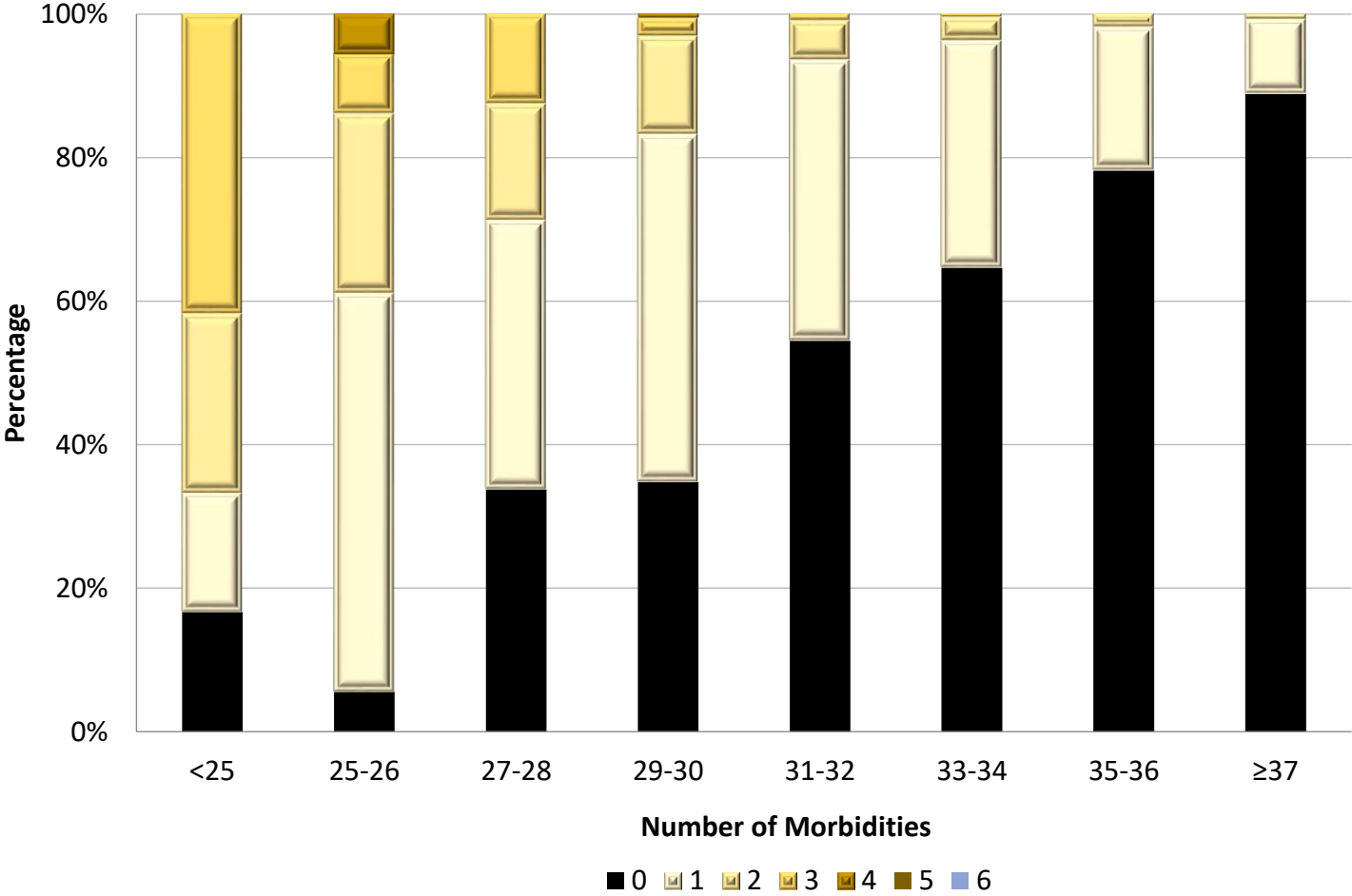
Gestational Age (weeks)	Number de Patients that did not Die	Number of Morbidities											
		0		1		2		3		4		5	6
<b>&lt;25</b> n %	12	2	16.7%	2	16.7%	3	25.0%	5	41.7%	0	0.0%	0	0
<b>25-26</b> n %	36	2	5.6%	20	55.6%	9	25.0%	3	8.3%	2	5.6%	0	0
<b>27-28</b> n %	80	27	33.8%	30	37.5%	13	16.3%	10	12.5%	0	0.0%	0	0
<b>29-30</b> n %	161	56	34.8%	78	48.4%	22	13.7%	4	2.5%	1	0.6%	0	0
<b>31-32</b> n %	312	170	54.5%	122	39.1%	17	5.4%	3	1.0%	0	0.0%	0	0
<b>33-34</b> n %	427	276	64.6%	135	31.6%	14	3.3%	2	0.5%	0	0.0%	0	0
<b>35-36</b> n %	550	430	78.2%	110	20.0%	10	1.8%	0	0.0%	0	0.0%	0	0
<b>≥37</b> n %	1675	1489	88.9%	173	10.3%	12	0.7%	1	0.1%	0	0.0%	0	0
<b>Total</b> n %	3253	2452	75.4%	670	19.2%	100	3.2%	28	1.0%	3	0.1%	0	0

The six morbidities included in the analysis are:

- A.** Ventriculomegaly or Periventricular Leukomalacia or Intraparenchymal Hemorrhage
- B.** ROP  $\geq$  grade 3
- C.** O<sub>2</sub> use at 36 weeks PMA or at discharge.
- D.** Early or late infection confirmed by the presence of Bacteria or Fungi in Blood or CSF.
- E.** NEC grade II or III
- F.** PDA that required ligation.

Comment: Patients with complete data were included for the analysis. The calculation of the frequency of morbidities was made on the Number of Infants without Dead.

Number of Significant Morbidities by Gestational Age (Six Morbidities) (graph)



**c. COMPARISON BETWEEN SITES**

COMPARISON BETWEEN SITE - POPULATION

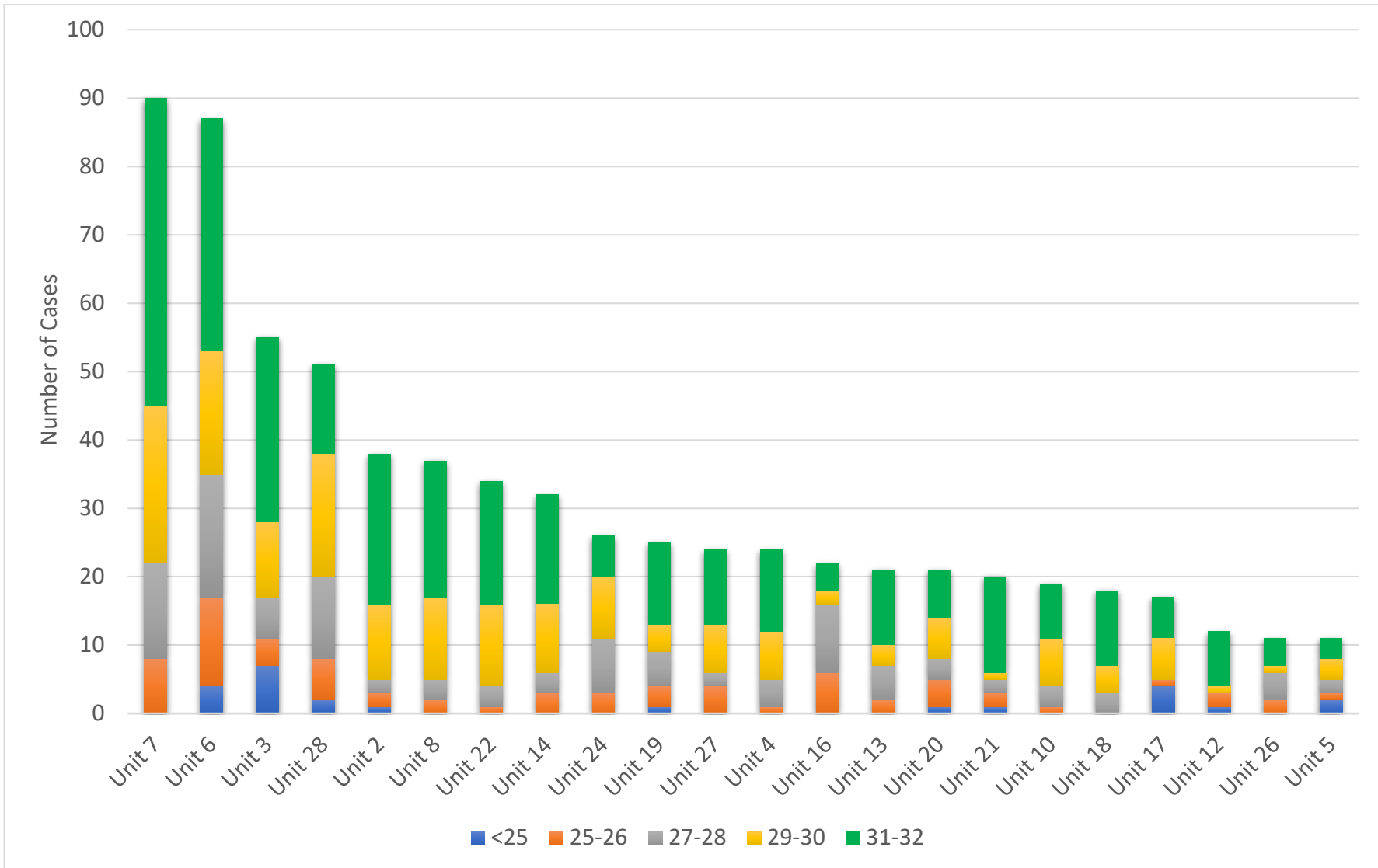
## PRESENTATION 26

**Number of Patients  $\leq$  32 weeks at birth by Gestational Age and Specific Unit. (Table)**

UNITS	Gestational Age at Birth					
	<25	25-26	27-28	29-30	31-32	Total
Unit 7	0	8	14	23	45	90
Unit 6	4	13	18	18	34	87
Unit 3	7	4	6	11	27	55
Unit 28	2	6	12	18	13	51
Unit 2	1	2	2	11	22	38
Unit 8	0	2	3	12	20	37
Unit 22	0	1	3	12	18	34
Unit 14	0	3	3	10	16	32
Unit 24	0	3	8	9	6	26
Unit 19	1	3	5	4	12	25
Unit 27	0	4	2	7	11	24
Unit 4	0	1	4	7	12	24
Unit 16	0	6	10	2	4	22
Unit 13	0	2	5	3	11	21
Unit 20	1	4	3	6	7	21
Unit 21	1	2	2	1	14	20
Unit 10	0	1	3	7	8	19
Unit 18	0	0	3	4	11	18
Unit 17	4	1	0	6	6	17
Unit 12	1	2	0	1	8	12
Unit 26	0	2	4	1	4	11
Unit 5	2	1	2	3	3	11
<b>Total</b>	<b>24</b>	<b>71</b>	<b>112</b>	<b>176</b>	<b>312</b>	<b>695</b>

Comment: The number of patients by Gestational Age at birth  $\leq$  32 weeks gestational age at birth. Units with  $\leq$  10 cases were excluded. It is also only units with complete data and without readmissions.

**Number of Patients ≤ 32 weeks at birth by Gestational Age and Specific Unit ((graph arranged in descending order)**





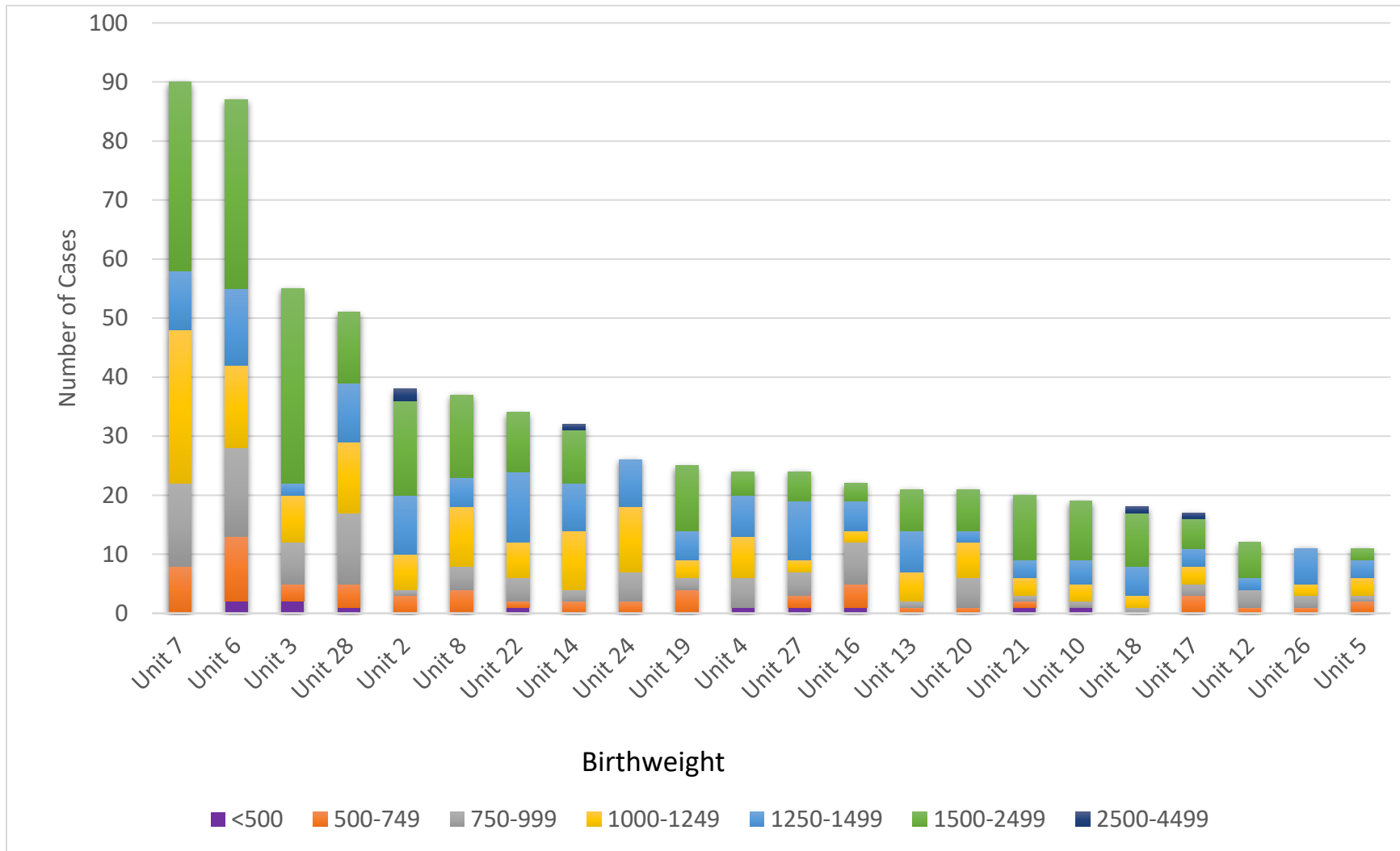
## PRESENTATION 27

**Number of Patients by Birthweight and Specific Unit (graph arranged in descending order) (table)**

UNITS	BIRTHWEIGHT GROUPS							Total
	<500	500-749	750-999	1000-1249	1250-1499	1500-2499	2500-4499	
Unit 7	0	8	14	26	10	32	0	90
Unit 6	2	11	15	14	13	32	0	87
Unit 3	2	3	7	8	2	33	0	55
Unit 28	1	4	12	12	10	12	0	51
Unit 2	0	3	1	6	10	16	2	38
Unit 8	0	4	4	10	5	14	0	37
Unit 22	1	1	4	6	12	10	0	34
Unit 14	0	2	2	10	8	9	1	32
Unit 24	0	2	5	11	8	0	0	26
Unit 19	0	4	2	3	5	11	0	25
Unit 4	1	0	5	7	7	4	0	24
Unit 27	1	2	4	2	10	5	0	24
Unit 16	1	4	7	2	5	3	0	22
Unit 13	0	1	1	5	7	7	0	21
Unit 20	0	1	5	6	2	7	0	21
Unit 21	1	1	1	3	3	11	0	20
Unit 10	1	0	1	3	4	10	0	19
Unit 18	0	0	1	2	5	9	1	18
Unit 17	0	3	2	3	3	5	1	17
Unit 12	0	1	3	0	2	6	0	12
Unit 26	0	1	2	2	6	0	0	11
Unit 5	0	2	1	3	3	2	0	11
<b>Total</b>	<b>11</b>	<b>58</b>	<b>99</b>	<b>144</b>	<b>140</b>	<b>238</b>	<b>5</b>	<b>695</b>

Comment: The number of patients by birthweight excluding patients  $\leq 32$  weeks at birth in units with  $\leq 10$  cases. No readmissions were included.

Number of Patients by Birthweight and Specific Unit (graph arranged in descending order) (Graph)



## COMPARISONS BETWEEN UNITS - SURVIVAL/MORTALITY

## PRESENTATION 28

**CRUDE Frequency of Survival by Gestational Age and Unit in  $\leq 32$  weeks at Birth (Table).**

UNITS			<25	25-26	27-28	29-30	31-32	Total
<b>Unit 2</b>	Number of Survivors	n	0	1	1	10	21	33
	Number of deaths	n	1	1	1	1	1	5
	Total	n	1	2	2	11	22	38
	% de Survival	%	0%	50%	50%	91%	95%	87%
<b>Unit 3</b>	Number of Survivors	n	5	2	5	10	27	49
	Number of deaths	n	2	2	1	1	0	6
	Total	n	7	4	6	11	27	55
	% de Survival	%	71%	50%	83%	91%	100%	89%
<b>Unit 4</b>	Number of Survivors	n	0	0	3	7	10	20
	Number of deaths	n	0	1	1	0	2	4
	Total	n	0	1	4	7	12	24
	% de Survival	%		0%	75%	100%	83%	83%
<b>Unit 5</b>	Number of Survivors	n	0	0	2	3	3	8
	Number of deaths	n	2	1	0	0	0	3
	Total	n	2	1	2	3	3	11
	% de Survival	%	0%	0%	100%	100%	100%	73%
<b>Unit 6</b>	Number of Survivors	n	2	6	11	15	34	68
	Number of deaths	n	2	7	7	3	0	19
	Total	n	4	13	18	18	34	87
	% de Survival	%	50%	46%	61%	83%	100%	78%
<b>Unit 7</b>	Number of Survivors	n	0	3	8	20	42	73
	Number of deaths	n	0	5	6	3	3	17
	Total	n	0	8	14	23	45	90
	% de Survival	%		38%	57%	87%	93%	81%
<b>Unit 8</b>	Number of Survivors	n	0	1	1	12	18	32
	Number of deaths	n	0	1	2	0	2	5
	Total	n	0	2	3	12	20	37
	% de Survival	%		50%	33%	100%	90%	86%

UNITS			<25	25-26	27-28	29-30	31-32	Total
<b>Unit 10</b>	Number of Survivors	n	0	0	3	6	8	17
	Number of deaths	n	0	1	0	1	0	2
	Total	n	0	1	3	7	8	19
	% de Survival	%		0%	100%	86%	100%	89%
<b>Unit 12</b>	Number of Survivors	n	1	2	0	1	8	12
	Number of deaths	n	0	0	0	0	0	0
	Total	n	1	2	0	1	8	12
	% de Survival	%	100%	100%		100%	100%	100%
<b>Unit 13</b>	Number of Survivors	n	0	1	5	3	11	20
	Number of deaths	n	0	1	0	0	0	1
	Total	n	0	2	5	3	11	21
	% de Survival	%		50%	100%	100%	100%	95%
<b>Unit 14</b>	Number of Survivors	n	0	3	2	9	15	29
	Number of deaths	n	0	0	1	1	1	3
	Total	n	0	3	3	10	16	32
	% de Survival	%		100%	67%	90%	94%	91%
<b>Unit 16</b>	Number of Survivors	n	0	2	7	2	4	15
	Number of deaths	n	0	4	3	0	0	7
	Total	n	0	6	10	2	4	22
	% de Survival	%		33%	70%	100%	100%	68%
<b>Unit 17</b>	Number of Survivors	n	2	1	0	6	6	15
	Number of deaths	n	2	0	0	0	0	2
	Total	n	4	1	0	6	6	17
	% de Survival	%	50%	100%		100%	100%	88%
<b>Unit 18</b>	Number of Survivors	n	0	0	3	4	10	17
	Number of deaths	n	0	0	0	0	1	1
	Total	n	0	0	3	4	11	18
	% de Survival	%			100%	100%	91%	94%

UNITS			<25	25-26	27-28	29-30	31-32	Total
<b>Unit 19</b>	Number of Survivors	n	0	1	3	3	12	19
	Number of deaths	n	1	2	2	1	0	6
	Total	n	1	3	5	4	12	25
	% de Survival	%	0%	33%	60%	75%	100%	76%
<b>Unit 20</b>	Number of Survivors	n	0	1	2	5	7	15
	Number of deaths	n	1	3	1	1	0	6
	Total	n	1	4	3	6	7	21
	% de Survival	%	0%	25%	67%	83%	100%	71%
<b>Unit 21</b>	Number of Survivors	n	0	2	0	1	14	17
	Number of deaths	n	1	0	2	0	0	3
	Total	n	1	2	2	1	14	20
	% de Survival	%	0%	100%	0%	100%	100%	85%
<b>Unit 22</b>	Number of Survivors	n	0	1	3	11	17	32
	Number of deaths	n	0	0	0	1	1	2
	Total	n	0	1	3	12	18	34
	% de Survival	%		100%	100%	92%	94%	94%
<b>Unit 24</b>	Number of Survivors	n	0	3	4	8	5	20
	Number of deaths	n	0	0	4	1	1	6
	Total	n	0	3	8	9	6	26
	% de Survival	%		100%	50%	89%	83%	77%
<b>Unit 26</b>	Number of Survivors	n	2	3	1	4	11	21
	Number of deaths	n	0	1	0	0	0	1
	Total	n	2	4	1	4	11	22
	% de Survival	%	100%	75%	100%	100%	100%	95%
<b>Unit 27</b>	Number of Survivors	n	0	1	1	4	11	17
	Number of deaths	n	0	3	1	3	0	7
	Total	n	0	4	2	7	11	24
	% de Survival	%		25%	50%	57%	100%	71%

UNITS			<25	25-26	27-28	29-30	31-32	Total
<b>Unit 28</b>	<b>Number of Survivors</b>	n	1	4	7	15	11	38
	<b>Number of deaths</b>	n	1	2	5	3	2	13
	<b>Total</b>	n	2	6	12	18	13	51
	<b>% de Survival</b>	%	50%	67%	58%	83%	85%	75%
<b>TOTAL</b>	<b>Number of Survivors</b>	n	13	37	70	154	298	572
	<b>Number of deaths</b>	n	12	32	36	19	14	113
	<b>Total</b>	n	25	69	106	173	312	685
	<b>% de Survival</b>	%	52%	54%	66%	89%	96%	84%

Comment: For the analysis of survival by Gestational Age, only patients who had complete data were included. Deaths of infants in the delivery room were excluded. Interpretation of these data should be done with caution because the few number of patients at low gestational ages.

## PRESENTATION 29

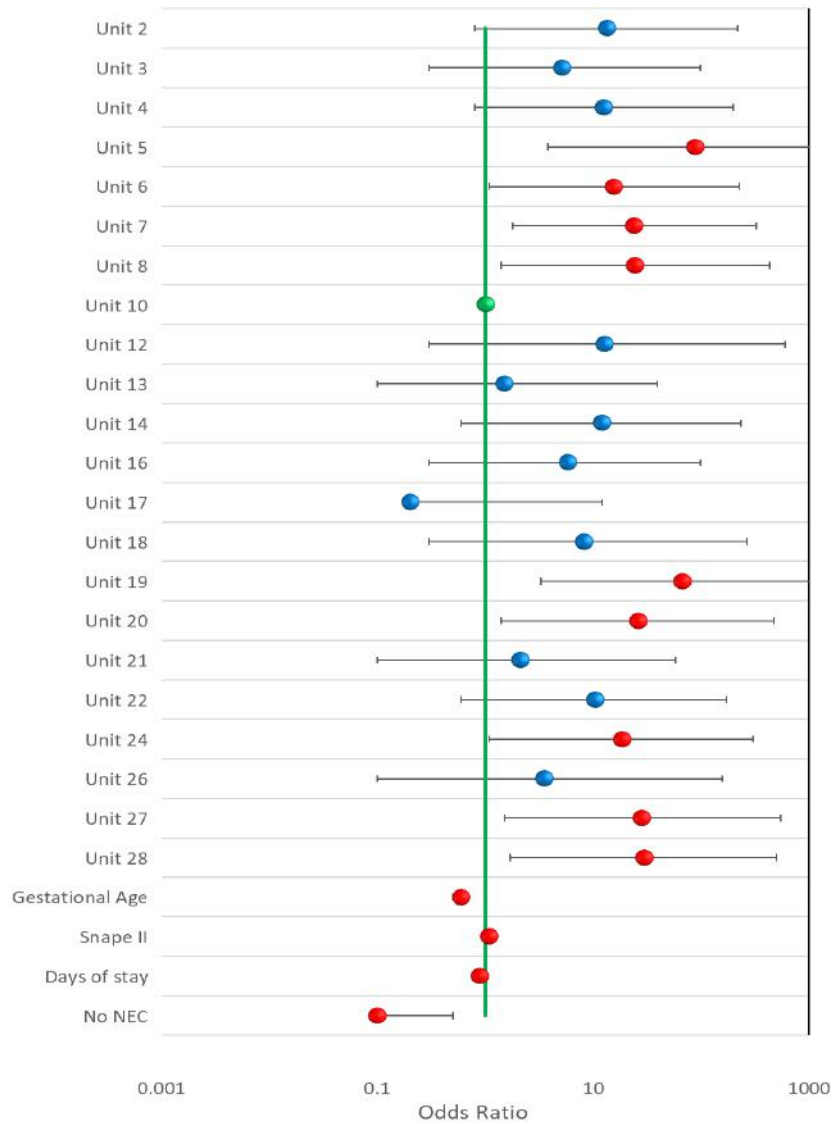
### Odd Ratio (Adjusted by SNAPE II, Gestational Age, Snape II, Days of stay and NEC) for mortality by unit in less ≤ 32 weeks Gestational Age (table)

UNITS	CASES	OR	p Value	CI 95%		
Unit 2	38	13.4	0.069	0.8	-	218.2
Unit 3	55	5.1	0.281	0.3	-	98.8
Unit 4	24	12.5	0.073	0.8	-	199.6
Unit 5	12	88.2	<b>0.005</b>	3.8	-	2067.7
Unit 6	87	15.6	<b>0.044</b>	1.1	-	226.7
Unit 7	90	24.1	<b>0.017</b>	1.8	-	327.3
Unit 8	37	24.6	<b>0.029</b>	1.4	-	435.5
Unit 10	19	1.0	ref			
Unit 12	12	12.6	0.199	0.3	-	603.2
Unit 13	21	1.5	0.825	0.1	-	39.6
Unit 14	31	11.9	0.103	0.6	-	233.5
Unit 16	22	5.8	0.226	0.3	-	99.1
Unit 17	16	0.2	0.430	0.0	-	12.1
Unit 18	18	8.2	0.237	0.3	-	266.0
Unit 19	25	67.3	<b>0.006</b>	3.3	-	1385.2
Unit 20	21	26.2	<b>0.027</b>	1.4	-	478.1
Unit 21	20	2.1	0.670	0.1	-	58.3
Unit 22	34	10.4	0.104	0.6	-	173.8
Unit 24	26	18.6	<b>0.040</b>	1.1	-	303.2
Unit 26	11	3.5	0.522	0.1	-	158.3
Unit 27	24	28.3	<b>0.027</b>	1.5	-	548.9
Unit 28	51	29.7	<b>0.019</b>	1.7	-	504.7
Gestational Age		0.6	<b>0.000</b>	0.5	-	0.7
Snape II		1.1	<b>0.000</b>	1.0	-	1.1
Days of stay		0.9	<b>0.000</b>	0.9	-	0.9
No NEC		0.1	<b>0.001</b>	0.1	-	0.5
<b>Reference</b>	<b>UNIT 10</b>					

Comment: A logistic regression with adjustment by SNAPE II and Gestational Age was performed. The maximum likelihood estimation method proposed by David Firth (Firthlogit)<sup>1</sup> for the low frequency of events was used. The low frequency may explain the imprecision of the estimates for some of the units. Additionally, the value of p was calculated to assess the statistical significance of the results of 0.05. Participating units included all patients with complete data who died. Those who were transferred were included. No readmissions were included. Unit 10 was used as reference for the large number of cases and low mortality. Statistically significant difference in bold. NEC: necrotizing enterocolitis



**Odd Ratio (Adjusted by SNAPE II, Gestational Age, Days of Stay and NEC) for mortality by unit in less  $\leq$  32 weeks Gestational Age (graph with log scale)**



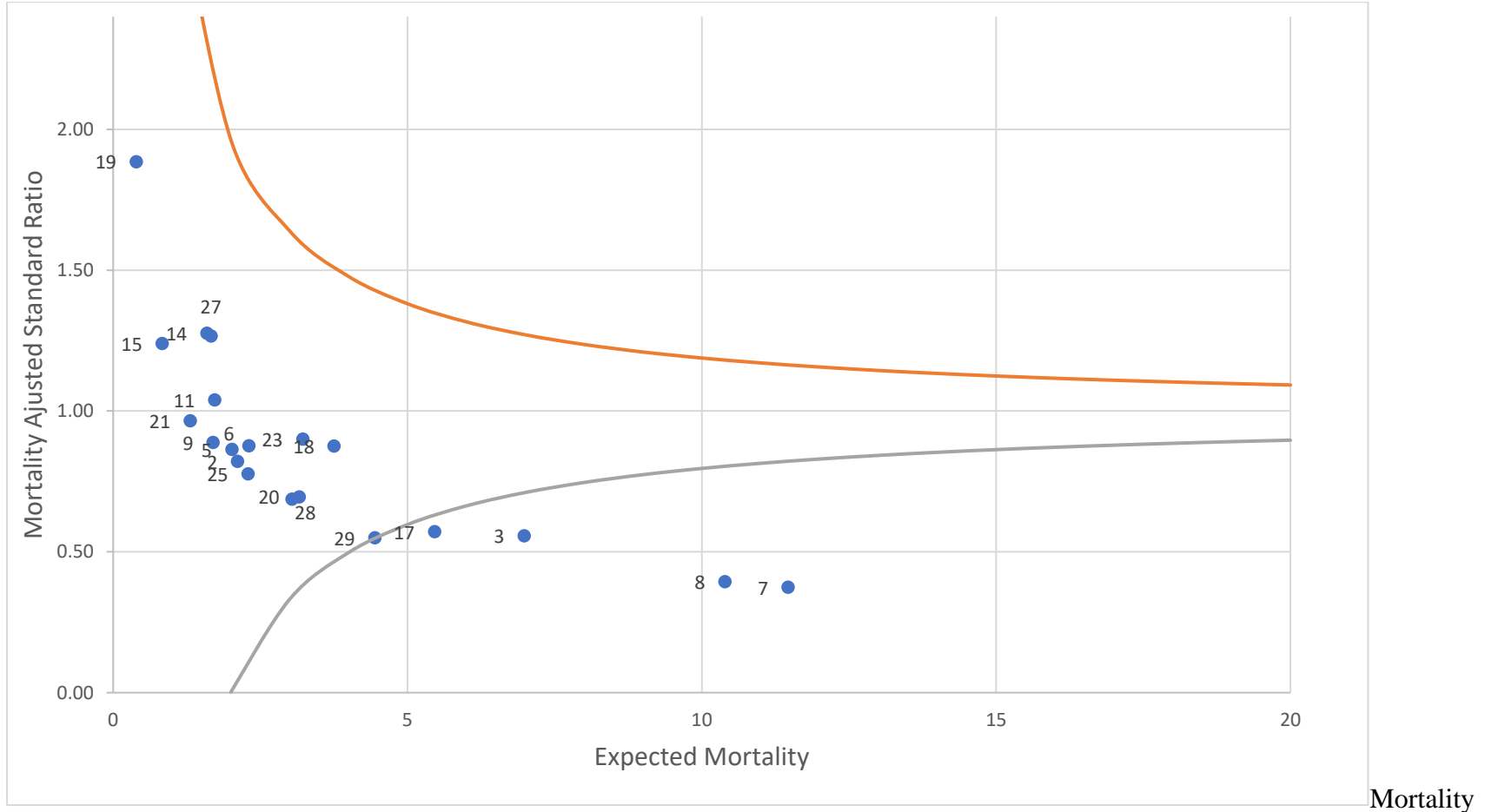
Unit 10 reference in green chosen due adequate number of infants and low mortality. Interpret with caution the units with few infants and large intervals. Statistically significant difference was found in units in red and reference unit in green.

**Mortality: Infants ≤ 32 weeks: Adjusted standardized ratios by site**

Site	Number of Neonates	Adjusted # of expected deaths	Number of deaths	Standardized mortality ratio	95% confidence interval (CI) for adjusted standardized ratio	
Unit 2	38	2	5	0.82	4.0	0.76
Unit 3	55	7	6	0.56	1.9	0.00
Unit 4	24	2	4	0.86	3.7	0.29
Unit 5	12	2	3	0.88	3.0	0.00
Unit 6	87	11	19	0.37	2.4	0.92
Unit 7	91	10	17	0.39	2.4	0.86
Unit 8	37	2	5	0.89	4.7	1.20
Unit 10	19	2	2	1.04	3.2	0.00
Unit 12	12	2	0			
Unit 13	21	2	1	1.28	3.1	0.00
Unit 14	31	1	3	1.24	6.0	1.18
Unit 16	22	5	7	0.57	2.4	0.16
Unit 17	16	4	2	0.88	2.2	0.00
Unit 18	18	0	1	1.88	6.2	0.00
Unit 19	25	3	6	0.69	3.3	0.54
Unit 20	21	1	6	0.96	6.5	2.69
Unit 21	20	2	3	0.87	3.0	0.00
Unit 22	34	3	2	0.90	2.4	0.00
Unit 24	26	2	6	0.78	4.1	1.10
Unit 26	11	2	1	1.27	3.1	0.00
Unit 27	25	3	7	0.69	3.7	0.96
Unit 28	51	4	13	0.55	4.0	1.85

Adjusted standardized ratio was calculated based on observed deaths/expected deaths

**Mortality: Infants ≤ 32 weeks: Adjusted standardized ratios by site (graph)**



adjusted by standardization model. On the X axis expected mortality and on the Y axis the mortality adjusted by the standardization model (based on the risk of the previous 2 years). In red/green line the limit ratio of 95% CI. The prediction model was created with the variables GA, SGA, sex, and SNAPE II > 20 (Canadian model). Units with few patients or no mortality are not in the graph and adjusted mortality cannot be calculated for them. Red/gray funnel shaped lines: 95% confidence limits based on entire network information. Sites outside of red/gray lines represent higher or lower (depending upon position in graph) adjusted standardized ratio. However, for determining whether site is statistically different from others, one should also assess 95% CI and check whether both upper and lower boundaries are also outside of the funnel area or not.

COMPARISON BY LOCATIONS, MORBIDITIES AND ADJUSTED RISK  
ANALYSIS

### PRESENTATION 30

**Odds Ratio in Late Onset Sepsis in less  $\leq$  32 w Gestational Age Adjusted by SNAPE II and Gestational Age (Comparison by UNITS) (table)**

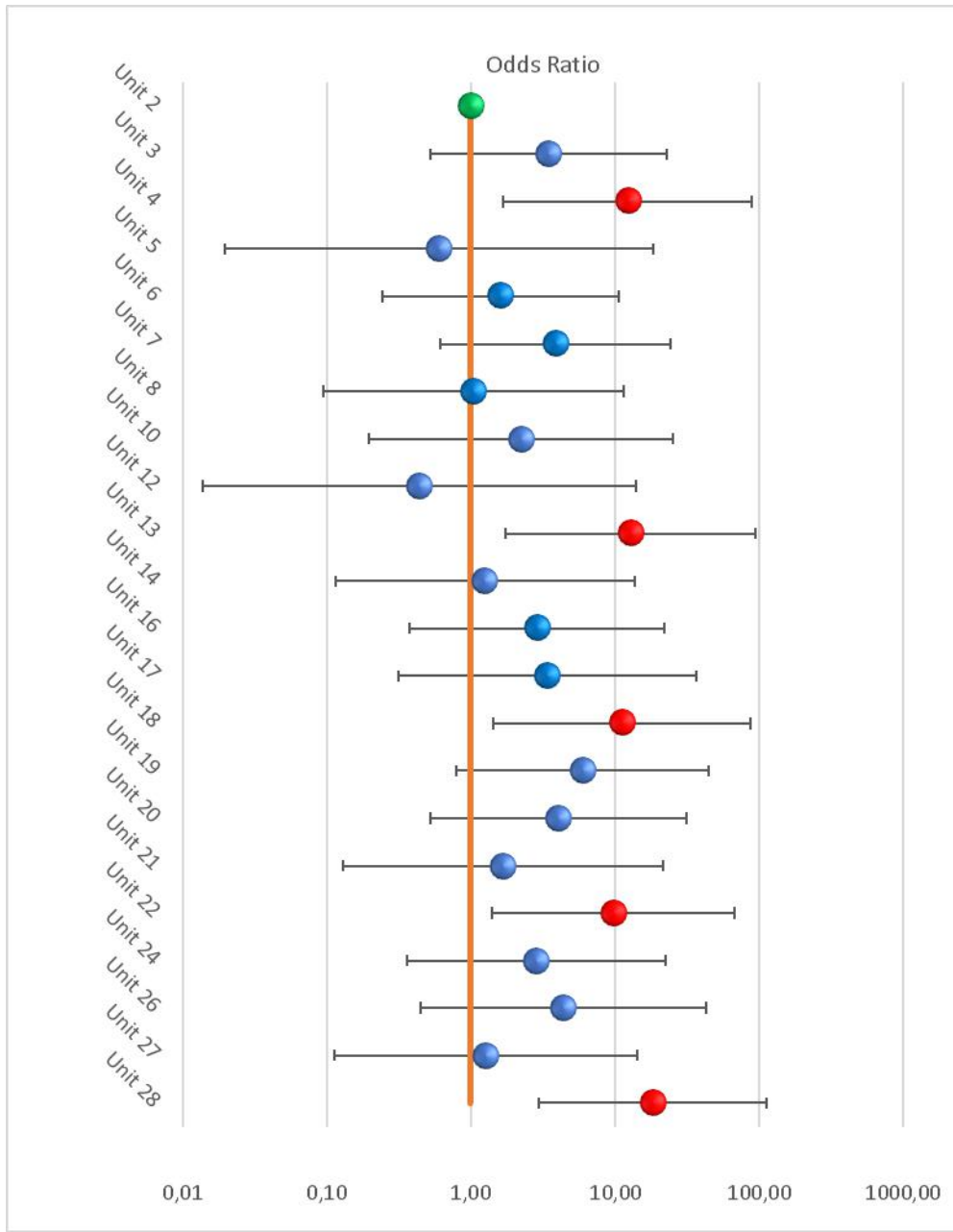
UNITS	CASES	OR	p Value	CI 95%
Unit 2	38	1.00	Ref	
Unit 3	55	3.46	0.199	0.5 - 23.0
Unit 4	24	12.20	<b>0.013</b>	1.7 - 88.4
Unit 5	11	0.60	0.772	0.0 - 18.4
Unit 6	87	1.60	0.625	0.2 - 10.5
Unit 7	90	3.85	0.151	0.6 - 24.3
Unit 8	37	1.04	0.975	0.1 - 11.4
Unit 10	19	2.23	0.516	0.2 - 25.4
Unit 12	12	0.44	0.640	0.0 - 13.9
Unit 13	21	12.79	<b>0.012</b>	1.7 - 93.9
Unit 14	32	1.25	0.855	0.1 - 13.7
Unit 16	22	2.86	0.310	0.4 - 21.8
Unit 17	17	3.39	0.314	0.3 - 36.4
Unit 18	18	11.12	<b>0.021</b>	1.4 - 86.5
Unit 19	25	5.96	0.083	0.8 - 45.0
Unit 20	21	4.06	0.180	0.5 - 31.6
Unit 21	20	1.67	0.693	0.1 - 21.5
Unit 22	34	9.73	<b>0.021</b>	1.4 - 67.4
Unit 24	26	2.83	0.325	0.4 - 22.4
Unit 26	11	4.34	0.207	0.4 - 42.6
Unit 27	24	1.27	0.847	0.1 - 14.2
Unit 28	51	18.14	<b>0.002</b>	2.9 - 111.8
<b>Referencia UNIT 2</b>				

Odd Ratio: (OR) Reference Unit 2 was chosen for the number of infants and low incidence of infections. A logistic regression with adjustment by SNAPE II and Gestational Age was performed. The maximum likelihood estimation method proposed by David Firth (Firthlogit) for the low frequency of events was used. The low frequency may explain the imprecision of the estimates for some of the units. Statistically significant p values are marked in bold.

Additionally, the value of p was calculated to assess the statistical significance of the results of 0.05.

Comment: Late onset sepsis or infection associated with health care is considered when there is a positive blood culture or cerebrospinal fluid (CSF) for bacteria or fungi after the second day of life. Only patients with complete data were included for the analysis. All readmissions were included. Infections in blood and CSF are counted separately. Units were excluded if they had  $\leq$  10 patients  $\leq$  32 weeks GA at birth during the year.

**Odds Ratio in Late Onset Sepsis in  $\leq 32$ w Gestational Age Adjusted by SNAPE II and Gestational Age (Comparison by UNITS) (graph with log scale)**



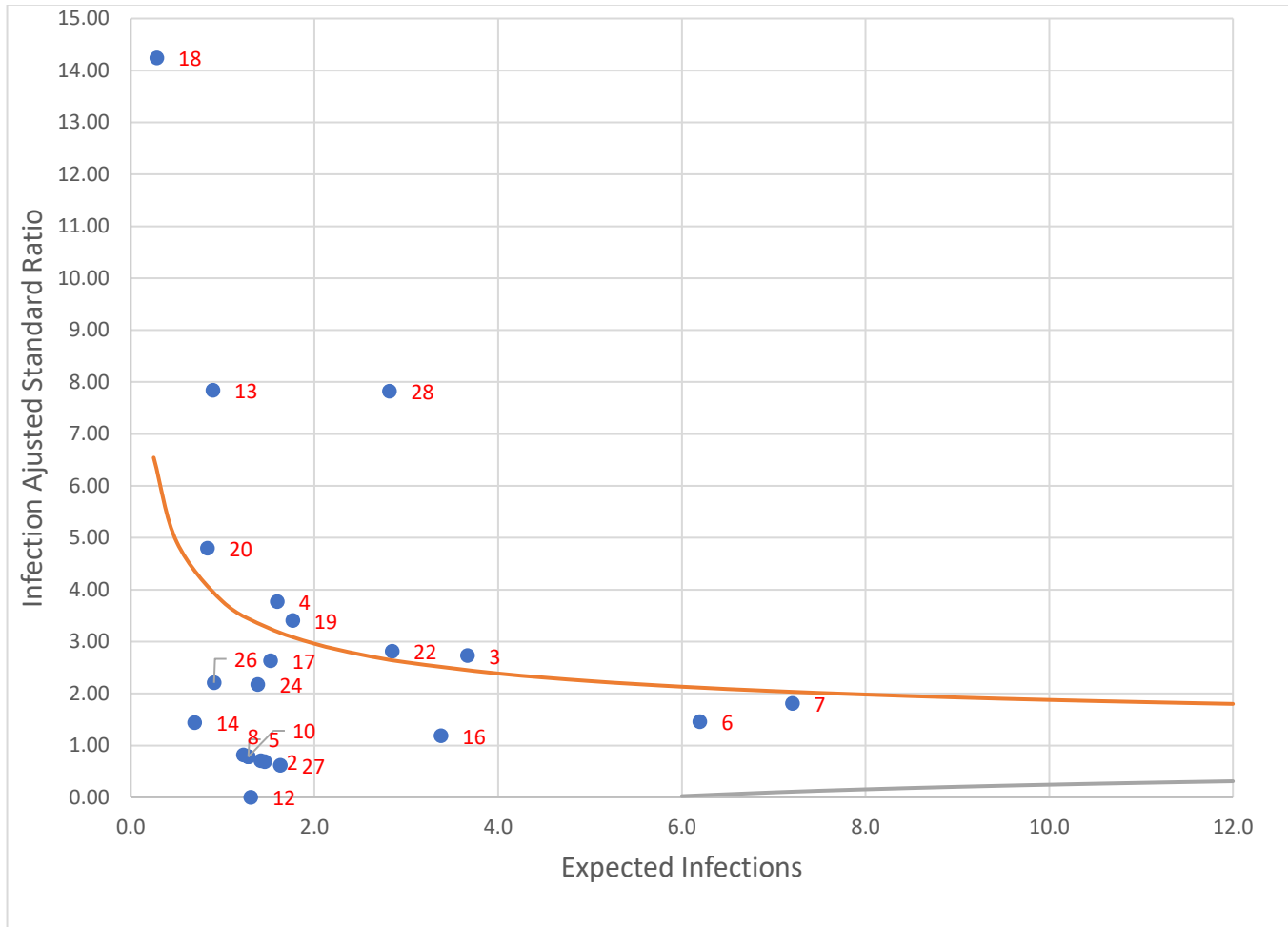
In red the units with significant difference, in green the referent unit 2 chosen for the acceptable number of cases and lowest infection. Interpretation of some of the data should be done with caution because CI are large.

**Infections in newborns ≤ 32 weeks: Standardized ratio adjusted by site**

Site	Number of Neonates	Adjusted # of expected infections	Number of infections	Standardized infections ratio	95% confidence interval (CI) for adjusted standardized ratio	
Unit 2	38	1	1.5	0.7	3.2	0.0
Unit 3	55	10	3.7	2.7	3.9	1.5
Unit 4	24	6	1.6	3.8	5.5	2.0
Unit 5	12	1	1.3	0.8	3.4	0.0
Unit 6	87	9	6.2	1.5	2.5	0.4
Unit 7	91	13	7.2	1.8	2.7	0.9
Unit 8	37	1	1.2	0.8	3.5	0.0
Unit 10	19	1	1.3	0.8	3.4	0.0
Unit 12	12	0	1.3	0.0	0.0	0.0
Unit 13	21	7	0.9	7.8	10.0	5.6
Unit 14	31	1	0.7	1.4	4.5	0.0
Unit 16	22	4	3.4	1.2	2.6	0.0
Unit 17	22	4	1.5	2.6	4.5	0.8
Unit 18	16	4	0.3	14.2	18.1	10.4
Unit 19	18	6	1.8	3.4	5.1	1.7
Unit 20	25	4	0.8	4.8	7.2	2.4
Unit 21	21	1	1.4	0.7	3.3	0.0
Unit 22	20	8	2.8	2.8	4.2	0.0
Unit 24	1	3	1.4	2.2	4.2	0.2
Unit 26	10	2	0.9	2.2	4.7	0.0
Unit 27	11	1	1.6	0.6	3.1	0.0
Unit 28	25	22	2.8	7.8	9.1	6.6

Adjusted standardized ratio was calculated based on observed infections/expected infections

### Infections in newborns $\leq 32$ weeks: Standardized ratio adjusted by site



The number represents each unit. See note on page 74. Since the expected sepsis risk cannot be  $<0$ , the plot with its lower 95% confidence interval is cut by 6.



## PRESENTATION 31

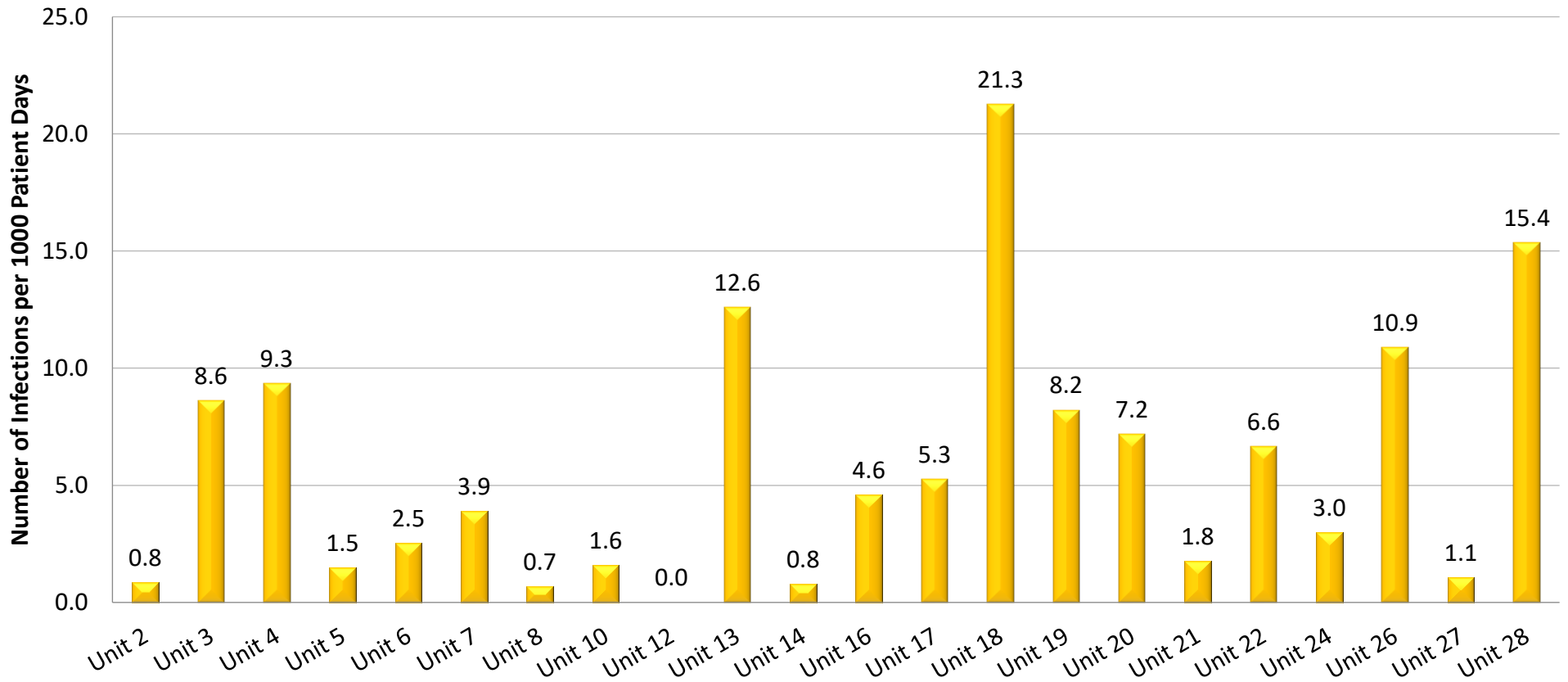
### Late Onset Infections per 1000 Patient Days in infants $\leq$ 32 weeks Gestational Age (table)

UNITS	Number de Patients*	Late Onset Infections* per 1000 Patient Days in $\leq$ 32 weeks GA	Total Days of Stay*
Unit 2	38	0.8	1184
Unit 3	55	8.6	2785
Unit 4	24	9.3	964
Unit 5	11	1.5	676
Unit 6	87	2.5	3548
Unit 7	90	3.9	3866
Unit 8	37	0.7	1479
Unit 10	19	1.6	630
Unit 12	12	0.0	673
Unit 13	21	12.6	715
Unit 14	32	0.8	1293
Unit 16	22	4.6	1088
Unit 17	17	5.3	950
Unit 18	18	21.3	611
Unit 19	25	8.2	1218
Unit 20	21	7.2	695
Unit 21	20	1.8	564
Unit 22	34	6.6	1656
Unit 24	26	3.0	1004
Unit 26	11	10.9	459
Unit 27	24	1.1	934
Unit 28	51	15.4	2603
<b>TOTAL</b>	<b>695</b>	<b>5.7</b>	<b>21680</b>

\* For the number of infections, the number of patients and for the number of days of stay, all who remained hospitalized for less than 3 days were excluded

Comment: Late-onset infection is defined when there is a positive blood culture or CSF for bacteria or fungi after the second day of life. Only patients with complete data  $\leq$  32 weeks Gestational Age at birth were included (validated). It is possible that sites with a high transfer rate to a lower level may report a high incidence since they are more stable and with less risk of infection. Readmissions were not included. Infections in blood and CSF are counted separately. Units were excluded if they had  $\leq$  10 patients  $\leq$  32 weeks GA at birth during the year.

**Number of late Onset Infections per 1000 Patient Days in infants ≤ 32 weeks Gestational Age (graph)**



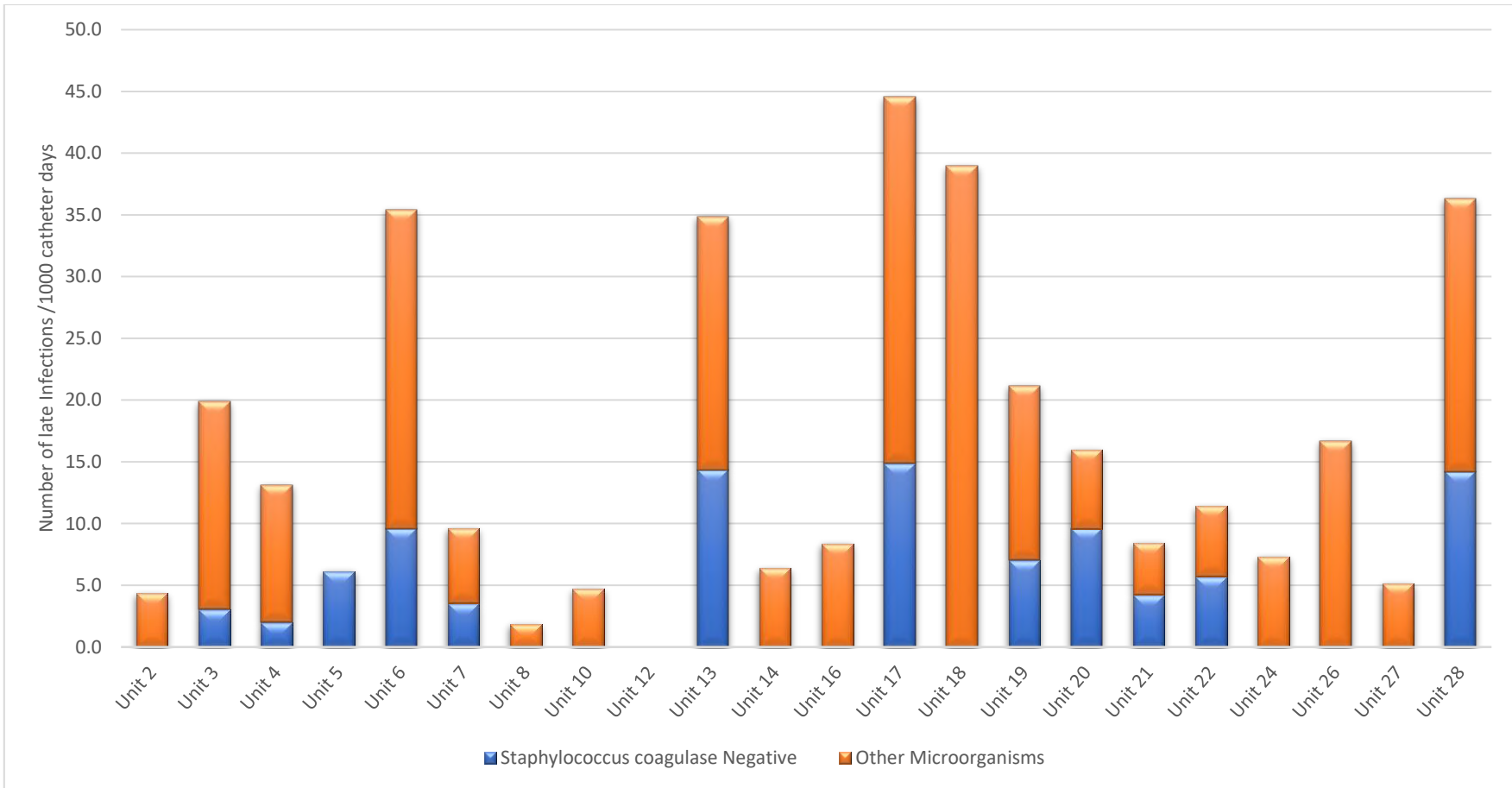
## PRESENTATION 32

**Number of late Sepsis per 1000 Catheter Days in infants ≤ 32 weeks Gestational Age  
(table)**

UNITS	Patients using Central catheter in ≤ 32 weeks	Number of late Infections in ≤ 32 weeks	Number of catheter days	Staphylococcus coagulase Negative		Other Microorganisms	
				Number of Infections	Number of Infections /1000 catheter days	Number of Infections	Number of Infections /1000 catheter days
Unit 2	38	4.3	230	0	0.0	1	4.3
Unit 3	55	19.9	1308	4	3.1	22	16.8
Unit 4	24	13.1	993	2	2.0	11	11.1
Unit 5	11	6.1	163	1	6.1	0	0.0
Unit 6	87	35.4	1356	13	9.6	35	25.8
Unit 7	90	9.6	1977	7	3.5	12	6.1
Unit 8	37	1.9	537	0	0.0	1	1.9
Unit 10	19	4.7	211	0	0.0	1	4.7
Unit 12	12	0.0	190	0	0.0	0	0.0
Unit 13	21	34.8	488	7	14.3	10	20.5
Unit 14	32	6.4	627	0	0.0	4	6.4
Unit 16	22	8.3	599	0	0.0	5	8.3
Unit 17	17	44.6	202	3	14.9	6	29.7
Unit 18	18	39.0	462	0	0.0	18	39.0
Unit 19	25	21.2	567	4	7.1	8	14.1
Unit 20	21	16.0	313	3	9.6	2	6.4
Unit 21	20	8.4	237	1	4.2	1	4.2
Unit 22	34	11.4	1580	9	5.7	9	5.7
Unit 24	26	7.3	411	0	0.0	3	7.3
Unit 26	11	16.7	300	0	0.0	5	16.7
Unit 27	24	5.1	389	0	0.0	2	5.1
Unit 28	51	36.3	1267	18	14.2	28	22.1
<b>Total/Average</b>	<b>695</b>	<b>15.9</b>	<b>303</b>	<b>72</b>	<b>4.3</b>	<b>184</b>	<b>11.6</b>

**Comment:** A patient with late-onset infection is defined when there is a positive blood culture or CSF for bacteria or fungi after the second day of life. Only patients with complete data ≤ 32 weeks birth Gestational Age were included. If a baby had more than one episode of infection, each was counted separate. Other Microorganisms include *Enterobacter cloacae*, *Enterococcus* sp, *Streptococcus* group B, *Chlamydia trachomatis*, *Citrobacter diversus*, *Bifidobacteria* species, *Citrobacter freundii*, *Klbesiella oxytoca*, *Serratia marcensens* and other gram-positive cocci. Consider the difference in the number of central catheter days in the different units when analyzing the data. Infections in blood and CSF are counted separately. Units were excluded if they had ≤ 10 patients ≤ 32 weeks GA at birth during the year.

**Number of late Sepsis per 1000 Catheter Days in infants  $\leq$  32 weeks Gestational Age (graph)**



One unit didn't report any infection in  $\leq$  32 weeks (positive blood culture or CSF) in the year.

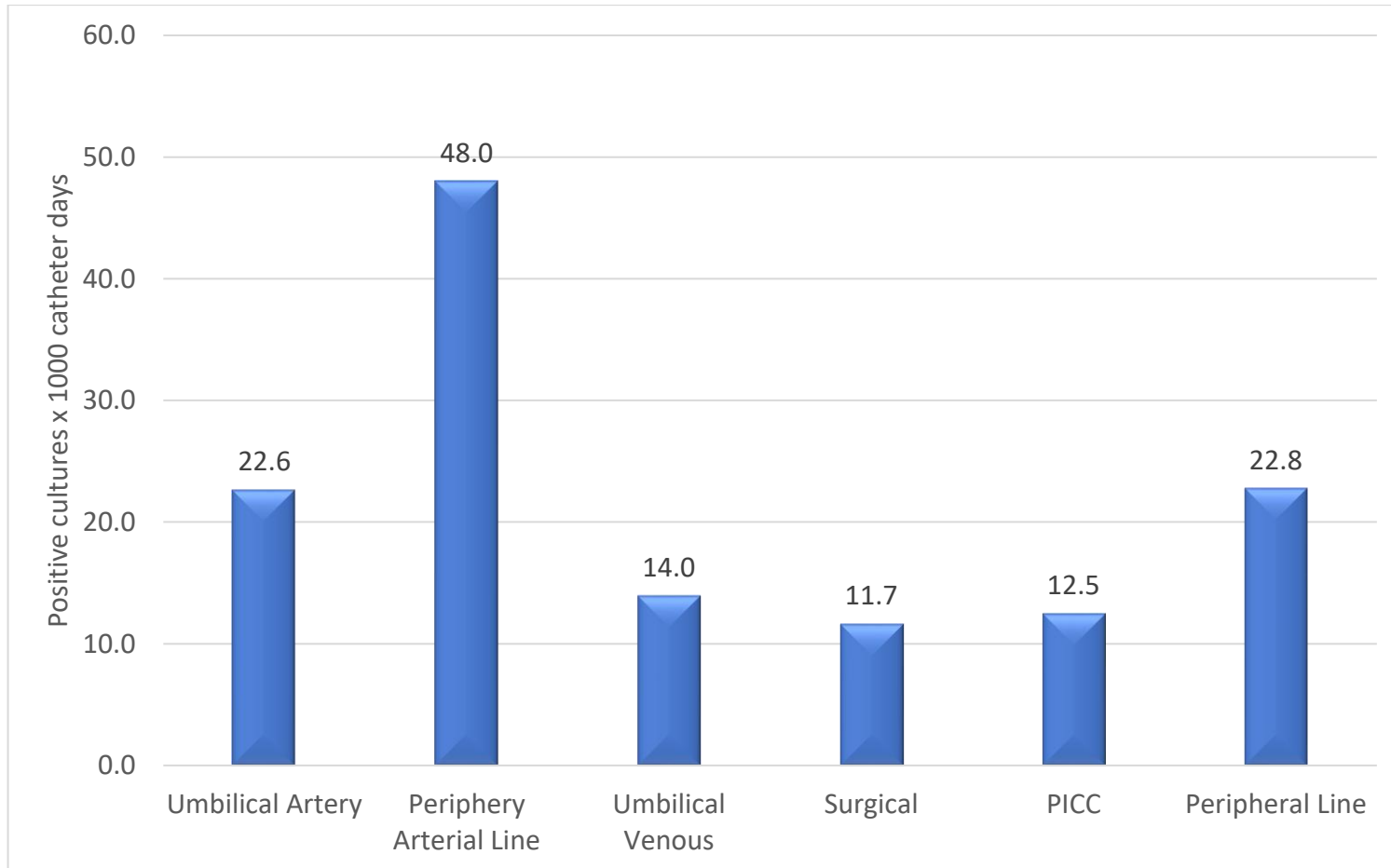
### PRESENTATION 33

Positive cultures during catheter use per 1000 catheter days in infants  $\leq 32$  weeks Gestational Age according to catheter type (table)

Catheter Type	Number of positive cultures during catheter use	Total number of days with each type of catheter	Positive cultures x 1000 catheter days
Umbilical Artery	26	1,148	22.6
Periphery Arterial Line	11	229	48.0
Umbilical Venous	29	2,073	14.0
Surgical	4	343	11.7
PICC	104	8,311	12,5
Peripheral Line	62	2,720	22.8

Positive culture using catheter was defined when the date of positive culture coincided with the catheter being used. When more than one catheter is used at the same time, each was counted separately. Infections in blood and CSF are counted separately. Units were excluded if they had  $\leq 10$  patients  $\leq 32$  weeks GA at birth during the year. Interpretation of some of the data should be done with caution, specially surgical because of only two positive cultures. Surgical catheter data are unreliable as there are only two positive cultures.

**Positive Cultures during catheter use per 1000 Catheter Days in Infants  $\leq$  32 weeks Gestational Age according to catheter type (graph)**



Comment: An infection was counted if the blood or spinal fluid cultures were positive when one of the catheters was being used; if there were more than one catheter, it was accounted separately. The number of total days with the respective catheter per 1000 days was used as the denominator. There is no information on what number of catheter changes were made or days between use. Infections in blood and CSF are counted separately.

### PRESENTATION 34

**Neuroimaging Anomalies in infants ≤ 32 weeks Gestational Age by UNIT.  
Intraventricular Hemorrhage I and II (table)**

UNITS	Gestational Age (weeks)	<25	25-26	27-28	29-30	31-32	Total
<b>Unit 2</b>	Patients with imagen	1	1	2	9	19	32
	# Patients with IVH I and II	0	1	0	0	2	3
	Percentage	0%	100%	0%	0%	11%	9%
<b>Unit 3</b>	Patients with imagen	6	3	6	10	26	51
	# Patients with IVH I and II	0	0	0	1	1	2
	Percentage	0%	0%	0%	10%	4%	4%
<b>Unit 4</b>	Patients with imagen	0	0	2	7	8	17
	# Patients with IVH I and II	0	0	0	2	1	3
	Percentage			0%	29%	13%	18%
<b>Unit 5</b>	Patients with imagen	2	1	2	3	3	11
	# Patients with IVH I and II	0	0	0	0	0	0
	Percentage	0%	0%	0%	0%	0%	0%
<b>Unit 6</b>	Patients with imagen	3	8	11	12	25	59
	# Patients with IVH I and II	0	0	1	0	0	1
	Percentage	0%	0%	9%	0%	0%	2%
<b>Unit 7</b>	Patients with imagen	0	8	11	23	44	86
	# Patients with IVH I and II	0	4	5	2	1	12
	Percentage		50%	45%	9%	2%	14%
<b>Unit 8</b>	Patients with imagen	0	1	1	4	14	20
	# Patients with IVH I and II	0	0	1	0	0	1
	Percentage		0%	100%	0%	0%	5%
<b>Unit 10</b>	Patients with imagen	0	1	3	7	8	19
	# Patients with IVH I and II	0	0	0	0	1	1
	Percentage		0%	0%	0%	13%	5%
<b>Unit 12</b>	Patients with imagen	1	2	0	1	8	12
	# Patients with IVH I and II	0	0	0	0	0	0
	Percentage	0%	0%		0%	0%	0%
<b>Unit 13</b>	Patients with imagen	0	2	5	3	11	21
	# Patients with IVH I and II	0	0	0	0	1	1
	Percentage		0%	0%	0%	9%	5%
<b>Unit 14</b>	Patients with imagen	0	2	3	9	10	24
	# Patients with IVH I and II	0	0	0	0	0	0
	Percentage		0%	0%	0%	0%	0%
<b>Unit 16</b>	Patients with imagen	0	5	7	1	4	17
	# Patients with IVH I and II	0	4	4	0	1	9
	Percentage		80%	57%	0%	25%	53%

UNITS	Gestational Age (weeks)	<25	25-26	27-28	29-30	31-32	Total
<b>Unit 17</b>	Patients with imagen	4	1	0	6	6	17
	# Patients with IVH I and II	0	0	0	0	0	0
	Percentage	0%	0%		0%	0%	0%
<b>Unit 18</b>	Patients with imagen	0	3	5	4	12	24
	# Patients with IVH I and II	0	0	0	1	2	3
	Percentage		0%	0%	25%	17%	13%
<b>Unit 19</b>	Patients with imagen	1	3	5	4	12	25
	# Patients with IVH I and II	0	0	1	0	0	1
	Percentage	0%	0%	20%	0%	0%	4%
<b>Unit 20</b>	Patients with imagen	1	4	3	5	7	20
	# Patients with IVH I and II	0	2	0	0	0	2
	Percentage	0%	50%	0%	0%	0%	10%
<b>Unit 21</b>	Patients with imagen	0	1	0	1	6	8
	# Patients with IVH I and II	0	1	0	1	1	3
	Percentage		100%		100%	17%	38%
<b>Unit 22</b>	Patients with imagen	0	1	3	12	13	29
	# Patients with IVH I and II	0	0	0	0	0	0
	Percentage		0%	0%	0%	0%	0%
<b>Unit 24</b>	Patients with imagen	0	3	5	9	6	23
	# Patients with IVH I and II	0	0	0	1	0	1
	Percentage		0%	0%	11%	0%	4%
<b>Unit 26</b>	Patients with imagen	0	2	4	1	4	11
	# Patients with IVH I and II	0	2	4	0	0	6
	Percentage		100%	100%	0%	0%	55%
<b>Unit 27</b>	Patients with imagen	0	4	0	5	11	20
	# Patients with IVH I and II	0	0	0	2	2	4
	Percentage		0%		40%	18%	20%
<b>Unit 28</b>	Patients with imagen	2	6	9	18	11	46
	# Patients with IVH I and II	1	1	0	2	0	4
	Percentage	50%	17%	0%	11%	0%	9%

Comment: Unit 1 did not report any neuroimage and two other Units didn't report any hemorrhage. Patients with complete data with neuroimaging were included. Germinal matrix hemorrhage and/or intraventricular hemorrhage without ventricular enlargement are included in grade I or II intraventricular hemorrhage (IVH). The low number of infants makes interpretation difficult. Units were excluded if they had  $\leq 10$  patients  $\leq 32$  weeks GA at birth during the year.



## PRESENTATION 35

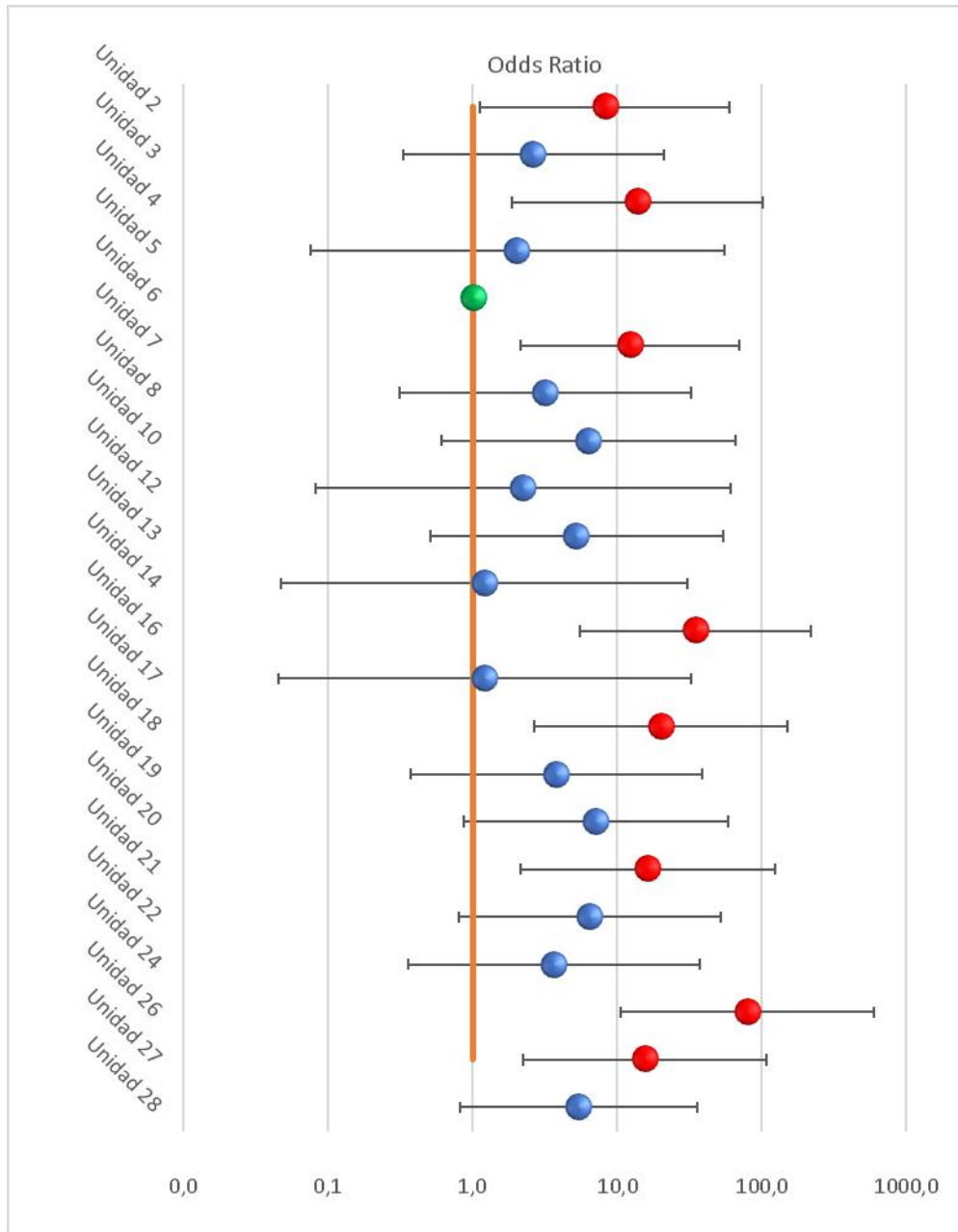
### ODDS RATIO Neuroimaging Anomalies in infants $\leq 32$ weeks Gestational Age by UNIT. Intraventricular Hemorrhage I and II (table)

UNITS	N	OR	P values	CI 95%
Unit 2	32	10.3	<b>0.037</b>	1.1 - 59.4
Unit 3	51	1.5	0.361	0.3 - 20.8
Unit 4	17	4.3	<b>0.010</b>	1.9 - 101.4
Unit 5	11	0.9	0.673	0.1 - 54.8
Unit 6	59	1.0	ref	
Unit 7	86	4.3	<b>0.005</b>	2.1 - 69.5
Unit 8	20	14.1	0.329	0.3 - 32.1
Unit 10	19	25.0	0.123	0.6 - 65.5
Unit 12	12	9.5	0.636	0.1 - 60.7
Unit 13	21	4.1	0.165	0.5 - 53.8
Unit 14	24	8.0	0.912	0.0 - 30.6
Unit 16	17	19.9	<b>0.000</b>	5.6 - 216.6
Unit 17	17	25.3	0.906	0.0 - 32.5
Unit 18	11	20.6	<b>0.004</b>	2.6 - 151.4
Unit 19	25	4.4	0.262	0.4 - 38.9
Unit 20	20	26.7	0.068	0.9 - 58.5
Unit 21	8	0.5	<b>0.007</b>	2.1 - 123.8
Unit 22	29	1.8	0.079	0.8 - 52.4
Unit 24	23	12.2	0.274	0.4 - 37.1
Unit 26	11	3.9	<b>0.000</b>	10.5 - 598.1
Unit 27	20	29.5	<b>0.005</b>	2.2 - 107.6
Unit 28	46	21.9	0.081	0.8 - 35.8
<b>Reference</b>		UNIT 6		

Comment: patients with complete data with neuroimaging were included. Some Units did not report any hemorrhage. The risk of patients with hemorrhage I and II was calculated against all patients with neuroimaging. Germinal matrix hemorrhage and/or intraventricular hemorrhage without ventricular enlargement are included in grade I or II intraventricular hemorrhage (IVH). Statistically significant p values are marked in bold.

Odd Ratio: (OR) Reference Unit 6 was chosen for the number of infants and lowest incidence values. A logistic regression with adjustment by Gestational Age was performed. The maximum likelihood estimation method proposed by David Firth (Firthlogit<sup>1</sup>) for the low frequency of events was used. The low frequency may explain the imprecision of the estimates for some of the units. Additionally, the value of p was calculated to assess the statistical significance of the results of 0.05. Units were excluded if they had  $\leq 10$  patients  $\leq 32$  weeks GA at birth during the year.

**ODDS RATIO Neuroimaging Anomalies in infants  $\leq 32$  weeks Gestational Age by UNIT.  
(Graph with log scale) Intraventricular Hemorrhage I and II**



In red the units with significant difference and in green referent unit. Interpretation of some of the data should be done with caution because some CI are large.

## PRESENTATION 36

### Anomalies in Neuroimaging (Intraventricular Hemorrhage III and IV) in infants ≤ 32 weeks Gestational Age by unit (table)

UNITS	Gestational Age (weeks)	<25	25-26	27-28	29-30	31-32	Total
<b>Unit 2</b>	Patients with imagen	1	1	2	9	19	32
	# Patients with IVH III and IV	0	0	0	0	0	0
	Percentage	0%	0%	0%	0%	0%	0%
<b>Unit 3</b>	Patients with imagen	6	3	6	10	26	51
	# Patients with IVH III and IV	2	0	1	1	3	7
	Percentage	33%	0%	17%	10%	12%	14%
<b>Unit 4</b>	Patients with imagen	0	0	2	7	8	17
	# Patients with IVH III and IV	0	0	1	2	3	6
	Percentage			50%	29%	38%	35%
<b>Unit 5</b>	Patients with imagen	2	1	2	3	3	11
	# Patients with IVH III and IV	2	1	0	0	0	3
	Percentage	100%	100%	0%	0%	0%	27%
<b>Unit 6</b>	Patients with imagen	3	8	11	12	25	59
	# Patients with IVH III and IV	2	0	2	0	0	4
	Percentage	67%	0%	18%	0%	0%	7%
<b>Unit 7</b>	Patients with imagen	0	8	11	23	44	86
	# Patients with IVH III and IV	0	0	1	0	0	1
	Percentage		0%	9%	0%	0%	1%
<b>Unit 8</b>	Patients with imagen	0	1	1	4	14	20
	# Patients with IVH III and IV	0	0	0	0	2	2
	Percentage		0%	0%	0%	14%	10%
<b>Unit 10</b>	Patients with imagen	0	1	3	7	8	19
	# Patients with IVH III and IV	0	1	0	1	0	2
	Percentage		100%	0%	14%	0%	11%
<b>Unit 12</b>	Patients with imagen	1	2	0	1	8	12
	# Patients with IVH III and IV	0	1	0	0	1	2
	Percentage	0%	50%		0%	13%	17%
<b>Unit 13</b>	Patients with imagen	0	2	5	3	11	21
	# Patients with IVH III and IV	0	0	0	2	1	3
	Percentage		0%	0%	67%	9%	14%
<b>Unit 14</b>	Patients with imagen	0	2	3	9	10	24
	# Patients with IVH III and IV	0	0	2	4	3	9
	Percentage		0%	67%	44%	30%	38%
<b>Unit 16</b>	Patients with imagen	0	5	7	1	4	17
	# Patients with IVH III and IV	0	1	3	0	2	6
	Percentage		20%	43%	0%	50%	35%

UNITS	Gestational Age (weeks)	<25	25-26	27-28	29-30	31-32	Total
<b>Unit 17</b>	Patients with imagen	4	1	0	6	6	17
	# Patients with IVH III and IV	2	1	0	0	0	3
	Percentage	50%	100%		0%	0%	18%
<b>Unit 18</b>	Patients with imagen	0	3	5	4	12	24
	# Patients with IVH III and IV	0	0	0	0	0	0
	Percentage		0%	0%	0%	0%	0%
<b>Unit 19</b>	Patients with imagen	1	3	5	4	12	25
	# Patients with IVH III and IV	1	0	1	0	0	2
	Percentage	100%	0%	20%	0%	0%	8%
<b>Unit 20</b>	Patients with imagen	1	4	3	5	7	20
	# Patients with IVH III and IV	0	2	1	1	0	4
	Percentage	0%	50%	33%	20%	0%	20%
<b>Unit 21</b>	Patients with imagen	0	1	0	1	6	8
	# Patients with IVH III and IV	0	0	0	0	0	0
	Percentage		0%		0%	0%	0%
<b>Unit 22</b>	Patients with imagen	0	1	3	12	13	29
	# Patients with IVH III and IV	0	0	0	0	0	0
	Percentage		0%	0%	0%	0%	0%
<b>Unit 24</b>	Patients with imagen	0	3	5	9	6	23
	# Patients with IVH III and IV	0	0	1	0	0	1
	Percentage		0%	20%	0%	0%	4%
<b>Unit 26</b>	Patients with imagen	0	2	4	1	4	11
	# Patients with IVH III and IV	0	0	0	0	0	0
	Percentage		0%	0%	0%	0%	0%
<b>Unit 27</b>	Patients with imagen	0	4	0	5	11	20
	# Patients with IVH III and IV	0	2	0	0	0	2
	Percentage		50%		0%	0%	10%
<b>Unit 28</b>	Patients with imagen	2	6	9	18	11	46
	# Patients with IVH III and IV	1	1	3	4	1	10
	Percentage	50%	17%	33%	22%	9%	22%

Comment: Unit 1 did not report neuroimaging taken and other units any hemorrhage. Only patients with central nervous system images were included. Empty boxes mean no patients or information in that group. Intraventricular hemorrhage with ventricular enlargement or parenchymal echogenicity or periventricular leukomalacia are considered grade III or IV IVH (intraventricular hemorrhage). Units were excluded if they had  $\leq 10$  patients  $\leq 32$  weeks GA at birth during the year.

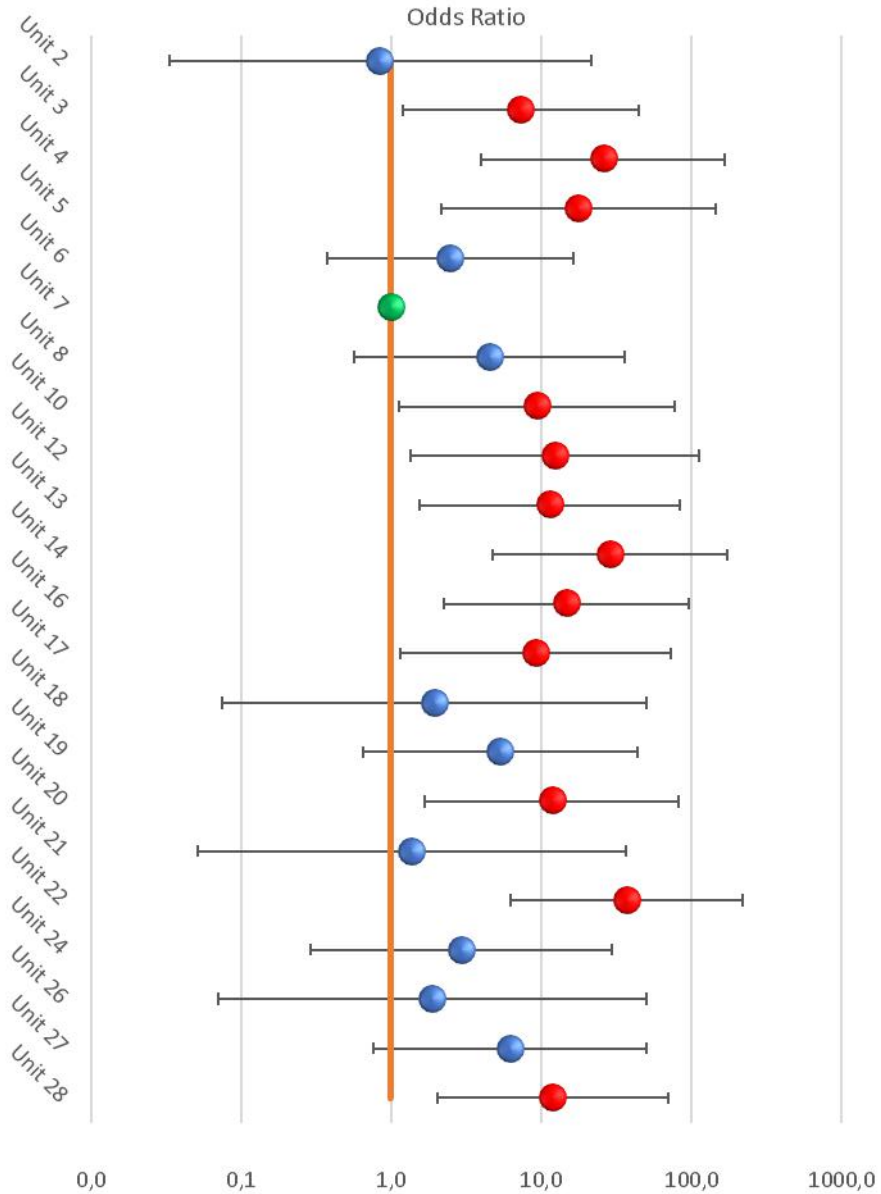
### PRESENTATION 37

**Odds Ratio of Anomalies in Neuroimaging (Hemorrhage Intraventricular III and IV) in infants ≤ 32 weeks Gestational Age by unit (table)**

UNITS	N	OR	P values	CI 95%
Unit 2	32	0.8	0.918	0.0 - 21.5
Unit 3	51	7.3	<b>0.031</b>	1.2 - 45.0
Unit 4	17	25.6	<b>0.001</b>	4.0 - 165.4
Unit 5	11	17.7	<b>0.007</b>	2.2 - 145.0
Unit 6	59	2.5	0.341	0.4 - 16.5
Unit 7	86	1.0	ref	
Unit 8	20	4.5	0.155	0.6 - 35.9
Unit 10	19	1.6	0.770	0.1 - 41.9
Unit 12	12	12.3	<b>0.026</b>	1.4 - 112.3
Unit 13	21	11.4	<b>0.017</b>	1.5 - 83.8
Unit 14	24	28.5	<b>0.000</b>	4.7 - 172.8
Unit 16	17	14.8	<b>0.005</b>	2.3 - 96.6
Unit 17	17	9.3	<b>0.034</b>	1.2 - 73.8
Unit 18	11	1.9	0.693	0.1 - 49.9
Unit 19	25	5.4	0.118	0.7 - 44.0
Unit 20	20	11.9	<b>0.013</b>	1.7 - 83.1
Unit 21	8	1.4	0.849	0.1 - 36.6
Unit 22	29	36.5	<b>0.000</b>	6.2 - 216.6
Unit 24	23	2.9	0.362	0.3 - 29.9
Unit 26	11	1.9	0.703	0.1 - 50.7
Unit 27	20	6.2	0.088	0.8 - 50.5
Unit 28	46	12.0	<b>0.006</b>	2.1 - 70.0
<b>Reference</b>		<b>UNIT 7</b>		

Intraventricular hemorrhage with ventricular enlargement or parenchymal echogenicity or periventricular leukomalacia are considered grade III or IV IVH (intraventricular hemorrhage). Reference unit 7 was chosen for the adequate number of infants and low incidence. A logistic regression was performed with adjustment for Gestational Age. The maximum penalized likelihood estimation method proposed by David Firth (Firthlogit<sup>1</sup>) for the low frequency of events was used. The low frequency in some units also explains the imprecision of the estimates. The low number of infants underestimates the difference. Statistically significant p values are marked in bold. Units were excluded if they had ≤ 10 patients ≤ 32 weeks GA at birth during the year.

**ODDS RATIO of Anomalies in Neuroimaging (Intraventricular Hemorrhage III and IV) in infants ≤ 32 weeks Gestational Age by unit (graph with log scale)**



In red the units with significant difference and in green referent unit. Interpretation of some of the data should be done with caution because some units have large CI.

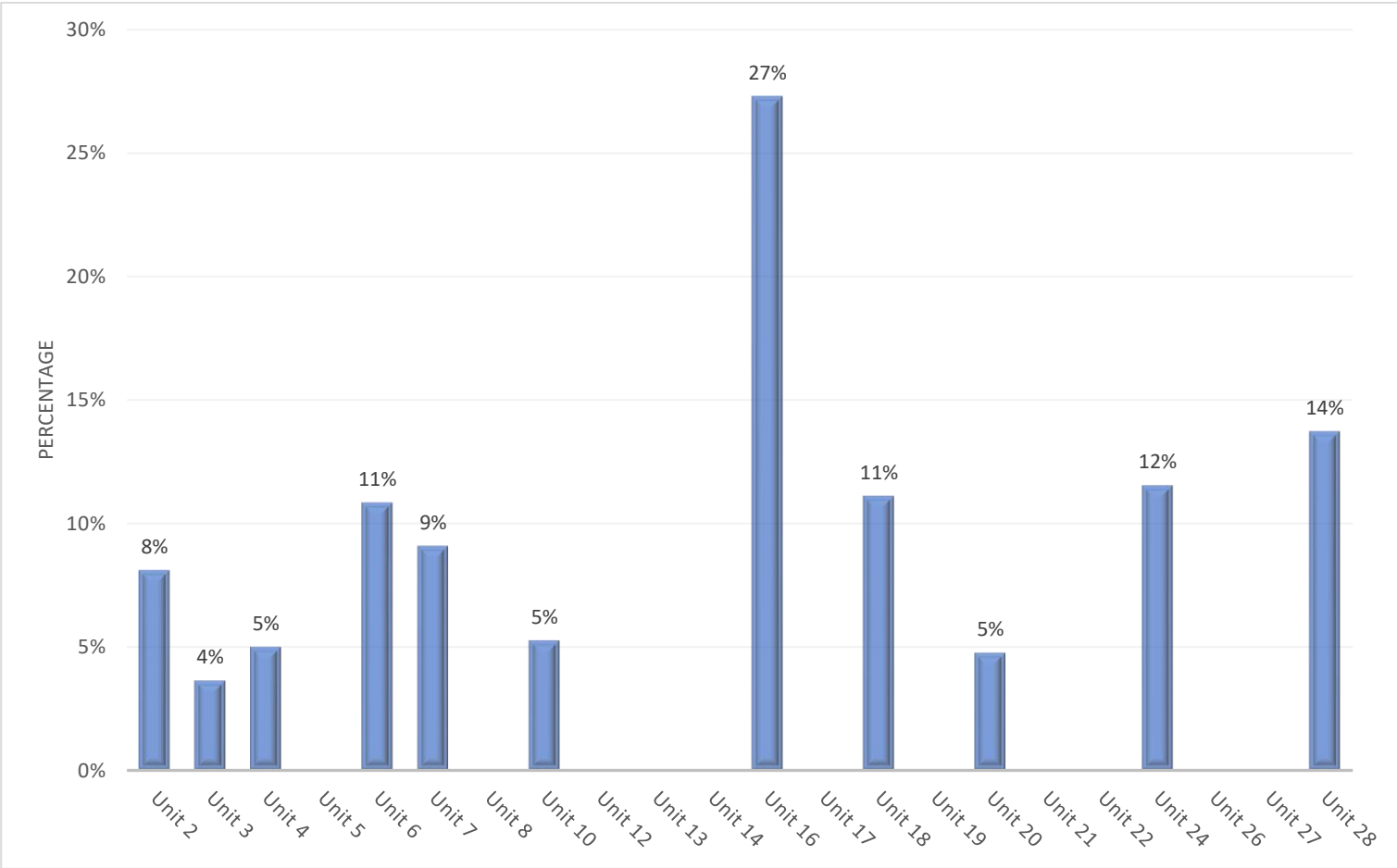
### PRESENTATION 38

**NEC (Stage  $\geq$  2) in Infants  $\leq$  32 weeks Gestational Age and  $\leq$  10 days at admission (Frequency and treatment by UNIT)**

UNITS	Number of Patients		NEC		Treatment				
					Surgical		Drainage		
<b>Unit 2</b>	n	%	37	3	8%	1	33%	1	33%
<b>Unit 3</b>	n	%	55	2	4%	1	50%	2	100%
<b>Unit 4</b>	n	%	20	1	5%	0	0%	0	0%
<b>Unit 5</b>	n	%	11	0				0	
<b>Unit 6</b>	n	%	83	9	11%	3	33%	6	67%
<b>Unit 7</b>	n	%	88	8	9%	0	0%	2	25%
<b>Unit 8</b>	n	%	35	0					
<b>Unit 10</b>	n	%	19	1	5%	0	0%	0	0%
<b>Unit 12</b>	n	%	12	0					
<b>Unit 13</b>	n	%	21	0					
<b>Unit 14</b>	n	%	30	0					
<b>Unit 16</b>	n	%	22	6	27%	2	33%	0	0%
<b>Unit 17</b>	n	%	17	0					
<b>Unit 18</b>	n	%	18	2	11%	0	0%	0	0%
<b>Unit 19</b>	n	%	25	0					
<b>Unit 20</b>	n	%	21	1	5%	0	0%	0	0%
<b>Unit 21</b>	n	%	20	0					
<b>Unit 22</b>	n	%	34	0					
<b>Unit 24</b>	n	%	26	3	12%	0	0%	2	67%
<b>Unit 26</b>	n	%	11	0					
<b>Unit 27</b>	n	%	24	0					
<b>Unit 28</b>	n	%	51	7	14%	4	57%	0	
<b>Total</b>	n	%	680	43	6%	11	26%	13	30%

Comment: NEC: Necrotizing Enterocolitis. Patients  $\leq$  32 weeks Gestational Age at Birth who had complete data were included. Units were excluded if they had  $\leq$  10 patients  $\leq$  32 weeks GA at birth during the year and more than 10 days at admission. Empty cells, no patient/information.

**NEC (Stage ≥ 2) in Infants ≤ 32 weeks Gestational Age (Frequency and treatment by UNIT) (graph)**



Note that some units reported 0 NEC.



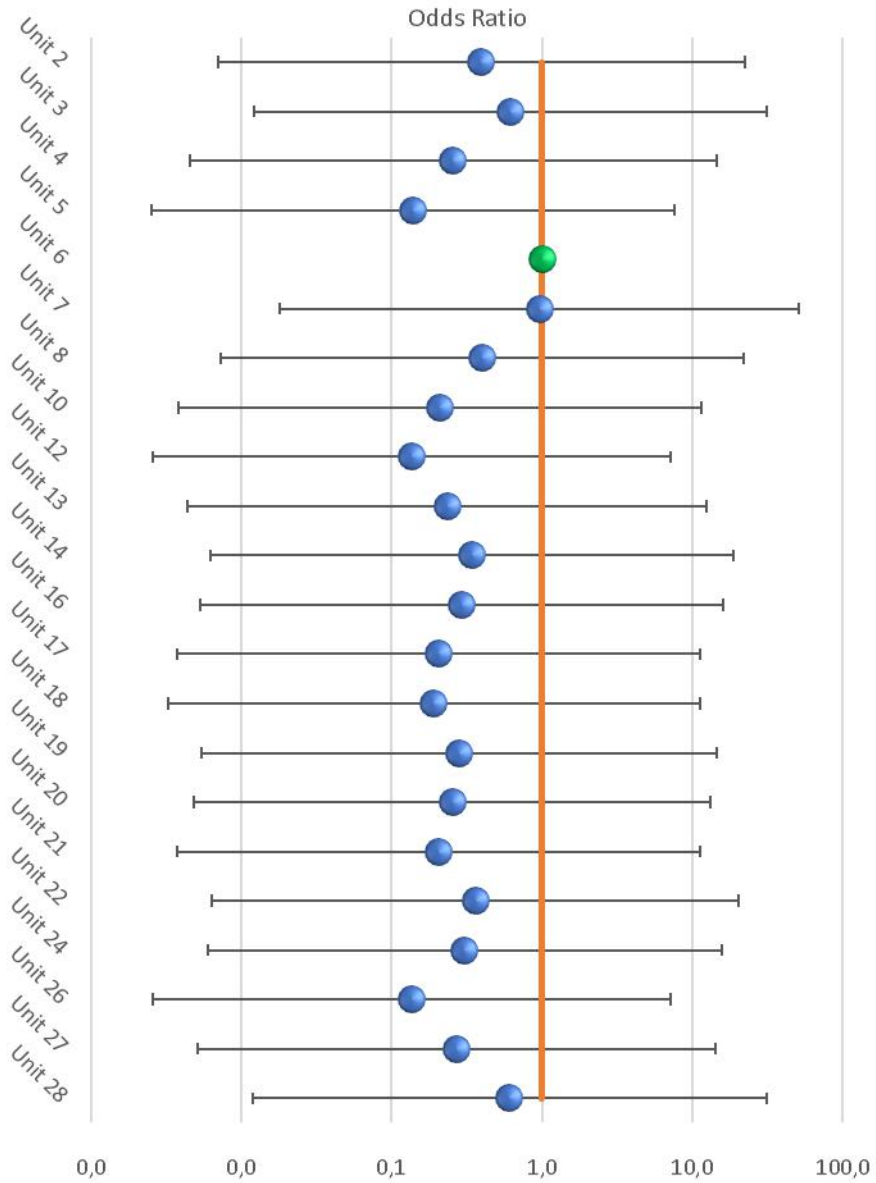
### PRESENTATION 39

Odds Ratio in NEC (Stage  $\geq 2$ ) in  $\leq 32$  weeks Gestational Age and  $\leq 10$  days at admission  
Adjusted by Gestational Age (By UNITS) (table)

UNITS	N	OR	P values	CI 95%
Unit 2	38	0.4	0.651	0.0 - 22.3
Unit 3	55	0.6	0.809	0.0 - 31.4
Unit 4	24	0.3	0.508	0.0 - 14.5
Unit 5	11	0.1	0.334	0.0 - 7.6
Unit 6	87	1.0	ref	
Unit 7	90	1.0	0.987	0.0 - 51.6
Unit 8	37	0.4	0.653	0.0 - 21.8
Unit 10	19	0.2	0.446	0.0 - 11.6
Unit 12	12	0.1	0.323	0.0 - 7.1
Unit 13	21	0.2	0.475	0.0 - 12.5
Unit 14	32	0.3	0.600	0.0 - 18.9
Unit 16	22	0.3	0.548	0.0 - 16.1
Unit 17	17	0.2	0.439	0.0 - 11.2
Unit 18	18	0.2	0.426	0.0 - 11.2
Unit 19	25	0.3	0.530	0.0 - 14.6
Unit 20	21	0.3	0.496	0.0 - 13.2
Unit 21	20	0.2	0.440	0.0 - 11.4
Unit 22	34	0.4	0.621	0.0 - 20.5
Unit 24	26	0.3	0.558	0.0 - 15.9
Unit 26	11	0.1	0.323	0.0 - 7.2
Unit 27	24	0.3	0.517	0.0 - 14.2
Unit 28	51	0.6	0.806	0.0 - 31.3
Reference		6		

Odd Ratio. Reference unit 6 was chosen at it has a highest incidence with a large number of infants. A logistic regression with adjustment by SNAPE II and Gestational Age was done. The maximum penalized likelihood estimation method proposed by David Firth (Firthlogit<sup>1</sup>) for the low frequency of events was used. The statistics should be interpreted with caution due to the small number of infants and large intervals. No statistically significant values were found. Units were excluded if they had  $\leq 10$  patients  $\leq 32$  weeks GA at birth during the year.

**Odds Ratio in NEC (Stage  $\geq 2$ ) in  $\leq 32$  weeks Gestational Age Adjusted by Gestational Age (By UNITS) (graphic with log scale)**



No significant difference were found. In green referent unit chosen for high incidence with enough number of cases. Interpretation of some of the data should be done with caution because some CI are large. Units were excluded if they had  $\leq 10$  patients  $\leq 32$  weeks GA at birth during the year.

## PRESENTATION 40

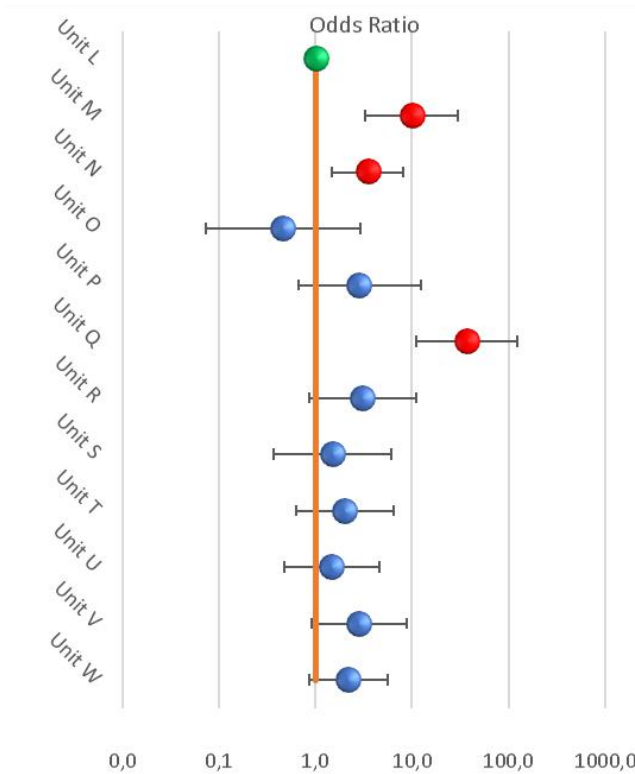
**Supplemental oxygen at 36w PMA, at discharge or Death in infants ≤ 32 weeks Gestational Age at birth by unit and by Gestational Age group (table)**

UNITES	n	%	Gestational Age at Birth (weeks)							
			<26		26-28		29-32		Total	
Unit 2	n	%	3	100%	2	100%	29	88%	34	89%
Unit 3	n	%	8	73%	4	67%	2	5%	14	25%
Unit 4	n	%	1	100%	3	75%	10	53%	14	58%
Unit 5	n	%	3	100%	2	100%	6	100%	11	100%
Unit 6	n	%	16	94%	14	78%	14	27%	44	51%
Unit 7	n	%	7	88%	9	64%	22	32%	38	42%
Unit 8	n	%	2	100%	3	100%	18	56%	23	62%
Unit 10	n	%	1	100%	1	33%	1	7%	3	16%
Unit 12	n	%	3	100%	0		0		3	25%
Unit 13	n	%	2	100%	4	80%	8	57%	14	67%
Unit 14	n	%	3	100%	2	67%	22	85%	27	84%
Unit 16	n	%	6	100%	10	100%	4	67%	20	91%
Unit 17	n	%	4	80%	0		0		4	24%
Unit 18	n	%	0		1	33%	1	7%	2	11%
Unit 19	n	%	3	75%	2	40%	2	13%	7	28%
Unit 20	n	%	5	100%	3	100%	9	69%	17	81%
Unit 21	n	%	3	100%	2	100%	15	100%	20	100%
Unit 22	n	%	1	100%	0		2	7%	3	9%
Unit 24	n	%	3	100%	5	63%	15	100%	23	88%
Unit 26	n	%	2	100%	2	50%	3	60%	7	64%
Unit 27	n	%	3	75%	1	50%	3	17%	7	29%
Unit 28	n	%	4	50%	6	50%	6	19%	16	31%

Empty cells mean no patients or information. Comments: Infants were classified with supplemental Oxygen at 36w PMA (post menstrual age) if they received supplemental O<sub>2</sub> on the day they had 36w PMA, died at any age or were discharge. No chest radiograph was required at the time of diagnosis. The statistics should be interpreted with caution due to the small number of infants in some units. Units were excluded if they had ≤ 10 patients ≤ 32 weeks GA at birth during the year.

## PRESENTATION 41

**ODDS RATIO of supplemental OXYGEN at 36w PMA or discharge in UNITS < 2000 meters over sea level Adjusted by SNAPE II and Gestational Age in  $\leq 32$  w Gestational Age at Birth (graph)**



UNITES		OR	Valor de p	CI 95%	
Unit L	55	1.0	ref		
Unit M	24	9.9	<b>0.000</b>	3.2	- 30.3
Unit N	87	3.5	<b>0.004</b>	1.5	- 8.2
Unit O	19	0.5	0.411	0.1	- 2.9
Unit P	12	2.9	0.158	0.7	- 12.4
Unit Q	32	37.2	<b>0.000</b>	11.1	- 124.9
Unit R	17	3.1	0.083	0.9	- 11.1
Unit S	18	1.5	0.562	0.4	- 6.1
Unit T	25	2.0	0.227	0.6	- 6.5
Unit U	34	1.5	0.500	0.5	- 4.6
Unit V	24	2.8	0.071	0.9	- 8.8
Unit W	51	2.2	0.096	0.9	- 5.7
Reference		L			

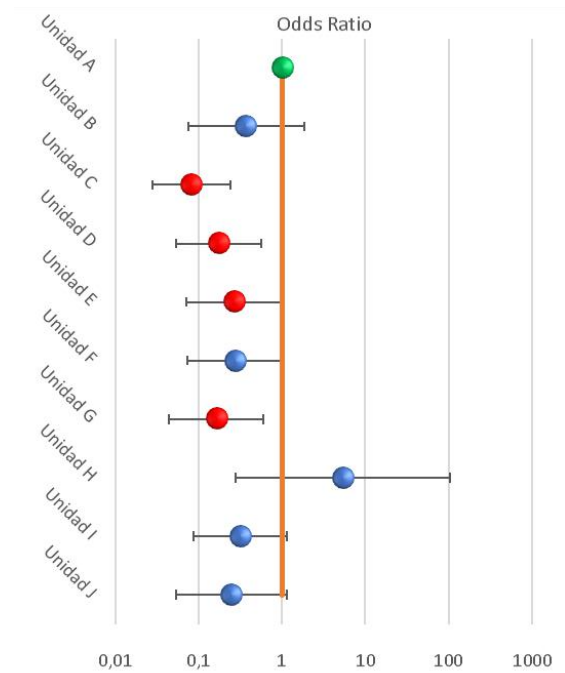
In green referent unit, in red units statistically significantly different. PMA postmenstrual age.

Odd Ratio. Reference unit L was chosen for the low value with an adequate number of infants. A logistic regression with adjustment by SNAPE II and Gestational Age was performed. The maximum penalized likelihood estimation method proposed by David Firth (Firthlogit<sup>1</sup>) for the low frequency of events was used. Statistically significant p values are marked in bold.

Comment: For the analysis of the variables of units above sea level, due to the small number of units in each group it was decided to assign letters for confidentiality. The statistics should be interpreted with caution due to the small number of infants in some units. Units were excluded if they had  $\leq 10$  patients  $\leq 32$  weeks GA at birth during the year.

## PRESENTATION 42

**OXYGEN supplement Odds Ratio at 36 weeks (By UNITS) at  $\geq 2000$  meters over sea level, Adjusted by Gestational Age in  $\leq 32$  weeks Gestational Age at birth (Graph [with log scale]/Table)**



In green referent unit, in red units statistically significantly different

UNITS	N	OR	p value	CI 95%
Unit A	38	1	ref	
Unit B	11	0.4	0.230	0.1 - 1.9
Unit C	90	0.1	<b>0.000</b>	0.0 - 0.2
Unit D	37	0.2	<b>0.004</b>	0.1 - 0.6
Unit E	21	0.3	<b>0.050</b>	0.1 - 1.0
Unit F	22	0.3	0.059	0.1 - 1.1
Unit G	21	0.2	<b>0.006</b>	0.0 - 0.6
Unit H	20	5.4	0.268	0.3 - 105.3
Unit I	26	0.3	0.079	0.1 - 1.1
Unit J	11	0.2	0.075	0.1 - 1.2
Reference		B		

Reference unit A was chosen for the high incidence and adequate number of infants. A logistic regression with adjustment by Gestational Age was performed. The maximum penalized likelihood estimation method proposed by David Firth (Firthlogit<sup>1</sup>) for the low frequency of events was used. Statistically significant p values are marked in bold.

Comment: For the analysis of the variables of units above sea level, due to the small number of units in each group it was decided to assign letters for confidentiality. The statistics should be interpreted with caution due to the small number of infants in some units. Units were excluded if they had  $\leq 10$  patients  $\leq 32$  weeks GA at birth during the year.

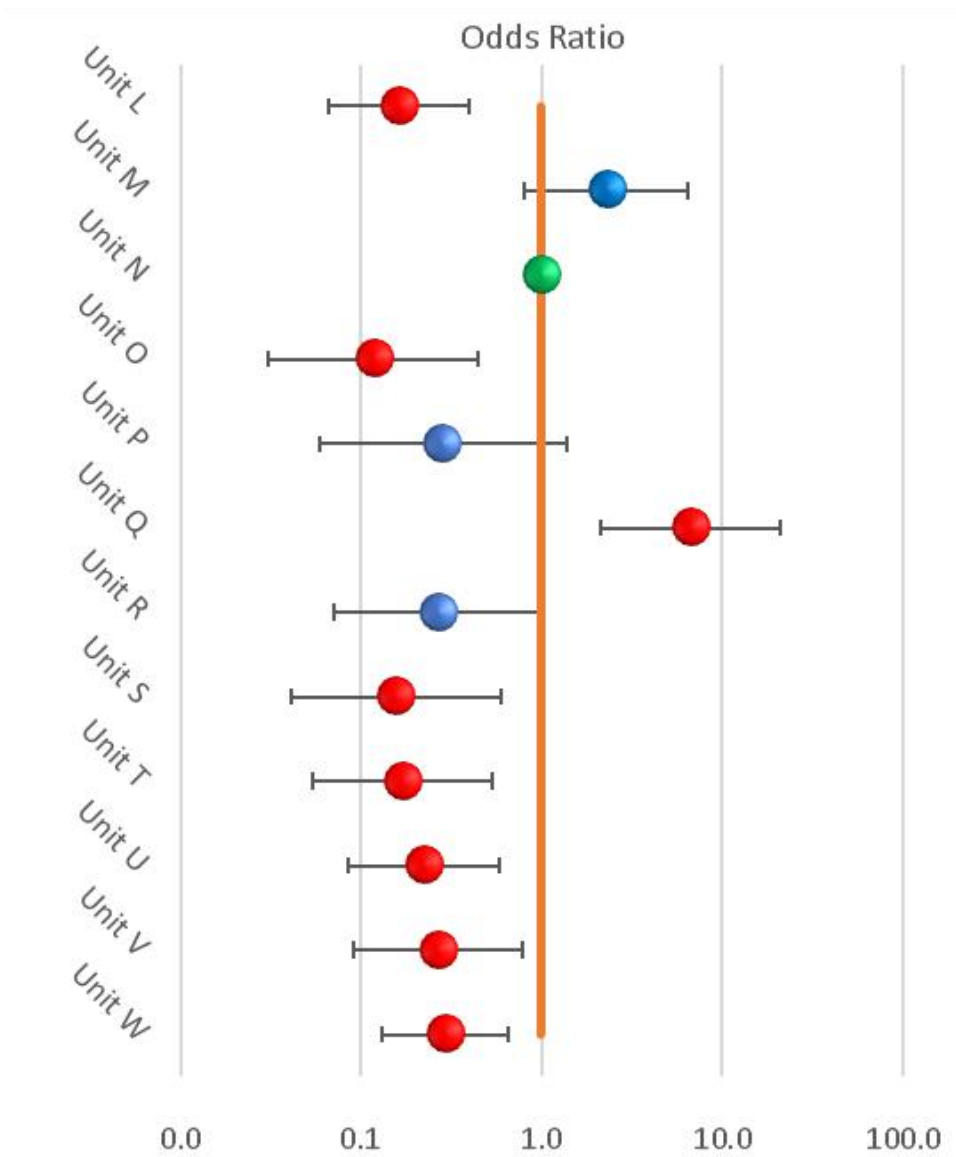
### PRESENTATION 43

**OXYGEN supplement Odds Ratio at 36 weeks PMA, at discharge or DEATH in UNITS < 2000 meters over sea level, Adjusted by Gestational Age (By UNITS) in  $\leq 32$  w Gestational Age**

UNITES	N	OR	<b>0.000</b>	CI 95%
<b>Unit L</b>	55	0.2	<b>0.000</b>	
<b>Unit M</b>	24	2.3	0.119	3.2 - 30.3
<b>Unit N</b>	87	1.0	ref	1.5 - 8.2
<b>Unit O</b>	19	0.1	<b>0.002</b>	0.1 - 2.9
<b>Unit P</b>	12	0.3	0.120	0.7 - 12.4
<b>Unit Q</b>	32	6.7	<b>0.001</b>	11.1 - 124.9
<b>Unit R</b>	17	0.3	0.055	0.9 - 11.1
<b>Unit S</b>	18	0.2	<b>0.007</b>	0.4 - 6.1
<b>Unit T</b>	25	0.2	<b>0.002</b>	0.6 - 6.5
<b>Unit U</b>	34	0.2	<b>0.002</b>	0.5 - 4.6
<b>Unit V</b>	24	0.3	<b>0.016</b>	0.9 - 8.8
<b>Unit W</b>	51	0.3	<b>0.003</b>	0.9 - 5.7
<b>Reference</b>		Unit N		

Reference unit N was chosen for the large number of infants with medium median values. A logistic regression with adjustment by Gestational Age was performed. The maximum penalized likelihood estimation method proposed by David Firth (Firthlogit<sup>1</sup>) for the low frequency of events was used. For the analysis of the variables of units above sea level, due to the small number of cases in each group it was decided to assign letters for confidentiality. The statistics should be interpreted with caution due to the small number of infants in some units. Death, 36w PMA and oxygen at discharge was define in previous presentations. Statistically significant p values are marked in bold. Units were excluded if they had  $\leq 10$  patients  $\leq 32$  weeks GA at birth during the year.

**OXYGEN supplement Odds Ratio at 36 weeks PMA, at discharge or DEATH in UNITS < 2000 meters over sea level, Adjusted by Gestational Age (By UNITS) in  $\leq 32$  w Gestational Age (Graph with log scale)**



In green referent unit, in red units statistically significantly different

## PRESENTATION 44

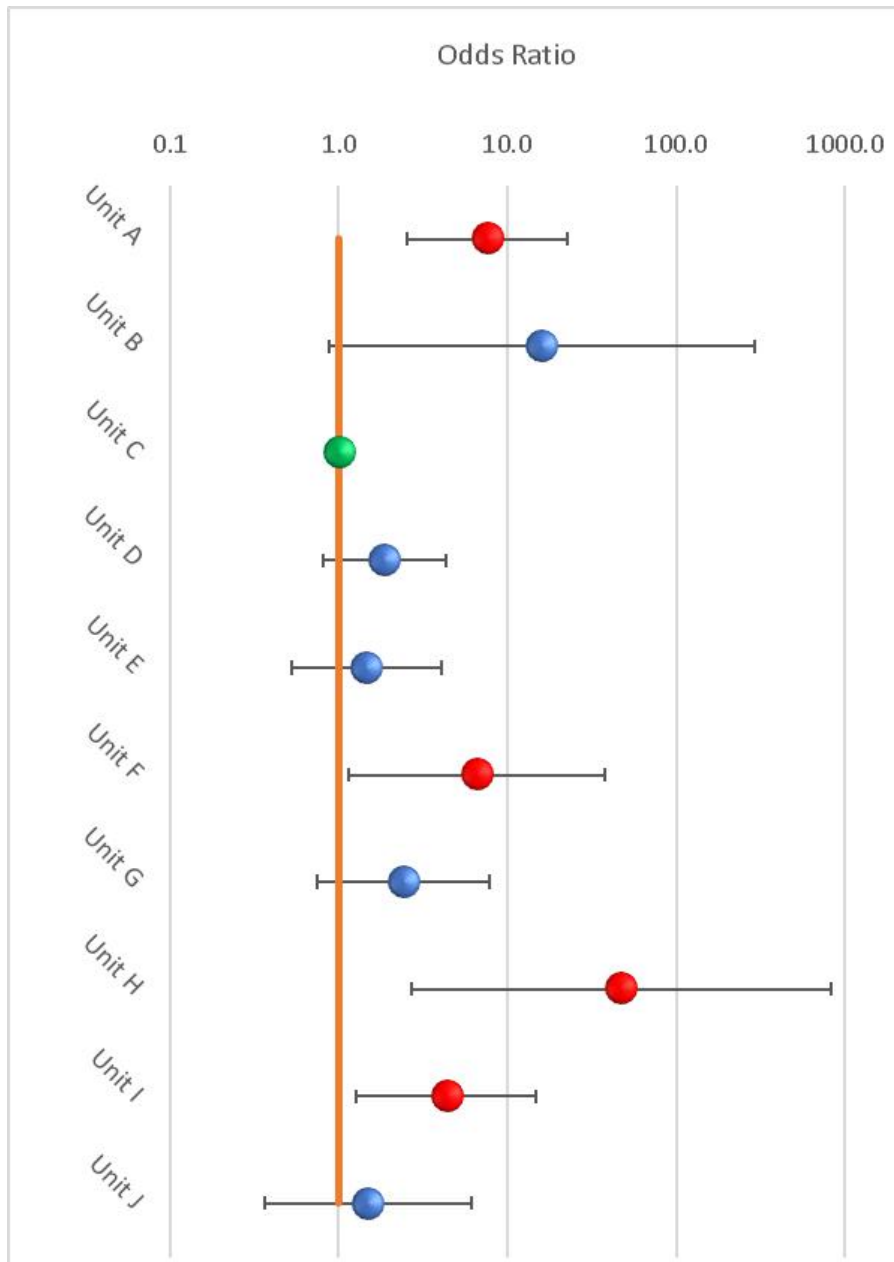
**OXYGEN supplement Odds Ratio at 36 weeks PMA, at discharge or DEATH in UNITS  $\geq$  2000 meters over sea level, Adjusted by Gestational Age (By UNIT) in  $\leq$  32 w Gestational Age**

UNITS	N	OR	p value	CI 95%
Unit A	38	7.6	<b>0.000</b>	2.5 - 22.9
Unit B	11	16.1	0.061	0.9 - 293.2
Unit C	90	1.0	ref	
Unit D	37	1.9	0.140	0.8 - 4.3
Unit E	21	1.5	0.472	0.5 - 4.1
Unit F	22	6.5	<b>0.036</b>	1.1 - 37.6
Unit G	21	2.4	0.139	0.8 - 7.8
Unit H	20	47.0	<b>0.008</b>	2.7 - 819.0
Unit I	26	4.4	<b>0.019</b>	1.3 - 14.9
Unit J	11	1.5	0.577	0.4 - 6.1
Reference		C		

Reference unit C was chosen for the large number of infants with the low values. A logistic regression with adjustment by Gestational Age was performed. The maximum penalized likelihood estimation method proposed by David Firth (Firthlogit<sup>1</sup>) for the low frequency of events was used. For the analysis of the variables of units above sea level, due to the small number of units in each group it was decided to assign letters for confidentiality. The statistics should be interpreted with caution due to the small number of infants in some units. Death, 36w PMA and oxygen at discharge was define in previous presentations. Statistically significant p values are marked in bold. Units were excluded if they had  $\leq$  10 patients  $\leq$  32 weeks GA at birth during the year.



**OXYGEN supplement Odds Ratio at 36 weeks PMA, at discharge or DEATH in UNITS  $\geq 2000$  meters over sea level, Adjusted by SNAPE II and Gestational Age (By UNIT) in  $\leq 32$  w Gestational Age (graph)**



In green referent unit, in red units with statistically significant difference

## PRESENTATION 45

### Use and Duration of **PRENATAL** Steroids in Mothers of Infants $\leq 34$ weeks Gestational Age

UNITS	Received Steroids		Unknown Yes received Steroids		Complete						Partial						TOTAL		
					Last week		Before		Time Unknown		Last week		Before		Unknown				
Unit 2	n	%	77	83%	0	0%	56	73%	10	13%	0	0%	10	13%	1	1%	0	0%	93
Unit 3	n	%	51	93%	2	4%	22	43%	7	14%	0	0%	22	43%	0	0%	0	0%	55
Unit 4	n	%	23	59%	0	0%	12	52%	0	0%	4	17%	3	13%	1	4%	3	13%	39
Unit 5	n	%	15	79%	0	0%	11	73%	1	7%	0	0%	0	0%	3	20%	0	0%	19
Unit 6	n	%	103	57%	17	9%	19	18%	44	43%	19	18%	11	11%	6	6%	4	4%	181
Unit 7	n	%	88	66%	24	18%	30	34%	26	30%	5	6%	23	26%	4	5%	0	0%	134
Unit 8	n	%	51	81%	2	3%	31	61%	9	18%	4	8%	6	12%	1	2%	0	0%	63
Unit 10	n	%	19	100%	0	0%	10	53%	1	5%	0	0%	8	42%	0	0%	0	0%	19
Unit 12	n	%	14	100%	0	0%	4	29%	5	36%	0	0%	5	36%	0	0%	0	0%	14
Unit 13	n	%	11	37%	0	0%	1	9%	0	0%	0	0%	9	82%	1	9%	0	0%	30
Unit 14	n	%	43	77%	1	2%	13	30%	14	33%	0	0%	11	26%	5	12%	0	0%	56
Unit 16	n	%	7	28%	5	20%	4	57%	2	29%	0	0%	1	14%	0	0%	0	0%	25
Unit 17	n	%	36	88%	0	0%	27	75%	3	8%	0	0%	6	17%	0	0%	0	0%	41
Unit 18	n	%	15	52%	6	21%	4	27%	3	20%	5	33%	3	20%	0	0%	0	0%	29
Unit 19	n	%	35	70%	0	0%	20	57%	9	26%	1	3%	5	14%	0	0%	0	0%	50
Unit 20	n	%	21	100%	0	0%	11	52%	2	10%	0	0%	8	38%	0	0%	0	0%	21
Unit 21	n	%	27	64%	2	5%	15	56%	7	26%	3	11%	2	7%	0	0%	0	0%	42
Unit 22	n	%	18	28%	19	29%	8	44%	0	0%	1	6%	6	33%	2	11%	1	6%	65
Unit 24	n	%	29	97%	0	0%	14	48%	1	3%	3	10%	9	31%	2	7%	0	0%	30
Unit 26	n	%	11	85%	0	0%	5	45%	3	27%	0	0%	3	27%	0	0%	0	0%	13
Unit 27	n	%	26	96%	0	0%	11	42%	3	12%	9	35%	2	8%	1	4%	0	0%	27
Unit 28	n	%	56	88%	0	0%	27	48%	23	41%	0	0%	6	11%	0	0%	0	0%	64

Comment: Statistics are based on data entered, and some should be interpreted with caution due to the small number of infants in some units. Readmissions were not included. Units were excluded if they had  $\leq 10$  patients  $\leq 32$  weeks GA at birth during the year.

## PRESENTATION 46

### POSTNATAL Corticosteroids in Infants ≤ 32 weeks Gestational Age, Route and Indication

UNITS	Oral	% of total treated	Intravenous	% of total treated	Inhaled	% of total treated	Total Number of therapies	Total Number of Patients	TOTAL %
Unit 2	4	67%	2	33%	0	0%	6	38	11%
Unit 3	0	0%	7	100%	0	0%	7	55	11%
Unit 4	0	0%	1	100%	0	0%	1	24	4%
Unit 5	0	0%	2	100%	0	0%	2	11	18%
Unit 6	1	4%	0	0%	25	96%	26	87	20%
Unit 7	1	10%	9	90%	0	0%	10	90	8%
Unit 8	2	29%	5	71%	0	0%	7	37	16%
Unit 10	0		0		0		0	19	0%
Unit 12	0	0%	1	100%	0	0%	1	12	8%
Unit 13	4	57%	3	43%	0	0%	7	21	29%
Unit 14	2	33%	4	67%	0	0%	6	32	19%
Unit 16	0	0%	3	75%	1	25%	4	22	14%
Unit 17	2	100%	0	0%	0	0%	2	17	12%
Unit 18	0	0%	3	75%	1	25%	4	18	22%
Unit 19	0	0%	1	100%	0	0%	1	25	4%
Unit 20	0	0%	2	100%	0	0%	2	21	10%
Unit 21	0		0		0		0	20	0%
Unit 22	0	0%	26	57%	20	43%	46	34	68%
Unit 24	0	0%	3	100%	0	0%	3	26	12%
Unit 26	0	0%	4	100%	0	0%	4	11	27%
Unit 27	1	33%	2	67%	0	0%	3	24	13%
Unit 28	0	0%	18	100%	0	0%	18	51	35%
<b>TOTAL</b>	17	16%	40	38%	47	45%	160	695	17%

Comment: Only the units with complete data were included for the analysis (validated). Readmissions were excluded. Only units with more than 10 patients ≤ 32 weeks Gestational Age. Empty cells indicate absence of cases reported.

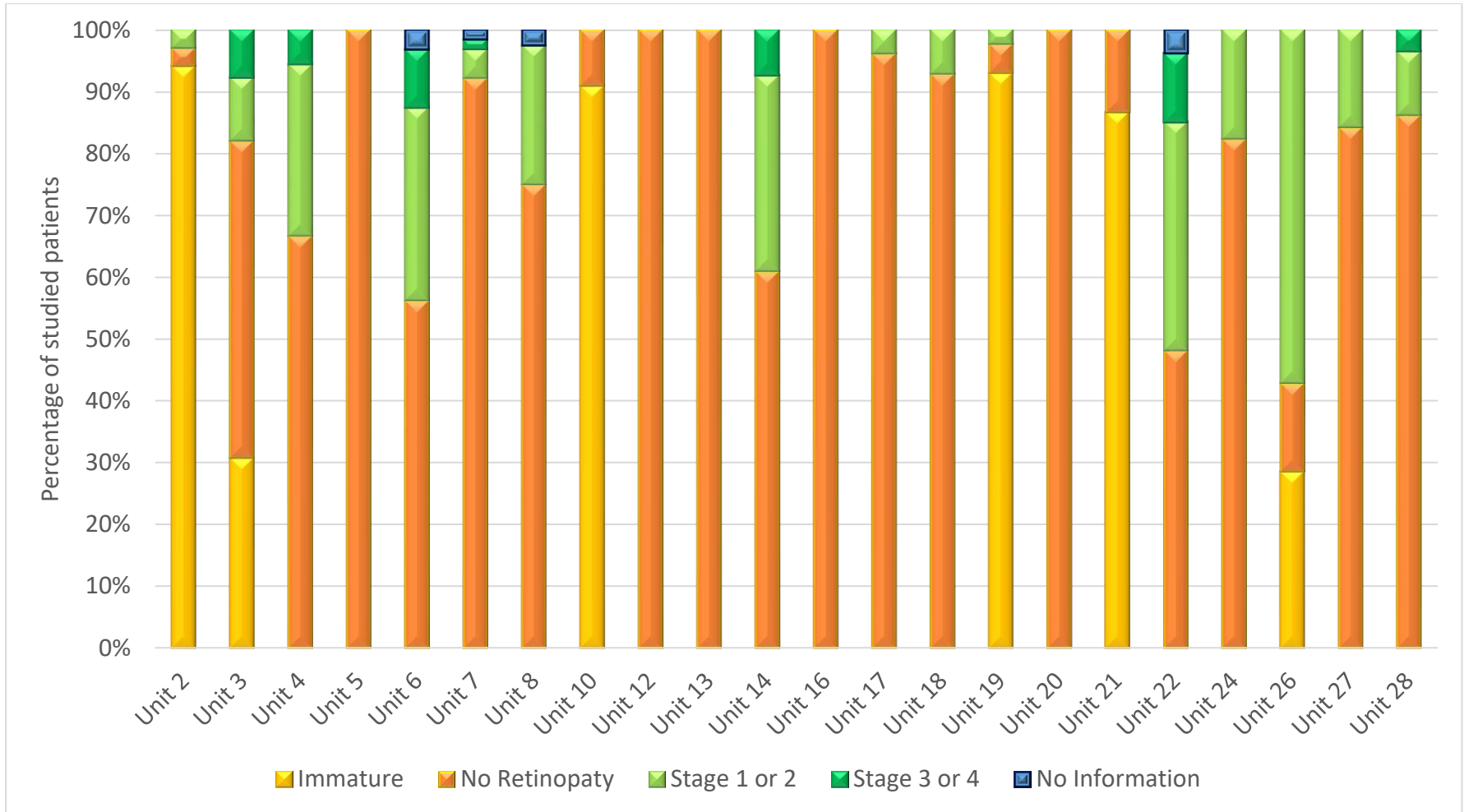
## PRESENTATION 47

**Stages of Retinopathy of Prematurity in infants  $\leq 34$  weeks GA with ophthalmological examination (table)**

UNITS	Total Number of Neonates	Total Number of patients studied	Stages of Retinopathy of Prematurity									
			Immature		No		Stage 1 or 2		Stage 3 or 4		No Information	
Unit 2	n %	93	34 37%	32 94%	1 3%	1 3%	0 0%	0 0%	0 0%	0 0%		
Unit 3	n %	55	39 71%	12 31%	20 51%	4 10%	3 8%	0 0%	0 0%			
Unit 4	n %	39	18 46%	0 0%	12 67%	5 28%	1 6%	0 0%	0 0%			
Unit 5	n %	19	8 42%	0 0%	8 100%	0 0%	0 0%	0 0%	0 0%			
Unit 6	n %	181	32 18%	0 0%	18 56%	10 31%	3 9%	1 3%	1 3%			
Unit 7	n %	134	64 48%	0 0%	59 92%	3 5%	1 2%	1 2%	1 2%			
Unit 8	n %	63	40 63%	0 0%	30 75%	9 23%	0 0%	1 3%	1 3%			
Unit 10	n %	19	11 58%	10 91%	1 9%	0 0%	0 0%	0 0%	0 0%			
Unit 12	n %	14	10 71%	0 0%	10 100%	0 0%	0 0%	0 0%	0 0%			
Unit 13	n %	30	25 83%	0 0%	25 100%	0 0%	0 0%	0 0%	0 0%			
Unit 14	n %	56	41 73%	0 0%	25 61%	13 32%	3 7%	0 0%	0 0%			
Unit 16	n %	25	16 64%	0 0%	16 100%	0 0%	0 0%	0 0%	0 0%			
Unit 17	n %	41	26 63%	0 0%	25 96%	1 4%	0 0%	0 0%	0 0%			
Unit 18	n %	29	14 48%	0 0%	13 93%	1 7%	0 0%	0 0%	0 0%			
Unit 19	n %	50	43 86%	40 93%	2 5%	1 2%	0 0%	0 0%	0 0%			
Unit 20	n %	21	17 81%	0 0%	17 100%	0 0%	0 0%	0 0%	0 0%			
Unit 21	n %	42	15 36%	13 87%	2 13%	0 0%	0 0%	0 0%	0 0%			
Unit 22	n %	65	27 42%	0 0%	13 48%	10 37%	3 11%	1 4%	1 4%			
Unit 24	n %	30	17 57%	0 0%	14 82%	3 18%	0 0%	0 0%	0 0%			
Unit 26	n %	13	7 54%	2 29%	1 14%	4 57%	0 0%	0 0%	0 0%			
Unit 27	n %	27	19 70%	0 0%	16 84%	3 16%	0 0%	0 0%	0 0%			
Unit 28	n %	64	29 45%	0 0%	25 86%	3 10%	1 3%	0 0%	0 0%			
TOTAL	n %	1110	552 50%	109 20%	353 64%	71 13%	15 3%	4 1%	4 1%			

Comment: The units with data were included in patients with ophthalmic examination for this analysis. This table should be analyzed with caution because some cells have a low number of patients. This table and graph were not broken down into birthweight groups because of the low number in some units. Probably some of the infants reported as without retinopathy are immature retina. Note that one unit did not report eye exams. Units were excluded if they had  $\leq 10$  patients  $\leq 32$  weeks GA at birth during the year.

**Stages of Retinopathy of Prematurity in all Patients with ophthalmic examination (graph)**



## PRESENTATION 48

### Therapy for Retinopathy of Prematurity in all patients

UNITS	Patients Treated	Laser		VEGF		More than one therapy n
		n	%	n	%	
Unit 3	1	1	100%	0	0%	0
Unit 4	4	0	0%	4	100%	0
Unit 6	2	2	100%	0	0%	0
Unit 7	2	0	0%	2	100%	0
Unit 8	3	3	100%	0	0%	0
Unit 14	2	0	0%	2	100%	0
Unit 17	1	0	0%	1	100%	0
Unit 19	1	1	100%	0	0%	0
Unit 22	3	0	0%	3	100%	0
Unit 28	1	0	0%	1	100%	0
<b>Total</b>	20	7	35%	13	65%	0

Comment: only patients with complete information were included. The statistics should be interpreted with caution due to the small number of infants. Some units without ophthalmologist with experience in these treatments send their patients to other institutions. Units were excluded if they had  $\leq 10$  patients  $\leq 32$  weeks GA at birth during the year.

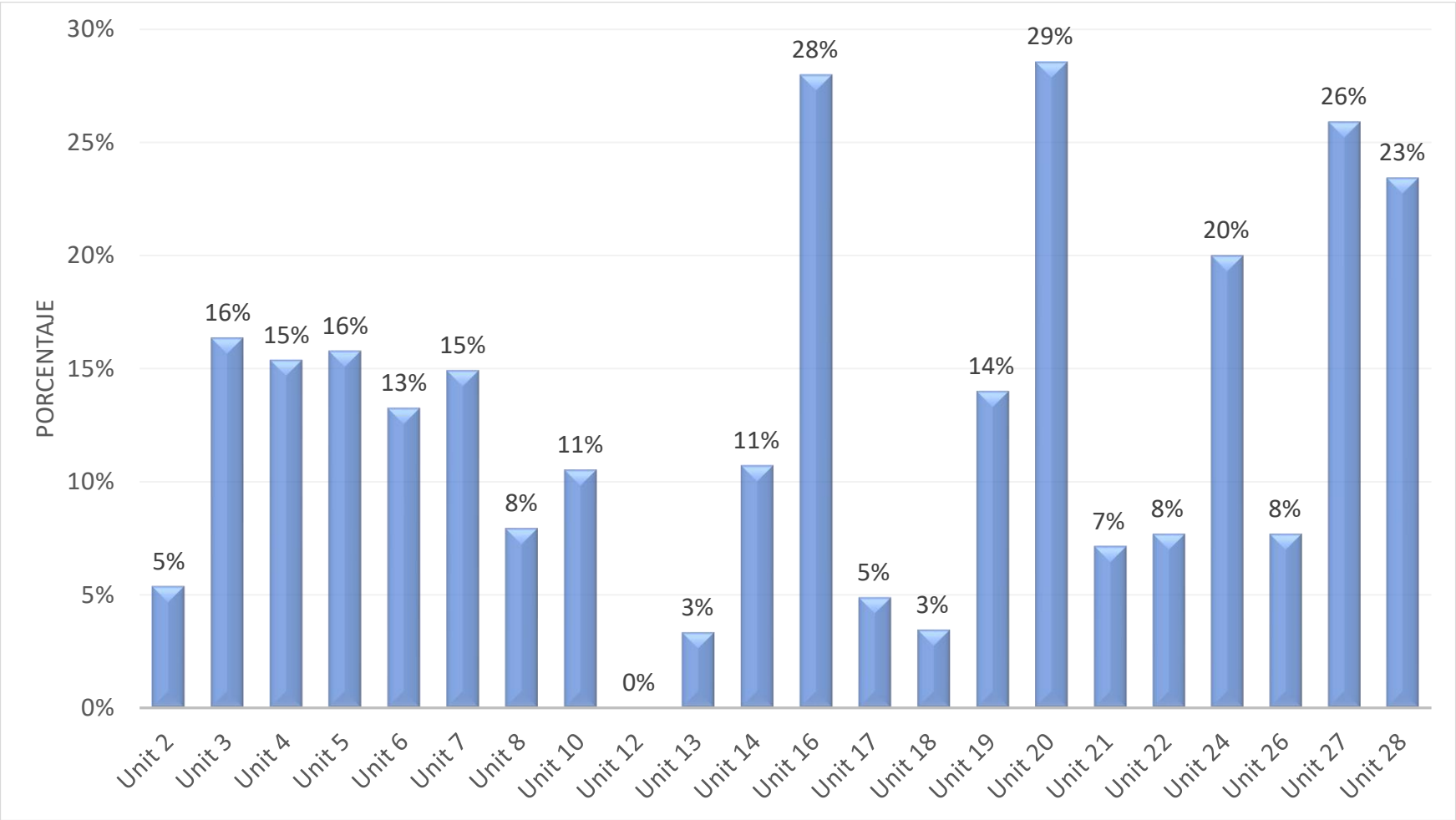
## PRESENTATION 49

**Stages III of Retinopathy of Prematurity (ROP) or Death in infants  $\leq$  34 weeks GA (table)**

UNITS	Total	Retinopathy III to V	Death	Both	Percentage of Patients with ROP Stage III/IV or Deaths
Unit 2	93	0	5	5	5%
Unit 3	55	3	6	9	16%
Unit 4	39	1	5	6	15%
Unit 5	19	0	3	3	16%
Unit 6	181	3	21	24	13%
Unit 7	134	1	19	20	15%
Unit 8	63	0	5	5	8%
Unit 10	19	0	2	2	11%
Unit 12	14	0	0	0	0%
Unit 13	30	0	1	1	3%
Unit 14	56	3	3	6	11%
Unit 16	25	0	7	7	28%
Unit 17	41	0	2	2	5%
Unit 18	29	0	1	1	3%
Unit 19	50	0	7	7	14%
Unit 20	21	0	6	6	29%
Unit 21	42	0	3	3	7%
Unit 22	65	3	2	5	8%
Unit 24	30	0	6	6	20%
Unit 26	13	0	1	1	8%
Unit 27	27	0	7	7	26%
Unit 28	64	1	14	15	23%
<b>Total</b>	<b>1110</b>	<b>11</b>	<b>87</b>	<b>98</b>	<b>9%</b>

Comment: only patients with complete information were included. For this analysis, only patients < 34 weeks GA with ROP stage III were included, plus all patients younger than 34 weeks GA who died. The statistics should be interpreted with caution due to the small number of infants in some units. Units were excluded if they had  $\leq$  10 patients  $\leq$  32 weeks GA at birth during the year.

Stages III of Retinopathy of Prematurity (ROP) or Death in infants  $\leq$  34 weeks GA (Graph)





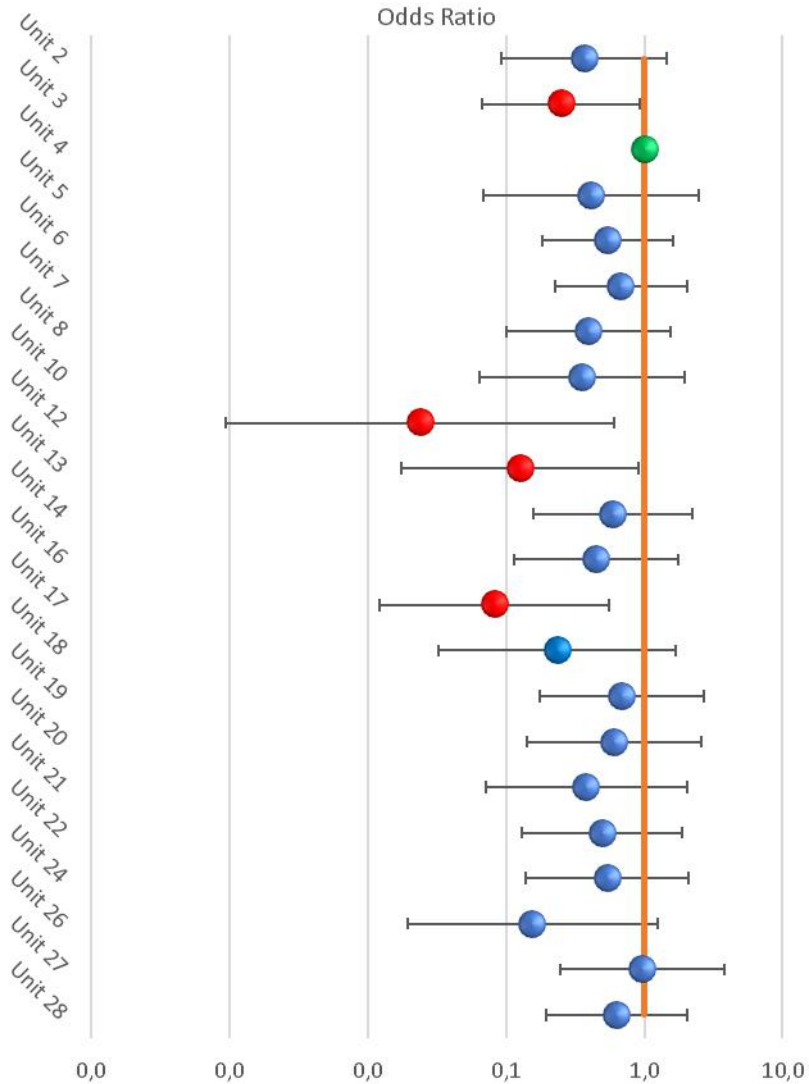
## PRESENTATION 50

**ODDS RATIO of Retinopathy of Prematurity (ROP) Stages  $\geq$ III or Death in infants  
with  $\leq$  34 weeks GA at birth (Table)**

UNITS	N	OR	P value	CI 95%
Unit 2	93	0.4	0.155	0.1 - 1.5
Unit 3	55	0.2	<b>0.037</b>	0.1 - 0.9
Unit 4	39	1	ref	
Unit 5	19	0.4	0.333	0.1 - 2.5
Unit 6	181	0.5	0.276	0.2 - 1.6
Unit 7	134	0.7	0.488	0.2 - 2.0
Unit 8	63	0.4	0.178	0.1 - 1.5
Unit 10	19	0.4	0.239	0.1 - 2.0
Unit 12	14	0.0	<b>0.023</b>	0.0 - 0.6
Unit 13	30	0.1	<b>0.039</b>	0.0 - 0.9
Unit 14	56	0.6	0.433	0.2 - 2.2
Unit 16	25	0.4	0.253	0.1 - 1.8
Unit 17	41	0.1	<b>0.010</b>	0.0 - 0.6
Unit 18	29	0.2	0.147	0.0 - 1.7
Unit 19	50	0.7	0.592	0.2 - 2.7
Unit 20	21	0.6	0.495	0.1 - 2.6
Unit 21	42	0.4	0.261	0.1 - 2.0
Unit 22	65	0.5	0.304	0.1 - 1.9
Unit 24	30	0.5	0.372	0.1 - 2.1
Unit 26	13	0.2	0.080	0.0 - 1.2
Unit 27	27	1.0	0.967	0.2 - 3.8
Unit 28	64	0.6	0.439	0.2 - 2.0
Reference		Unit 4		

Statistically significant p values are marked in red. The statistics should be interpreted with caution due to the small number of infants in some units and very large CI.

**ODDS RATIO of Retinopathy of Prematurity (ROP) Stages  $\geq$  III or Death in infants with  $\leq$  34 w GA controlled by SNAPE II and Gestational Age (graph with CI log scale)**



In green referent unit, in red units with statistically significant difference.

Reference unit 4 was chosen for an adequate number of infants and high results. A logistic regression with adjustment by Gestational Age was performed. The maximum penalized likelihood estimation method proposed by David Firth (Firthlogit<sup>1</sup>) for the low frequency of events was used. The statistics should be interpreted with caution due to the small number of infants in some units and very large CI. Death, and ROP III or more was defined in previous presentations. Units were excluded if they had  $\leq$  10 patients  $\leq$  32 weeks GA at birth during the year.

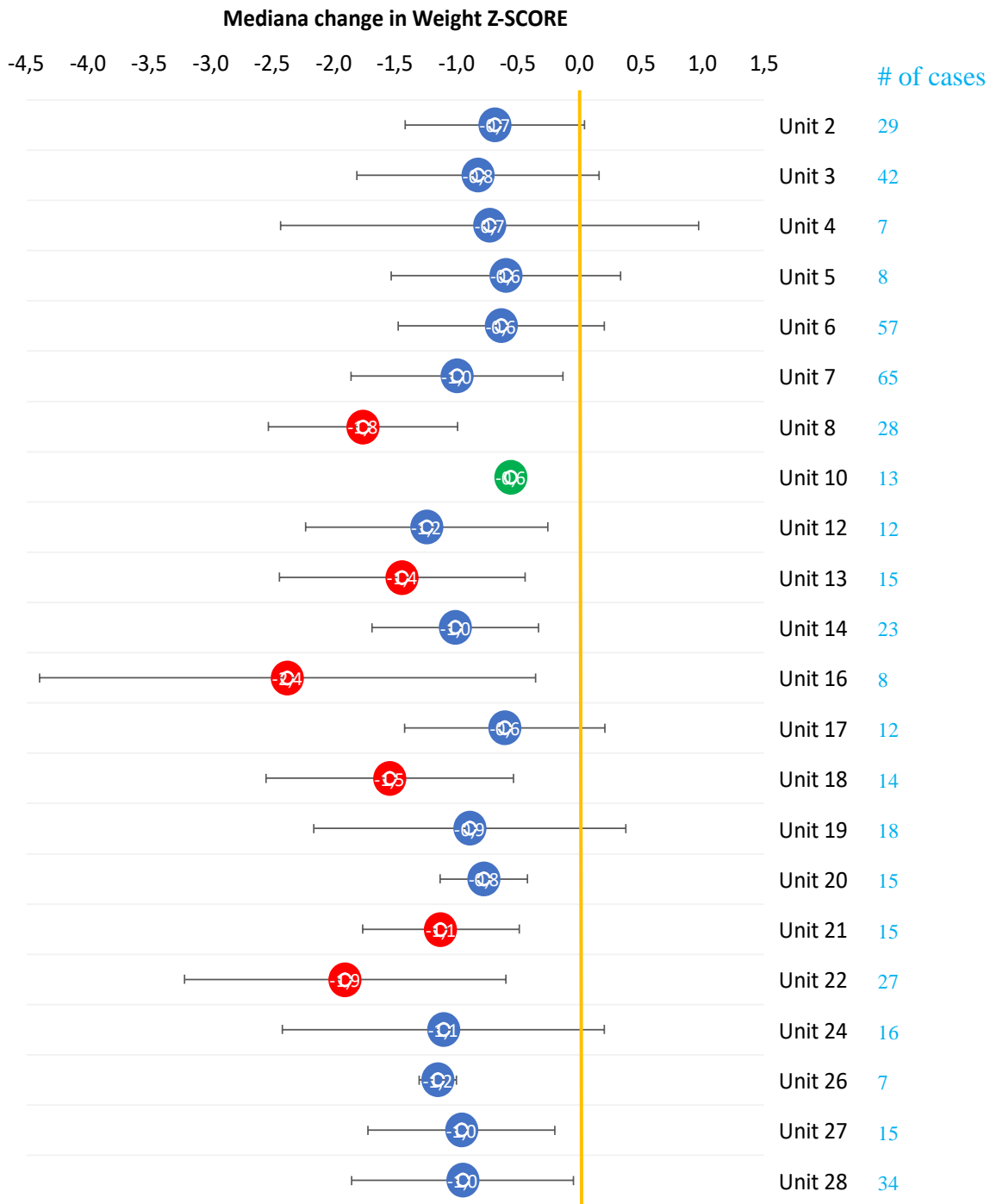
## PRESENTATION 51

**Median change in Weight Z-SCORE in preterm babies ≤ 34 weeks GA between birthweight and weight at discharge, using Fenton 2013 curves**

UNITS	Patients discharged ≥ 34w GA	Median <b>change</b> in Z-score	Median Z-score at Birth	Median Z-score at discharge	p*
<b>Unit 2</b>	29	-0.7	0.0	-0.7	0.749
<b>Unit 3</b>	42	-0.8	0.4	-0.4	0.678
<b>Unit 4</b>	7	-0.7	-1.0	-1.2	0.934
<b>Unit 5</b>	8	-0.6	-0.4	-1.0	0.410
<b>Unit 6</b>	57	-0.6	-0.1	-0.8	0.753
<b>Unit 7</b>	65	-1.0	-0.4	-1.3	0.168
<b>Unit 8</b>	28	-1.8	-0.2	-1.7	<b>0.000</b>
<b>Unit 10</b>	13	-0.6	0.6	0.1	Reference
<b>Unit 12</b>	12	-1.2	-0.2	-1.4	0.151
<b>Unit 13</b>	15	-1.4	-0.4	-1.5	<b>0.032</b>
<b>Unit 14</b>	23	-1.0	-0.5	-1.3	0.414
<b>Unit 16</b>	8	-2.4	0.1	-2.2	<b>0.000</b>
<b>Unit 17</b>	12	-0.6	-0.5	-1.5	0.511
<b>Unit 18</b>	14	-1.5	0.3	-1.1	<b>0.004</b>
<b>Unit 19</b>	18	-0.9	-0.2	-1.1	0.237
<b>Unit 20</b>	15	-0.8	-0.2	-1.0	0.622
<b>Unit 21</b>	15	-1.1	-0.4	-1.5	<b>0.042</b>
<b>Unit 22</b>	27	-1.9	-0.7	-2.4	<b>0.000</b>
<b>Unit 24</b>	16	-1.1	-0.7	-1.3	0.296
<b>Unit 26</b>	7	-1.2	-0.9	-2.0	0.226
<b>Unit 27</b>	15	-1.0	-0.7	-1.5	0.560
<b>Unit 28</b>	34	-1.0	0.0	-1.0	0.353

Comment: only patients with complete information discharged home were included. The Z-score at birth and at discharge was calculated and the median difference for each NICU was determined. The units were compared using a median regression controlled by Gestational Age. The statistics should be interpreted with caution due to the small number of infants in some units. Statistically significant p values are marked in bold.

**Median (IQR) change in Weight Z-SCORE in preterm babies ≤ 32 weeks GA between birthweight and weight at discharge, using Fenton 2013 curves.**



Interquartile ranges (IQR). The median weight Z-score change is the difference between birthweight Z-score and weight Z-score at discharge. The further from "0" (red line, regain weight birth percentile) the greater the fall. The units were compared by median nonparametric regression adjusted for gestational age at birth. In green referent unit with the lowest change and in red units statistically significantly different. The ranges have wide variability. The statistics should be interpreted with caution due to the small number of infants in some units. Units were excluded if they had ≤ 10 patients ≤ 32 weeks GA at birth during the year.

#### **D. CONDITIONS AND DISCHARGE DESTINATION**

## PRESENTATION 52

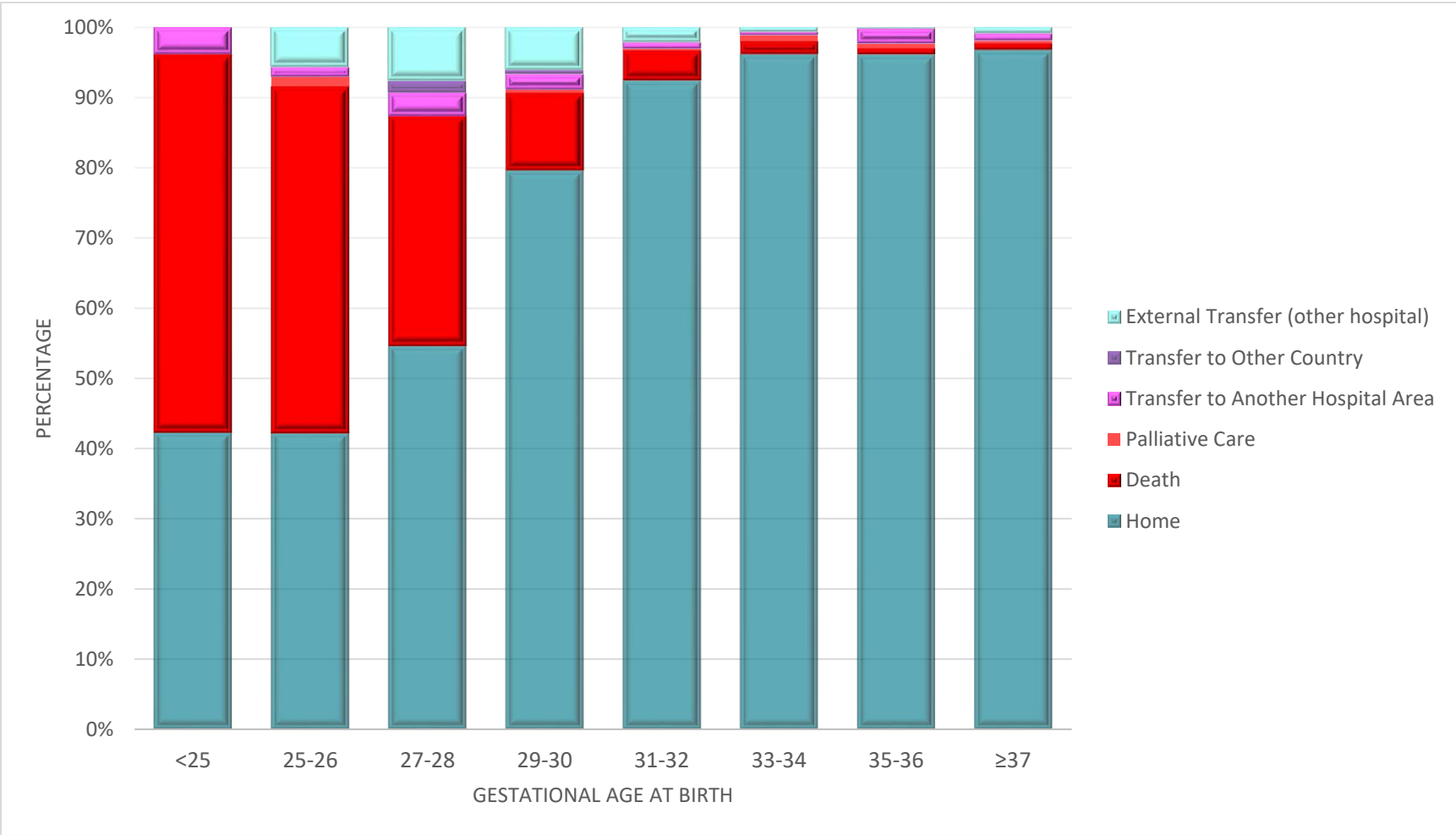
**Destination at discharge (All Patients) (table)**

Gestational Age (weeks)	Home		Death		Palliative Care		Transfer to Another Hospital Area		Transfer to Other Country		External Transfer (other hospital)		Total
	n	%	n	%	n	%	n	%	n	%	n	%	
<25	n	11	14	0	1	0	0	0	0	0	0	0	26
	%	42%	54%	0%	4%	0%	0%	0%	0%	0%	0%	0%	
25-26	n	30	35	1	1	0	0	4	71				
	%	42%	49%	1%	1%	0%	0%	6%	6%				
27-28	n	65	39	0	4	2	9	119					
	%	55%	33%	0%	3%	2%	8%	8%					
29-30	n	144	20	1	4	1	11	181					
	%	80%	11%	1%	2%	1%	6%	6%					
31-32	n	301	14	1	3	0	7	326					
	%	92%	4%	0%	1%	0%	2%	2%					
33-34	n	418	8	4	2	0	3	435					
	%	96%	2%	1%	0%	0%	0.7%	0.7%					
35-36	n	533	5	4	12	0	1	555					
	%	96%	1%	1%	2%	0%	0.2%	0.2%					
≥37	n	1,635	16	8	17	1	14	1,691					
	%	97%	1%	0%	1%	0%	1%	1%					
Total	n	3,137	151	19	44	4	49	3,404					
	%	92%	4%	1%	1%	0.1%	1%	1%					

Readmissions are excluded.

Comment: only patients with complete information are included (validated). The statistics should be interpreted with caution due to the small number of infants in some units.

Destination at discharge (All Patients\*) (graph)



## PRESENTATION 53

**Support at discharge in survivors (table)**

Total Patients		<25	25-26	27-28	29-30	31-32	33-34	35-36	≥37	Total
Survivors	n	12	36	80	161	312	427	550	1675	3253
Oxygen	n	12	38	49	71	102	106	87	138	603
	%	100%	106%	61%	44%	33%	25%	16%	8%	19%
Gastrostomy	n	0	1	2	2	1	1	2	5	14
	%	0%	3%	3%	1%	0%	0%	0%	0%	0%
Monitor	n	2	7	7	3	4	4	4	5	36
	%	17%	19%	9%	2%	1%	1%	1%	0%	1%
Gavage	n	2	2	3	6	1	0	1	5	20
	%	17%	6%	4%	4%	0%	0%	0%	0%	1%
Ostomies	n	1	0	0	1	1	1	1	3	8
	%	8%	0%	0%	1%	0%	0%	0%	0%	0%
Ventilation	n	0	0	1	0	0	2	2	1	6
	%	0%	0%	1%	0%	0%	0%	0%	0%	0%
CPAP	n	1	3	1	2	2	1	0	1	11
	%	8%	8%	1%	1%	1%	0%	0%	0%	0%
Human Milk	n	10	29	63	138	288	400	521	1583	3032
	%	83%	81%	79%	86%	92%	94%	95%	95%	93%
Formula	n	9	31	52	117	210	223	188	340	1170
	%	75%	86%	65%	73%	67%	52%	34%	20%	36%

Survivors include transfers in and out. No readmissions were included. Statistics should be interpreted with caution due to the small number of infants in some units. Patients could receive more than one therapy.

Comment: only patients with complete information for analysis were included (validated). Patients who died were excluded.



## **E. SUPPORT AND HOSPITALIZATION DURATION**

It is based on the number of infants  $\leq 32$  weeks at birth and discharged from the network units (data on infants is not available after being transferred to other institutions).

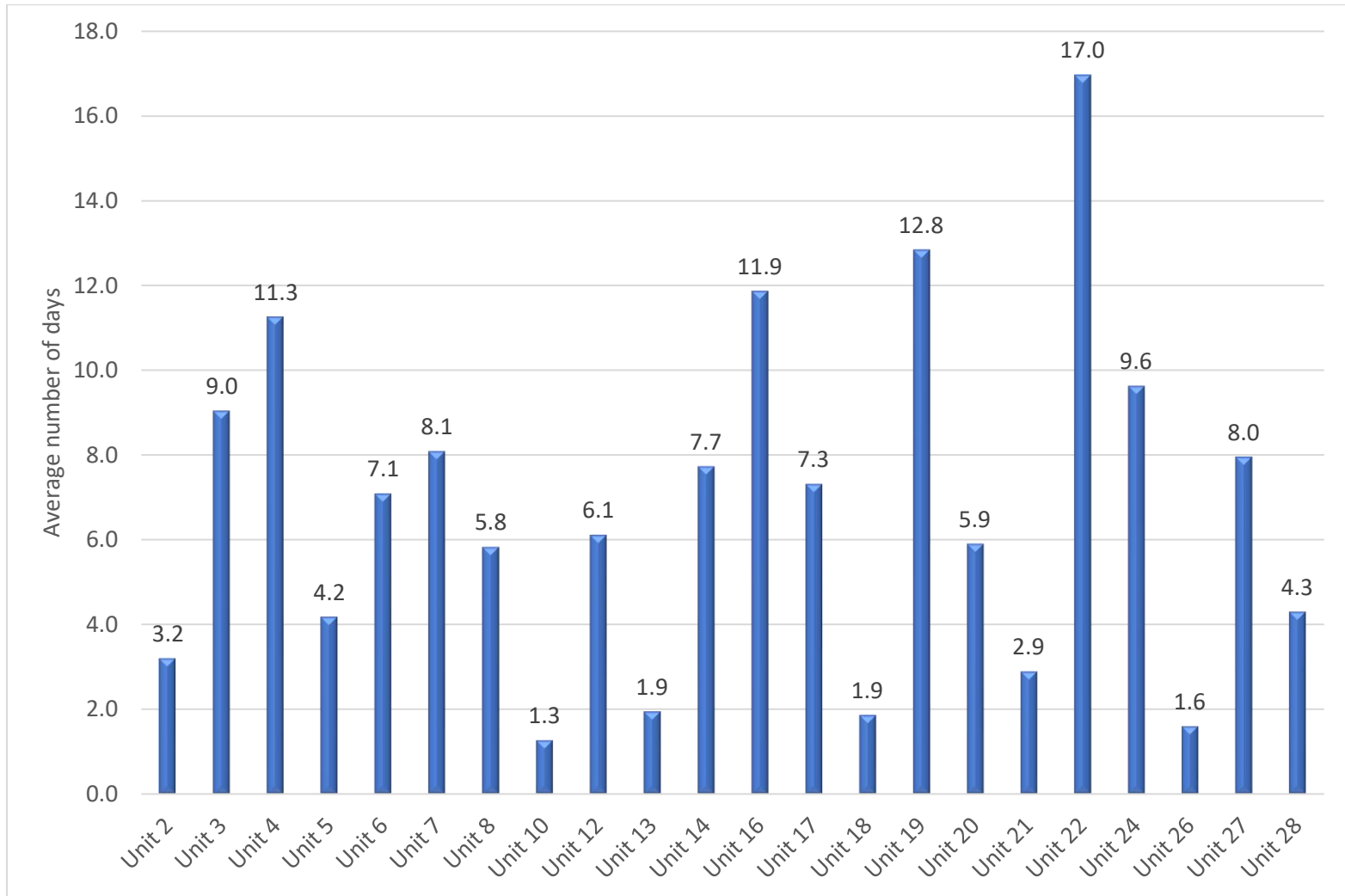
## PRESENTATION 54

### Invasive mechanical ventilation days (in infants Gestational Age ≤ 32 weeks)

UNITS	Patients		Invasive Ventilation (days)				
	Ventilated Patients n	Average number of days	Total Days n	HFOV		Conventional	
				n	%	n	%
Unit 2	25	3.2	80	4	5%	76	95%
Unit 3	49	9.0	443	196	44%	247	56%
Unit 4	23	11.3	259	54	21%	205	79%
Unit 5	11	4.2	46	22	48%	24	52%
Unit 6	71	7.1	503	503	100%	0	0%
Unit 7	79	8.1	639	52	8%	587	92%
Unit 8	35	5.8	204	18	9%	186	91%
Unit 10	15	1.3	19	13	68%	6	32%
Unit 12	9	6.1	55	35	64%	20	36%
Unit 13	19	1.9	37	3	8%	34	92%
Unit 14	26	7.7	201	1	0%	200	100%
Unit 16	22	11.9	261	68	26%	193	74%
Unit 17	16	7.3	117	54	46%	63	54%
Unit 18	15	1.9	28	2	7%	26	93%
Unit 19	25	12.8	321	36	11%	285	89%
Unit 20	21	5.9	124	15	12%	109	88%
Unit 21	18	2.9	52	19	37%	33	63%
Unit 22	31	17.0	526	0	0%	526	100%
Unit 24	24	9.6	231	35	15%	196	85%
Unit 26	10	1.6	16	3	19%	13	81%
Unit 27	22	8.0	175	11	6%	164	94%
Unit 28	25	4.3	185	1	1%	184	99%
<b>Total</b>	<b>591</b>	<b>13.4</b>	<b>4522</b>	<b>1145</b>	<b>25%</b>	<b>3377</b>	<b>75%</b>

Comment: only patients with complete information were included. Invasive mechanical ventilation includes patients with High Frequency Ventilation (HFOV) and intermittent positive pressure ventilation (IPPV). Mortality significantly affects the groups with low gestational age. Only patients with invasive mechanical ventilation were included. The statistics should be interpreted with caution due to the small number of infants in some units. Units were excluded if they had ≤ 10 patients ≤ 32 weeks GA at birth during the year.

**Invasive mechanical ventilation days (in infants Gestational Age ≤ 32 weeks)**



## PRESENTATION 55

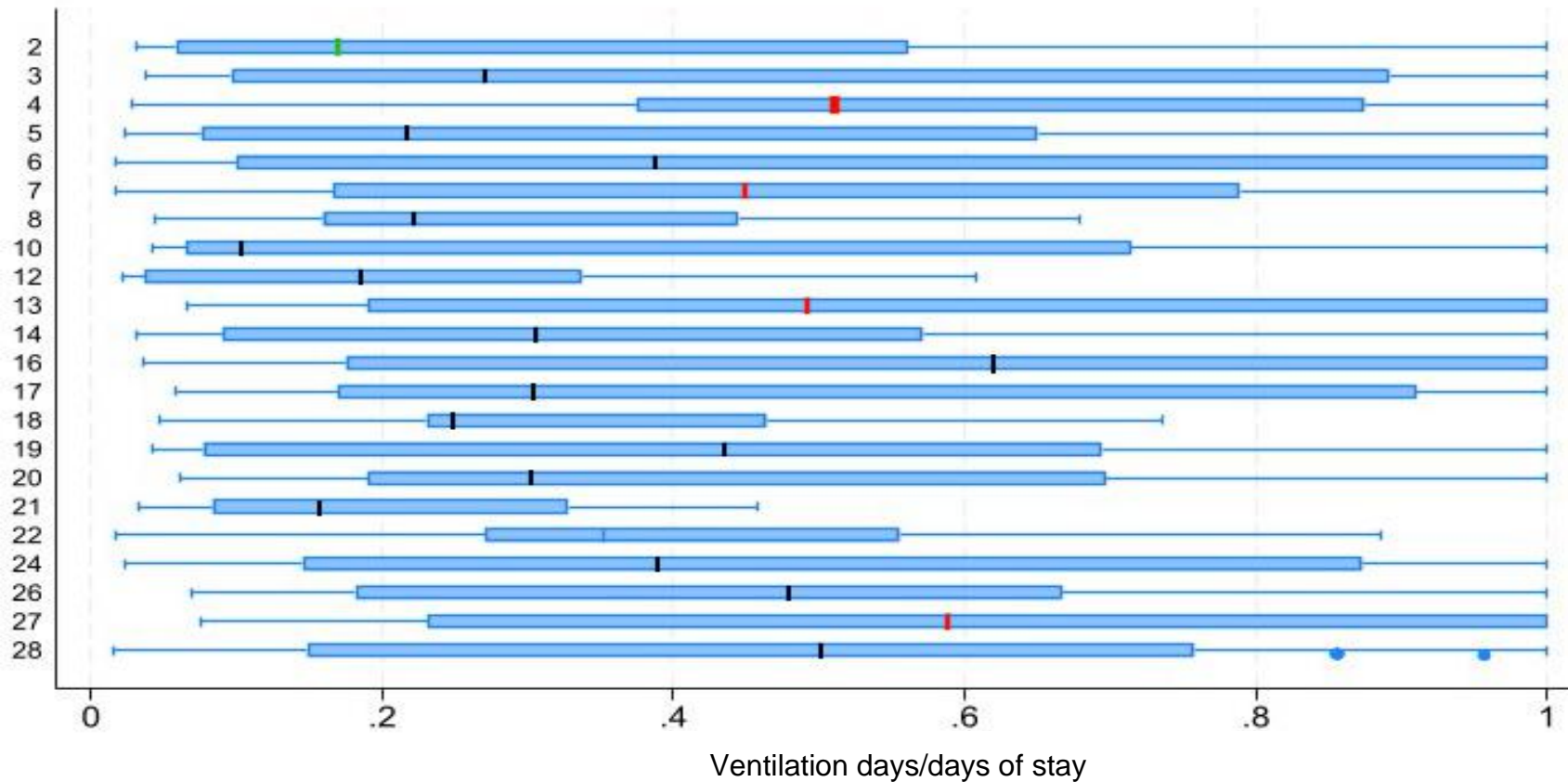
**Median Days in Invasive Mechanical Ventilation/days of stay. Regression analysis (in infants Gestational Age ≤ 32 weeks) Adjusted by Gestational Age at birth and Spape II. Comparison by Units.**

UNITS	N	p50	P75	P25	p
Unit 2	25	0.17	0.56	0.06	ref
Unit 3	49	0.27	0.89	0.10	0.535
Unit 4	23	0.51	0.88	0.38	<b>0.000</b>
Unit 5	11	0.22	0.65	0.08	0.747
Unit 6	71	0.39	1.00	0.10	0.499
Unit 7	79	0.45	0.79	0.17	<b>0.001</b>
Unit 8	35	0.22	0.44	0.16	0.572
Unit 10	15	0.10	0.71	0.07	0.505
Unit 12	9	0.18	0.34	0.04	0.300
Unit 13	19	0.49	1.00	0.19	<b>0.048</b>
Unit 14	26	0.31	0.57	0.09	0.759
Unit 16	22	0.62	1.00	0.18	0.442
Unit 17	16	0.30	0.91	0.17	0.639
Unit 18	15	0.25	0.46	0.23	0.328
Unit 19	25	0.44	0.69	0.08	0.125
Unit 20	21	0.30	0.70	0.19	0.354
Unit 21	18	0.16	0.33	0.08	0.462
Unit 22	31	0.35	0.56	0.27	0.104
Unit 24	24	0.39	0.87	0.15	0.143
Unit 26	10	0.48	0.67	0.18	0.798
Unit 27	22	0.59	1.00	0.23	<b>0.023</b>
Unit 28	43	0.50	0.76	0.15	0.214

Statistically significant p values are marked in bold.

Median days in **Invasive Mechanical Ventilation/days of stay**. Regression analysis (in infants Gestational Age  $\leq 32$  weeks) Adjusted by Gestational Age at birth and Snape II. by Unit

UNITS



Box plot of median days of invasive ventilation/days of stay and interquartile ranges (IQR) comparing between units in patients who received ventilation. The units were compared by median nonparametric regression adjusted for gestational age at birth and Snape II. In red band the unit with statistically significant difference and in green band the reference unit (Unit 2) for having a low median in the group with enough patients. The statistics should be interpreted with caution due to the small number of infants in some units and large intervals. Units were excluded if they had  $\leq 10$  patients  $\leq 32$  weeks GA at birth during the year.

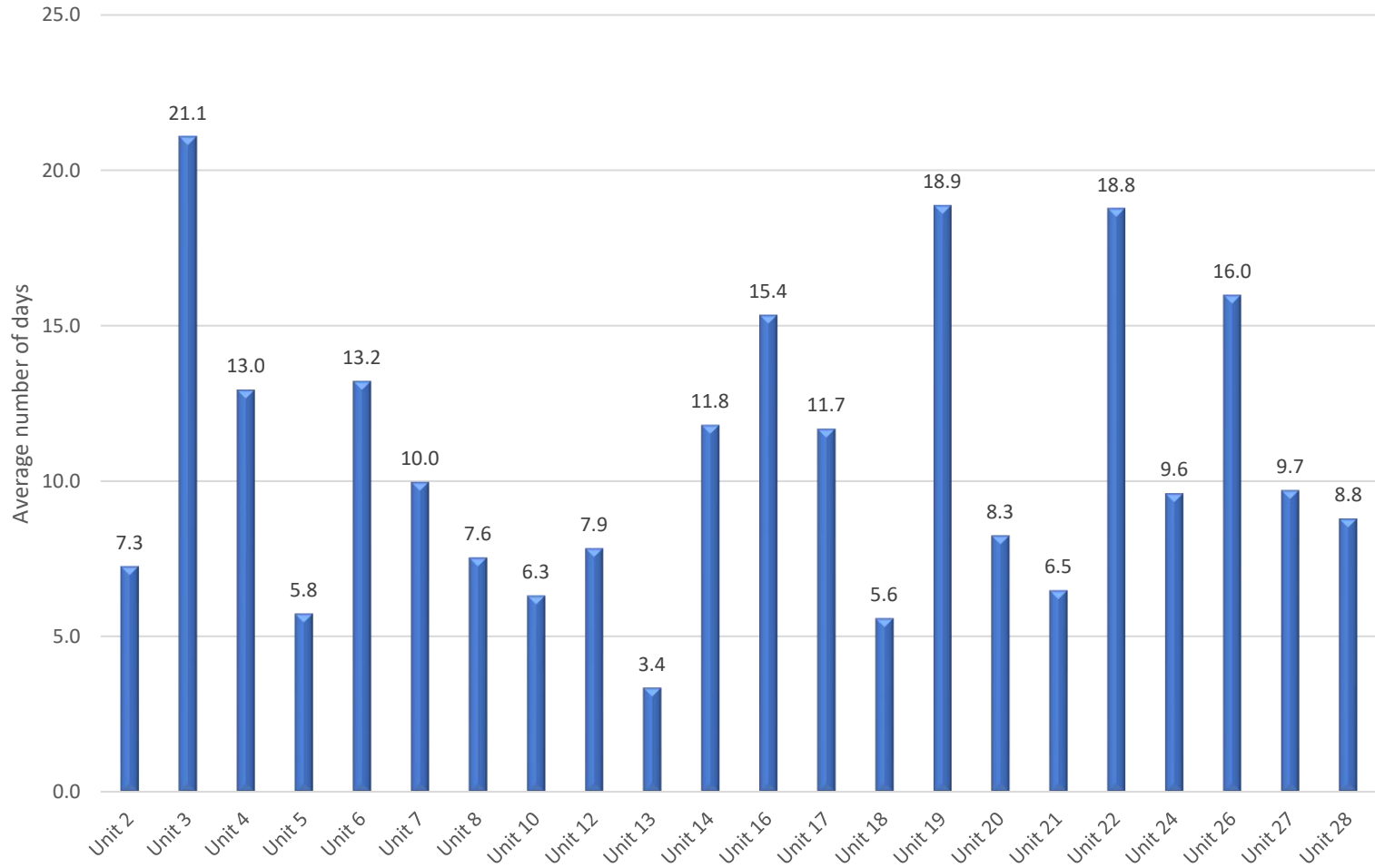
## PRESENTATION 56

**Average NON-Invasive Ventilation Days by Unit in ≤ 32 weeks Gestational Age (table)**

UNITS	Patients		NON-Invasive Ventilation (days)						
	Ventilated Patients n	Average number of days	Total Days n	VNI (with Frequency)		CPAP		High Flow nasal cannula	
				n	%	n	%	n	%
Unit 2	11	7.3	157	34	22%	85	54%	38	24%
Unit 3	21	21.1	1038	63	6%	168	16%	807	78%
Unit 4	20	13.0	308	16	5%	166	54%	126	41%
Unit 5	8	5.8	102	35	34%	8	8%	59	58%
Unit 6	38	13.2	714	0	0%	331	46%	383	54%
Unit 7	64	10.0	1041	217	21%	64	6%	760	73%
Unit 8	27	7.6	171	142	83%	16	9%	13	8%
Unit 10	3	6.3	72	18	25%	54	75%	0	0%
Unit 12	7	7.9	138	35	25%	34	25%	69	50%
Unit 13	11	3.4	252	25	10%	56	22%	171	68%
Unit 14	17	11.8	175	25	14%	130	74%	20	11%
Unit 16	17	15.4	207	186	90%	11	5%	10	5%
Unit 17	10	11.7	423	10	2%	165	39%	248	59%
Unit 18	5	5.6	137	86	63%	48	35%	3	2%
Unit 19	17	18.9	207	99	48%	108	52%	0	0%
Unit 20	15	8.3	144	81	56%	25	17%	38	26%
Unit 21	8	6.5	74	36	49%	23	31%	15	20%
Unit 22	28	18.8	248	12	5%	235	95%	1	0%
Unit 24	24	9.6	151	125	83%	1	1%	25	17%
Unit 26	1	16.0	199	100	50%	45	23%	54	27%
Unit 27	18	9.7	203	0	0%	153	75%	50	25%
Unit 28	21	8.8	975	198	20%	266	27%	511	52%
<b>Total</b>	<b>657</b>	<b>0.0</b>	<b>9117</b>	<b>2529</b>	<b>28%</b>	<b>3710</b>	<b>41%</b>	<b>2878</b>	<b>32%</b>

Comment: only patients with complete information were included. NON-Invasive Ventilation includes CPAP, non-invasive ventilation with frequency and high flow nasal cannula. Patients with only oxygen or low-flow cannula were excluded. The statistics should be interpreted with caution due to the small number of infants in some units. Units were excluded if they had ≤ 10 patients ≤ 32 weeks GA at birth during the year.

Average **NON**-Invasive Ventilation Days by Unit in  $\leq 32$  weeks Gestational Age



## PRESENTATION 57

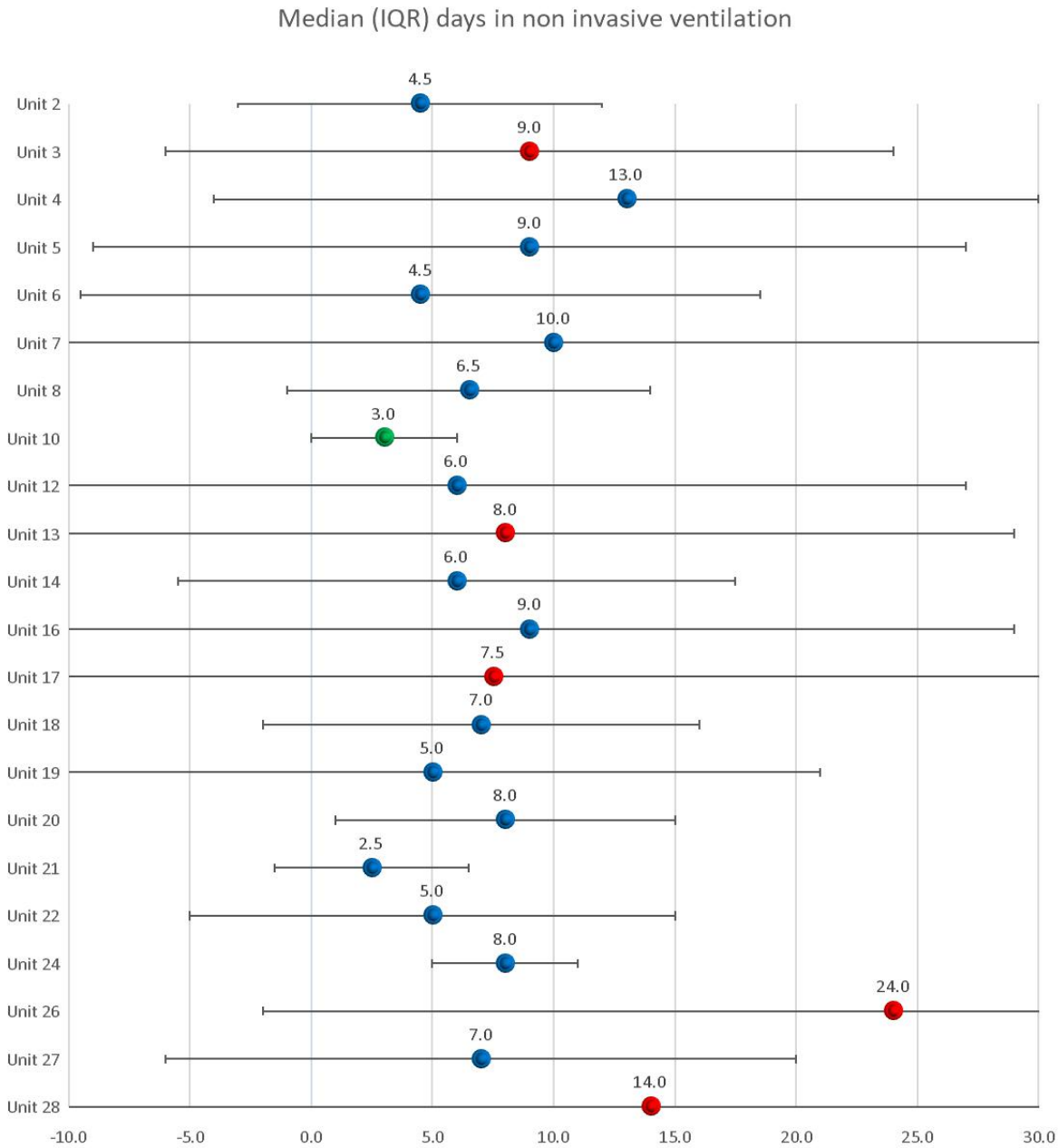
**Regression and Median Days of NON-Invasive Ventilation by unit in  $\leq 32$  weeks Gestational Age, (table)**

UNITS	N	p50	P75	P25	p
Unit 2	20	4.5	8.5	1.0	0.642
Unit 3	49	9.0	18.0	3.0	<b>0.017</b>
Unit 4	19	13.0	20.0	3.0	0.096
Unit 5	9	9.0	20.0	2.0	0.138
Unit 6	58	4.5	17.0	3.0	0.837
Unit 7	66	10.0	24.0	3.0	0.171
Unit 8	24	6.5	10.5	3.0	0.539
Unit 10	14	3.0	5.0	2.0	ref
Unit 12	9	6.0	23.0	2.0	0.807
Unit 13	18	8.0	26.0	5.0	<b>0.046</b>
Unit 14	20	6.0	14.5	3.0	0.795
Unit 16	14	9.0	26.0	6.0	0.350
Unit 17	14	7.5	28.0	4.0	<b>0.012</b>
Unit 18	15	7.0	13.0	4.0	0.311
Unit 19	20	5.0	18.0	2.0	0.549
Unit 20	17	8.0	11.0	4.0	0.806
Unit 21	14	2.5	5.0	1.0	0.563
Unit 22	29	5.0	13.0	3.0	0.484
Unit 24	13	8.0	9.0	6.0	0.743
Unit 26	9	24.0	32.0	6.0	<b>0.046</b>
Unit 27	16	7.0	17.0	4.0	0.523
Unit 28	40	14.0	43.5	4.5	<b>0.023</b>

Statistically significant p values are marked in bold. Units were excluded if they had  $\leq 10$  patients  $\leq 32$  weeks GA at birth during the year. Regression analysis as in previous presentations.



**Median Days in NON-Invasive Ventilation and Regression analysis adjuster by gestational age, mortality and days of stay by unit in ≤ 32 weeks Gestational Age infants**



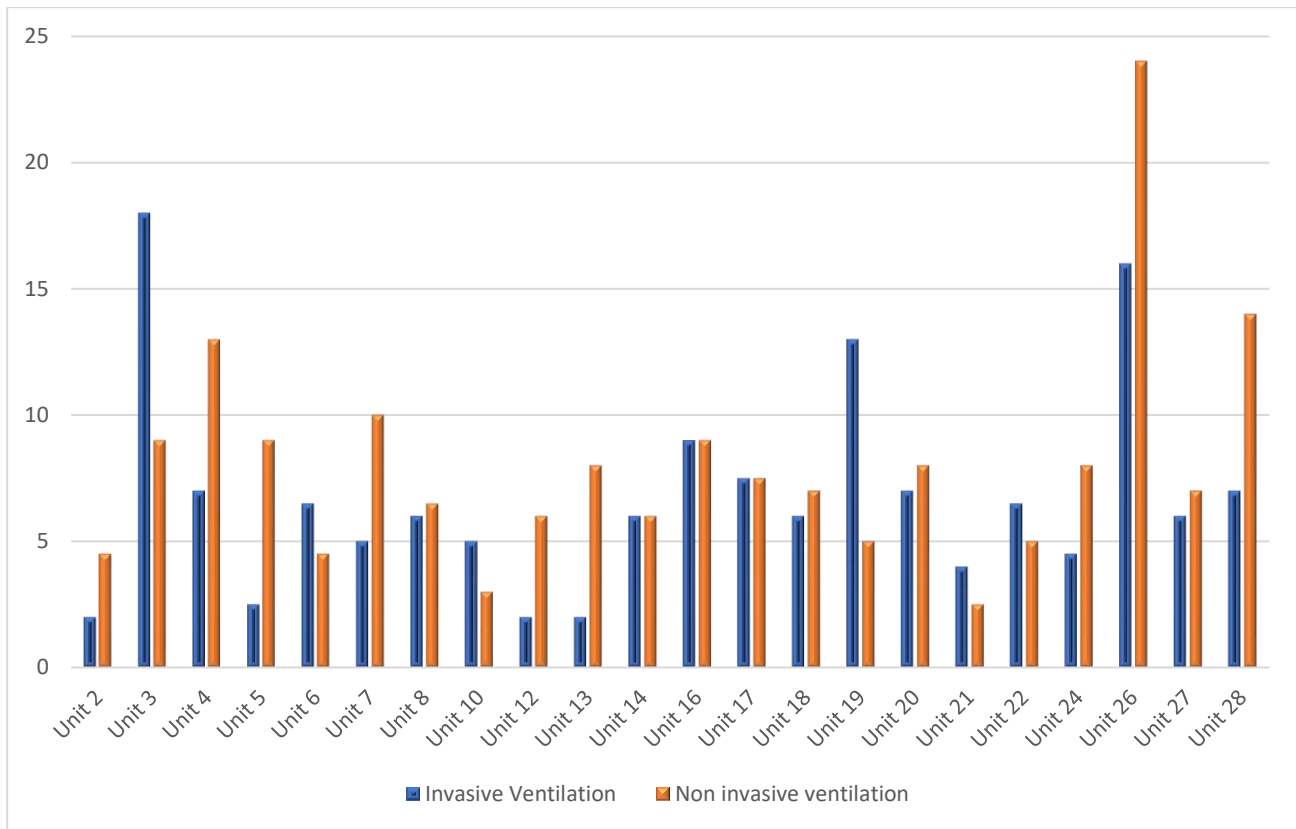
Median  $\pm$ IQR (interquartile range cut for visualization) days of non-invasive ventilation. The units were compared by median nonparametric regression adjusted for gestational age at birth. In red the units with statistically significant difference and in green the reference unit (Unit 10 for having a low median among units with adequate number of patients). Statistics are dependent on the number of patients and should be interpreted with caution due to the small number of infants in some units and large interquartile ranges.

## PRESENTATION 58

Median number of Days of Invasive and non-Invasive Ventilation by Unit in infants  $\leq 32$  weeks Gestational Age

UNITS	NIV	IMV*
Unit 2	2	5
Unit 3	18	9
Unit 4	7	13
Unit 5	3	9
Unit 6	7	5
Unit 7	5	10
Unit 8	6	7
Unit 10	5	3
Unit 12	2	6
Unit 13	2	8
Unit 14	6	6
Unit 16	9	9
Unit 17	8	8
Unit 18	6	7
Unit 19	13	5
Unit 20	7	8
Unit 21	4	3
Unit 22	7	5
Unit 24	5	8
Unit 26	16	24
Unit 27	6	7
Unit 28	7	14

**Median of NON-Invasive Ventilation Days and Invasive Ventilation Days by Unit in  $\leq 32$  weeks Gestational Age**



Median of number of days of non-invasive and invasive mechanical ventilation. Invasive ventilation includes HFOV and IPPV and NON-Invasive ventilation includes CPAP, NIVn (nasal non-invasive ventilation) and high-flow cannulas. The statistics should be interpreted with caution due to the small number of infants in some units.

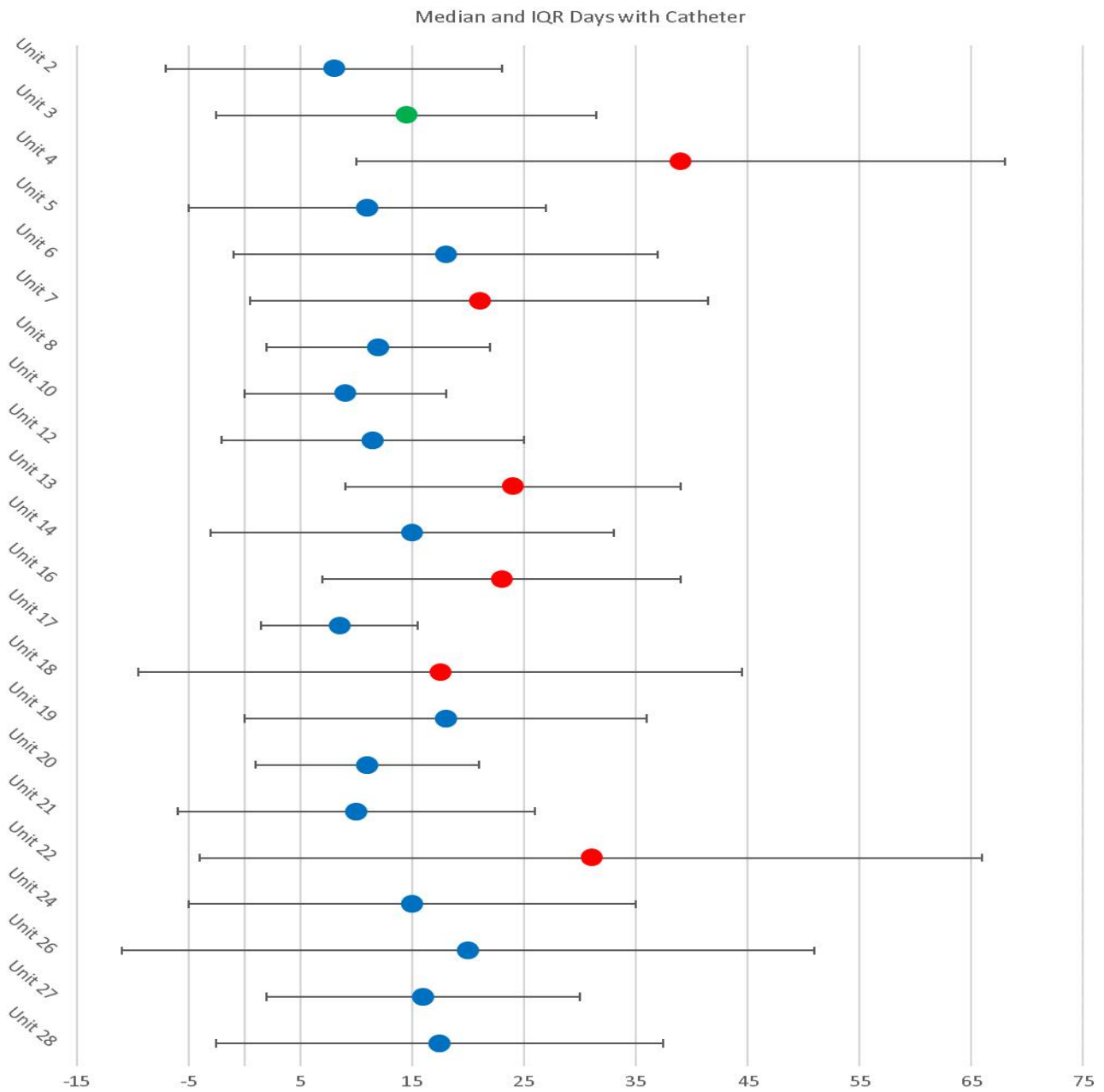
## PRESENTATION 59

**Median Number of Days with Catheter (in infants Gestational Age ≤ 32 weeks) by Unit. (Table)**

UNITS	Number of Patients	Total number of days	Days			
	n		p50	P75	P25	p
Unit 2	230	15	8	20	5	0.363
Unit 3	1308	54	14.5	25	8	ref
Unit 4	993	24	39	50	21	<b>0.000</b>
Unit 5	163	11	11	24	8	0.688
Unit 6	1356	67	18	27	8	1.000
Unit 7	1977	84	21	31	10.5	<b>0.002</b>
Unit 8	537	36	12	17.5	7.5	1.000
Unit 10	211	17	9	15	6	0.474
Unit 12	190	12	11.5	22	8.5	1.000
Unit 13	488	21	24	30	15	<b>0.039</b>
Unit 14	627	32	15	27	9	0.373
Unit 16	599	21	23	35	19	<b>0.021</b>
Unit 17	202	16	8.5	13	6	0.351
Unit 18	462	18	17.5	36	9	<b>0.029</b>
Unit 19	567	25	18	29	11	0.410
Unit 20	313	21	11	18	8	0.439
Unit 21	237	19	10	20	4	0.804
Unit 22	1580	34	31	51	16	<b>0.000</b>
Unit 24	411	23	15	27	7	0.424
Unit 26	300	11	20	46	15	0.316
Unit 27	389	22	16	23	9	0.599
Unit 28	1267	44	17.5	31.5	11.5	0.191

Statistically significant p values are marked in bold.

### Median (IQR) Days with Catheter (in infants Gestational Age ≤ 32 weeks) by Unit.



Median  $\pm$ IQR (interquartile range) days with catheter. The units were compared by median nonparametric regression adjusted for gestational age at birth. In red the units with statistically significant difference. Only babies with at least 1 day of catheter were included. Unit 3 was chosen as the reference for low median and adequate number of infants in green. Includes arterial and venous umbilical catheters, PICC catheters, arterial lines, surgical lines, and peripheral lines. Statistics are dependent on the number of patients and should be interpreted with caution due to the small number of infants in some units and large interquartile ranges. Units were excluded if they had  $\leq 10$  patients  $\leq 32$  weeks GA at birth during the year.

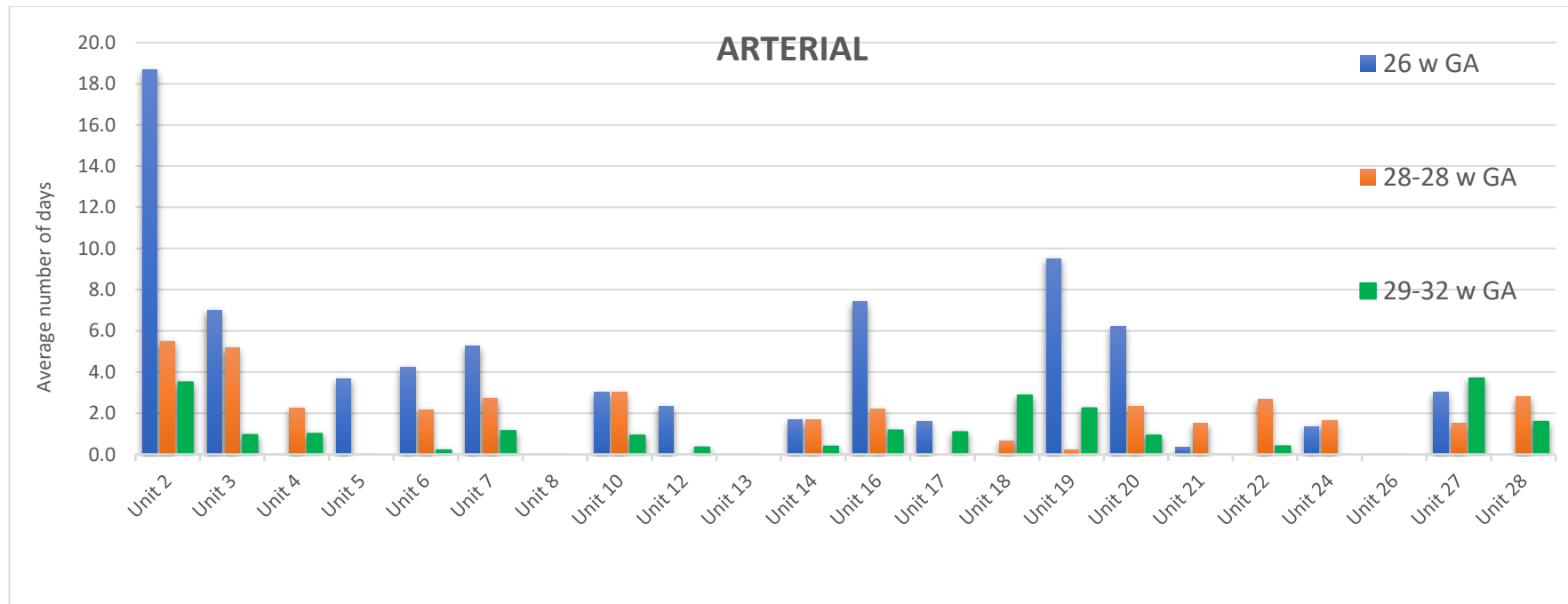
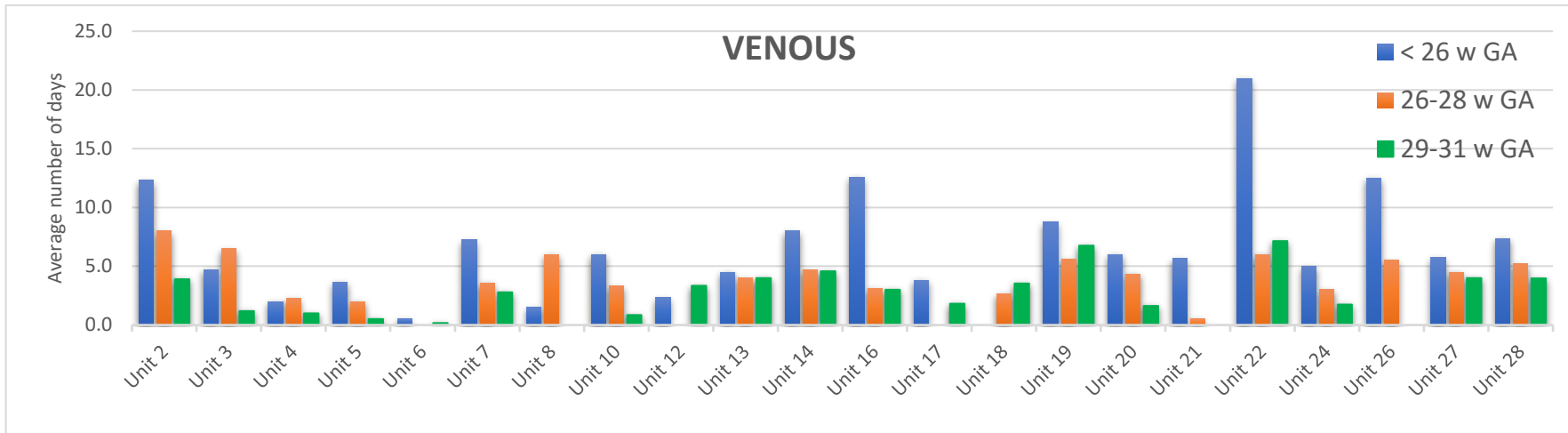
## PRESENTATION 60

**Average Number of Days with Arterial and Venous Umbilical Catheter (in Children with Gestational Age ≤ 32 Weeks) by gestational age groups and units (TABLE)**

UNITS	AVERAGE NUMBER OF DAYS WITH CATHETER											
	VENOUS CATHETER						ARTERIAL CATHETER					
	<26		26-28		29-32		<26		26-28		29-32	
	n	average	n	average	n	average	n	average	n	average	n	average
Unit 2	3	12.3	2	8.0	10	3.9	3	18.7	2	5.5	10	4
Unit 3	11	4.7	6	6.5	37	1.2	11	7.0	6	5.2	37	0.9
Unit 4	1	2.0	4	2.3	19	1.0	1	0.0	4	2.3	19	1.0
Unit 5	3	3.7	2	2.0	6	0.5	3	3.7	2	0.0	6	0.0
Unit 6	16	0.5	17	0.0	34	0.2	16	4.3	17	2.2	34	0.2
Unit 7	8	7.3	14	3.6	62	2.8	8	5.3	14	2.7	62	1.1
Unit 8	2	1.5	3	6.0	31	0.0	2	0.0	3	0.0	31	0.0
Unit 10	1	6.0	3	3.3	13	0.8	1	3.0	3	3.0	13	0.9
Unit 12	3	2.3	0	0.0	9	3.3	3	2.3	0	0.0	9	0.3
Unit 13	2	4.5	5	4.0	14	4.0	2	0.0	5	0.0	14	0.0
Unit 14	3	8.0	3	4.7	26	4.6	3	1.7	3	1.7	26	0.4
Unit 16	5	12.6	10	3.1	6	3.0	5	7.4	10	2.2	6	1.2
Unit 17	5	3.8	0	0.0	11	1.8	5	1.6	0	0.0	11	1.1
Unit 18	0	0.0	3	2.7	15	3.5	0	0.0	3	0.7	15	2.9
Unit 19	4	8.8	5	5.6	16	6.8	4	9.5	5	0.2	16	2.3
Unit 20	5	6.0	3	4.3	13	1.6	5	6.2	3	2.3	13	0.9
Unit 21	3	5.7	2	0.5	14	0.0	3	0.3	2	1.5	14	0.0
Unit 22	1	21.0	3	6.0	30	7.1	1	0.0	3	2.7	30	0.4
Unit 24	3	5.0	8	3.0	12	1.8	3	1.3	8	1.6	12	0.0
Unit 26	2	12.5	4	5.5	5	0.0	2	0.0	4	0.0	5	0.0
Unit 27	4	5.8	2	4.5	16	4.0	4	3.0	2	1.5	16	3.7
Unit 28	8	7.4	10	5.2	26	4.0	8	6.9	10	2.8	26	1.6
Total/average	93	6.4	109	3.7	425	2.5	93	3.7	109	1.7	425	1.0

Comment: Average number of days with catheter. Only patients with complete data with at least 1 catheter day were included. Units were excluded if they had ≤ 10 patients ≤ 32 weeks GA at birth during the year.

**Average Number of Days with Arterial and Venous Umbilical Catheter (in Children with Gestational Age ≤ 32 Weeks) by gestational age groups and units**



w GA: weeks of gestational age at birth

## PRESENTATION 61

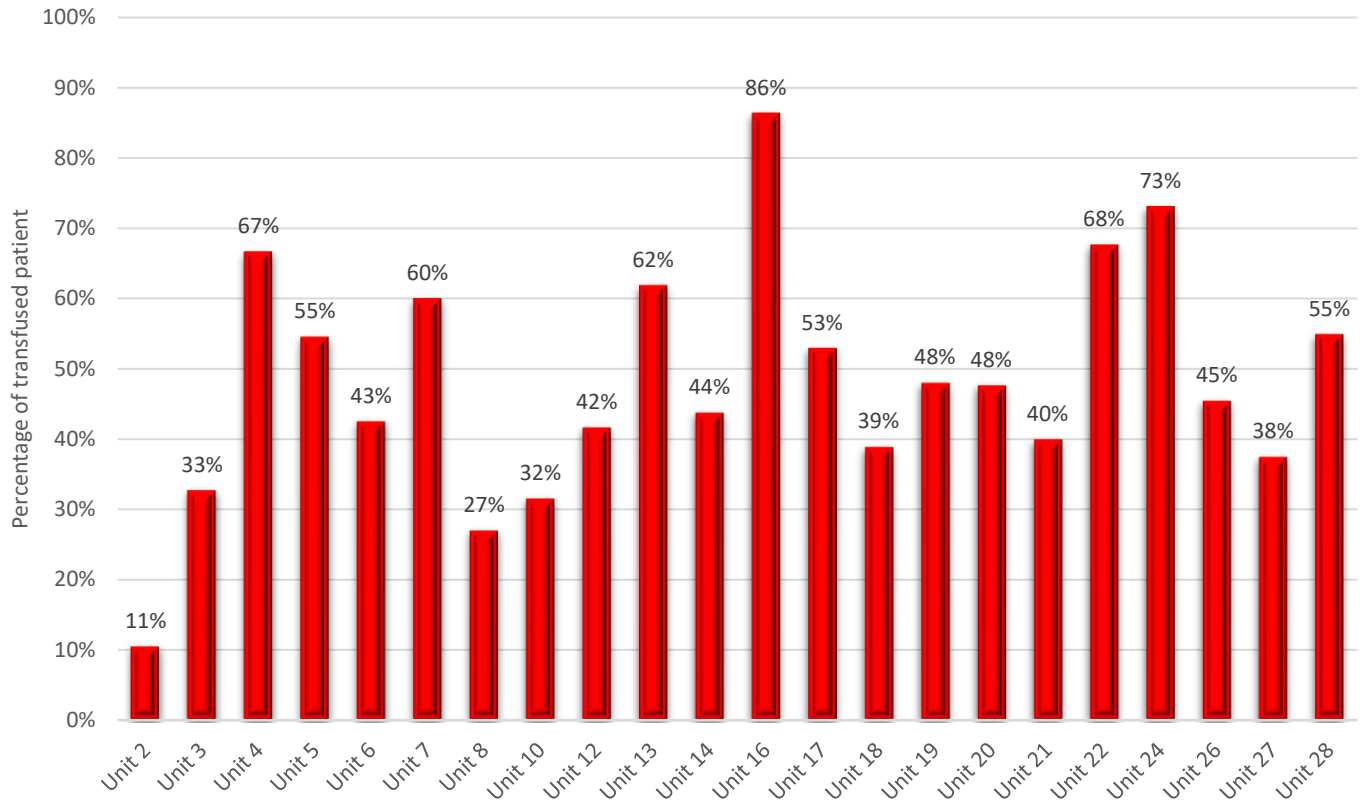
### Transfusions (in Infants Gestational Age ≤ 32 weeks) by Unit (TABLE)

UNITS	Patients ≤ 32 weeks Gestational Age	Number of Patient Transfused	Number of transfusions	Percentage of transfused patient	Number or transfusion per patient
Unit 2	38	4	8	10.5%	2.0
Unit 3	55	18	131	32.7%	7.3
Unit 4	24	16	21	66.7%	1.3
Unit 5	11	6	7	54.5%	1.2
Unit 6	87	37	88	42.5%	2.4
Unit 7	90	54	140	60.0%	2.6
Unit 8	37	10	15	27.0%	1.5
Unit 10	19	6	20	31.6%	3.3
Unit 12	12	5	22	41.7%	4.4
Unit 13	21	13	19	61.9%	1.5
Unit 14	32	14	22	43.8%	1.6
Unit 16	22	19	42	86.4%	2.2
Unit 17	17	9	23	52.9%	2.6
Unit 18	18	7	28	38.9%	4.0
Unit 19	25	12	16	48.0%	1.3
Unit 20	21	10	15	47.6%	1.5
Unit 21	20	8	12	40.0%	1.5
Unit 22	34	23	94	67.6%	4.1
Unit 24	26	19	27	73.1%	1.4
Unit 26	11	5	17	45.5%	3.4
Unit 27	24	9	11	37.5%	1.2
Unit 28	51	28	62	54.9%	2.2
<b>TOTAL</b>	695	332	840	47.8%	2.5

All patients ≤ 32 weeks gestational age at birth were included. Number of packed red blood cell (RBC) transfusion as well as number of infants transfused were recorded. Statistics are dependent on the number of patients in a particular age group and should be interpreted with caution due to the small number of infants in some units.



**Percentage of Patients who received Packed Red Blood Cells (in infants ≤ 32 weeks Gestational Age) by Unit**



All patients ≤ 32 weeks gestational age at birth were included. Number of packed red blood cell (RBC) transfusion as well as number of infants who received transfusions were recorded. Statistics are dependent on the number of patients and should be interpreted with caution due to the small number of infants in some units. Units were excluded if they had ≤ 10 patients ≤ 32 weeks GA at birth during the year.

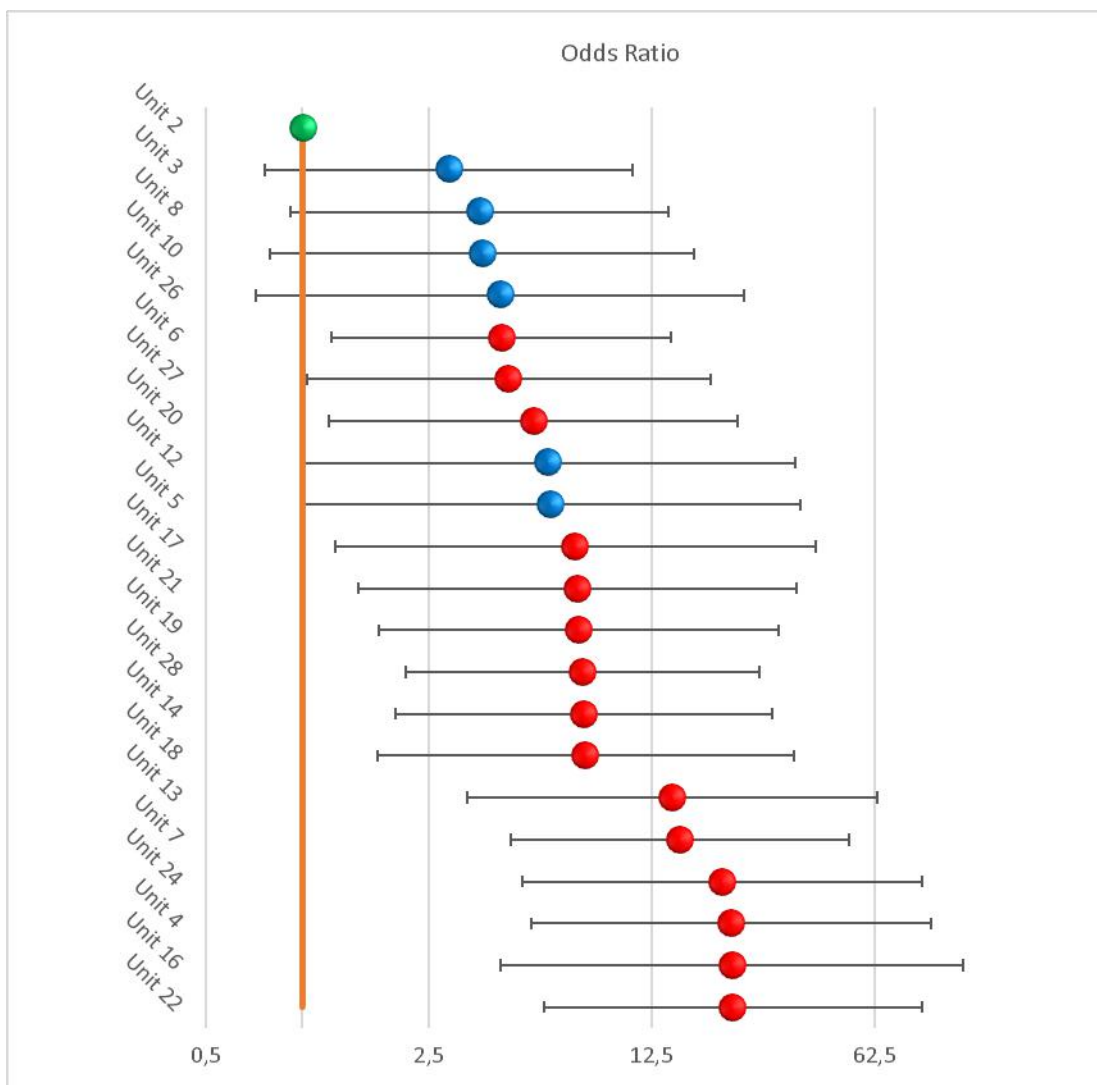
## PRESENTATION 62

**Odds Ratio of the number of Transfused Infants  $\leq$  32 weeks Gestational Age at Birth in each unit controlled by Gestational Age and SNAPE PEII (incremental table)**

UNITS	N	OR	P values	CI 95%
Unit 2	38	1.0	ref	
Unit 3	55	2.9	0.117	0.8 - 10.9
Unit 8	37	3.6	0.066	0.9 - 14.2
Unit 10	19	3.7	0.097	0.8 - 17.0
Unit 26	11	4.2	0.113	0.7 - 24.3
Unit 6	87	4.2	<b>0.021</b>	1.2 - 14.4
Unit 27	24	4.5	<b>0.044</b>	1.0 - 19.1
Unit 20	21	5.3	<b>0.026</b>	1.2 - 23.3
Unit 12	12	5.9	0.051	1.0 - 35.2
Unit 5	11	6.0	0.052	1.0 - 36.6
Unit 17	17	7.2	<b>0.026</b>	1.3 - 40.8
Unit 21	20	7.3	<b>0.014</b>	1.5 - 35.6
Unit 19	25	7.4	<b>0.007</b>	1.7 - 31.3
Unit 28	51	7.6	<b>0.002</b>	2.1 - 27.4
Unit 14	32	7.7	<b>0.003</b>	2.0 - 29.8
Unit 18	18	7.8	<b>0.008</b>	1.7 - 34.9
Unit 13	21	14.5	<b>0.000</b>	3.3 - 63.8
Unit 7	90	15.3	<b>0.000</b>	4.5 - 51.9
Unit 24	26	20.8	<b>0.000</b>	4.9 - 88.0
Unit 4	24	22.2	<b>0.000</b>	5.2 - 94.1
Unit 16	22	22.4	<b>0.000</b>	4.2 - 119.2
Unit 22	34	22.5	<b>0.000</b>	5.8 - 88.1
<b>Reference</b>		<b>Unit 2</b>		

Statistically significant p values are marked in bold.

**Odds Ratio  $\pm$  CI 95% of the number of Infants  $\leq$  32 weeks Gestational Age at Birth who received transfusions in each unit controlled by SNAPE II and Gestational Age (incremental graph with log scale)**



Odd Ratio  $\pm$  95% CI ordered in ascending order. All infants  $\leq$  32 weeks gestational age are included. Unit 2 in green was chosen as reference due to the lower incidence of transfusion with enough infants. The units with statistically significant difference in red. The upper confidence intervals of some units are very large. Statistics are dependent on the number of patients at a particular gestational age group and should be interpreted with caution due to the small number of infants in some units and intervals. Units were excluded if they had  $\leq$  10 patients  $\leq$  32 weeks GA at birth during the year.

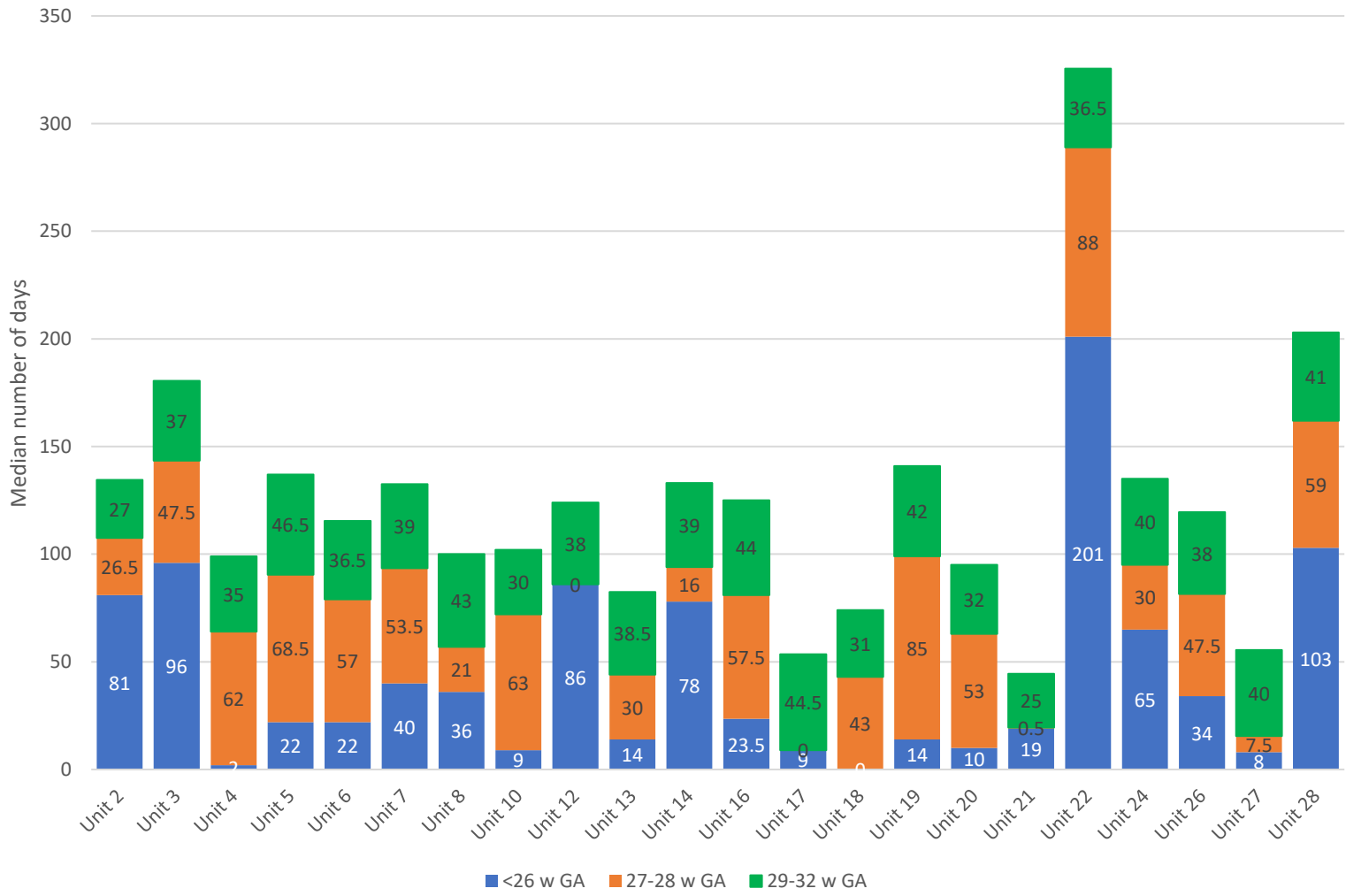
## PRESENTATION 63

### Days of in hospital Stay by Gestational Age Groups and by Unit (Gestational Age ≤ 32 Weeks)

Unit	Gestational Age at Birth								
	<26 sem			27-28			29-32		
	Patients	Total Days	Median	Patients	Total Days	Median	Patients	Total Days	Median
Unit 2	3	182	81	2	53	26.5	35	961	27
Unit 3	11	914	96	6	321	47.5	38	1474	37
Unit 4	1	2	2	4	255	62	19	707	35
Unit 5	3	241	22	2	137	68.5	6	298	46.5
Unit 6	17	748	22	18	829	57	52	1971	36.5
Unit 7	8	383	40	14	593	53.5	68	2890	39
Unit 8	2	72	36	3	92	21	32	1315	43
Unit 10	1	9	9	3	164	63	15	457	30
Unit 12	3	275	86	0	0	0	9	398	38
Unit 13	2	28	14	6	183	30	14	513	38.5
Unit 14	3	198	78	3	82	16	26	1013	39
Unit 16	6	197	23.5	10	572	57.5	6	319	44
Unit 17	5	311	9	0	0	0	12	639	44.5
Unit 18	0	0	0	3	134	43	15	477	31
Unit 19	4	144	14	5	393	85	16	681	42
Unit 20	5	127	10	3	141	53	13	427	32
Unit 21	3	101	19	2	1	0.5	15	462	25
Unit 22	1	201	201	3	246	88	30	1209	36.5
Unit 24	3	199	65	8	203	30	15	602	40
Unit 26	2	68	34	4	203	47.5	5	188	38
Unit 27	4	139	8	2	15	7.5	18	780	40
Unit 28	8	617	103	12	617	59	31	1369	41
Total	95	5156	44	113	5234	42	490	19150	37

IQR: interquartile Range. Comment: only patients with complete information were included and readmissions were included. Mortality in low gestational ages may modify results.

### Median Number of in hospital Days of Stay by Gestational Age Groups and by Unit (Gestational Age ≤ 32 Weeks at Birth)



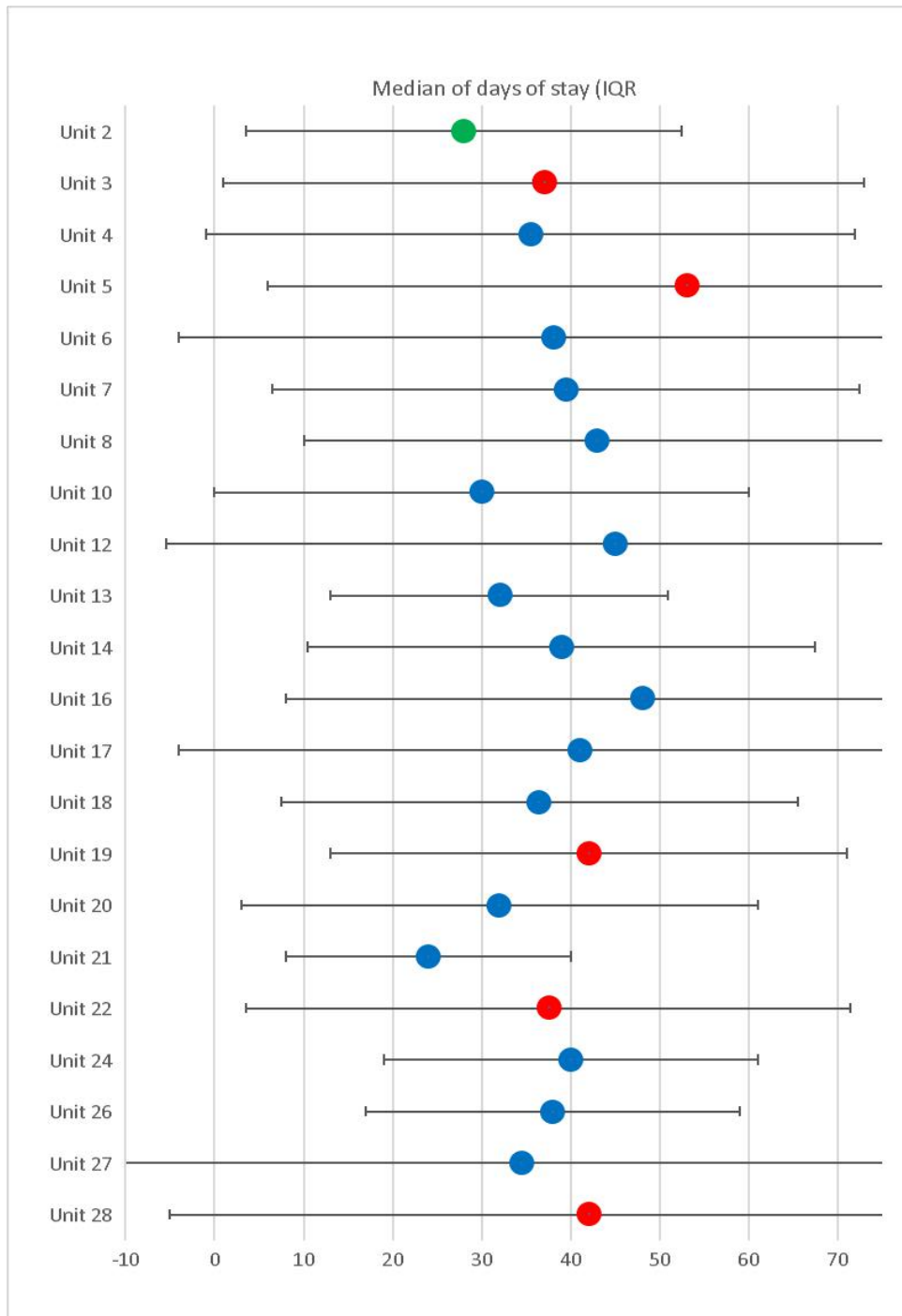
w GA: weeks of gestational age at birth

**Median Number of in hospital Days of Stay by Unit Adjusted by Gestational Age at birth, mortality and  
Snape II. (Gestational Age ≤ 32 Weeks)**

Units	N	p50	p75	p25	p
Unit 2	40	28	42	17.5	ref
Unit 3	55	37	60	24	<b>0.029</b>
Unit 4	24	35.5	55.5	19	0.204
Unit 5	11	53	76	29	<b>0.009</b>
Unit 6	87	38	62	20	0.302
Unit 7	90	39.5	58	25	0.056
Unit 8	37	43	56	23	0.430
Unit 10	19	30	42	12	0.533
Unit 12	12	45	84.5	34	0.179
Unit 13	22	32	42	23	0.221
Unit 14	32	39	53.5	25	0.434
Unit 16	22	48	62	22	0.241
Unit 17	17	41	70	25	0.150
Unit 18	18	36.5	45	16	0.763
Unit 19	25	42	62	33	<b>0.030</b>
Unit 20	21	32	50	21	0.723
Unit 21	20	24	31	15	0.724
Unit 22	34	37.5	59	25	<b>0.044</b>
Unit 24	26	40	48	27	0.953
Unit 26	11	38	53	32	0.702
Unit 27	24	34.5	58	11	0.207
Unit 28	51	42	70	23	<b>0.016</b>

\*Units were compared using a regression of medians. The high mortality at low gestational ages distorts the results. There were no significant differences.

**Median Number of in hospital Days of Stay by Unit, Adjusted by Gestational Age at birth, mortality and Snape II (Gestational Age  $\leq$  32 Weeks)**



The units were compared by median nonparametric regression adjusted for gestational age at birth. Unit 2 was chosen for the low median stay, and with enough cases (in green). Units with a statistically significant difference in red. Interpret data cautiously in units with very wide interquartile (IQR cut for adequate visualization) ranges.

## PRESENTATION 64

### Days of ANTIBIOTICS in Infants ≤ 32 weeks Gestational Age at birth, by Unit in 3 Gestational Age Groups

UNITS	Days of Antibiotics									Total
	<26 w			26-28w			29-32w			
	Total patients	Total Days	Number of days per patient	Total patients	Total Days	Number of days per patient	Total patients	Total Days	Number of days per patient	
Unit 2	3	40	13	2	17	9	5	19	4	76
Unit 3	11	737	67	6	85	14	33	186	6	1008
Unit 4	1	3	3	4	110	28	19	236	12	349
Unit 5	3	18	6	2	9	5	5	37	7	64
Unit 6	16	483	30	16	296	19	44	570	13	1349
Unit 7	8	106	13	13	94	7	47	317	7	517
Unit 8	2	9	5	3	36	12	20	178	9	223
Unit 10	1	8	8	3	23	8	9	19	2	50
Unit 12	3	24	8	0	0		6	36	6	60
Unit 13	2	20	10	5	79	16	14	167	12	266
Unit 14	3	41	14	3	36	12	22	202	9	279
Unit 16	6	115	19	10	178	18	6	40	7	333
Unit 17	4	56	14	0	0		8	55	7	111
Unit 18	0	0		3	44	15	11	188	17	232
Unit 19	4	84	21	5	116	23	13	127	10	327
Unit 20	5	32	6	3	21	7	7	27	4	80
Unit 21	3	44	15	0	0		11	90	8	134
Unit 22	1	154	154	3	172	57	29	560	19	886
Unit 24	3	67	22	7	94	13	14	164	12	325
Unit 26	2	37	19	4	74	19	2	16	8	127
Unit 27	3	36	12	0	0		15	123	8	159
Unit 28	8	134	17	10	143	14	23	159	7	436
<b>Total</b>	<b>92</b>	<b>2248</b>	<b>24</b>	<b>102</b>	<b>1627</b>	<b>16</b>	<b>363</b>	<b>3516</b>	<b>10</b>	<b>7391</b>



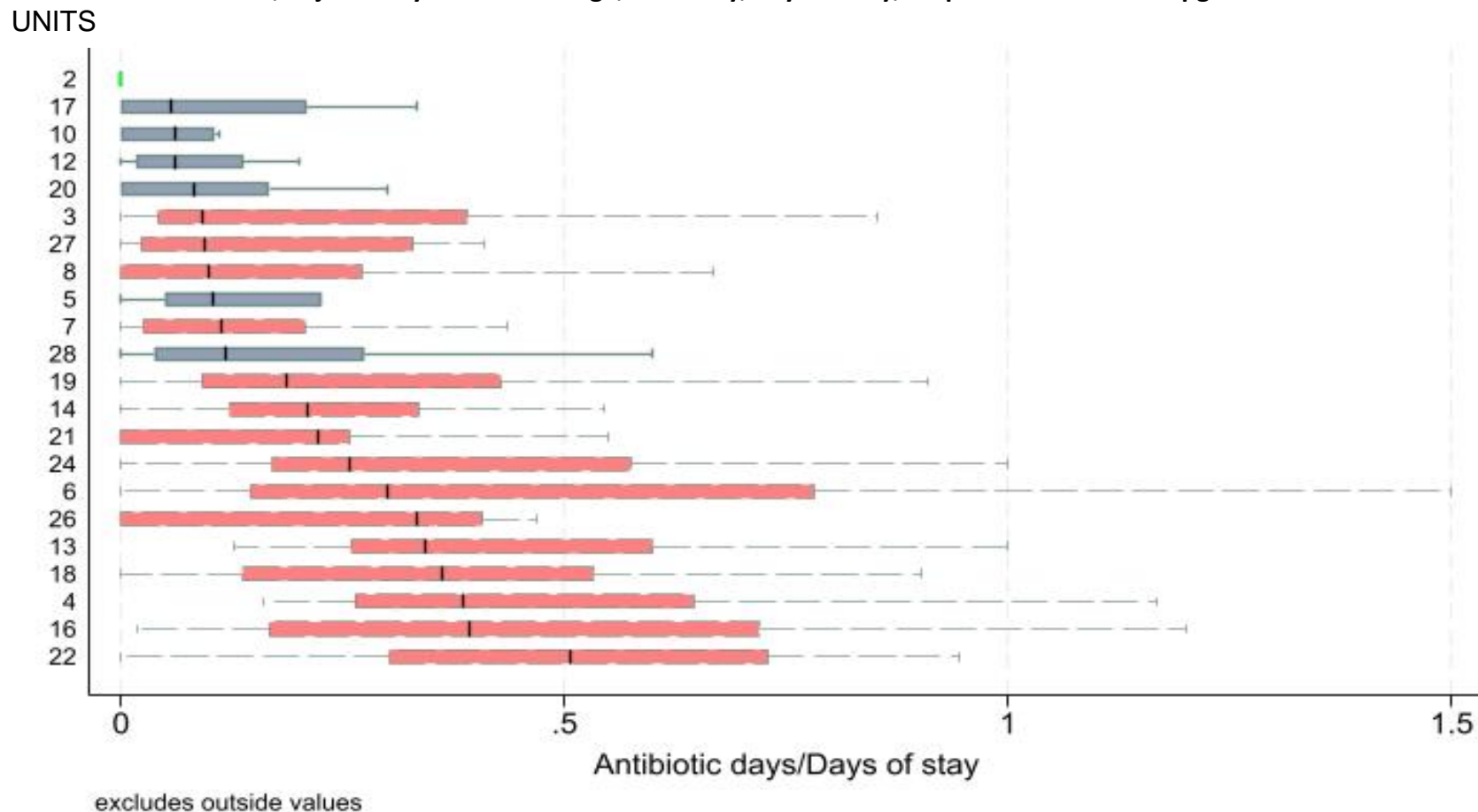
## PRESENTATION 65

**Median number of days of Antibiotics/days of stay in Infants  $\leq$  32 weeks Gestational Age at Birth, by Unit, Adjusted by gestational age, mortality, days of stay, suspected chorio and Apgar at 5' (Table)**

UNITS	N	Statistics of Days with Antibiotics			
		p50	P75	P25	p
Unit 2	38	0.00	0.00	0.00	ref
Unit 3	55	0.09	0.04	0.39	<b>0.001</b>
Unit 4	24	0.39	0.26	0.65	<b>0.000</b>
Unit 5	11	0.10	0.05	0.23	0.079
Unit 6	87	0.30	0.15	0.78	<b>0.000</b>
Unit 7	90	0.11	0.03	0.21	<b>0.048</b>
Unit 8	37	0.10	0.00	0.27	<b>0.003</b>
Unit 10	19	0.06	0.00	0.11	0.148
Unit 12	12	0.06	0.02	0.14	0.568
Unit 13	21	0.34	0.26	0.60	<b>0.000</b>
Unit 14	32	0.21	0.12	0.34	<b>0.000</b>
Unit 16	22	0.39	0.17	0.72	<b>0.000</b>
Unit 17	17	0.06	0.00	0.21	0.291
Unit 18	18	0.36	0.14	0.53	<b>0.000</b>
Unit 19	25	0.19	0.09	0.43	<b>0.003</b>
Unit 20	21	0.08	0.00	0.17	0.255
Unit 21	20	0.22	0.00	0.26	<b>0.010</b>
Unit 22	34	0.51	0.30	0.73	<b>0.000</b>
Unit 24	26	0.26	0.17	0.58	<b>0.001</b>
Unit 26	11	0.33	0.00	0.41	<b>0.002</b>
Unit 27	24	0.09	0.02	0.33	<b>0.037</b>
Unit 28	51	0.12	0.04	0.27	0.080

The reference unit 2 was chosen as the lowest median with an adequate number of patients. All patients with complete data were taken with at least 1 day of antibiotics. Statistically significant p values are marked in bold.

**Boxplot of Median and Interquartile range of days of ANTIBIOTIC/Days of stay, in infants  $\leq 32$  weeks Gestational Age at birth by Unit, adjusted by Gestational Age, mortality, days of stay, suspected chorio and Apgar at 5'**



Box plot of Median days and IQR (interquartile range) of antibiotics/day of stay. The units were compared by median nonparametric regression adjusted for gestational age at birth, mortality, days of stay, suspected chorio and Apgar at 5'. Reference unit 2 in green chosen for low median and short IQR with adequate number of patients. In red the units with statistically significant difference. Statistics are dependent on the number of patients and should be interpreted with caution due to the small number of infants in some units and large IQR. Units were excluded if they had  $\leq 10$  patients  $\leq 32$  weeks GA at birth during the year.

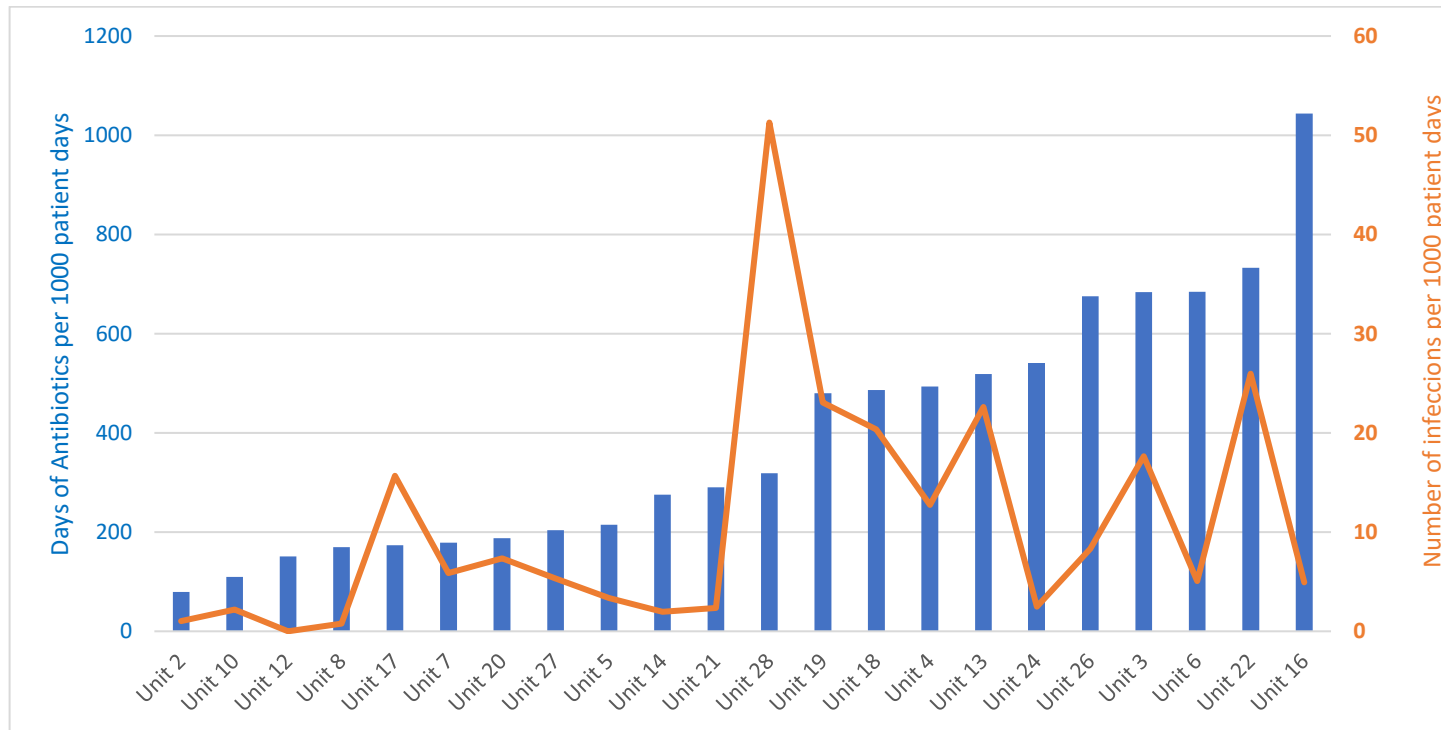
## PRESENTATION 66

**Days of Antibiotic Use and Total Number of Infections per 1000 Days of stay (patient days) in Infants ≤ 32 weeks Gestational Age at birth by Unit (table)**

UNITS	Days of antibiotics per 1000 patient days	Total number of Infections per 1000 patient days
Unit 2	1	79
Unit 10	2	109
Unit 12	0	151
Unit 8	1	170
Unit 17	16	174
Unit 7	6	179
Unit 20	7	187
Unit 27	5	204
Unit 5	3	215
Unit 14	2	275
Unit 21	2	290
Unit 28	51	318
Unit 19	23	480
Unit 18	20	486
Unit 4	13	494
Unit 13	23	519
Unit 24	2	540
Unit 26	8	676
Unit 3	18	684
Unit 6	5	684
Unit 22	26	733
Unit 16	5	1044

Comment: only patients with complete information, readmissions were excluded. Antibiotics days were taken from the database as administered at any time during the stay. The length of stay was taken from all admissions. Early and late infections were included. It is presented in increment of antibiotic days

**Days of ANTIBIOTICS Use and Total Number of Infections per 1000 patient days in Infants ≤ 32 weeks Gestational Age at birth by Unit graphed in increment of antibiotic days**



Infections are defined as positive blood or spinal fluid culture. The days of antibiotics were taken from the database as administered at any time during their stay. The stay was taken from all patient admissions. Infections include early and late infections.

The correlation between antibiotics and infection of these units using Spearman's correlation is significant. Spearman rho = 0.53, p=0.0111, indicating that the use of antibiotic days does increase with a greater number of infections, but not exclusively due to proven infection, since there are units with a low or absent incidence of infection and a high number of antibiotic days. Infections in blood and CSF are counted separately. Units were excluded if they had ≤ 10 patients ≤ 32 weeks GA at birth during the year.

## **F. Therapeutic Hypothermia**

## PRESENTATION 67

### Units that reported cases with encephalopathy

Unit	Received Hypothermia					
	YES		NO		Total	
	n	%	n	%		n
Unit 2	0	5%	1	6%	1	5%
Unit 3	0	11%	1	3%	1	7%
Unit 4	0	0%	12	6%	12	3%
Unit 7	1	0%	0	3%	1	1%
Unit 8	1	0%	1	0%	2	1%
Unit 14	6	0%	5	3%	11	1%
Unit 15	0	0%	1	6%	1	3%
Unit 17	5	57%	1	22%	6	39%
Unit 21	1	0%	0	3%	1	1%
Unit 22	0	0%	9	3%	9	1%
Unit 23	0	27%	4	0%	4	14%
Unit 27	6	0%	0	3%	6	1%
Unit 28	1	0%	5	6%	6	3%
<b>Total</b>	<b>21</b>	<b>100%</b>	<b>40</b>	<b>100%</b>	<b>61</b>	<b>100%</b>

### Therapeutic Hypothermia all cases

Hypothermia	Stage 1		Stage 2		Stage 3		Stage 4		Unknown		Total		
	Yes	6	29%	8	38%	4	19%	0	0%	3	14%	21	34%
	No											40	66%
	Total											61	

### Sarnat staging at the end of Hypothermia

Stage 1	Stage 2	Stage 3	Normal	Unknown
6 30%	5 25%	2 10%	5 25%	2 10%

Reason for not receiving hypothermia*		%
Major Malformations	2	4%
<2K or <35 weeks' gestation	9	19%
Extreme conditions	2	4%
Intracranial trauma	1	2%
Mild encephalopathy	10	21%
Group Decision	3	6%
Unit Policy	11	23%
Delayed transfer	2	4%
Unknown	7	15%
<b>Total</b>	<b>47</b>	

(\*Many cases with more than one reason)

Hypothermia Characteristics			
Method	Selective Head	1	4,8%
	Whole body cooling	20	95.2%
Characteristics of neonates who received hypothermia			
Temperatura			
Target temperature	<33°C	0	0%
	33-34°C	18	85.7%
	33.5-34.5°C	3	14.3%
	34-35°C	0	0%
	34.5-35.5°C	0	0%
	Unknown	0	0%
Other Characteristics			
Seizures at onset	3/21*		14.3%
Seizures upon completion	2/11**		18.2%
Hypotension	5/21***		23.8%
Thrombocytopenia	1/21***		4.8%
Coagulopathy	3/21***		14.3%
Persistent metabolic acidosis	2/21***		9.5%
Renal failure	1/21*		4.8%
Perisistent Pulmonary Hypertension	2/21***		9.5%
Heart dysfunction	1/21*		4.8%
Hepatic dysfunction	1/21*		4.8%
Death	2/21*		9.5%

\*All patients receiving hypothermia. Seizures were counted without evidence on EEG or any other method except clinical.

\*\*The seizures at the end are calculated on the total who underwent some form of EEG or amplitude-integrated Brain Function test.

\*\*\*On the total number of patients with data.



## **G. CONCLUSIONS**

The data and the differences found from our units can be used to establish changes in management that will substantially improve the quality of care of newborns. Additionally, research can be carried out to analyze different risk factors and their outcomes. It can also be used by the community as a form of comparison to establish managements.

## References

1. Firth D. (1993). Bias reduction of maximum likelihood estimates. *Biometrika* 80, 27–38  
[10.1093/biomet/80.1.27](https://doi.org/10.1093/biomet/80.1.27).