

The Canadian Neonatal Network™ 2024 Annual Report

Le Réseau Néonatal Canadien™ 2024 Rapport Annuel

Updated February 2026



Acknowledgements

This report is based upon data collected from 33 Health Care Organizations that were members of the Canadian Neonatal Network™ during the year 2024. In addition to all the investigators and the funding agency, we would like to recognize the invaluable support of the Neonatal Intensive Care Units (NICUs) that collected this information, the support of all the participating sites and most importantly, the dedication and hard work of the Site Investigators, NICU Medical Directors and Data Abstractors.

Structure of the CNN

The Canadian Neonatal Network™ (CNN) is a group of researchers who collaborate on research issues relating to neonatal care. The CNN was founded in 1995 by Dr. Shoo Lee. The CNN maintains a standardized neonatal database and provides unique opportunities for researchers to participate in collaborative projects on a national and international scale. Health care professionals, health services researchers, and health care administrators participate actively in clinical, epidemiologic, outcomes, health services, health policy and informatics research aimed at improving quality, effectiveness and efficiency of neonatal care. Research results are published in Network reports and in peer-reviewed journals.

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Saint John Regional Hospital, Saint John, New Brunswick

Sunnybrook Health Sciences Centre, Toronto, Ontario
Surrey Memorial Hospital, Surrey, British Columbia
The Moncton Hospital, Moncton, New Brunswick
The Ottawa Hospital, Ottawa, Ontario
Victoria General Hospital, Victoria, British Columbia
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A. Executive Summary

Inclusion summary:

This report from the Canadian Neonatal Network™ (CNN) is based on data from 33 tertiary NICU sites that contributed data in the year 2024. Admissions between January 1, 2024 and December 31, 2024 who were discharged by March 31, 2025 are included. Fourteen (14) infants who were admitted in 2023 but discharged after March 31, 2024 are also included in the 2024 report. Delivery room deaths, moribund neonates, and readmissions from 2023 were excluded.

Total number of eligible admissions to participating sites (See section D.1 for analyses)	16 844
Total number of eligible individual neonates (See section D.2. for analyses)	15 493
Total number of eligible very preterm (GA <33 weeks) neonates	4 405
Total number of eligible extremely preterm (GA <29 weeks) neonates (See section D.3. for analyses)	1 720
Total number of eligible very low birth weight (BW <1500 g) neonates (See section D.3. for analyses)	3 035

Important information for data interpretations:

- a. Neonates who were transferred to a “normal newborn care area” (level I nursery) or discharged home within 24 hours of their admission to the site were excluded.
- b. In 2024, five (5) sites were only able to contribute data from a subset of eligible neonates admitted to their NICUs due to resource limitations. See [pages 4-5](#) for data collection criteria of all participating sites.
- c. Characteristics of participating sites are highlighted at the outset of the presentations.
- d. ‘Missing’ data on outcome variables varied for each presentation. Caution should be used when interpreting the information. When possible, both the total number of neonates and the number of neonates with available data are provided.
- e. The denominators for all percentages in this report includes neonates whose data for that particular item were available.
- f. This report includes data from neonates who were admitted in to the NICUs, except for Presentations #4, #6a and #6b, which included delivery room deaths.

Noteworthy findings:

1. This report consists of data from 16 844 admissions (representing 15 493 individual neonates) from 33 participating tertiary NICUs.
 - a. Of the above, 4 405 (28.4%) neonates were very preterm <33 weeks' GA, and 1 720 (11.1%) neonates were extremely preterm <29 weeks' GA.
 - b. Of all admissions across CNN, 25.3% were outborn.
2. The proportions of neonates who were provided active resuscitation and survived until discharge were 41%, 55%, and 78% at 22-, 23-, and 24-weeks' GA, respectively.
 - a. Palliative care in the delivery room was the primary treatment for 41/82 (45%), 34/175 (19%), and 19/219 (9%) of neonates at 22-, 23-, and 24-weeks' GA, respectively.
 - b. Across the CNN, 42, 136, and 200 neonates were admitted to the NICU at 22-, 23-, and 24-weeks' GA, respectively.
3. A complete course (2-doses) of antenatal steroids was administered in 57.1% of neonates <26-weeks' GA, 62.4% of neonates 26-28 weeks' GA, and 63% of neonates 29-32 weeks' GA.
4. Deferred cord clamping ≥ 60 seconds was administered in 24.6% of neonates <26-weeks' GA, 42.3% of 26-28 weeks' GA, and 54.8% of neonates 29-32 weeks' GA.
5. Among patients who received surfactant, Minimally Invasive Surfactant Therapy (MIST) was used in 8.9% of neonates <26-weeks' GA, 30.9% at 26-28 weeks' GA, 40.8% at 29-30 weeks' GA, and 36.1% at 31-32 weeks' GA.
6. Among neonates <33 weeks' GA with a PDA, 53% were conservatively (no treatment) managed, while 4% received either surgical ligation or device closure
7. Incidence of mortality among neonates admitted to the NICU was 271/4 230 (6.4%) for neonates <33-weeks' GA, and 243/1 720 (14.1%) for neonates <29-weeks' GA.
8. Early onset sepsis (EOS) was noted in 43/1 720 (2.5%) of neonates <29 weeks' GA; the most common organism was *E. Coli*. Late onset sepsis (LOS) was noted in 386/1 678 (23%) of neonates <29 weeks' GA who survived at least 2 days; the most common organism was *Coagulase-Negative Staphylococcus species (CONS)*.
9. Among neonates <29-weeks' GA without major congenital abnormality, Severe Neurological Injury was noted in 15.1%, Severe ROP in 11.9%, Any CLD in 51.6%, moderate-severe CLD in 43.8%, and NEC stage ≥ 2 in 7.9%. The proportion of neonates <29 week's GA with mortality or major morbidity was 67.2%.
10. Among neonates <33 weeks' GA admitted to NICUs, 6.8% died, 45.5% were transferred to a community hospital or another in-patient unit in the same hospital, 1.8% were transferred to another tertiary hospital or transferred out of country; 37.6% were discharged directly home.
11. Across the CNN, 720 neonates were admitted with HIE. Of them, 540 received therapeutic hypothermia, of whom 9% died, 2% were discharged with palliation, and 31% had brain injury on MRI.

What's new and updated for the 2024 Annual Report:

1. There are now 28 out of 33 sites that report data on ALL eligible neonates (up from 25 sites in 2023).
2. Early prophylactic hydrocortisone (initiated within 1st 3 days of life) has been added in [Presentation #13](#).
3. Moderate-severe Chronic Lung Disease (CLD) has been added in [Presentation #26](#), [Presentation #47](#), while new adjusted standardized ratios for the same have been added ([presentation #49a](#), [Presentation #49b](#), [Presentation #49c](#), and [Presentation #49d](#)).
4. PVL has been added as a new category of morbidities in [Presentation #34](#) and [Presentation #35](#).
5. Site-based comparisons of rate of PDA treatment now focuses on neonates <29 weeks (changed from neonates <33 weeks) – [Presentation #42](#) and [Presentation #43](#).
6. [Presentation #56](#) on HIE and Therapeutic Hypothermia has new GA-based stratification.

B. CNN Site Characteristics

SITE	CNN data collection criteria	Level II / Step-down nursery	Level II / Step-down data included in CNN	Delivery room deaths included in CNN	ROP treatment service?	PDA surgical service?	Therapeutic hypothermia treatment?	General pediatric surgical Services?
Alberta Children's Hospital, Calgary, AB	All eligible admissions	n	n/a	n/a	y	y	y	y
BC Women's Hospital, Vancouver, BC	All eligible admissions	y	n	y	y	y	y	y
Cape Breton Regional Hospital, Sydney, NS	All eligible admissions	n	n/a	y	n	n	n	n
Centre Hospitalier Universitaire de Quebec, Quebec City, QC	< 33 weeks GA, CDH & gastroschisis, and other selected admissions	y	n	y	y	y	y	y
Centre Hospitalier Universitaire de Sherbrooke, Sherbrooke, QC	< 33 weeks GA, HIE babies who were cooled at any GA	y	n	y	n	n	y	y
Children's Hospital of Eastern Ontario, Ottawa, ON	< 36 weeks GA, HIE babies who were cooled	n	n	n	y	y	y	y
Dr. Everett Chalmers Hospital, Fredericton, NB	All eligible admissions	n	n/a	y	n	n	y	y
Foothills Medical Centre, Calgary, AB	All eligible admissions	n	n/a	y	y	y	y	n
Hamilton Health Sciences Centre, Hamilton, ON	All eligible admissions	y	n	y	y	y	y	y
Health Sciences Centre Winnipeg, MB	≤33 weeks GA, DRD, HIE babies who were cooled, CDH & gastroschisis, and other selected admissions	y	y	y	y	y	y	y
Hôpital Maisonneuve-Rosemont, Montréal, QC	< 33 weeks GA	n	n/a	y	n	n	n	n
Hôpital Sainte-Justine, Montreal, QC	All eligible admissions	y	n	y	y	y	y	y
Hospital for Sick Children, Toronto, ON	All eligible admissions	n	n/a	n/a	y	y	y	y
IWK Health Centre, Halifax, NS	< 33 weeks GA, all HIE, all CAPSNet, and transfers to/from other CNN centres	y	y	y	y	y	y	y
Janeway Children's Health & Rehab Centre, Saint John , NL	All eligible admissions	y	y	y	y	y	y	y
Jewish General Hospital, Montreal, QC	All eligible admissions	y	y	y	y	n	n	n
Jim Pattison Children's Hospital, Saskatoon, SK (Formerly Royal University Hospital)	All eligible admissions	n	n/a	n	y	y	y	y
Kingston General Hospital, Kingston, ON	All eligible admissions	y	y	y	y	n	y	y

B. Site Characteristics

London Health Sciences Centre, London, ON	All eligible admissions	y	y	y	y	y	y	y
Montreal Children's Hospital – MUHC, Montreal, QC	All eligible admissions	n	n/a	y	y	y	y	y
Mount Sinai Hospital, Toronto, ON	All eligible admissions	y	y	y	n	n	y	n
Regina General Hospital, Regina, SK	All eligible admissions	y	y	y	y	n	y	y
Royal Alexandra Hospital, Edmonton, AB*	< 33 weeks GA, HIE babies who were cooled, DRD	y	y	y	y	n	y	n
Royal Columbian Hospital, New Westminster, BC	All eligible admissions	y	y	y	y	n	y	y
St. Boniface General Hospital, Winnipeg, MB	All eligible admissions	n	n/a	Incomplete	y	y	y	y
Saint John Regional Hospital, Saint John, NB	All eligible admissions	n	n	y	n	n	y	y
Sunnybrook Health Sciences Centre, Toronto, ON	All eligible admissions	n	n/a	y	y	n	y	n
Surrey Memorial Hospital, Surrey, BC	All eligible admissions	y	y	y	y	n	y	n
The Moncton Hospital, Moncton, NB	All eligible admissions	n	n/a	y	y	n	y	n
The Ottawa Hospital, Ottawa, ON	< 33 weeks GA	y	partial	y	y	n	n	n
University of Alberta Hospital - Stollery, Edmonton, AB*	< 33 weeks GA, HIE babies who were cooled, CAPSNet	n	n/a	n/a	n	y	y	y
Victoria General Hospital, Victoria, BC	All eligible admissions	y	y	y	y	y	y	y
Windsor Regional Hospital, Windsor, ON	All eligible admissions	n	n/a	y	y	n	n	n
University of Utah Hospital, Utah, US	All eligible admissions	y	n	y	y	n	y	n
* Royal Alexandra Hospital & University of Alberta Hospital transmit data as one site								

C. Information Systems

Neonates included in this report are those who were admitted to a CNN participating site between January 1, 2024 and December 31, 2024, and were discharged by March 31, 2025. The neonates must have had a length of stay at one of the CNN participating sites for greater than or equal to 24 hours, or died or were transferred to another level 2 or 3 facility within 24 hours. Fourteen (14) infants who were admitted in 2023 but discharged after March 31, 2024 are also included in this 2024 report. Delivery room deaths, moribund neonates, and readmissions from 2023 have been excluded. A total of 15 493 patients accounted for 16 844 admissions as some neonates were admitted on more than one occasion.

Patient information was retrospectively abstracted from patient charts by trained personnel using standard definitions and protocols contained in a standard manual of operations. Data were entered into a computer using a customized data entry program with built-in error checking and subsequently sent electronically to the Canadian Neonatal Network™ Coordinating Centre located at the Maternal-Infant Care Research Centre (MiCare) in Toronto, Ontario. Patient data at each participating site are available to the respective site investigator and data abstractor only. Patient identifiers were stripped prior to data transfer to the Coordinating Centre. Patient confidentiality was strictly observed. A unique identifier was generated for each entry of neonate into the system and that identifier was followed throughout one or more hospital stays. Individual-level data are used for analyses, but only aggregate data are reported. The results presented in this report will not identify participating sites by name; each site is anonymous using a randomly assigned number. Whenever a small cell size (1 to 4 individuals) was observed in the data output, the data were grouped to maintain anonymity.

At each participating site, data are stored in a secured database at the site or in an alternate secured site used to store patient information (e.g. health records department, computer services department). At the Coordinating Centre, the central database is stored in a secured computer database located on a server and an off-site back-up that is maintained and secured by the Mount Sinai Hospital Information Technology Department. At the Coordinating Centre, information was verified for completeness and was reviewed for accuracy by looking for “unusual” and missing values on individual data items and by comparison with other information that might be related (e.g. gestational age [GA] and birth weight [BW]). However, the principal accuracy rests upon the diligence and capabilities of the individual sites. Each site has one or more dedicated person(s) responsible for data acquisition and transmission.

At the Coordinating Centre, analyses were conducted using univariate, bivariate, and multivariate analyses for the total cohort, and for individual sites. Multivariable regression analyses were used to identify risk factors associated with mortality and major morbidities. Grouped data enabled development of outcome graphs by GA and BW for mortality and selected major morbidities. Similar systems have been used to assist in quality assurance and predict resource utilization.

D. Descriptive Analyses

This section is divided into three sub-sections.

Section D.1. Analyses based on the number of eligible admissions to participating sites

These include data from 16 844 eligible admissions (including readmissions) to 33 sites. 28 of these sites submitted complete data (n=16 072) on all admissions and 5 sites submitted data on a selected admission cohort (n=772).

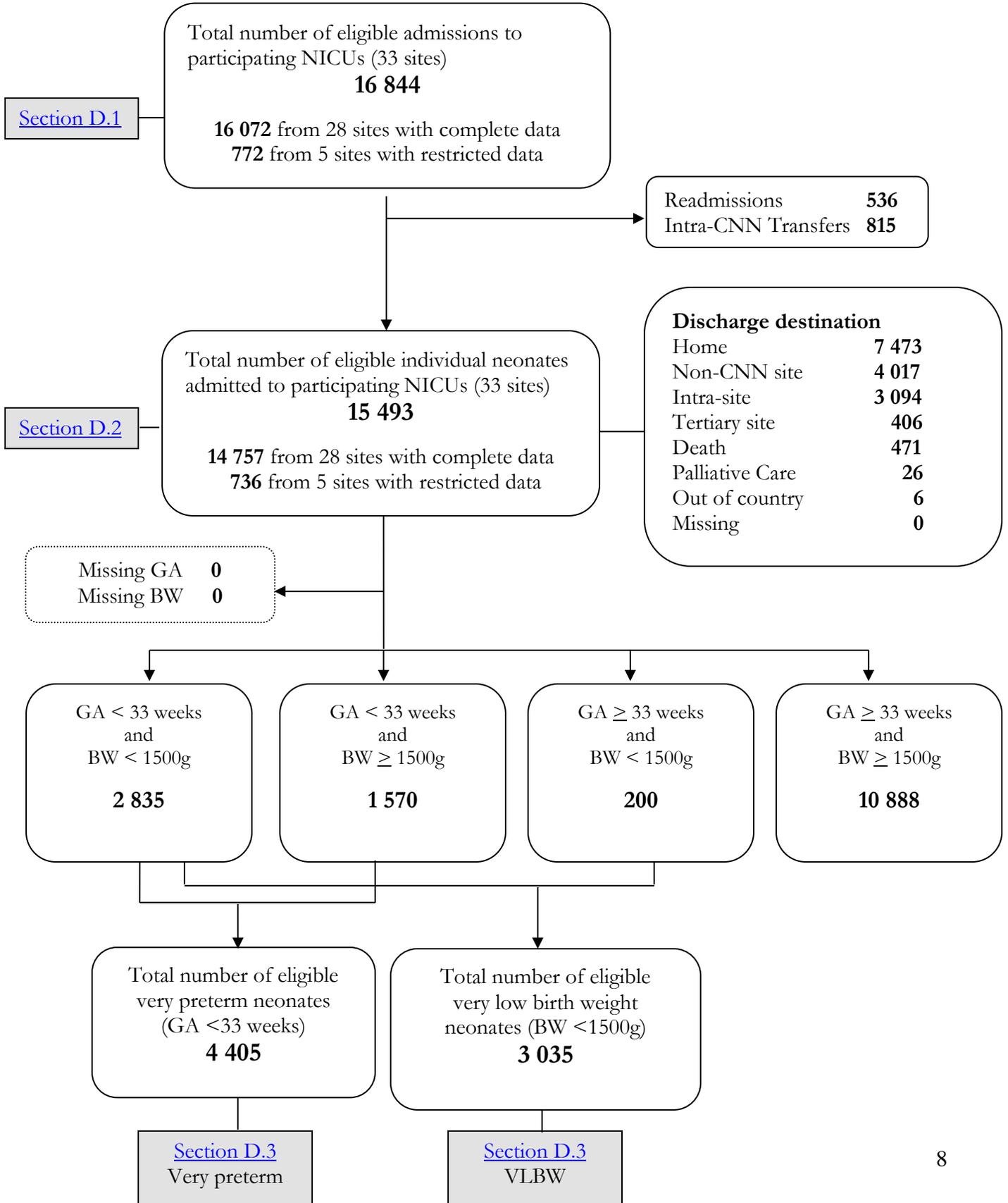
Section D.2. Analyses based on the number of eligible neonates admitted to participating sites

These include data from 15 493 eligible neonates admitted to 33 sites. 28 of these sites submitted complete data (n=14 757) on all eligible admitted neonates and 5 sites submitted data on selected eligible admitted neonates (n=736).

Section D.3. Analyses based on the number of eligible very preterm (GA <33 weeks) or very low birth weight (BW <1500g) neonates

These include data from 4 405 eligible very preterm neonates and 3 035 eligible very low birth weight (VLBW) neonates.

Canadian Neonatal Network™ Database: Admissions between January 1, 2024 and December 31, 2024 who were discharged by March 31, 2025. Fourteen (14) infants who were admitted in 2023 but discharged after March 31, 2024 were also included in the 2024 report. Delivery room deaths, moribund neonates, and readmissions from 2023 were excluded.

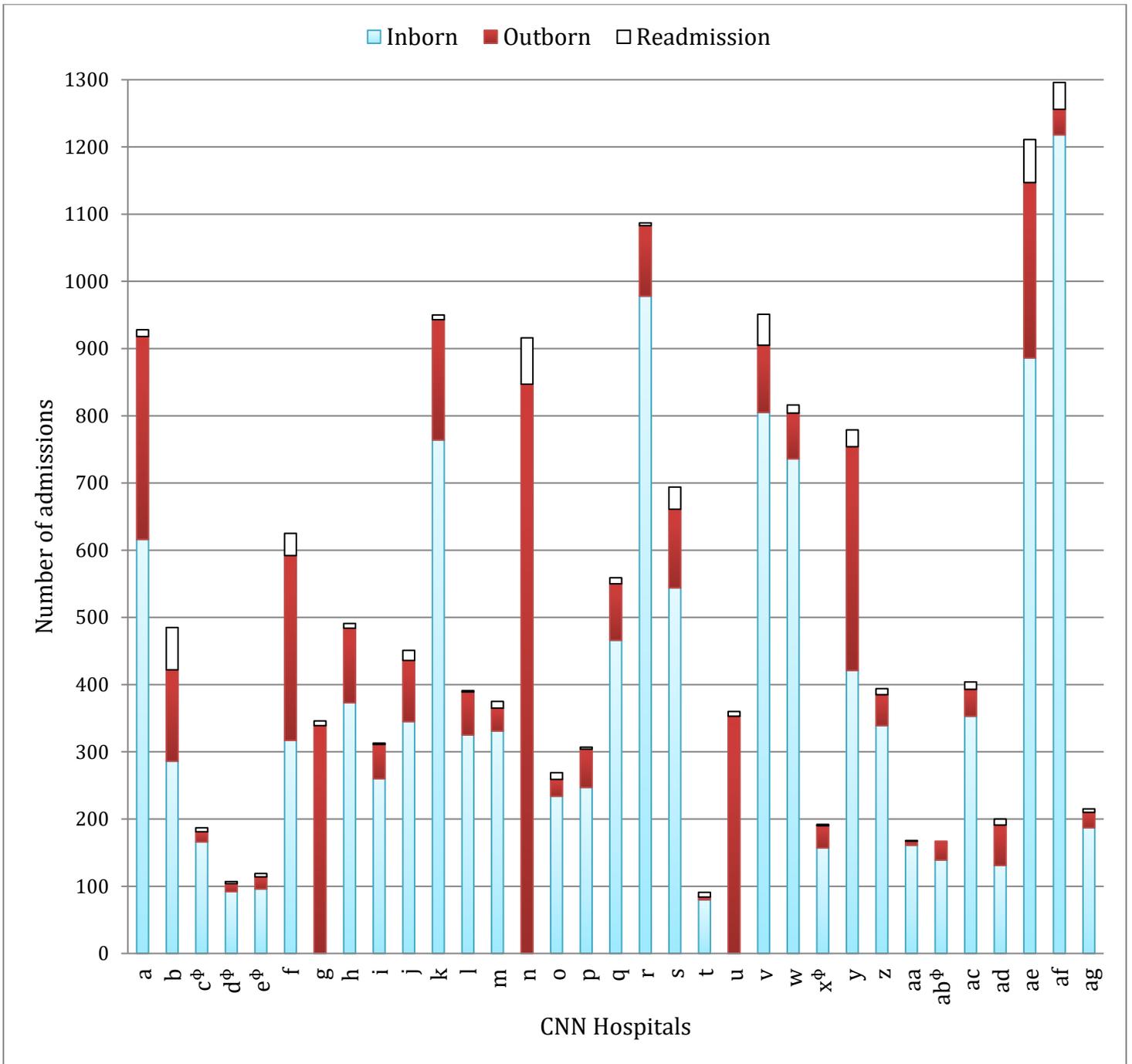


Section D.1

Analyses based on the number of eligible admissions to participating sites

These include data from 16 844 eligible admissions (including readmissions) to 33 sites. 28 of these sites submitted complete data (n=16 072) on all admissions and 5 sites submitted data on a selected admission cohort (n=772).

Presentation #1
All admissions: Type of admissions: All Sites



^φ Data collected on selected cohort of eligible admissions only.

Presentation #1 (continued)
All admissions: Type of admissions: All Sites

Sites		Admission Status			Total	Sites		Admission status			Total
		Inborn	Outborn	Readmission				Inborn	Outborn	Readmission	
a	Count	616	302	10	928	r	Count	978	105	4	1087
	%	66.4	32.5	1.1	(100.0)		%	90.0	9.7	0.4	(100.0)
b	Count	286	136	63	485	s	Count	544	117	33	694
	%	59.0	28.0	13.0	(100.0)		%	78.4	16.9	4.8	(100.0)
c ^ϕ	Count	166	15	6	187	t	Count	80	4	7	91
	%	88.8	8.0	3.2	(100.0)		%	87.9	4.4	7.7	(100.0)
d ^ϕ	Count	92	12	3	107	u	Count	0	353	7	360
	%	86.0	11.2	2.8	(100.0)		%	0.0	98.1	1.9	(100.0)
e ^ϕ	Count	96	18	5	119	v	Count	805	100	46	951
	%	80.7	15.1	4.2	(100.0)		%	84.7	10.5	4.8	(100.0)
f	Count	317	275	33	625	w	Count	736	68	12	816
	%	50.7	44.0	5.3	(100.0)		%	90.2	8.3	1.5	(100.0)
g	Count	0	339	7	346	x ^ϕ	Count	157	33	2	192
	%	0.0	98.0	2.0	(100.0)		%	81.8	17.2	1.0	(100.0)
h	Count	373	111	7	491	y	Count	421	333	25	779
	%	76.0	22.6	1.4	(100.0)		%	54.0	42.8	3.2	(100.0)
i	Count	260	51	2	313	z	Count	339	46	9	394
	%	83.1	16.3	0.6	(100.0)		%	86.0	11.7	2.3	(100.0)
j	Count	345	91	15	451	aa	Count	161	6	1	168
	%	76.5	20.2	3.3	(100.0)		%	95.8	3.6	0.6	(100.0)
k	Count	764	179	7	950	ab ^ϕ	Count	139	28	0	167
	%	80.4	18.8	0.7	(100.0)		%	83.2	16.8	0.0	(100.0)
l	Count	325	64	2	391	ac	Count	353	40	11	404
	%	83.1	16.4	0.5	(100.0)		%	87.4	9.9	2.7	(100.0)
m	Count	331	34	10	375	ad	Count	131	60	9	200
	%	88.3	9.1	2.7	(100.0)		%	65.5	30.0	4.5	(100.0)
n	Count	0	847	69	916	ae	Count	886	261	64	1211
	%	0.0	92.5	7.5	(100.0)		%	73.2	21.6	5.3	(100.0)
o	Count	234	25	10	269	af	Count	1218	38	40	1296
	%	87.0	9.3	3.7	(100.0)		%	94.0	2.9	3.1	(100.0)
p	Count	247	57	3	307	ag	Count	187	23	5	215
	%	80.5	18.6	1.0	(100.0)		%	87.0	10.7	2.3	(100.0)
q	Count	466	84	9	559	Total	Count	12053	4255	536	16844
	%	83.4	15.0	1.6	(100.0)		%	71.6	25.3	3.2	(100.0)

COMMENTS: These analyses include 16 844 admissions to participating sites across the CNN during the period of January 1, 2024 to December 31, 2024. After adjusting for readmission, 15 493 neonates are represented. **Twenty-eight sites collected data on all eligible admissions whereas five sites (marked by ^ϕ) collected data on selected cohort of eligible admissions only.** See [pages 4-5](#) for data collection criteria of all participating sites.

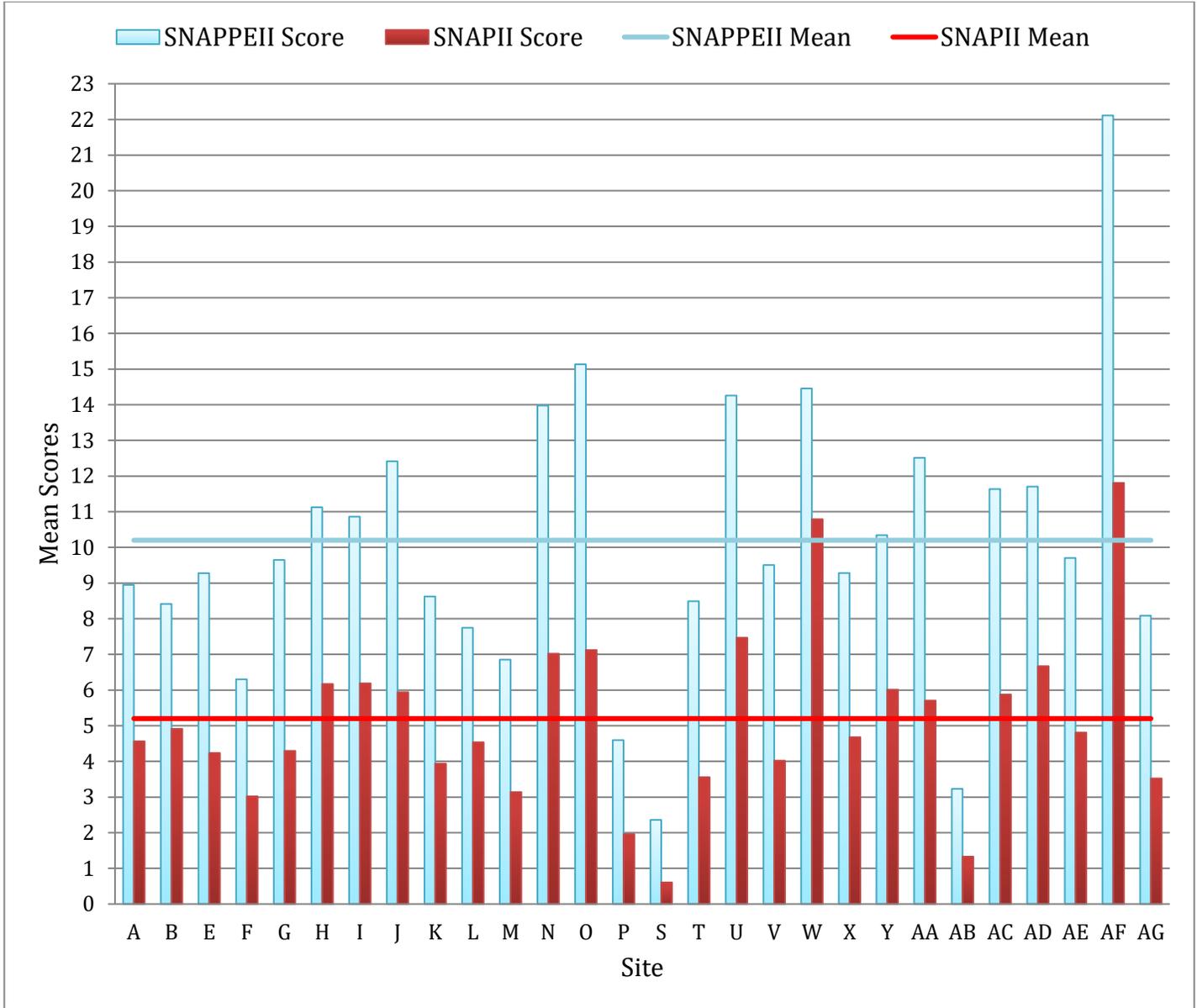
Section D.2

Analyses based on the number of eligible neonates admitted to participating sites

These include data from 15 493 eligible neonates admitted to 33 sites. 28 of these sites submitted complete data (n=14 757) on all eligible admitted neonates and 5 sites submitted data on a selected cohort of eligible admitted neonates (n=736).

Presentation #2

First admissions: Admission illness severity scores (SNAP-II and SNAP-IIPE):
 Sites with complete data
 (n=28 sites, 14 275 neonates, 0 with missing data on SNAP-II scores and 482 not applicable due to death or transfer within 12 hours)



Data collection status	Number of sites	Score	Mean	Std Error	Q1	Median	Q3
Complete	28	SNAPIIPE	10.2	0.1	0	0	18
		SNAPII	5.2	0.1	0	0	7
Restricted	5	SNAPIIPE	17.4	0.7	0	10	27
		SNAPII	8.3	0.4	0	5	12

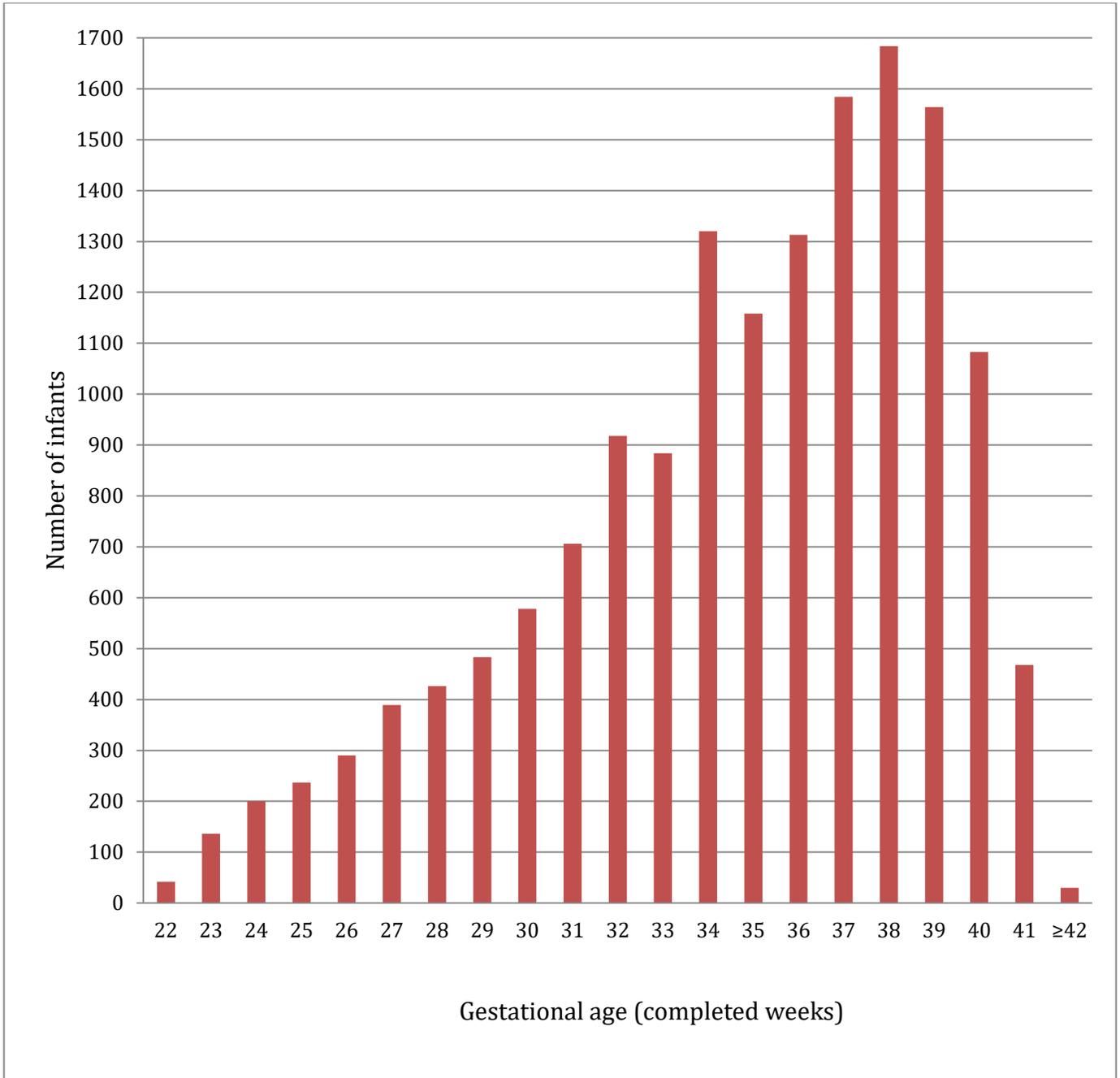
Presentation #2 (continued)

First admissions: Admission illness severity scores (SNAP-II & SNAP-IIPE): All sites

Site		SNAP-IIPE	SNAP-II		Site		SNAP-IIPE	SNAP-II
A	Mean	8.9	4.6		Q^ϕ	Mean	18.5	8.9
	SEM	0.7	0.4			SEM	1.6	1.0
B	Mean	8.4	4.9		R^ϕ	Mean	18.9	10.4
	SEM	0.5	0.3			SEM	2.0	1.3
C^ϕ	Mean	14.3	7.8		S	Mean	2.4	0.6
	SEM	1.4	1.0			SEM	0.8	0.3
D^ϕ	Mean	21.5	8.4		T	Mean	8.5	3.6
	SEM	1.5	0.8			SEM	0.5	0.3
E	Mean	9.3	4.2		U	Mean	14.3	7.5
	SEM	0.9	0.5			SEM	0.8	0.6
F	Mean	6.3	3.0		V	Mean	9.5	4.0
	SEM	0.7	0.4			SEM	0.6	0.3
G	Mean	9.6	4.3		W	Mean	14.5	10.8
	SEM	0.8	0.5			SEM	0.9	0.7
H	Mean	11.1	6.2		X	Mean	9.3	4.7
	SEM	1.2	0.8			SEM	0.7	0.5
I	Mean	10.9	6.2		Y	Mean	10.3	6.0
	SEM	0.4	0.2			SEM	0.5	0.3
J	Mean	12.4	5.9		Z^ϕ	Mean	12.5	5.9
	SEM	0.6	0.4			SEM	1.3	0.7
K	Mean	8.6	3.9		AA	Mean	12.5	5.7
	SEM	0.9	0.5			SEM	0.5	0.3
L	Mean	7.7	4.5		AB	Mean	3.2	1.3
	SEM	0.4	0.2			SEM	0.4	0.2
M	Mean	6.9	3.1		AC	Mean	11.6	5.9
	SEM	0.6	0.4			SEM	0.9	0.7
N	Mean	14.0	7.0		AD	Mean	11.7	6.7
	SEM	0.8	0.5			SEM	0.6	0.4
O	Mean	15.1	7.1		AE	Mean	9.7	4.8
	SEM	1.5	0.9			SEM	1.2	0.7
P	Mean	4.6	2.0		AF	Mean	22.1	11.8
	SEM	0.5	0.3			SEM	1.1	0.7
					AG	Mean	8.1	3.5
						SEM	0.6	0.3

COMMENTS: These analyses include 15 010 neonates (first admissions only, 0 had missing data on SNAP scores and 483 not applicable due to death or transfer within 15 hours) to participating all sites during the year 2024. **Twenty-eight sites collected data on all eligible admissions whereas five sites (marked by ^ϕ) collected data on a selected cohort of eligible admissions only.** These five sites were not included in the Presentation #2 bar graph but were included in the Presentation #2 Table. ^ϕ Please note that the criteria for entering neonates in the CNN dataset are not the same for these five sites and thus, the scores are not comparable with each other or with centers contributing complete data. These five sites may have included neonates at lower GAs and/or lower BWs; thus, their severity of illness scores may be different.

Presentation #3
Gestational age distribution: All sites and all admitted neonates

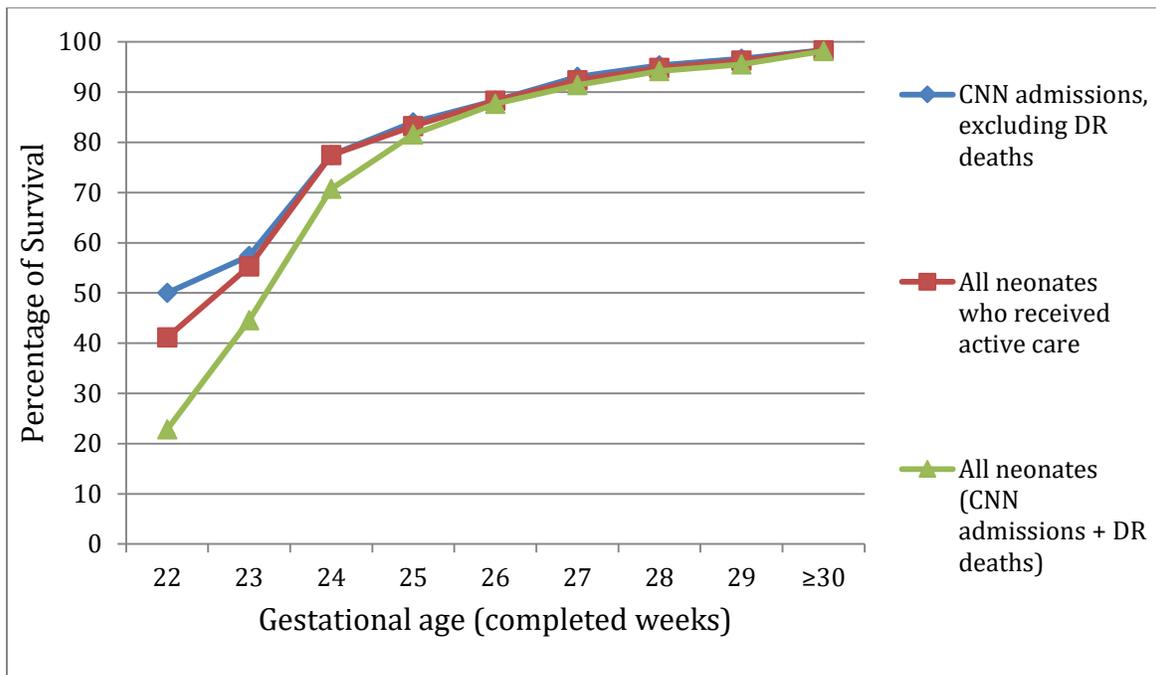


Presentation #3 (continued)
Gestational age distribution: All sites and all admitted neonates

GA in completed weeks at birth	Frequency	Percent	Cumulative percent
22	42	0.3	0.3
23	136	0.9	1.2
24	200	1.3	2.4
25	237	1.5	4.0
26	290	1.9	5.8
27	389	2.5	8.4
28	426	2.8	11.1
29	483	3.1	14.2
30	578	3.7	18.0
31	706	4.6	22.5
32	918	5.9	28.4
33	884	5.7	34.1
34	1 320	8.5	42.7
35	1 158	7.5	50.1
36	1 313	8.5	58.6
37	1 584	10.2	68.8
38	1 684	10.9	79.7
39	1 564	10.1	89.8
40	1 083	7.0	96.8
41	468	3.0	99.8
≥42	30	0.2	100.0
Total included	15 493	100.0	
Total # of missing GA	0		
Total # of neonates	15 493		

COMMENTS: The GA distribution of neonates is shown here. Early-Term (37-38 weeks) and Term babies (≥39 weeks) represent 41.4% of the total number of neonates. Twenty-eight sites collected data on all eligible admissions whereas five sites collected data on a selected cohort of eligible admissions.

Presentation #4
Survival to discharge by GA: All admissions + delivery room (DR) deaths

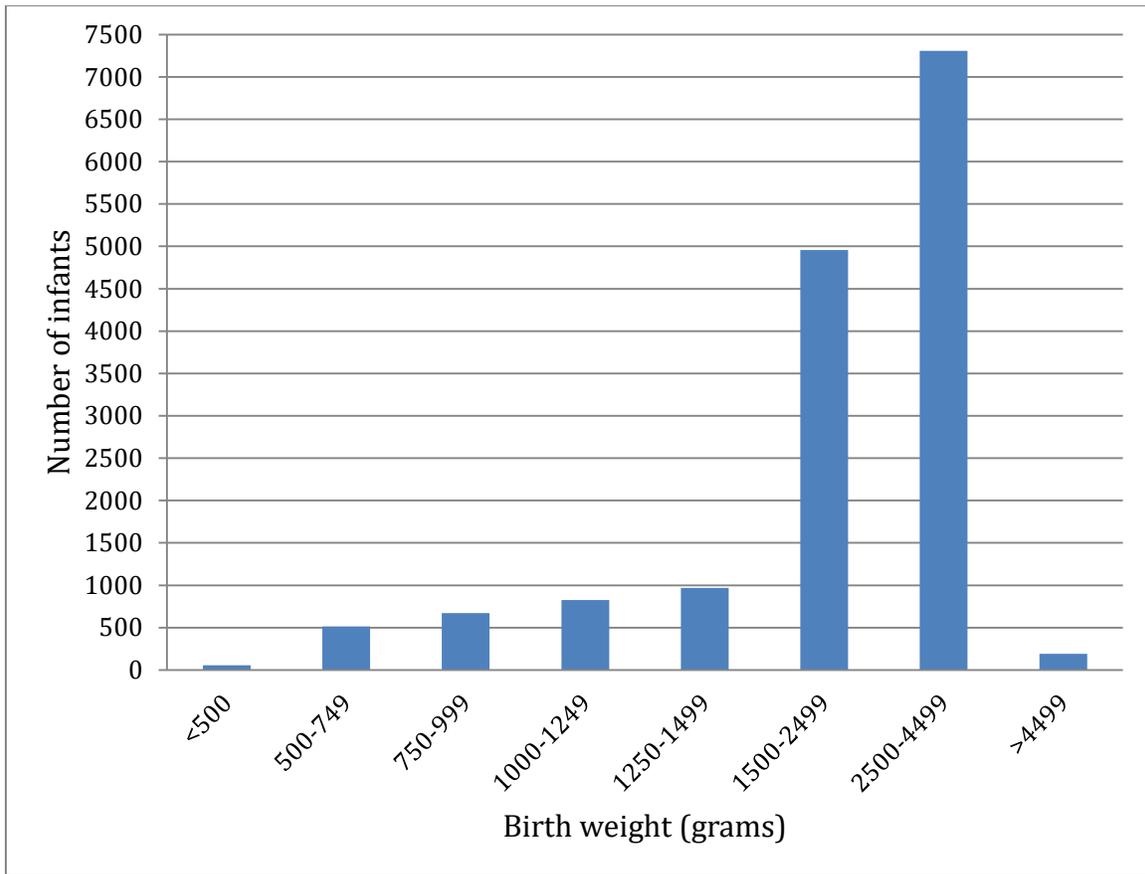


CNN admissions (this excludes delivery room deaths)					Delivery room deaths*		Total CNN admissions + delivery room deaths*				
GA (completed weeks)	#of neonates	#of survivors	Percent survival among CNN admissions, excluding DR deaths	#of neonates who received comfort care	Palliative care	Active care **	Total	#of neonates who received comfort care	# of neonates who received active care**	Percent survival among those who received active care	Percent survival among all neonates (CNN admissions + DR deaths)
	<i>a</i>	<i>b</i>	<i>b/a</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>a+d+e</i>	<i>c+d</i>	<i>(a-c) + e</i>	<i>b/ (a-c)+e</i>	<i>b/ (a+d+e)</i>
22	42	21	50	0	41	9	92	41	51	41	23
23	136	78	57	0	34	5	175	34	141	55	45
24	200	155	78	0	19	0	219	19	200	78	71
25	237	199	84	0	5	2	244	5	239	83	82
26	290	256	88	0	2	0	292	2	290	88	88
27	389	362	93	0	4	3	396	4	392	92	91
28	426	406	95	0	3	2	431	3	428	95	94
29	483	467	97	0	4	2	489	4	485	96	96
≥30	13 290	13 078	98	2	22	11	13 323	24	13 299	98	98
Total included	15 493	15 022	97	2	134	34	15 661	136	15 525	97	96
Missing GA	0				2	0	2	2	0		
Total	15 493			2	136	34	15 663	138	15 525		

*Please note that delivery room deaths are *only included in Presentations #4, #6a, and #6b* in this report. **Active care refers to infants who received cardiopulmonary resuscitation at birth.

Note: The results should be used cautiously for antenatal counseling. The survival rates are based upon the final discharge from the participating neonatal site. Note that these rates include only neonates admitted to the sites or dying in the delivery rooms of participating sites and thus are not reflective of the entire Canadian population. Only one CNN site did not contribute delivery room death data.

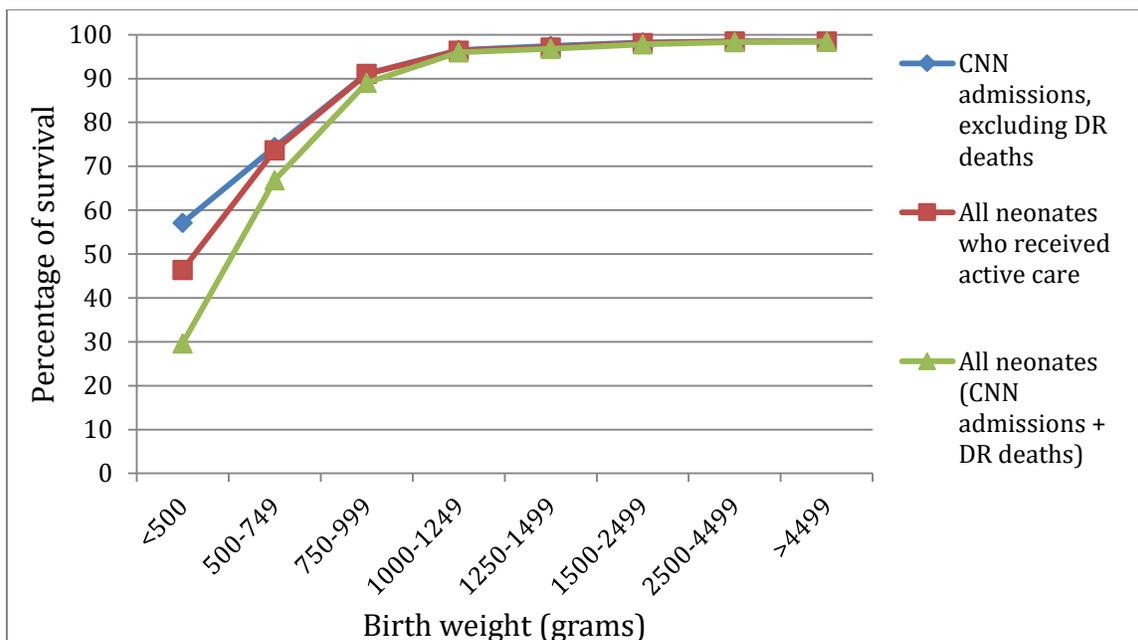
Presentation #5
Birth weight distribution: All sites and all admitted neonates



BW (grams)	Frequency	Percent from total number of neonates	Cumulative percent
<500	56	0.4	0.4
500-749	515	3.3	3.7
750-999	670	4.3	8.0
1000-1249	826	5.3	13.3
1250-1499	968	6.3	19.6
1500-2499	4 957	32.0	51.6
2500-4499	7 309	47.2	98.8
>4499	192	1.2	100.0
Total included	15 493	100.0	100.0
Missing BW	0		
Total # of neonates	15 493		

COMMENTS: The BW distribution of neonates admitted to the CNN sites. Eighty percent weighed more than 1 500g at birth and 48.4% weighed more than 2 500g. Twenty-eight sites collected data on all admissions whereas five sites collected data on a selected cohort of eligible admissions only.

Presentation #6a
Survival to discharge by BW: All admissions, including delivery room (DR) deaths

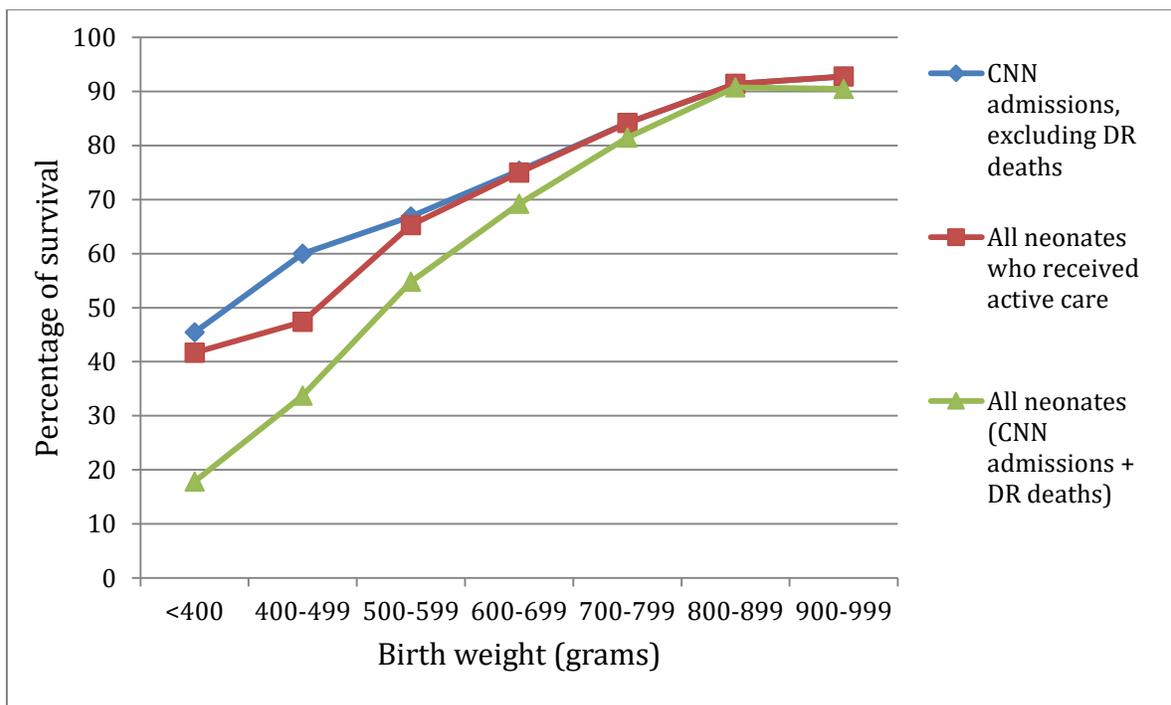


CNN Admissions, excluding delivery room deaths					Delivery room deaths*		Total CNN admissions + Delivery room deaths*				
BW (grams)	#of neonates	# of survivors	Percent survival of CNN admissions, excluding DR deaths	# of neonates who received palliative care	Palliative care	Active care**	Total	# of neonates who received palliative care	# of neonates who received active care**	Percent survival of neonates who received active care	Percent survival of all neonates (CNN admissions + DR deaths)
	<i>a</i>	<i>b</i>	<i>b/a</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>a+d+e</i>	<i>c+d</i>	<i>(a-c) +e</i>	<i>b/ (a-c)+e</i>	<i>b/ (a+d+e)</i>
<500	56	32	57	0	39	13	108	39	69	46	30
500-749	515	383	74	0	53	5	573	53	520	74	67
750-999	670	610	91	1	14	1	685	15	670	91	89
1000-1249	826	797	96	0	3	1	830	3	827	96	96
1250-1499	968	943	97	0	3	3	974	3	971	97	97
1500-2499	4 957	4 870	98	0	15	7	4 979	15	4 964	98	98
2500-4499	7 309	7 198	98	1	7	4	7 320	8	7 312	98	98
>4499	192	189	98	0	0	0	192	0	192	98	98
Total neonates included	15 493	15 022	97	2	134	34	15 661	136	15525	97	96
Missing BW	0				2	0	2	2	0		
Total # of neonates	15 493				136	34	15 663	138	15 525		

*Please note that delivery room deaths are *only included in Presentations #4, #6a and #6b* in this report. **Active care refers to infants who received cardiopulmonary resuscitation at birth.

Note: The results should be used cautiously for antenatal counseling. The survival rates are based upon the final discharge from the participating neonatal site. Note that these rates include only neonates admitted to the sites or dying in the delivery rooms of participating sites and thus are not reflective of the entire Canadian population. Only one CNN site did not contribute delivery room death data.

Presentation #6b
Survival to discharge by BW: BW <1000g including delivery room (DR) deaths



CNN Admissions, excluding delivery room deaths					Delivery room deaths*		Total CNN admissions + Delivery room deaths*				
BW (grams)	Number of neonates	Number of survivors	Percent survival of CNN admissions, excluding DR deaths	Number of neonates who received palliative care	Palliative care	Active care **	Total	Number of neonates who received palliative care	Number of neonates who received active care**	Percent survival of neonates who received active care	Percent survival of all neonates (CNN admissions + DR deaths)
	<i>a</i>	<i>b</i>	<i>b/a</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>a+d+e</i>	<i>c+d</i>	<i>(a-c) + e</i>	<i>b/ (a-c)+e</i>	<i>b/ (a+d+e)</i>
<400	11	5	45	0	16	1	28	16	12	42	18
400-499	45	27	60	0	23	12	80	23	57	47	34
500-599	163	109	67	0	32	4	199	32	167	65	55
600-699	227	171	75	0	19	1	247	19	228	75	69
700-799	240	202	84	0	8	0	248	8	240	84	81
800-899	279	255	91	0	2	0	281	2	279	91	91
900-999	276	256	93	1	6	1	283	7	276	93	90
Total included	1 241	1 025	83	1	106	19	1 366	107	1 259	81	75

***Please note that delivery room deaths are *only included in Presentations #4, #6a and #6b* in this report. **Active care refers to infants who received cardiopulmonary resuscitation at birth.**

Note: The results should be used cautiously for antenatal counseling. The survival rates are based upon the final discharge from the participating neonatal site. Note that these rates include only neonates admitted to the sites or died in delivery room of participating sites and thus are not reflective of the entire Canadian population. Only one CNN site did not contribute delivery room death data.

Presentation #7a
Maternal and peripartum characteristics: All neonates

Characteristics		Missing/ Unknown	GA at birth (completed weeks)					Total
			<26	26-28	29-32	33-36	≥37	
Total			615	1105	2685	4675	6413	15493
No prenatal care		N	10	21	45	90	98	264
		%	1.6	1.9	1.7	2.0	1.6	1.7
Marijuana/cannabis		N	40	73	185	321	353	972
		%	6.5	6.7	7.0	7.0	5.6	6.3
Smoking		N	48	105	300	458	540	1451
		%	7.8	9.6	11.3	9.9	8.5	9.4
Maternal hypertension		N	71	245	725	1243	819	3103
		%	11.8	22.9	28.0	27.6	13.7	21.1
Maternal diabetes		N	54	180	544	1135	1155	3068
		%	9.5	17.3	21.3	25.4	19.4	21.0
Assisted pregnancy (ART)		N	91	124	296	484	298	1293
		%	14.8	11.2	11.0	10.4	4.7	8.3
Multiples		N	146	290	771	1236	125	2568
		%	23.7	26.2	28.7	26.4	2.0	16.6
MgSO ₄ for neuroprotection		N	504	905	1983	791	47	4230
		%	83.0	84.4	77.2	17.8	0.8	28.9
Antenatal steroids	None	N	54	99	270	2953	6294	9670
		%	8.9	9.2	10.4	64.9	99.2	63.7
	Partial	N	207	307	692	380	10	1596
		%	34.1	28.4	26.6	8.4	0.2	10.5
	Complete	N	347	674	1636	1218	38	3913
		%	57.1	62.4	63.0	26.8	0.6	25.8
Mode of birth	Vaginal	N	263	346	801	1722	3464	6596
		%	42.8	31.3	29.9	36.9	54.1	42.7
	C/S	N	352	759	1881	2941	2935	8868
		%	57.2	68.7	70.1	63.1	45.9	57.3
Presentation	Vertex	N	311	582	1700	3407	5202	11202
		%	52.3	55.3	67.4	78.7	91.7	79.0
	Breech	N	239	413	727	813	402	2594
		%	40.2	39.2	28.8	18.8	7.1	18.3
	Other	N	45	58	97	111	70	381
		%	7.6	5.5	3.8	2.6	1.2	2.7
Rupture of membranes	<24 h	N	423	744	1850	3629	5257	11903
		%	72.3	73.5	75.7	85.0	91.8	84.8
	24h to 1wk	N	87	141	276	398	430	1332
		%	14.9	13.9	11.3	9.3	7.5	9.5
	>1 wk	N	75	127	319	243	37	801
		%	12.8	12.6	13.1	5.7	0.7	5.7

Presentation #7a (continued)
Maternal and peripartum characteristics: All neonates

Characteristics		Missing/ Unknown	GA at birth (completed weeks)					Total
			<26	26-28	29-32	33-36	≥37	
Total			615	1105	2685	4675	6413	15493
Chorioamnionitis*		1192	N 252	304	416	357	572	1901
			% 41.9	28.7	16.4	8.1	10.0	13.3
Deferred cord clamping	≤ 29 sec	1918	N 45	66	132	152	157	552
			% 7.5	6.2	5.3	3.6	3.0	4.1
	30-59 sec		N 129	181	354	496	670	1830
			% 21.6	17.1	14.1	11.7	12.9	13.5
	≥60 sec		N 147	448	1372	2674	3038	7679
			% 24.6	42.3	54.8	63.3	58.6	56.6
	Yes, but timing unknown		N 4	9	31	67	153	264
			% 0.7	0.9	1.2	1.6	3.0	1.9
No	N 272	354	615	839	1170	3250		
	% 45.6	33.5	24.6	19.8	22.6	23.9		

*Chorioamnionitis is defined as documented histological chorioamnionitis on placenta pathology **or** “suspected or confirmed clinical chorioamnionitis” in chart **or** presence of maternal fever **and** *either* leukocytosis *or* purulent discharge *or* fetal tachycardia.

Presentation #7b
Maternal and peripartum characteristics:
Timing of single course of Antenatal Corticosteroids (ANCS): GA <33 weeks

	Weeks		Total number of neonates	No ANCS	Complete course within last week prior to birth *	Complete course more than 1 week before birth **	Complete course but timing unknown ***	Partial course within last 24 hours ****
Inborn	22-28	N	1490	68	622	380	7	370
		%	100.0	4.6	41.7	25.5	0.5	24.8
	29-32	N	2323	138	810	756	22	550
		%	100.0	5.9	34.9	32.5	1.0	23.7
Outborn	22-28	N	229	84	9	<5	<5	114
		%	100.0	36.7	3.9	<1%	<1%	49.8
	29-32	N	362	132	27	18	<5	108
		%	100.0	36.5	7.5	5.0	<1%	29.8

*Complete course within last week prior to birth – defined as receipt of at least two doses of corticosteroids 24 hours or more but within one week of birth.

**Complete course before 1 week of birth – defined as receipt of at least two doses of corticosteroids initiated more than one week prior to birth.

***Complete course but timing unknown – defined as receipt of at least two doses of corticosteroids or if “complete course” was documented, but the dates of administration were not available.

****Partial course within last 24 hours – defined as any dose given less than 24 hours prior to birth.

Note: Data on “Partial course >24 hours ago” and “Partial course but timing unknown” are collected in the database but they are not reported in this table. If multiple courses of steroids received, only the last prior to delivery was used for this table.

Presentation #7c
Maternal and peripartum characteristics:
Timing of deferred cord clamping: GA <33 weeks

Singleton

	Weeks		Deferred Cord clamping timing					Duration unknown	Any Deferred Cord clamping	Immediate Cord clamping	DCC Unknown
			0-15 seconds	16-30 seconds	31-60 seconds	61-75 seconds	>75 seconds				
Inborn	22-28	N	46	153	445	29	14	6	693	401	7
		%	4.2	13.9	40.4	2.6	1.3	0.5	62.9	36.4	0.6
	29-32	N	38	166	904	67	55	21	1251	327	21
		%	2.4	10.4	56.5	4.2	3.4	1.3	78.2	20.5	1.3
Outborn	22-28	N	2	17	41	0	3	5	68	72	42
		%	1.1	9.3	22.5	0.0	1.7	2.8	37.4	39.6	23.1
	29-32	N	3	25	60	0	10	5	103	82	130
		%	1.0	7.9	19.1	0.0	3.2	1.6	32.7	26.0	41.3

First twin

	Weeks		Deferred Cord clamping timing					Duration unknown	Any Deferred Cord clamping	Immediate Cord clamping	DCC Unknown
			0-15 seconds	16-30 seconds	31-60 seconds	61-75 seconds	>75 seconds				
Inborn	22-28	N	5	35	68	3	1	0	112	65	1
		%	2.8	19.7	38.2	1.7	0.6	0.0	62.9	36.5	0.6
	29-32	N	8	34	167	12	9	3	233	94	1
		%	2.4	10.4	50.9	3.7	2.7	0.9	71.0	28.7	0.3
Outborn	22-28	N	1	1	4	0	0	0	6	10	8
		%	4.2	4.2	16.7	0.0	0.0	0.0	25.0	41.7	33.3
	29-32	N	0	0	4	0	0	0	4	6	11
		%	0.0	0.0	19.1	0.0	0.0	0.0	19.1	28.6	52.4

Second twin

	Weeks		Deferred Cord clamping timing					Duration unknown	Any Deferred Cord clamping	Immediate Cord clamping	DCC Unknown
			0-15 seconds	16-30 seconds	31-60 seconds	61-75 seconds	>75 seconds				
Inborn	22-28	N	3	19	81	2	2	2	109	60	2
		%	1.8	11.1	47.4	1.2	1.2	1.2	63.7	35.1	1.2
	29-32	N	7	34	173	12	11	0	237	78	7
		%	2.2	10.6	53.7	3.7	3.4	0.0	73.6	24.2	2.2
Outborn	22-28	N	2	1	7	0	0	0	10	8	5
		%	8.7	4.4	30.4	0.0	0.0	0.0	43.5	34.8	21.7
	29-32	N	0	0	7	0	0	1	8	8	10
		%	0.0	0.0	26.9	0.0	0.0	3.9	30.8	30.8	38.5

Presentation #8a
Resuscitation details: GA <31 weeks

Action taken		GA at birth (completed weeks)								Total		
		≤23	24	25	26	27	28	29	30			
Total		178	200	237	290	389	426	483	578	2781		
No resus/stabilization needed/provided	N	0	1	0	0	1	1	3	6	12		
	%	0.0	0.5	0.0	0.0	0.3	0.2	0.6	1.0	0.4		
CPAP	N	35	75	140	182	316	351	427	510	2036		
	%	19.7	37.5	59.1	62.8	81.2	82.4	88.4	88.2	73.2		
PPV via mask	N	169	180	206	252	295	306	306	355	2069		
	%	94.9	90.0	86.9	86.9	75.8	71.8	63.4	61.4	74.4		
PPV via ETT	N	156	125	111	115	83	72	72	55	789		
	%	87.6	62.5	46.8	39.7	21.3	16.9	14.9	9.5	28.4		
Chest compression	N	12	9	9	8	14	7	8	9	76		
	%	6.7	4.5	3.8	2.8	3.6	1.6	1.7	1.6	2.7		
Epinephrine	N	7	5	5	3	9	2	5	2	38		
	%	3.9	2.5	2.1	1.0	2.3	0.5	1.0	0.4	1.4		
Unknown	N	0	0	2	0	0	1	0	1	4		
	%	0.0	0.0	0.8	0.0	0.0	0.2	0.0	0.2	0.1		
Any resus/stabilization provided*		N	178	199	235	290	387	422	479	563	2753	
		%	100.0	99.5	99.2	100.0	99.5	99.1	99.2	97.4	99.0	
Initial gas	Air	N	22	39	31	33	61	79	123	194	582	
		%	12.4	19.5	13.1	11.4	15.7	18.5	25.5	33.6	20.9	
	22-40% O ₂	N	99	116	135	187	249	247	271	281	1585	
		%	55.6	58.0	57.0	64.5	64.0	58.0	56.1	48.6	57.0	
	41-70% O ₂	N	8	21	22	27	29	40	17	24	188	
		%	4.5	10.5	9.3	9.3	7.5	9.4	3.5	4.2	6.8	
	71-99% O ₂	N	1	0	5	3	3	3	3	1	19	
		%	0.6	0.0	2.1	1.0	0.8	0.7	0.6	0.2	0.7	
	100% O ₂	N	32	15	22	14	18	27	24	20	172	
		%	18.0	7.5	9.3	4.8	4.6	6.3	5.0	3.5	6.2	
	Unknown/ Missing	N	16	9	22	26	29	30	45	58	235	
		%	9.0	4.5	9.3	9.0	7.5	7.0	9.3	10.0	8.5	
	Maximum O ₂ conc. during resus.	21%	N	0	0	2	0	3	1	4	16	26
			%	0.0	0.0	0.8	0.0	0.8	0.2	0.8	2.8	0.9
22-40%		N	2	11	25	23	90	87	140	190	568	
		%	1.1	5.5	10.6	7.9	23.1	20.4	29.0	32.9	20.4	
41-70%		N	7	18	39	55	83	125	119	128	574	
		%	3.9	9.0	16.5	19.0	21.3	29.3	24.6	22.2	20.6	
>70%		N	166	168	166	200	197	199	203	200	1499	
		%	93.3	84.0	70.0	69.0	50.6	46.7	42.0	34.6	53.9	
Missing		N	3	3	5	12	16	14	17	44	114	
		%	1.7	1.5	2.1	4.1	4.1	3.3	3.5	7.6	4.1	

* Number of neonates who received any resuscitation includes those who received CPAP, PPV, chest compression or epinephrine

NOTE: Please use caution when interpreting these data. Resuscitation time was defined as the first 30 minutes after birth. Note that delivery room deaths are not included in the denominator.

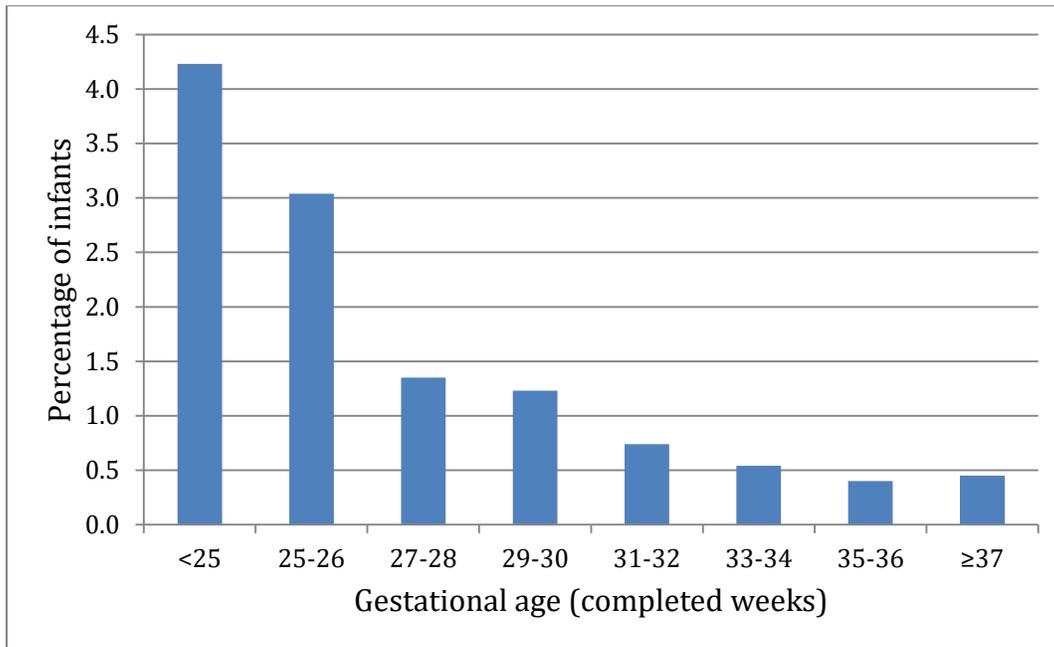
Presentation #8b
Resuscitation details: GA \geq 31 weeks

Action taken		GA at birth (completed weeks)							Total		
		31	32	33	34	35	36	≥ 37			
Total		706	918	884	1320	1158	1313	6413	12712		
No resus/stabilization needed / provided	N	20	68	139	321	309	339	1852	3048		
	%	2.8	7.4	15.7	24.3	26.7	25.8	28.9	24.0		
CPAP	N	619	706	543	638	551	595	2679	6331		
	%	87.7	76.9	61.4	48.3	47.6	45.3	41.8	49.8		
PPV via mask	N	353	430	301	347	301	345	1853	3930		
	%	50.0	46.8	34.1	26.3	26.0	26.3	28.9	30.9		
PPV via ETT	N	44	69	28	37	51	71	420	720		
	%	6.2	7.5	3.2	2.8	4.4	5.4	6.6	5.7		
Chest compression	N	9	13	5	8	12	16	142	205		
	%	1.3	1.4	0.6	0.6	1.0	1.2	2.2	1.6		
Epinephrine	N	5	7	2	4	7	7	51	83		
	%	0.7	0.8	0.2	0.3	0.6	0.5	0.8	0.7		
Unknown	N	3	4	2	4	5	6	51	75		
	%	0.4	0.4	0.2	0.3	0.4	0.5	0.8	0.6		
Any resus/stabilization provided*	N	661	763	581	693	621	683	3228	7230		
	%	93.6	83.1	65.7	52.5	53.6	52.0	50.3	56.9		
Initial gas	Air	N	246	334	255	315	323	383	1661	3517	
		%	34.8	36.4	28.9	23.9	27.9	29.2	25.9	27.7	
	22-40% O ₂	N	304	298	208	246	170	152	575	1953	
		%	43.1	32.5	23.5	18.6	14.7	11.6	9.0	15.4	
	41-70% O ₂	N	24	21	22	31	21	21	137	277	
		%	3.4	2.3	2.5	2.4	1.8	1.6	2.1	2.2	
	71-99% O ₂	N	2	3	1	1	3	4	22	36	
		%	0.3	0.3	0.1	0.1	0.3	0.3	0.3	0.3	
	100% O ₂	N	22	34	37	49	52	56	317	567	
		%	3.1	3.7	4.2	3.7	4.5	4.3	4.9	4.5	
	Unknown/ Missing	N	108	228	361	678	589	697	3701	6362	
		%	15.3	24.8	40.8	51.4	50.9	53.1	57.7	50.0	
	Maximum O ₂ conc. during resus	21%	N	25	22	40	50	55	61	255	508
			%	3.5	2.4	4.5	3.8	4.8	4.7	4.0	4.0
22-40%		N	263	279	223	282	241	215	867	2370	
		%	37.3	30.4	25.2	21.4	20.8	16.4	13.5	18.6	
41-70%		N	153	174	134	149	93	137	474	1314	
		%	21.7	19.0	15.2	11.3	8.0	10.4	7.4	10.3	
>70%		N	182	235	154	198	197	218	1223	2407	
		%	25.8	25.6	17.4	15.0	17.0	16.6	19.1	18.9	
Missing		N	83	208	333	641	572	682	3594	6113	
		%	11.8	22.7	37.7	48.6	49.4	51.9	56.0	48.1	

* Number of neonates who received any resuscitation includes those who received CPAP, PPV, Chest compression or epinephrine

NOTE: Please use caution while interpreting these data. Resuscitation time was defined as the first 30 minutes after birth. Note that delivery room deaths are not included in the denominator.

Presentation #9
Early onset sepsis rates: All GA

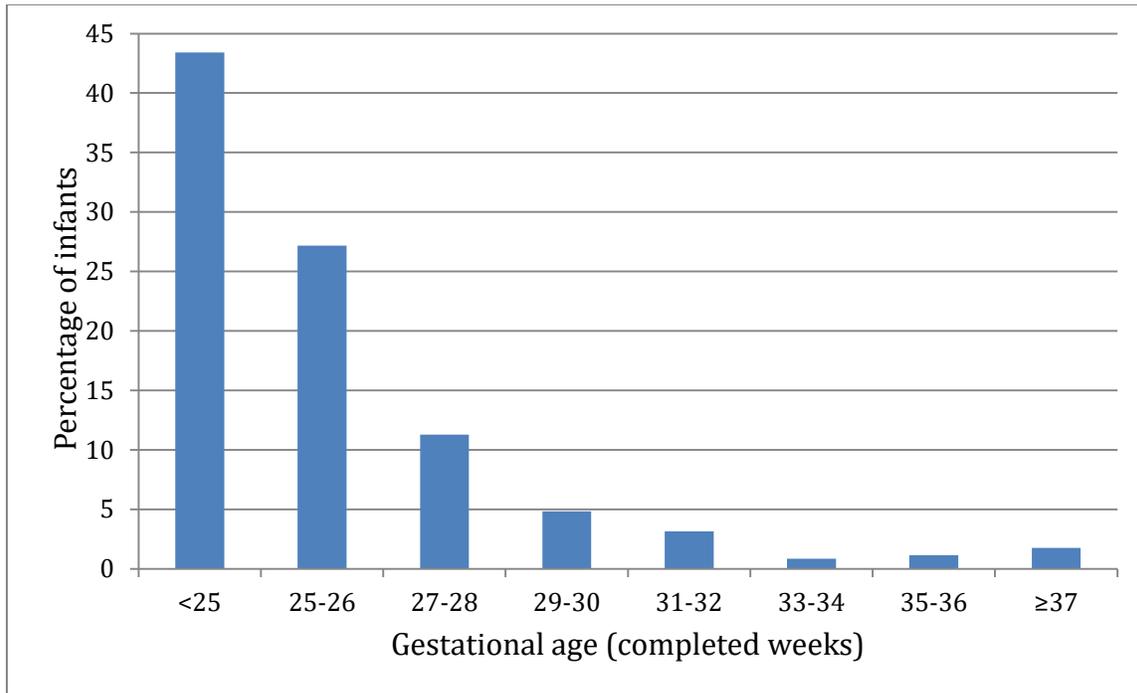


GA at birth (completed weeks)	Total number of neonates	No. of neonates with infection	% of neonates with infection	Total number of organisms	Organism		
					E. Coli	GBS	Others
<25	378	16	4.2	16	6	5	5
25-26	527	16	3.0	16	10	3	3
27-28	815	11	1.4	12	6	2	4
29-30	1 061	13	1.2	13	5	2	6
31-32	1 624	12	0.7	12	3	3	6
33-34	2 204	12	0.5	12	7	3	2
35-36	2 471	10	0.4	10	5	1	4
≥37	6 413	29	0.5	31	9	7	15
Total neonates included	15 493	119	0.8	122	51	26	45
Missing	0						
Total # of neonates	15 493						

COMMENTS: Early onset sepsis is defined as positive bacterial, viral or fungal culture in blood and/or cerebrospinal fluid, in the first two calendar days after birth. In “Others” category, top five organisms were: Enterococcus (n=6), Haemophilus (n=5), Klebsiella (n=5), Streptococcus (n=5), Viridans Streptococcus (n=4). In contrast to CNN reports in the past, CONS was *not* included as an organism causing early onset sepsis in this report based on consultation with microbiologists.

Syphilis was not counted as an early onset sepsis in this presentation. Fourteen (14) incidents of Syphilis were observed in 2024.

Presentation #10
Late onset sepsis rates: All GA

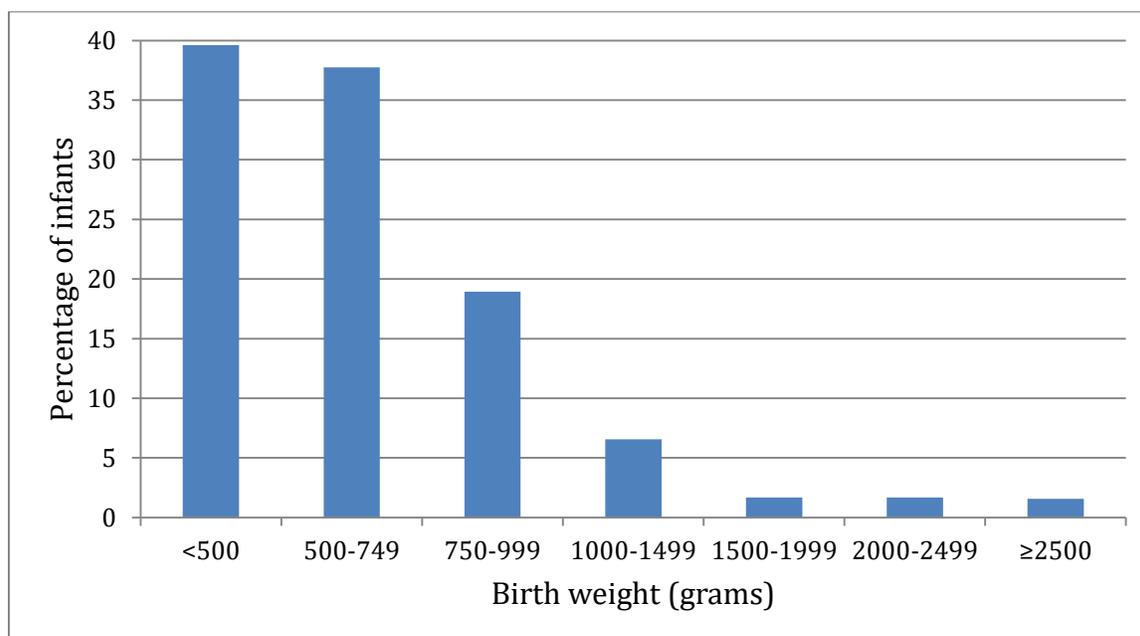


GA at birth (completed weeks)	Total number	Number of deaths in the first 2 days after birth	Number of neonates survived beyond day 2 after birth	Number of neonates with at least one infection	Number of neonates with more than one infection	Among neonates who survived day 2, percentage with at least one infection	Total number of organisms	Organisms					
								CONS	E. Coli	Staph aureus	Fungal	Viral	Other
<25	378	21	357	155	56	43	235	108	16	32	6	4	69
25-26	527	12	515	140	27	27	177	85	14	33	7	2	36
27-28	815	9	806	91	18	11	114	47	9	23	5	4	26
29-30	1 061	7	1 054	51	7	5	62	22	11	5	3	2	19
31-32	1 624	4	1 620	51	11	3	71	26	8	9	0	6	21
33-34	2 204	6	2 198	19	2	1	22	11	3	5	0	1	2
35-36	2 471	12	2 459	28	3	1	32	14	2	5	0	3	8
≥37	6 413	31	6 382	112	17	2	133	64	13	14	1	11	30
Total included	15 493	102	15 391	647	141	4	845	377	76	126	22	33	211
Missing	0												
Total # of neonates	15 493												

COMMENTS: Late onset sepsis is defined as any positive blood and/or cerebrospinal fluid culture for bacteria, viral or fungi after 2 calendar days of age (analysis is neonate-based). The numbers are adjusted for readmission. In “Others” category, top 5 organisms were: Klebsiella (n=48), Enterococci (n=41), GBS (n=29), Bacillus (n=19) Enterobacter (n=15). Virus category includes Cytomegalovirus (n=13), Enterovirus (n=11), Herpes simplex virus (n=4), Human herpesvirus 6 (n=2), Parvovirus (n=2), Coronavirus (n=1).

Note: In 2020, the coding for CONS and Staph Aureus were revised which has led to a change in proportion of each.

Presentation #11
Late onset sepsis rates: All BW



BW (grams)	Total number	Number of deaths in the first 2 days after birth	Number of neonates survived beyond day 2 after birth	Number of neonates with at least one infection	Number of neonates with more than one infection	Among neonates who survived day 2, percentage with at least one infection	Total number of organisms	Organisms					
								CONS	E. Coli	Staph aureus	Fungal	Virus	Other
<500	56	3	53	21	9	40	36	22	0	6	0	0	8
500-749	515	25	490	185	55	38	264	111	17	50	10	7	69
750-999	670	10	660	125	30	19	162	74	14	26	6	1	41
1000-1499	1 794	8	1 786	117	19	7	143	64	17	15	5	6	36
1500-1999	2 420	13	2 407	40	6	2	49	12	9	9	0	5	14
2000-2499	2 537	8	2 529	42	7	2	55	29	4	6	0	3	13
≥2500	7 501	35	7 466	117	15	2	136	65	15	14	1	11	30
Total included	15 493	102	15 391	647	141	4	845	377	76	126	22	33	211
Missing (BW)	0												
Total # of neonates	15 493												

COMMENTS: Late onset sepsis is defined as any positive blood and/or cerebrospinal fluid culture for bacteria, viral or fungi after 2 days of age (analysis is neonate-based). The numbers are adjusted for readmission. In “Others” category, top 5 organisms were: Klebsiella (n=48), Enterococci (n=41), GBS (n=29), Bacillus (n=19) Enterobacter (n=15). Virus category includes Cytomegalovirus (n=13), Enterovirus (n=11), Herpes simplex virus (n=4), Human herpesvirus 6 (n=2), Parvovirus (n=2), Coronavirus (n=1).

Note: In 2020, the coding for CONS and Staph Aureus were revised which has led to a change in proportion of each.

Presentation #12

Septic Shock and Mortality within 7 days in patients with Sepsis (both EOS & LOS)

	CONS				Non-CONS organisms			
	Total # of sepsis events N	Death within 7 days of sepsis event N (%*)	Septic Shock N (%*)	Death within 7 days of septic shock event N (%†)	Total # of sepsis events N	Death within 7 days of sepsis event N (%*)	Septic Shock N (%*)	Death within 7 days of septic shock event N (%†)
</=25 weeks	162	5 (3%)	15 (9%)	3 (20%)	202	28 (14%)	51 (25%)	19 (37%)
26-28 weeks	78	1 (1%)	7 (9%)	1 (14%)	132	19 (14%)	34 (26%)	16 (47%)
29-32 weeks	48	0	1 (2%)	0	115	7 (6%)	17 (15%)	5 (29%)

* % of Total # of Sepsis events (e.g., 1 neonate with 2 distinct sepsis episodes = 2 sepsis events)

† % of Total # of Septic shock events

Definitions:

- Septic Shock defined as use of inotropes/pressors within 3 days after onset of sepsis (onset defined as the day the positive blood/CSF culture was sent)

Presentation #13
Other diagnoses / interventions / procedures: All GA

Characteristics		Missing		GA at birth (completed weeks)						Total
				≤25	26 - 28	29 - 30	31 - 32	33 - 36	≥37	
Total				615	1105	1061	1624	4675	6413	15493
Prophylactic	Indomethacin		N	74	49	1	0	1	0	125
			%	12.0	4.4	0.1	0.0	0.0	0.0	0.8
	Probiotics		N	357	665	540	687	318	100	2667
			%	58.1	60.2	50.9	42.3	6.8	1.6	17.2
Early (within 1st 3 days) hydrocortisone prophylaxis			N	10	3	4	4	13	36	70
			%	1.6	0.3	0.4	0.3	0.3	0.6	0.5
RDS	Unknown /Uncertain		N	2	11	33	64	105	101	316
			%	0.3	1.0	3.1	3.9	2.3	1.6	2.0
	None		N	3	83	196	645	3668	5943	10538
			%	0.5	7.5	18.5	39.7	78.5	92.7	68.0
	Definite		N	610	1011	832	915	902	369	4639
			%	99.2	91.5	78.4	56.3	19.3	5.8	29.9
Surfactant in first 30 min			N	141	99	28	10	2	0	280
			%	22.9	9.0	2.6	0.6	0.0	0.0	1.8
Surfactant in first 60 min			N	289	222	87	46	22	5	671
			%	47.0	20.1	8.2	2.8	0.5	0.1	4.3
Surfactant in first 120 min			N	420	389	195	97	50	19	1170
			%	68.3	35.2	18.4	6.0	1.1	0.3	7.6
Surfactant after 120 minutes			N	153	391	293	271	344	189	1641
			%	24.9	35.4	27.6	16.7	7.4	3.0	10.6
Surfactant at any time			N	573	780	488	368	394	208	2811
			%	93.2	70.6	46.0	22.7	8.4	3.2	18.1
Surfactant dose > 1	% out of surfactant at any time		N	316	241	87	39	54	37	774
			%	55.2	30.9	17.8	10.6	13.7	17.8	27.6
Method of surfactant (first dose only among the neonates who received surfactant)*	Endotracheal		N	488	513	280	222	275	173	1951
			%	85.2	65.8	57.4	60.3	69.8	83.2	69.4
	LISA/MIST		N	51	241	199	133	95	29	748
			%	8.9	30.9	40.8	36.1	24.1	13.9	26.6
	Other*		N	34	26	9	13	24	6	112
			%	5.9	3.3	1.8	3.5	6.1	2.9	4.0
Pneumothorax diagnosis			N	65	48	40	49	160	401	763
			%	10.6	4.3	3.8	3.0	3.4	6.3	4.9
Pneumothorax treatment**	No intervention		N	7	9	13	12	72	253	366
			%	10.8	18.8	32.5	24.5	45.0	63.1	48.0
	Needle drainage		N	32	24	16	19	61	87	239
			%	49.2	50.0	40.0	38.8	38.1	21.7	31.3
	Chest tube		N	41	36	20	25	55	80	257
			%	63.1	75.0	50.0	51.0	34.4	20.0	33.7

* “Other” includes other method of surfactant, surfactant method unknown (i.e. “unknown” checked) and method missing (i.e. “method” left blank).

** One neonate can have multiple treatments. Denominators for treatment were based on the number of neonates who had pneumothorax.

Presentation #13 (continued)
Other diagnoses / interventions / procedures: All GA

Characteristics		Missing		GA at birth (completed weeks)						Total	
				≤25	26 - 28	29 - 30	31 - 32	33 - 36	≥37		
Total				615	1105	1061	1624	4675	6413	15493	
Seizures	Definite /suspected	8	N	35	28	19	22	89	428	621	
			%	5.7	2.5	1.8	1.4	1.9	6.7	4.0	
Operations	Thoracotomy		N	6	3	5	7	18	46	85	
			%	1.0	0.3	0.5	0.4	0.4	0.7	0.5	
	Laparotomy		N	52	42	24	37	67	113	335	
			%	8.5	3.8	2.3	2.3	1.4	1.8	2.2	
	Ostomy		N	1	3	1	3	6	14	28	
			%	0.2	0.3	0.1	0.2	0.1	0.2	0.2	
	Reservoir/Drain		N	20	18	5	4	6	4	57	
			%	3.3	1.6	0.5	0.3	0.1	0.1	0.4	
	VP shunt		N	13	11	4	1	9	15	53	
			%	2.1	1.0	0.4	0.1	0.2	0.2	0.3	
	Gastro-intestinal perforation	Spontaneous		N	37	18	12	10	15	17	109
				%	6.0	1.6	1.1	0.6	0.3	0.3	0.7
NEC related			N	21	19	5	8	4	4	61	
			%	3.4	1.7	0.5	0.5	0.1	0.1	0.4	
Acquired stricture			N	4	4	4	4	2	2	20	
			%	0.7	0.4	0.4	0.3	0.0	0.0	0.1	
Exchange transfusion			N	1	1	0	2	2	10	16	
			%	0.2	0.1	0.0	0.1	0.0	0.2	0.1	
Congenital anomaly*	None		N	382	757	808	1354	3816	4632	11749	
			%	62.1	68.5	76.2	83.4	81.6	72.2	75.8	
	Minor		N	204	311	206	208	534	1006	2469	
			%	33.2	28.1	19.4	12.8	11.4	15.7	15.9	
	Major		N	29	37	47	62	325	775	1275	
			%	4.7	3.4	4.4	3.8	7.0	12.1	8.2	

*A list of major anomalies can be found in the 2013 annual report, pages 124-127. It is available via the following link:

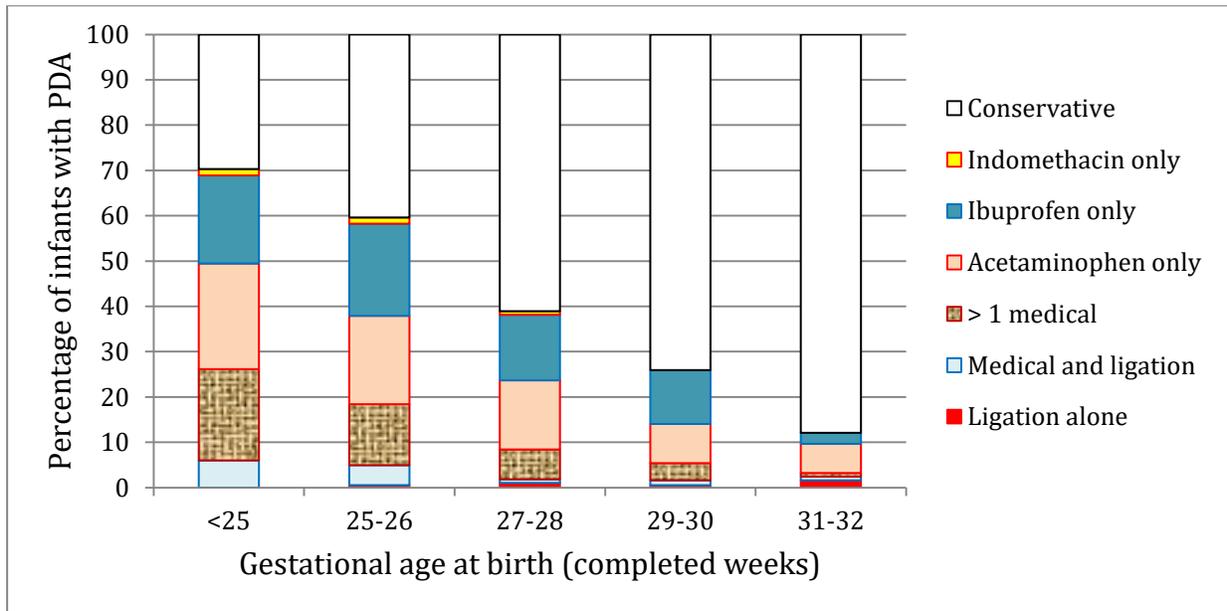
<http://www.canadianneonatalnetwork.org/Portal/LinkClick.aspx?fileticket=lrR0871sjA%3d&tabid=39>

Section D.3

Analyses based on the number of eligible very preterm (GA <33 weeks) or very low birth weight (BW <1 500g) neonates

These included data from 4 405 eligible very preterm neonates and 3 035 eligible VLBW neonates.

Presentation #14
Patent ductus arteriosus (PDA) treatments: GA <33 weeks



Birth GA (completed weeks)		Total	Missing data on PDA	PDA unknown	No PDA	Neonates with PDA	Treatment†						
							Conservative	Indo	Ibu	Acetaminophen	> 1 medical*	Medical and ligation#	Ligation alone
<25	N	378	0	9	86	283	84	4	55	66	57	17	0
	%						30%	1%	19%	23%	20%	6%	0%
25-26	N	527	0	10	153	364	147	5	74	71	49	16	2
	%						40%	1%	20%	20%	13%	4%	1%
27-28	N	815	0	5	430	380	232	3	55	58	25	3	4
	%						61%	1%	14%	15%	7%	1%	1%
29-30	N	1061	0	19	857	185	137	0	22	16	7	2	1
	%						74%	0%	12%	9%	4%	1%	1%
31-32	N	1624	0	28	1472	124	109	0	3	8	1	1	2
	%						88%	0%	2%	6%	1%	1%	2%
Total neonates included	N	4405	0	71	2998	1336	709	12	209	219	139	39	9
	%						53%	1%	16%	16%	10%	3%	1%

†The percentage of neonates receiving each PDA treatment was calculated using the total number of neonates diagnosed with PDA as the denominator.

*>1 medical = 2 or 3 of (Indomethacin or Ibuprofen or Acetaminophen)

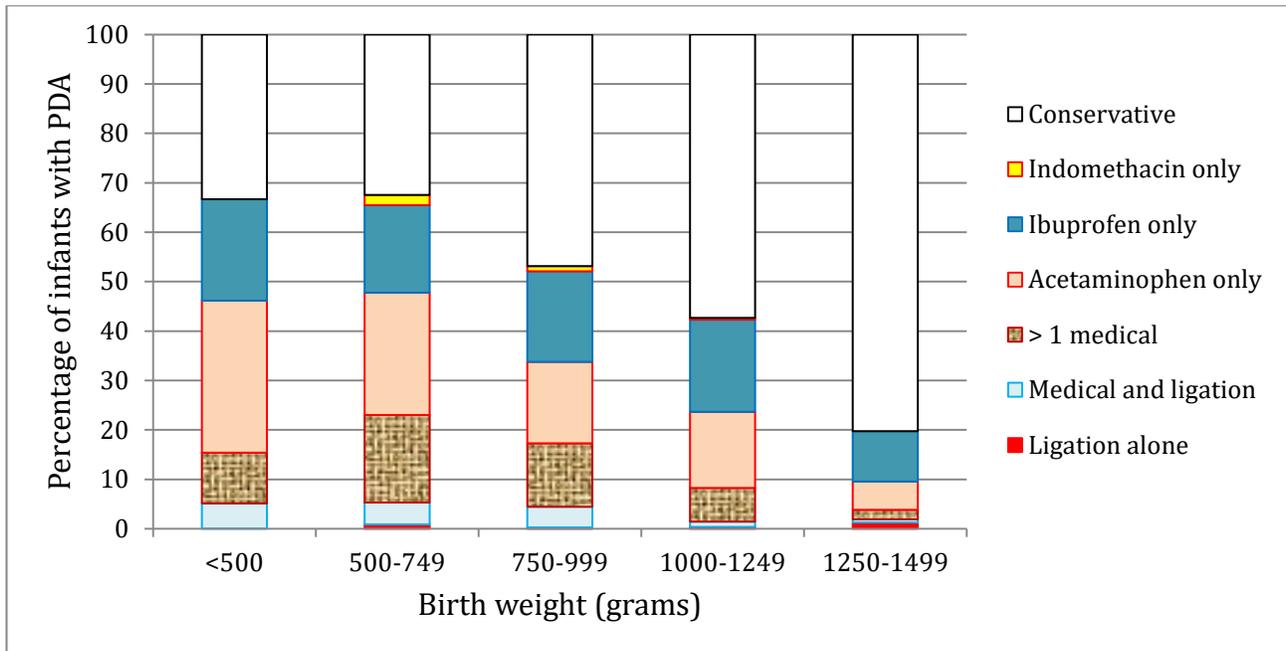
#Medical and ligation = Ligation + at least one of the drugs (Indomethacin or Ibuprofen or Acetaminophen)

Out of 39 Medical and ligation = surgical (12), device close (27)

Out of 9 Ligation alone = surgical (3), device closure (6)

COMMENTS: Specific reasons for treatment with indomethacin and frequency of repeat course of medical treatment (when same drug was used) were not recorded. Excludes indomethacin prophylaxis started on the first day of age. Neonates were identified as without PDA if there was no clinical suspicion of PDA.

Presentation #15
Patent ductus arteriosus (PDA) treatments: BW <1500g



BW (grams)		Total	Missing data on PDA	PDA information unknown	No PDA	Neonates with PDA	Treatment†						
							Conser vative	Indo	Ibu	Acetamin ophen	> 1 medical*	Medical and ligation#	Ligation alone
<500	N	56	0	1	16	39	13	0	8	12	4	2	0
	%						33%	0%	21%	31%	10%	5%	0%
500-749	N	515	0	16	160	339	110	7	60	84	60	15	3
	%						32%	2%	18%	25%	18%	4%	1%
750-999	N	670	0	5	283	382	179	4	70	63	49	16	1
	%						47%	1%	18%	16%	13%	4%	0%
1000-1249	N	826	0	11	536	279	160	1	52	43	19	3	1
	%						57%	0%	19%	15%	7%	1%	0%
1250-1499	N	968	0	10	801	157	126	0	16	9	3	1	2
	%						80%	0%	10%	6%	2%	1%	1%
Total neonates included	N	3035	0	43	1796	1196	588	12	206	211	135	37	7
	%						49%	1%	17%	18%	11%	3%	1%

† The percentage of neonates receiving each PDA treatment was calculated using the total number of neonates diagnosed with PDA as the denominator.

*>1 medical = 2 or 3 of (Indomethacin or Ibuprofen or Acetaminophen)

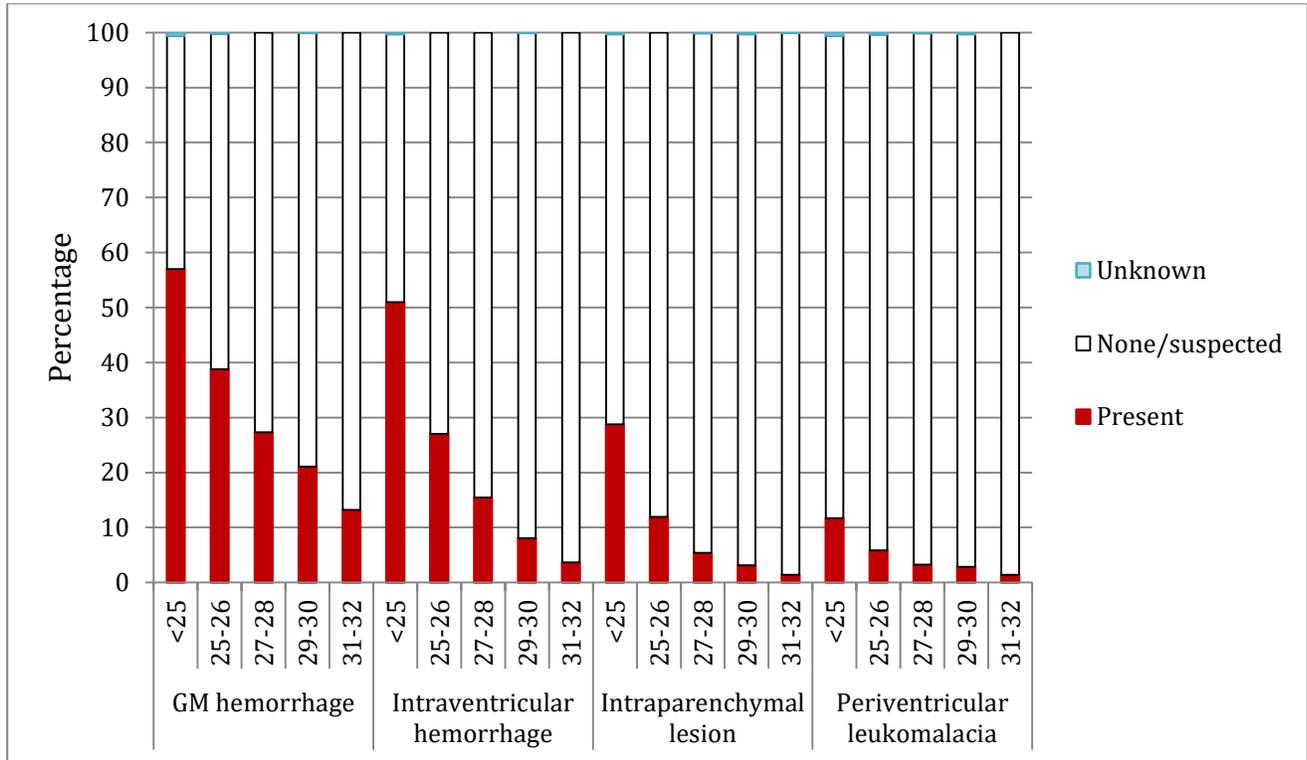
#Medical and ligation = Ligation + at least one of the drugs (Indomethacin or Ibuprofen or Acetaminophen)

Out of 37 Medical and ligation = surgical (11), device close (26)

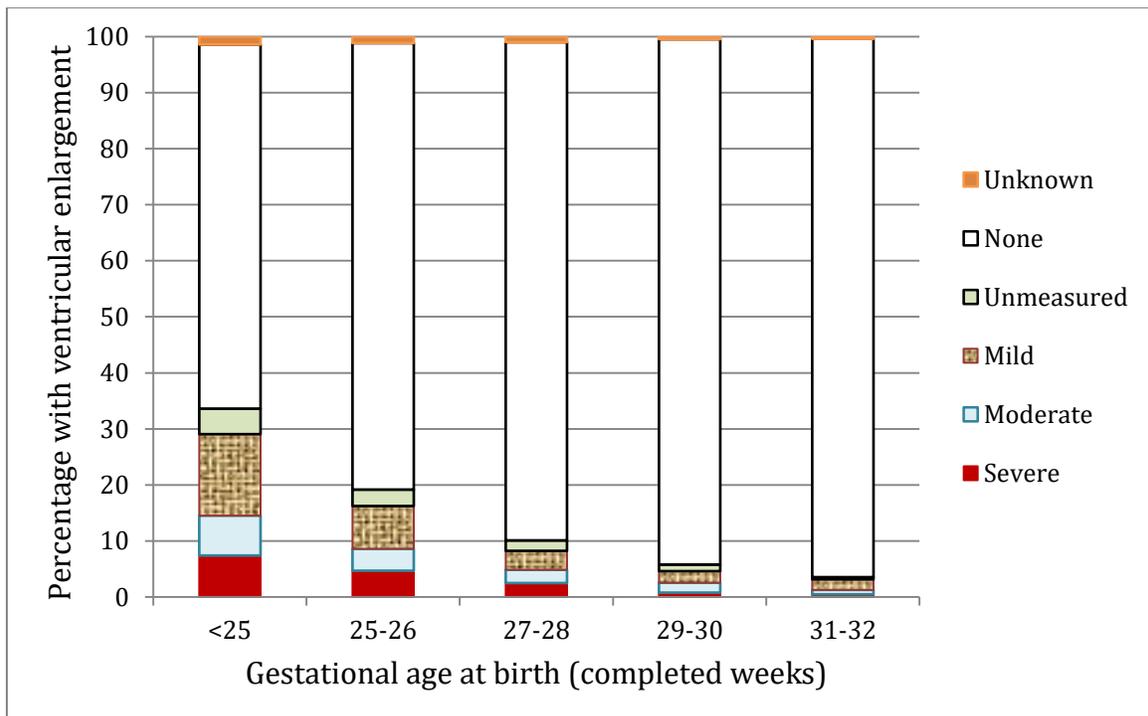
Out of 7 Ligation alone = surgical (2), device closure (5)

COMMENTS: Specific reasons for treatment with indomethacin and frequency of a repeat course of medical treatment (when same drug was used) were not recorded. Data excludes indomethacin prophylaxis started on the first day of age. Neonates were identified as without PDA if there was no clinical suspicion of PDA.

Presentation #16
Neuroimaging findings: GA <33 weeks



Ventricular enlargement



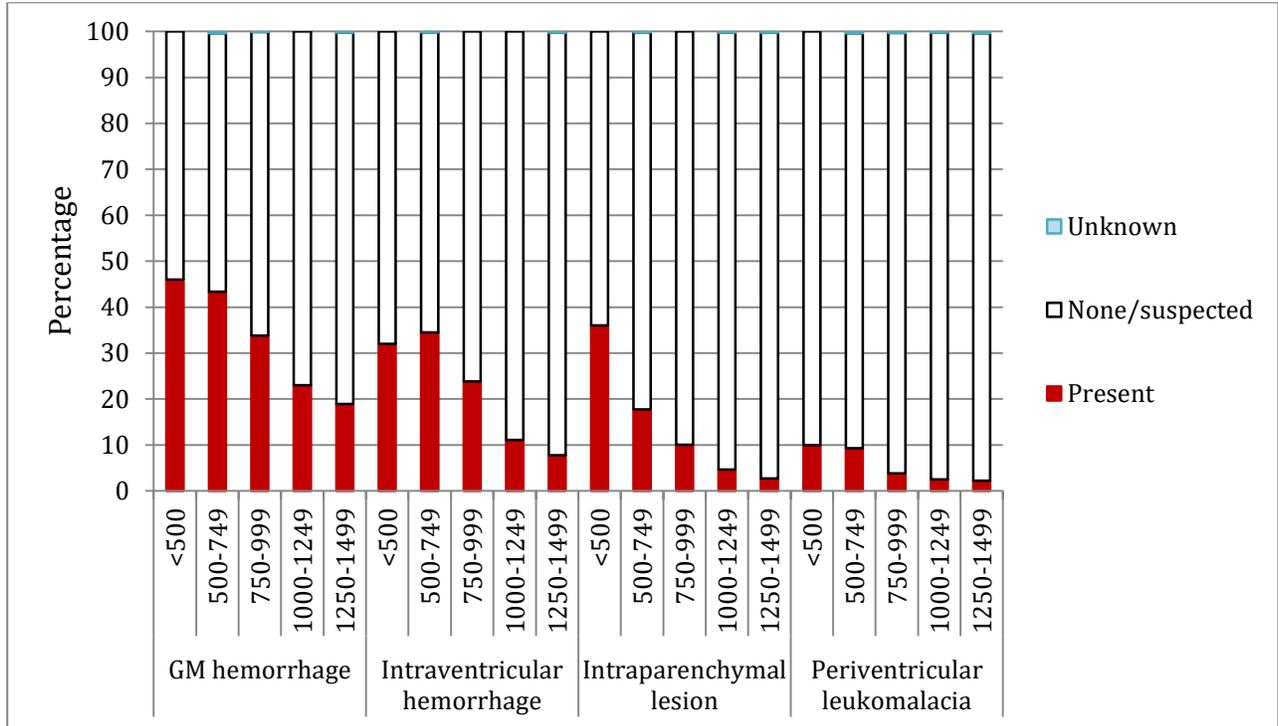
See [page 146](#) for classifications of ventricular enlargement.

Presentation #16 (continued)
Neuroimaging findings: GA <33 weeks

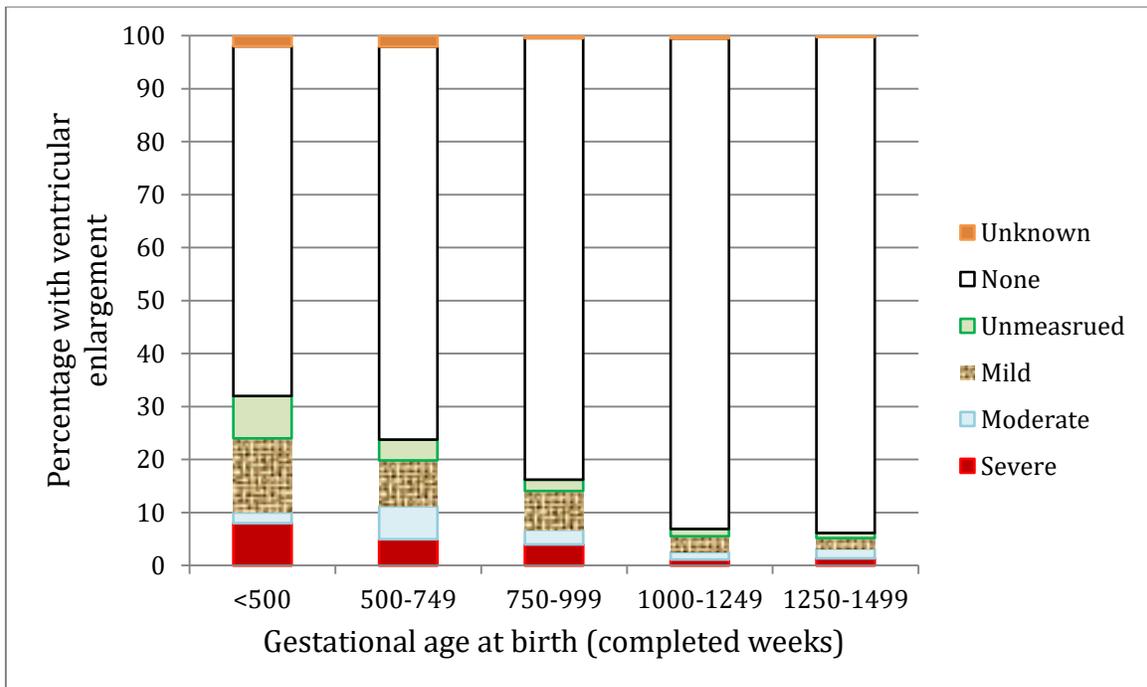
GA at birth (completed weeks)	Total	Neuro- imaging available	Neuroimaging findings																		
			GM hemorrhage			Intraventricular hemorrhage			Ventricular enlargement					Intraparenchymal lesion			Periventricular leukomalacia				
			Present	None/ suspected	Unknown	Present	None/ suspected	Unknown	Mild	Moderate	Severe	Unmeasured	None	Unknown	Present	None/ suspected	Unknown	Present	None/ suspected	Unknown	
<25	N	378	351	200	149	2	179	171	1	51	25	26	16	228	5	101	249	1	41	308	2
	%			57%	42%	1%	51%	49%	0%	15%	7%	7%	5%	65%	1%	29%	71%	0%	12%	88%	1%
25-26	N	527	511	198	312	1	138	373	0	39	20	24	15	407	6	61	450	0	30	479	2
	%			39%	61%	0%	27%	73%	0%	8%	4%	5%	3%	80%	1%	12%	88%	0%	6%	94%	0%
27-28	N	815	801	219	582	0	124	677	0	27	19	20	15	712	8	43	757	1	26	774	1
	%			27%	73%	0%	15%	85%	0%	3%	2%	3%	2%	89%	1%	5%	95%	0%	3%	97%	0%
29-30	N	1061	1019	215	803	1	82	936	1	21	18	8	12	955	5	32	984	3	29	987	3
	%			21%	79%	0%	8%	92%	0%	2%	2%	1%	1%	94%	0%	3%	97%	0%	3%	97%	0%
31-32	N	1624	1013	134	879	0	37	976	0	19	8	5	4	973	4	14	998	1	14	999	0
	%			13%	87%	0%	4%	96%	0%	2%	1%	0%	0%	96%	0%	1%	99%	0%	1%	99%	0%
Total number of neonates	N	4405	3695	966	2725	4	560	3133	2	157	90	83	62	3275	28	251	3438	6	140	3547	8
	%			26%	74%	0%	15%	85%	0%	4%	2%	2%	2%	89%	1%	7%	93%	0%	4%	96%	0%

Note: Neuroimaging findings were not mutually exclusive, i.e. one neonate may have had more than one finding.
See [page 146](#) for classifications of ventricular enlargement.

Presentation #17
Neuroimaging findings: BW <1500g



Ventricular enlargement



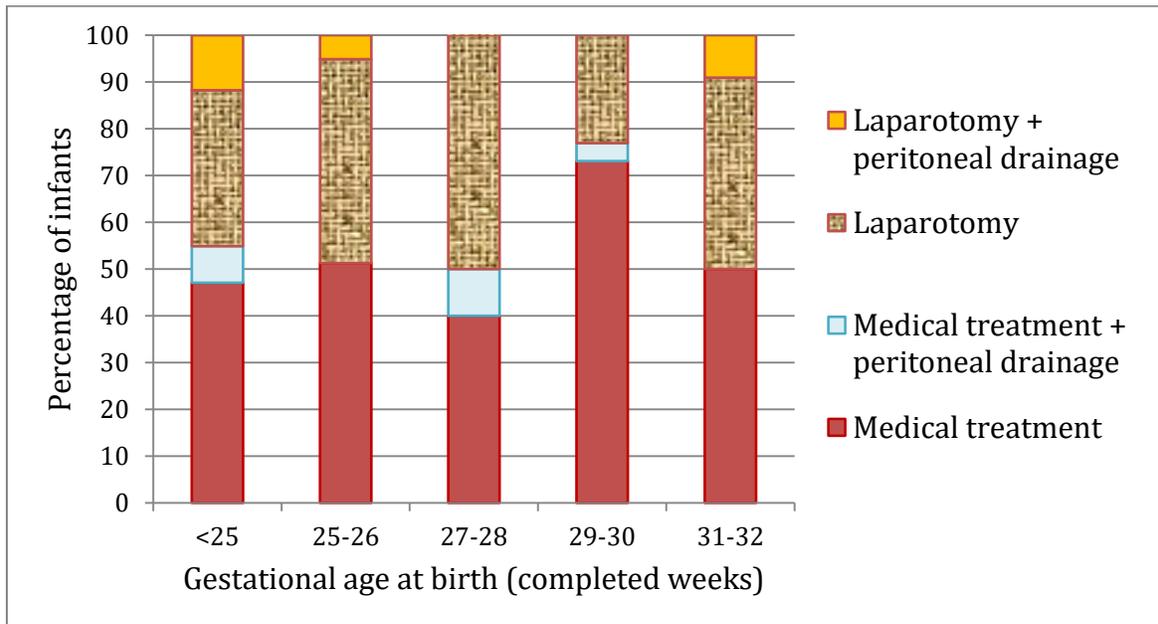
See [page 146](#) for classifications of ventricular enlargement.

Presentation #17 (continued)
Neuroimaging findings: BW <1500g

BW (grams)		Total	Neuro-imaging available	Neuroimaging findings																	
				GM hemorrhage			Intraventricular hemorrhage			Ventricular enlargement					Intraparenchymal lesion			Periventricular leukomalacia			
				Present	None/suspected	Unknown	Present	None/suspected	Unknown	Mild	Moderate	Severe	Unmeasured	None	Unknown	Present	None/suspected	Unknown	Present	None/suspected	Unknown
<500	N	56	50	23	27	0	16	34	0	7	1	4	4	33	1	18	32	0	5	45	0
	%			46%	54%	0%	32%	68%	0%	14%	2%	8%	8%	66%	2%	36%	64%	0%	10%	90%	0%
500-749	N	515	484	210	272	2	167	316	1	42	30	24	19	359	10	86	397	1	45	437	2
	%			43%	56%	0%	35%	65%	0%	9%	6%	5%	4%	74%	2%	18%	82%	0%	9%	90%	0%
750-999	N	670	654	221	432	1	156	498	0	48	18	26	14	545	3	66	588	0	25	627	2
	%			34%	66%	0%	24%	76%	0%	7%	3%	4%	2%	83%	0%	10%	90%	0%	4%	96%	0%
1000-1249	N	826	795	183	612	0	88	707	0	24	11	9	11	736	4	37	756	2	20	773	2
	%			23%	77%	0%	11%	89%	0%	3%	1%	1%	1%	93%	1%	5%	95%	0%	3%	97%	0%
1250-1499	N	968	813	154	657	2	63	748	2	16	15	11	8	761	2	22	789	2	18	792	3
	%			19%	81%	0%	8%	92%	0%	2%	2%	1%	1%	94%	0%	3%	97%	0%	2%	97%	0%
Total neonates	N	3035	2796	791	2000	5	490	2303	3	137	75	74	56	2434	20	229	2562	5	113	2674	9
	%			28%	72%	0%	18%	82%	0%	5%	3%	3%	2%	87%	1%	8%	92%	0%	4%	96%	0%

Note: Neuroimaging findings were not mutually exclusive, i.e. one neonate may have more than one finding. See [page 146](#) for classifications of ventricular enlargement.

Presentation #18
Necrotizing enterocolitis (NEC) treatments: GA <33weeks



GA at birth (completed weeks)	Total number of neonates	Missing data on NEC	No NEC	NEC*	Neonates with necrotizing enterocolitis**				Death among infants with NEC**	
					Medical treatment only	Medical + peritoneal drainage	Laparotomy	Peritoneal drainage + Laparotomy		
<25	N	378	0	327	51	24	4	17	6	17
	%			87%	13%	47%	8%	33%	12%	33%
25-26	N	527	0	488	39	20	0	17	2	10
	%			93%	7%	51%	0%	44%	5%	26%
27-28	N	815	0	775	40	16	4	20	0	11
	%			95%	5%	40%	10%	50%	0%	28%
29-30	N	1061	0	1035	26	19	1	6	0	2
	%			98%	2%	73%	4%	23%	0%	8%
31-32	N	1624	0	1602	22	11	0	9	2	5
	%			99%	1%	50%	0%	41%	9%	23%
Total number of neonates	N	4405	0	4227	178	90	9	69	10	45
	%			96%	4%	51%	5%	39%	6%	25%

*The percentage of neonates with NEC was calculated using the total number of neonates in the same GA category with data available on NEC as the denominator.

**The percentages were calculated using the total number of neonates in the same GA category that had NEC as the denominator.

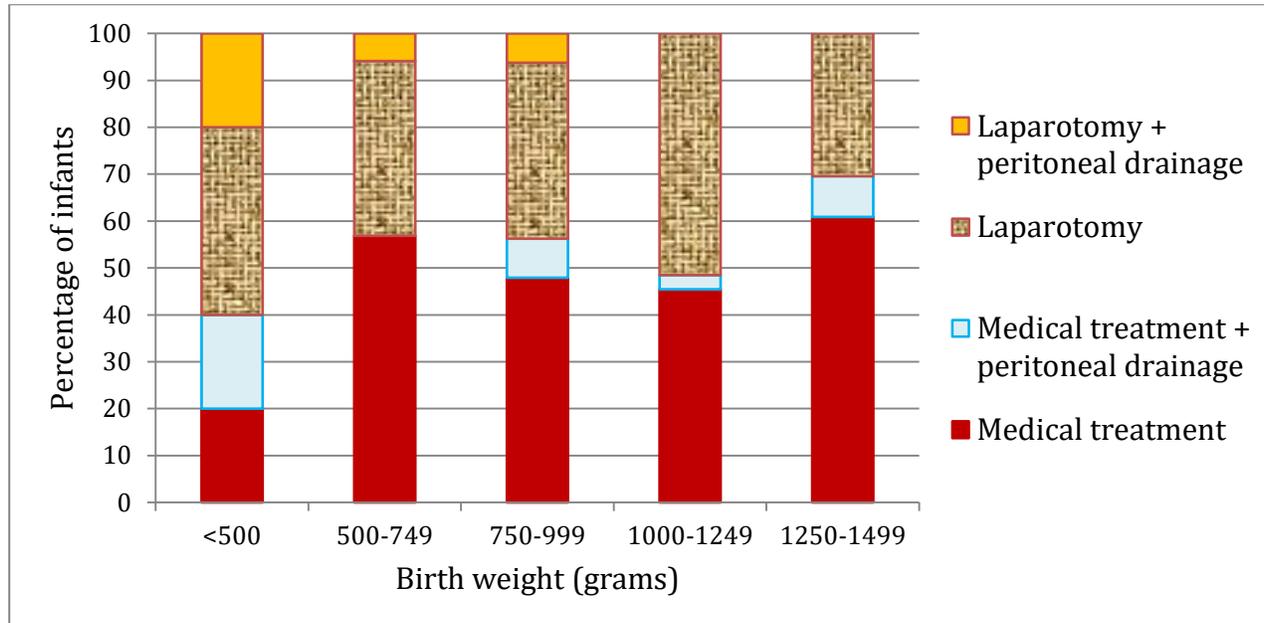
COMMENTS: NEC is identified according to the following criteria: a) definite pneumatosis (air within the bowel wall) or portal/hepatic gas as diagnosed by x-ray or ultrasound, or b) if there is a surgical or autopsy diagnosis of NEC. Diagnoses of ‘suspected NEC’ or x-rays showing pneumoperitoneum without pneumatosis are not classified as NEC.

Number (%) of neonates with NEC and GA > 33 weeks:

GA 33 - 36 weeks: 34 neonates (0.7%)

GA ≥ 37 weeks: 25 neonates (0.4%)

Presentation #19
Necrotizing enterocolitis (NEC) treatments: BW <1500 g



Birth weight (grams)	Total number of neonates	Missing data on NEC	No NEC	NEC*	Neonates with necrotizing enterocolitis**				Death among infants with NEC**	
					Medical treatment only	Medical + peritoneal drainage	Laparotomy	Peritoneal drainage + laparotomy		
<500	N	56	0	46	10	2	2	4	2	4
	%			82%	18%	20%	20%	40%	20%	40%
500-749	N	515	0	464	51	29	0	19	3	16
	%			90%	10%	57%	0%	37%	6%	31%
750-999	N	670	0	622	48	23	4	18	3	9
	%			93%	7%	48%	8%	38%	6%	19%
1000-1249	N	826	0	793	33	15	1	17	0	10
	%			96%	4%	45%	3%	52%	0%	30%
1250-1499	N	968	0	945	23	14	2	7	0	7
	%			98%	2%	61%	9%	30%	0%	30%
Total number of neonates	N	3035	0	2870	165	83	9	65	8	46
	%			95%	5%	50%	5%	39%	5%	28%

*The percentage of neonates with NEC was calculated using the total number of neonates in the same GA category with data available on NEC as the denominator.

** The percentages were calculated using the total number of neonates in the same GA category that had NEC as the denominator.

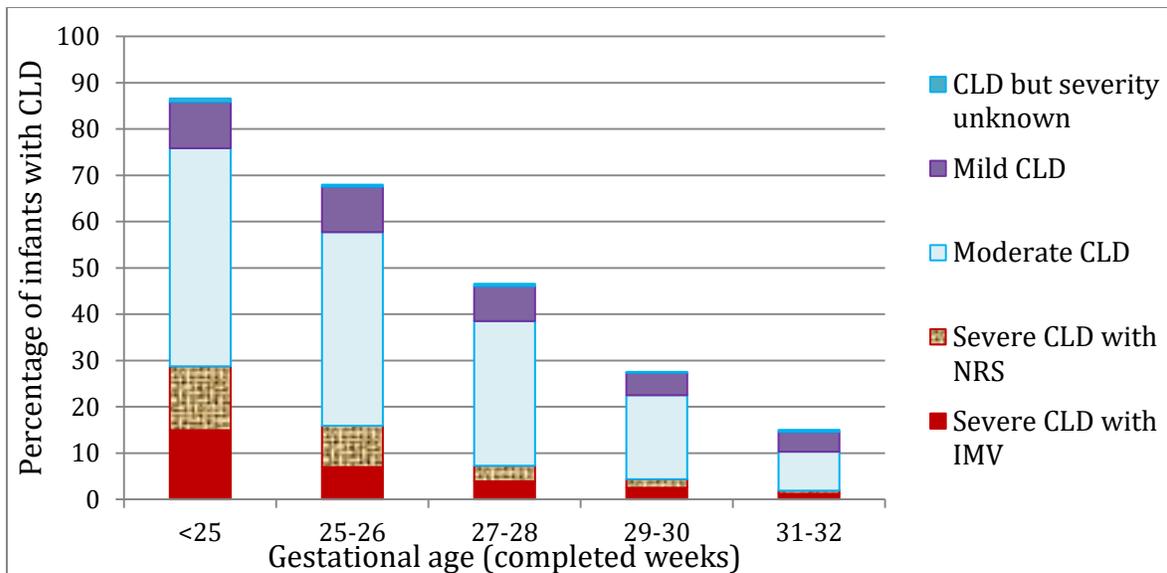
COMMENTS: NEC is identified according to the following criteria: a) definite pneumatosis (air within the bowel wall) or portal/hepatic gas as diagnosed by x-ray or ultrasound, or b) if there is a surgical or autopsy diagnosis of NEC. Diagnoses of ‘suspected NEC’ or x-rays showing pneumoperitoneum without pneumatosis are not classified as NEC.

Number (%) of neonates with NEC and BW > 1500g:

BW 1500 - 2499g: 48 neonates (1.0%)

BW ≥ 2500g: 24 neonates (0.3%)

Presentation #20
Chronic lung disease (CLD) at 36 weeks post menstrual age (PMA) or discharge:
GA <33 weeks



GA	Total number of neonates N	Number who died before 36 weeks' PMA N	Surviving neonates whose respiratory support is unknown* N	CLD from†	Neonates with known results N	Neonates with severe CLD on IMV‡, N (%)	Neonates with severe CLD on NRS¥, N (%)	Neonates with moderate CLD, N (%)	Neonates with mild CLD, N (%)	Neonates with unknown severity of CLD, N (%)	Neonates without CLD, N (%)
<25	378	117	0	36w	231	37 (16)	35 (15)	108 (47)	24 (10)	1 (0)	26 (11)
				Disch	30	2 (7)	1 (3)	15 (50)	2 (7)	1 (3)	9 (30)
25-26	527	68	0	36w	329	31 (10)	39 (12)	153 (47)	34 (10)	2 (1)	70 (21)
				Disch	130	1 (1)	2 (2)	39 (30)	11 (8)	0	77 (59)
27-28	815	44	0	36w	443	28 (6)	22 (5)	144 (33)	45 (10)	2 (0)	202 (46)
				Disch	328	2 (1)	4 (1)	97 (30)	13 (4)	2 (1)	210 (64)
29-30	1 061	22	4	36w	472	25 (5)	18 (4)	93 (20)	34 (7)	2 (0)	300 (64)
				Disch	563	1 (0)	1 (0)	95 (17)	16 (3)	0	450 (80)
31-32	1 624	25	7	36w	584	19 (3)	9 (2)	79 (14)	60 (10)	5 (1)	412 (71)
				Disch	1008	0	2 (0)	55 (5)	8 (1)	2 (0)	941 (93)
Total	4 405	276	11	36w	2059	140 (7)	123 (6)	577 (28)	197 (10)	12 (1)	1010 (49)
				Disch	2059	6 (0)	10 (0)	301 (15)	50 (2)	5 (0)	1687 (82)

COMMENTS: See [page 147](#) for the definition of severity of CLD.

COMMENTS: See [page 147](#) for the definition of severity of CLD.

*unknown = first admission was after 36 weeks' PMA

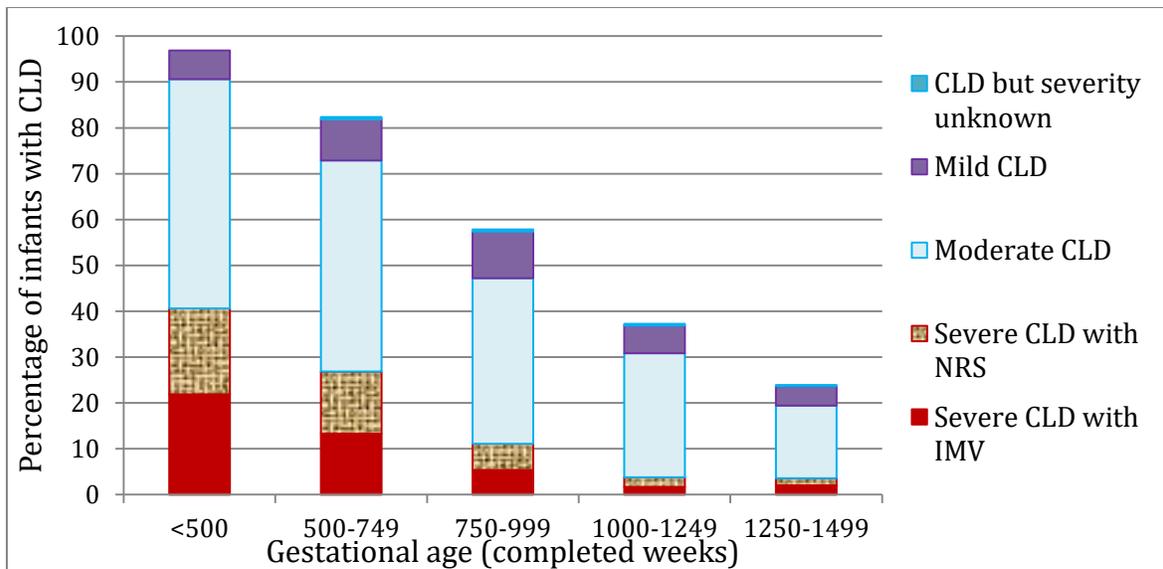
** w = weeks' PMA, Disch = Status based on discharge status prior to 36 weeks' PMA

‡IMV = Invasive Mechanical Ventilation

¥NRS = Non-invasive Respiratory Support

Note: Percentages of neonates with CLD were calculated based on the total number of neonates in the same GA category with known CLD results.

Presentation #21
Chronic lung disease (CLD) at 36 weeks post menstrual age (PMA) or discharge:
BW < 1500g



BW	Total number of neonates N	Number who died before 36 weeks' PMA N	Surviving neonates whose respiratory support is unknown* N	CLD from†	Neonates with known results N	Neonates with severe CLD on IMV‡, N (%)	Neonates with severe CLD on NRS¥, N (%)	Neonates with moderate CLD, N (%)	Neonates with mild CLD, N (%)	Neonates with unknown severity of CLD, N (%)	Neonates without CLD, N (%)
<500	56	24	0	36w	29	6 (21)	6 (21)	14 (48)	2 (7)	0	1 (3)
				Disch	3	1 (33)	0	2 (67)	0	0	0
500-749	515	124	0	36w	326	51 (16)	51 (16)	153 (47)	27 (8)	1 (0)	43 (13)
				Disch	65	1 (2)	2 (3)	27 (42)	8 (12)	1 (2)	26 (40)
750-999	670	58	0	36w	408	31 (8)	33 (8)	165 (40)	50 (12)	1 (0)	128 (31)
				Disch	204	2 (1)	2 (1)	56 (27)	12 (6)	2 (1)	130 (64)
1000-1249	826	57	4	36w	413	11 (3)	14 (3)	121 (29)	39 (9)	3 (1)	225 (54)
				Disch	352	2 (1)	2 (1)	86 (24)	7 (2)	0	255 (72)
1250-1499	968	184	2	36w	329	16 (5)	10 (3)	59 (18)	24 (7)	1 (0)	219 (67)
				Disch	453	0	2 (0)	65 (14)	9 (2)	1 (0)	376 (83)
Total	3 035	447	6	36w	1505	115 (8)	114 (8)	512 (34)	142 (9)	6 (0)	616 (41)
				Disch	1077	6 (1)	8 (1)	236 (22)	36 (3)	4 (0)	787 (73)

COMMENTS: See [page 147](#) for the definition of severity of CLD.

*unknown = first admission was after 36 weeks' PMA

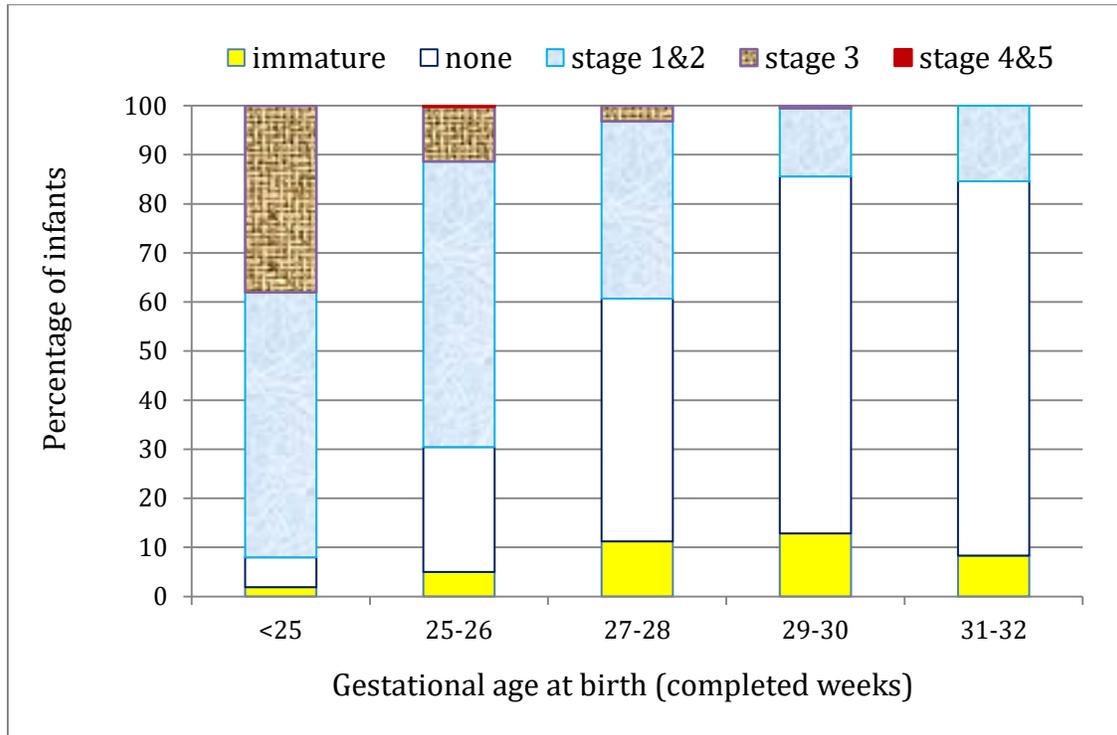
** w = weeks' PMA, Disch = Discharge prior to 36 weeks' PMA

‡IMV = Invasive Mechanical Ventilation

¥NRS = Non-invasive Respiratory Support

Note: Percentages of neonates with CLD were calculated based on the total number of neonates in the same GA category with known CLD results.

Presentation #22
Retinopathy of prematurity (ROP) staging: GA <33 weeks

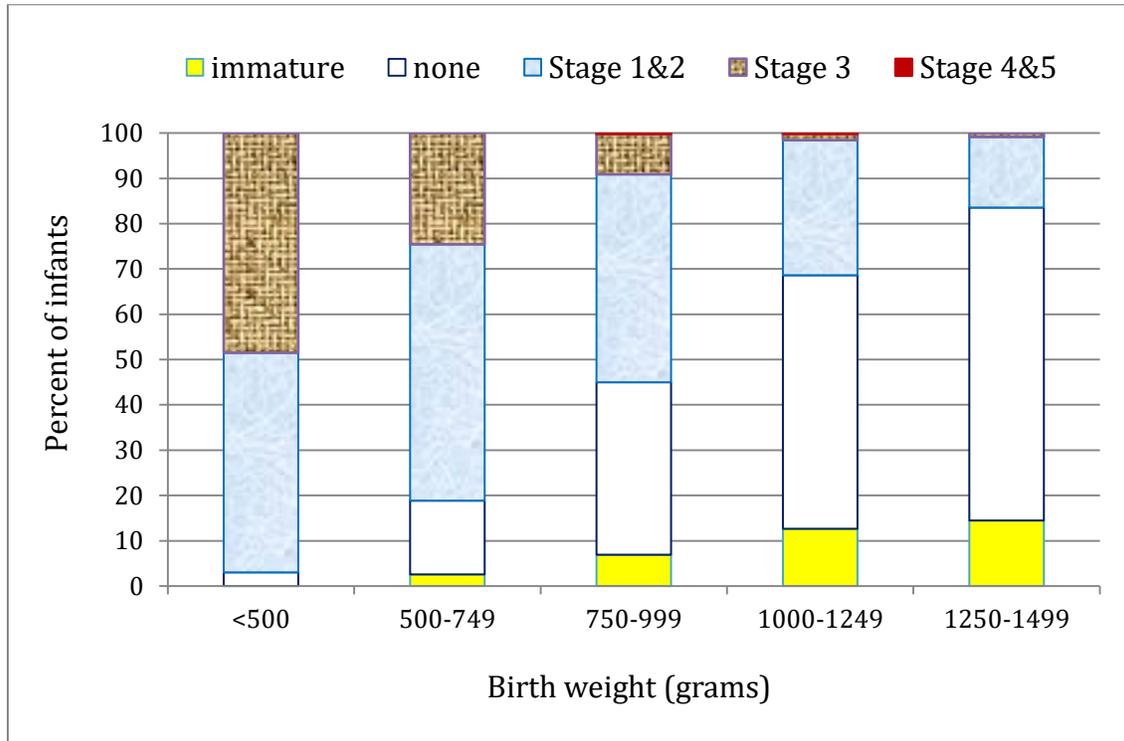


GA (completed weeks)		Total number of neonates	Number of neonates alive at 6 weeks of age	Number of neonates with known eye examination results	Retinopathy of prematurity*				
					Immature	None	Stages 1 & 2	Stage 3	Stages 4 & 5
<25	N	378	270	263	5	16	142	100	0
	%				2%	6%	54%	38%	0%
25-26	N	527	462	440	22	112	256	49	1
	%				5%	25%	58%	11%	0%
27-28	N	815	773	659	74	326	238	21	0
	%				11%	49%	36%	3%	0%
29-30	N	1061	1039	576	74	419	80	3	0
	%				13%	73%	14%	1%	0%
31-32	N	1624	1596	156	13	119	24	0	0
	%				8%	76%	15%	0%	0%
Total neonates included	N	4405	4140	2094	188	992	740	173	1
	%				9%	47%	35%	8%	0%

*The percentage of neonates diagnosed with each stage of ROP was calculated using the total number of neonates in the same GA category with known eye examination results as the denominator.

COMMENTS: ROP is defined according to the International Classification of Retinopathy of Prematurity (ICROP) and includes the highest level of ROP in either eye. More advanced stages may have been detected in neonates transferred from network sites to level II sites or units. **Caution should be used when interpreting these data.**

Presentation #23
Retinopathy of prematurity (ROP) staging: BW < 1500 g

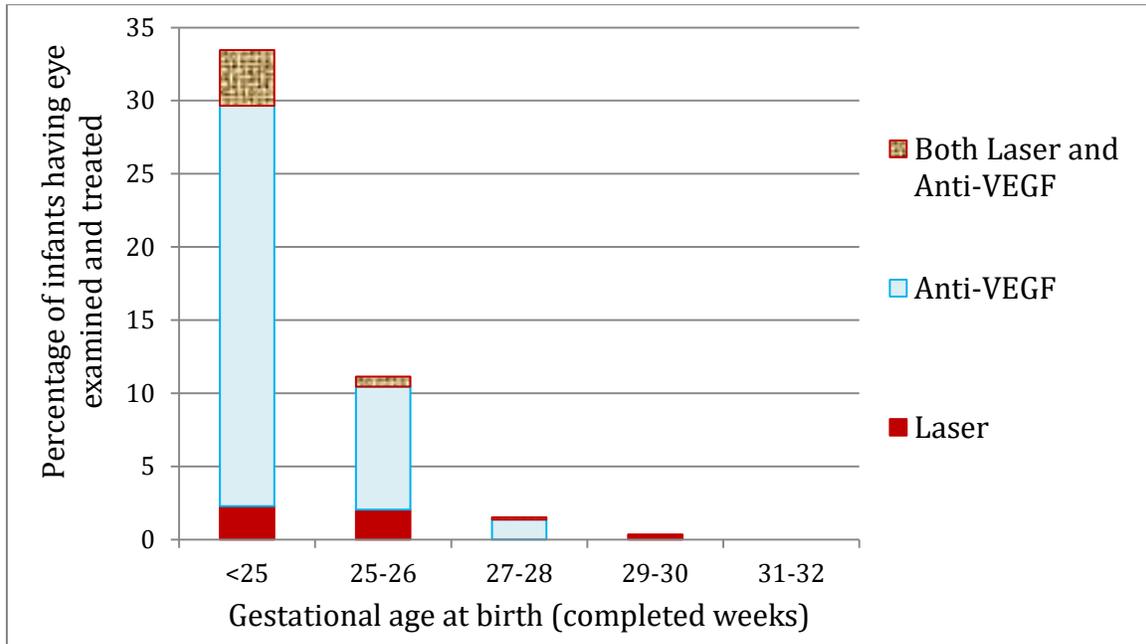


BW (grams)		Total number of neonates	Number of neonates alive at 6 weeks of age	Number of neonates with known eye examination results	Retinopathy of prematurity*				
					Immature	None	Stages 1 & 2	Stage 3	Stages 4 & 5
<500	N	56	22	33	0	1	16	16	0
	%				0%	3%	48%	48%	0%
500-749	N	515	115	387	10	63	219	95	0
	%				3%	16%	57%	25%	0%
750-999	N	670	54	549	38	209	252	49	1
	%				7%	38%	46%	9%	0%
1000-1249	N	826	26	577	73	323	172	8	1
	%				13%	56%	30%	1%	0%
1250-1499	N	968	18	359	52	248	56	3	0
	%				14%	69%	16%	1%	0%
Total neonates included	N	3035	235	1905	173	844	715	171	2
	%				9%	44%	38%	9%	0%

*The percentage of neonates diagnosed with each stage of ROP was calculated using the total number of neonates in the same GA category with known eye examination results as the denominator.

COMMENTS: ROP is defined according to the International Classification of Retinopathy of Prematurity (ICROP) and includes the highest level of ROP in either eye. More advanced stages may have been detected in neonates transferred from network sites to level II sites or units. **Caution should be used when interpreting these data.**

Presentation #24
Retinopathy of prematurity (ROP) treatments: GA <33 weeks



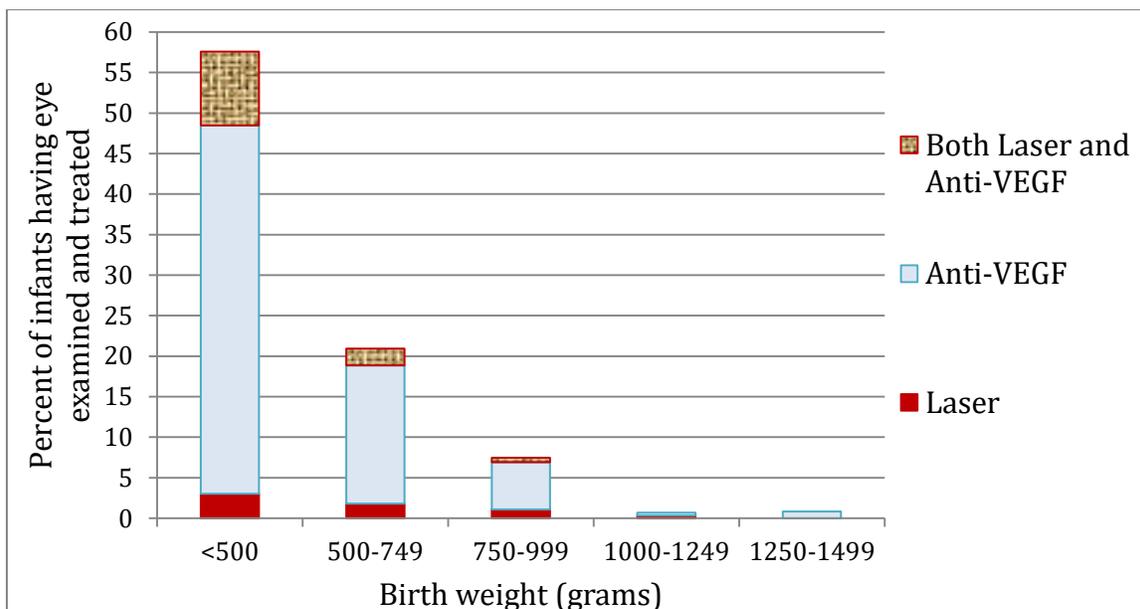
Birth GA (completed weeks)		Total number of neonates	Number of neonates with known eye examination results	Therapy for retinopathy of prematurity (ROP)*	Therapy for ROP			
					Laser	Anti-VEGF	Both Laser and Anti-VEGF	Other surgery**
<25	N	378	263	88	6	72	10	0
	%			34%				
25-26	N	527	440	49	9	37	3	0
	%			11%				
27-28	N	815	659	10	0	9	1	0
	%			2%				
29-30	N	1061	576	2	2	0	0	0
	%			0%				
31-32	N	1624	156	0	0	0	0	0
	%			0%				
Total neonates included	N	4405	2094	149	17	118	14	0
	%			7%				

*The percentage of neonates who received ROP therapy was calculated using the total number of neonates in the same GA category with known eye examination results as the denominator.

**Infants who had other surgery may have one or both of Laser and Anti-VEGF treatments.

COMMENTS: ROP is defined according to the International Classification of Retinopathy of Prematurity (ICROP) and includes the highest level of ROP in either eye. More advanced stages may have been detected in neonates transferred from network sites to level II sites or units. **Caution should be used when interpreting these data as some neonates did not have eye examination data.**

Presentation #25
Retinopathy of prematurity (ROP) treatments: BW <1500 g



BW (grams)		Total number of neonates	Number of neonates with known eye examination results	Therapy for retinopathy of prematurity (ROP)*	Therapy for ROP			
					Laser	Anti-VEGF	Both Laser and Anti-VEGF	Other surgery
<500	N	56	33	19	1	15	3	0
	%			58%				
500-749	N	515	387	81	7	66	8	0
	%			21%				
750-999	N	670	549	41	6	32	3	0
	%			8%				
1000-1249	N	826	577	4	2	2	0	0
	%			1%				
1250-1499	N	968	359	3	0	3	0	0
	%			1%				
Total neonates included	N	3035	1905	148	16	118	14	0
	%			8%				

*The percentage of neonates who received ROP therapy was calculated using the total number of neonates in the same GA category with known eye examination results as the denominator.

**Infants who had other surgery may have one or both of Laser and Anti-VEGF treatments.

COMMENTS: ROP is defined according to the International Classification of Retinopathy of Prematurity (ICROP) and includes the highest level of ROP in either eye. More advanced stages may have been detected in neonates transferred from network sites to level II sites or units. **Caution should be used when interpreting these data as some neonates did not have eye examination data.**

Presentation #26
Select major morbidity: GA <33 weeks

GA	Number of neonates	Number survived until discharge / transfer (%)	Major morbidity including any CLD ^a (%)	Major morbidity including only mod-severe CLD ^a (%)	Any CLD ^b (%)	Mod-severe CLD ^b (%)	Severe ROP ^c (%)	Severe neurological injury ^d (%)	NEC ^e (%)	Late onset sepsis ^f
<24	170	96 (56)	140 (82)	138 (81)	94 (92)	82 (81)	61 (61)	64 (43)	25 (15)	72 (42)
24	193	149 (77)	170 (88)	167 (87)	124 (83)	108 (72)	56 (37)	49 (26)	25 (13)	78 (40)
25	223	187 (84)	177 (79)	169 (76)	142 (75)	124 (66)	40 (22)	43 (20)	21 (9)	71 (32)
26	285	251 (88)	197 (69)	180 (63)	153 (61)	127 (51)	17 (8)	37 (13)	19 (7)	61 (21)
27	373	352 (94)	219 (59)	194 (52)	175 (50)	145 (41)	15 (5)	29 (8)	21 (6)	40 (11)
28	410	392 (96)	209 (51)	187 (46)	167 (42)	139 (36)	7 (3)	28 (7)	19 (5)	42 (10)
29	464	450 (97)	175 (38)	150 (32)	139 (31)	113 (25)	0	25 (5)	11 (2)	29 (6)
30	550	542 (99)	146 (27)	124 (23)	121 (22)	97 (18)	1 (0)	23 (4)	12 (2)	16 (3)
31	680	669 (98)	121 (18)	96 (14)	93 (14)	67 (10)	0	11 (2)	11 (2)	24 (4)
32	882	871 (99)	141 (16)	103 (12)	118 (14)	75 (9)	0	10 (3)	8 (1)	24 (3)
Total neonates	4 230	3 959 (94)	1 695 (40)	1 508 (36)	1 326 (33)	1 077 (27)	197 (11)	319 (9)	172 (4)	457 (11)

Inclusion criteria for these analyses:

1. Neonate born at <33 weeks GA without major congenital anomaly
2. Denominators were based on the number of neonates with available data and those without major congenital anomaly (see below for details)

Definitions:

^a Major morbidity was counted as any one of the following

1. CLD (any grade *or* mod-severe only)
2. Severe ROP
3. Severe neurological injury (IVH \geq grade 3 and/or PVL)
4. Stage 2 or 3 NEC
5. Late onset sepsis

^b Chronic lung disease was defined as any grade *or* mod-severe per presentation #19

^c Severe ROP was defined as ROP stage 3,4,5 and/or those with ROP treatment (laser or intraocular injection).

^d Severe neurological injury was defined as IVH \geq grade 3 and/or PVL

^e NEC defined as stage 2 or 3

^f Late onset sepsis was defined as any positive blood and/or cerebrospinal fluid culture after 2 days of age. Analysis was neonate-based.

Denominator used in percentage calculation for each morbidity

Survivor until discharge: All neonates

Major morbidities: All neonates

CLD (Any or Mod-Severe): First admission before 36 weeks PMA and (survived beyond 36 weeks PMA or transferred before 36 weeks)

ROP: Eye exam done and results available

NEC: All neonates

Late onset sepsis: All neon

E. Site Comparisons

E.1. Site Comparisons – Care Practices

Presentation #27
Prenatal characteristics and delivery room care practices: GA<29 weeks:
Site specific crude rates* (inborn only)

Site	Number of neonates	Antenatal MgSO ₄ ^a	Antenatal steroids ^b			Timing of cord clamping		Admission temperature			Apgar <5 at 5 minutes	Maternal hypertension
			Completed course within last week prior to birth ^a	Completed course prior to 1 week before birth	Partial	30 – 59 sec	≥60 sec	<36.5	36.5 – 37.2	>37.2		
	N	Yes	Complete course within last week prior to birth ^a	Complete course prior to 1 week before birth	Partial	30 – 59 sec	≥60 sec	<36.5	36.5 – 37.2	>37.2		
xxx	< 15	87.5	75.0	25.0	0.0	37.5	50.0	16.7	83.3	0.0	25.0	12.5
xvi		87.5	50.0	37.5	12.5	25.0	62.5	25.0	62.5	12.5	0.0	50.0
i		100.0	33.3	33.3	33.3	0.0	22.2	55.6	11.1	33.3	33.3	25.0
xxxii		81.8	60.0	20.0	10.0	9.1	63.6	44.4	55.6	0.0	0.0	36.4
xxiii		100.0	0.0	0.0	100.0	100.0	0.0	100.0	0.0	0.0	100.0	100.0
xx		66.7	16.7	16.7	50.0	16.7	33.3	50.0	33.3	16.7	50.0	33.3
ii		83.3	50.0	8.3	41.7	16.7	33.3	18.2	63.6	18.2	33.3	9.1
xxxix	15 – 30	94.1	17.7	41.2	35.3	5.9	58.8	31.3	43.8	25.0	11.8	29.4
vii		77.8	27.8	27.8	44.4	22.2	27.8	47.1	47.1	5.9	33.3	29.4
viii		68.4	73.7	21.1	0.0	26.3	21.1	5.3	68.4	26.3	26.3	15.8
v		100.0	36.4	31.8	22.7	9.1	72.7	31.8	54.6	13.6	4.6	27.3
xxii		91.7	30.4	26.1	39.1	29.2	50.0	8.3	54.2	37.5	20.8	4.4
xxviii		96.3	59.3	7.4	33.3	25.9	40.7	37.0	55.6	7.4	14.8	20.0
xiv		100.0	46.4	7.1	21.4	46.4	21.4	11.5	65.4	23.1	7.1	17.9
iii	31 – 70	68.8	46.9	15.6	31.3	12.5	46.9	18.8	56.3	25.0	12.5	21.9
xv		91.9	59.5	18.9	18.9	5.4	18.9	43.2	54.1	2.7	8.1	13.9
xiii		92.1	36.8	29.0	34.2	36.8	15.8	68.4	15.8	15.8	5.3	19.4
xii		92.7	29.3	29.3	29.3	12.2	43.9	66.7	30.8	2.6	14.6	19.5
xxxiii		89.8	49.0	30.6	18.4	14.3	40.8	37.5	47.9	14.6	16.3	8.2
xxvii		92.5	41.5	37.7	13.2	17.0	22.6	54.7	35.9	9.4	17.0	26.4
ix		81.5	48.2	24.1	20.4	14.8	48.2	37.7	47.2	15.1	24.1	16.7
vi		96.4	34.6	27.3	32.7	38.2	34.6	23.6	52.7	23.6	9.1	27.3
xi		87.1	29.0	16.1	41.9	58.1	12.9	31.2	49.2	19.7	10.3	18.0
x	> 70	76.4	30.6	47.2	13.9	16.7	27.8	53.5	45.1	1.4	26.8	18.1
xxi		85.5	46.1	27.6	22.4	17.1	25.0	8.0	64.0	28.0	38.2	25.7
xviii		96.9	42.9	18.7	33.0	15.3	44.9	21.3	55.3	23.4	11.8	18.4
xxv		79.4	41.1	17.8	35.5	16.8	43.9	20.2	65.4	14.4	15.0	22.6
xvii		66.1	46.4	27.7	24.1	9.8	51.8	21.4	56.3	22.3	7.2	25.9
iv		89.4	44.7	22.0	29.6	17.5	38.1	52.5	41.1	6.3	5.0	18.9
xxvi		98.9	37.3	32.2	28.3	9.0	34.5	24.3	61.6	14.1	17.0	17.5
Total CNN		87.4	41.7	25.8	27.3	18.7	36.9	32.8	51.8	15.4	15.1	20.4

*Denominators were based on **inborn** neonates <29 weeks' GA admitted without major congenital anomaly.

^aAntenatal MgSO₄ data were missing for 0.4% across CNN.

^b Completed course of antenatal steroids within the last week prior to birth = received at least two doses of corticosteroids for a period of 24 hours or more, but within one week of birth

These are unadjusted rates.

Presentation #28
Postnatal characteristics and care practices: GA <29 weeks:
Site specific crude rates* (inborn only)

Site	Number of neonates	No invasive mechanical ventilation in first 3 days ^a	Never received invasive mechanical ventilation ^a	Fed at any time in first 2 days of admission	Never received antimicrobials ^b	Exclusive mother's own milk feeding at discharge ^c	Exclusive formula feeding at discharge ^c	SGA (<10%)
	N	%	%	%	%	%	%	%
xxx	< 15	25.0	25.0	87.5	37.5	62.5	0.0	12.5
xvi		25.0	25.0	100.0	12.5	25.0	50.0	12.5
i		11.1	0.0	88.9	0.0	44.4	22.2	11.1
xxxii		36.4	27.3	81.8	36.4	27.3	45.5	9.1
xxiii		0.0	0.0	0.0	100.0	0.0	0.0	0.0
xx		33.3	16.7	100.0	50.0	33.3	50.0	0.0
ii		25.0	8.3	58.3	8.3	50.0	0.0	8.3
xxxix	15 – 30	11.8	11.8	35.3	35.3	41.2	29.4	17.7
vii		22.2	16.7	83.3	0.0	61.1	27.8	5.6
viii		42.1	26.3	79.0	10.5	36.8	21.1	5.3
v		59.1	50.0	90.9	36.4	31.8	22.7	13.6
xxii		62.5	54.2	66.7	8.3	29.2	8.3	8.3
xxviii		14.8	11.1	92.6	3.7	37.0	18.5	11.1
xiv		17.9	14.3	92.9	3.6	42.9	17.9	7.1
iii	31 – 70	28.1	25.0	96.9	3.1	25.0	31.3	6.3
xv		24.3	24.3	81.1	18.9	29.7	24.3	8.1
xiii		2.6	0.0	79.0	13.2	5.3	44.7	13.2
xii		36.6	29.3	46.3	9.8	39.0	39.0	9.8
xxxiii		40.8	32.7	95.9	6.1	22.5	32.7	0.0
xxvii		30.2	22.6	49.1	5.7	20.8	26.4	22.6
ix		44.4	35.2	96.3	9.3	35.2	13.0	18.5
vi		36.4	27.3	87.3	1.8	32.7	25.5	25.5
xi	46.8	37.1	93.6	6.5	19.4	16.1	11.5	
x	> 70	37.5	30.6	81.9	4.2	34.7	30.6	9.7
xxi		36.8	26.3	86.8	50.0	22.4	4.0	7.9
xviii		20.4	20.4	64.3	3.1	48.0	9.2	14.3
xxv		29.0	20.6	92.5	0.9	45.8	23.4	14.0
xvii		46.4	37.5	81.3	6.3	67.9	12.5	14.3
iv		46.9	36.3	88.1	8.8	68.8	5.6	12.5
xxvi		59.9	44.1	81.9	2.8	58.2	15.3	9.6
Total CN		38.2	29.7	81.9	9.6	43.1	18.6	12.0

*Denominators were based on **inborn** neonates <29 weeks' GA admitted without major congenital anomaly.

^a Neonates either received high frequency ventilation or intermittent positive pressure ventilation.

^b Neonates never received any antimicrobials. Prophylactic administration of trimethoprim or amoxicillin for the prevention of urinary tract infections with a suspected renal anomaly was not included as antimicrobials.

^c Information obtained from *Discharge* screen/table of CNN database, includes discharge and transfer.

These are unadjusted rates.

Presentation #29

Proportion of babies on Invasive Mechanical Ventilation (IMV) among babies ALIVE at the specified post-natal ages (INBORN AND OUTBORN included)

- Invasive mechanical ventilation (IMV) includes any of conventional ventilation (IPPV), High Frequency Oscillatory Ventilation (HFOV) and High Frequency Jet Ventilation (HFJV)
- Denominator for each cell is the number of babies in the GA range *who are still alive at the specified post-natal age (and in the NICU)*
- The proportion in each cell represents babies in the GA range who are on IMV on that day *regardless of previous respiratory status* (i.e. this is **not** continuous days of IMV)

GA groups		22-25 weeks' GA (N = 599)				26-28 weeks' GA (N = 987)			
Postnatal age	Number of neonates based on GA 22-25	3 days	7 days	28 days	32 weeks CGA	3 days	7 days	28 days	32 weeks CGA
CNN overall	Number alive	572	543	491	460	1081	1066	960	937
	Number on MV	485	432	270	105	382	271	108	73
	Proportion	84.8	79.6	55.0	22.8	35.3	25.4	11.3	7.8
Sites									
xx	1 – 3	50.0	50.0	0.0	0.0	0.0	0.0	25.0	25.0
xxii		NA	NA	NA	NA	18.5	14.8	4.0	0.0
xxix		100.0	NA	NA	NA	0.0	0.0	0.0	0.0
xix		100.0	100.0	NA	NA	41.7	16.7	10.0	0.0
xvi		100.0	100.0	100.0	0.0	57.1	57.1	0.0	0.0
xxx	4 – 9	100.0	100.0	NA	NA	66.7	0.0	0.0	0.0
i		100.0	100.0	100.0	100.0	50.0	16.7	16.7	0.0
ii		85.7	85.7	50.0	33.3	66.7	50.0	20.0	0.0
xxxii		60.0	60.0	25.0	25.0	54.5	27.3	0.0	0.0
vii		60.0	40.0	80.0	0.0	40.0	26.7	15.4	14.3
xxxix		100.0	NA	NA	NA	55.0	47.4	5.9	11.8
v		55.6	62.5	25.0	12.5	42.9	30.0	5.0	5.0
xxviii		88.9	88.9	77.8	37.5	52.4	33.3	20.0	15.0
viii		50.0	37.5	75.0	28.6	25.0	25.0	0.0	9.1
xii		100.0	90.9	40.0	0.0	44.1	35.3	6.1	3.0
vi	10 – 19	85.7	92.9	66.7	30.0	28.6	23.8	7.3	4.9
xv		100.0	80.0	10.0	0.0	53.6	21.4	0.0	0.0
xiv		85.7	78.6	57.1	28.6	23.8	28.6	20.0	20.0
xxvii		80.0	84.6	63.6	66.7	53.5	39.0	23.7	15.8
xiii		100.0	100.0	81.8	54.5	96.2	80.8	42.3	34.6
iii	20 – 29	100.0	100.0	93.8	64.3	33.3	28.6	23.8	19.0
xxxiii		68.4	63.2	61.1	11.1	36.1	16.7	8.8	3.0
ix		96.2	92.0	66.7	33.3	17.5	27.5	15.4	5.1
x		92.0	80.0	38.9	17.6	37.3	24.5	4.3	4.3
xi		68.6	58.8	48.4	13.8	20.6	11.8	10.0	7.1
xxi		85.7	85.3	64.5	36.7	30.2	28.6	25.0	25.0
xvii	> 30	87.5	77.5	54.1	20.0	25.6	20.0	4.1	0.0
xxv		95.6	86.4	76.9	21.6	41.3	30.4	22.4	9.5
xviii		100.0	94.7	89.3	46.2	57.1	33.3	15.5	24.1
xxvi		62.2	62.3	40.3	13.3	12.0	12.2	3.8	0.9
iv		93.9	86.1	32.9	8.6	30.1	18.7	5.2	1.1

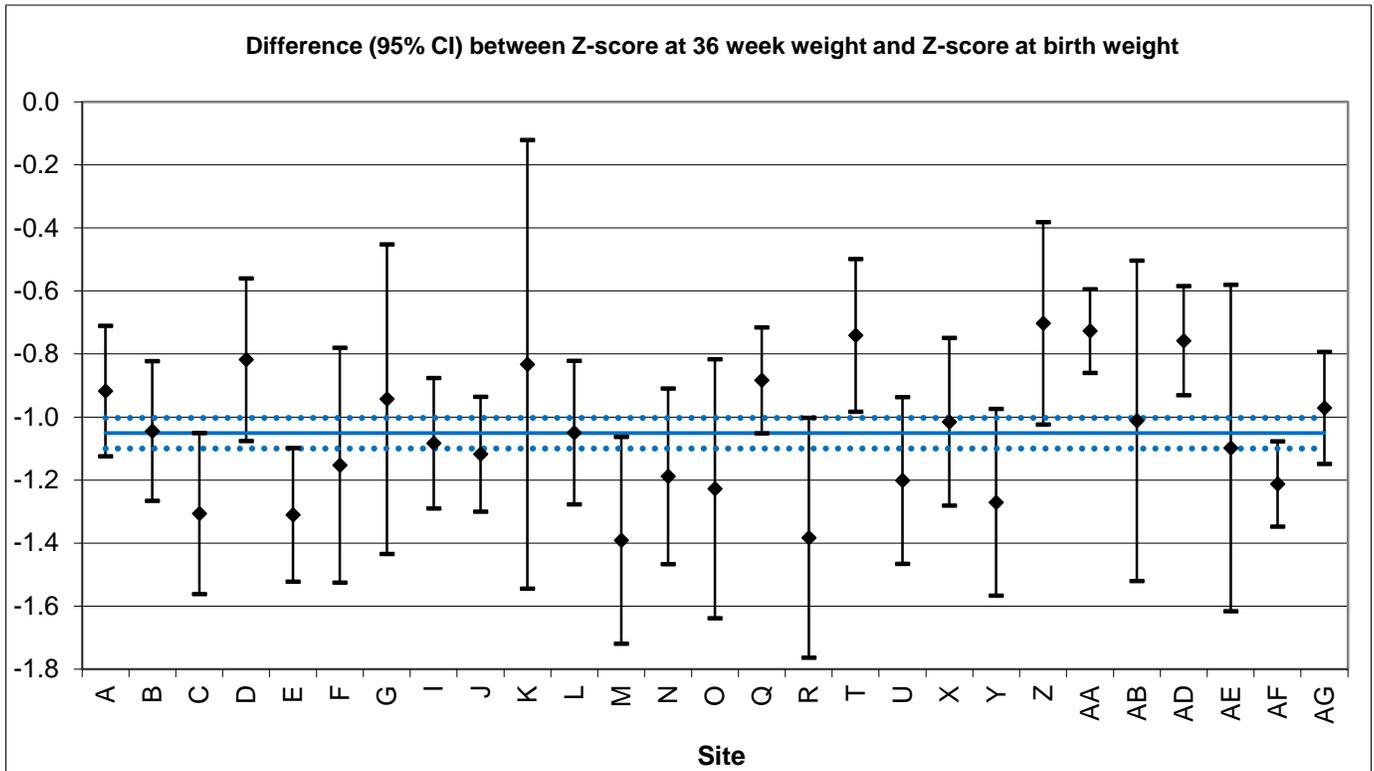
Sites xxii and xxiii did not have any infants in GA 22-25.

NA = No infants in the denominator

Note that grouping of sites per number of neonates was based on the number of neonates in GA 22-25 category; and the number of corresponding neonates was not the same for GA 26-28 group.

Presentation #30

Difference in Weight Z-scores at 36 weeks' PMA vs. Birth: Neonates <29 weeks' GA



Site	A	B	C	D	E	F	G	I	J	
Mean Diff	-0.92	-1.04	-1.31	-0.82	-1.31	-1.15	-0.94	-1.08	-1.12	
Lower limit	-1.12	-1.27	-1.56	-1.08	-1.52	-1.53	-1.43	-1.29	-1.30	
Upper limit	-0.71	-0.82	-1.05	-0.56	-1.10	-0.78	-0.45	-0.88	-0.94	
Site	K	L	M	N	O	Q	R	T	U	
Mean Diff	-0.83	-1.05	-1.39	-1.19	-1.23	-0.88	-1.38	-0.74	-1.20	
Lower limit	-1.54	-1.28	-1.72	-1.47	-1.64	-1.05	-1.76	-0.98	-1.47	
Upper limit	-0.12	-0.82	-1.06	-0.91	-0.82	-0.72	-1.00	-0.50	-0.94	
Site	X	Y	Z	AA	AB	AD	AE	AF	AG	CNN
Mean Diff	-1.02	-1.27	-0.70	-0.73	-1.01	-0.76	-1.10	-1.21	-0.97	-1.05
Lower limit	-1.28	-1.57	-1.02	-0.86	-1.52	-0.93	-1.62	-1.35	-1.15	-1.10
Upper limit	-0.75	-0.97	-0.38	-0.59	-0.50	-0.58	-0.58	-1.08	-0.79	-1.00

Notes:

- Sites H, S, AC had no eligible neonates. Sites P, V, W were not included due to small numbers of eligible neonates.
- Only neonates for whom data at 36 weeks' PMA were available were included.

E.2. Site Comparisons – Survival / Mortality

Presentation #31
Survival rates by site: All GA

Site	Percentage survival for each GA (completed weeks)								Overall survival rate for sites*
	<25	25-26	27-28	29-30	31-32	33-34	35-36	≥37	
A	75.0	81.3	94.1	100.0	96.6	100.0	100.0	98.4	97.7
B	55.6	86.7	100.0	96.2	100.0	100.0	100.0	99.4	98.9
C [‡]	66.7	86.7	94.1	100.0	98.6	90.0	66.7	55.6	92.6
D [‡]	64.3	82.6	93.5	95.2	94.2	100.0	NA	NA	88.1
E	66.7	85.7	100.0	96.7	100.0	100.0	98.1	99.0	98.0
F	75.0	83.3	75.0	100.0	91.3	100.0	100.0	100.0	98.4
G	83.3	85.7	100.0	100.0	100.0	100.0	100.0	99.3	98.9
H	NA	NA	NA	100.0	100.0	100.0	96.8	98.1	98.0
I	73.1	94.9	95.6	98.7	98.1	98.8	98.1	99.0	97.2
J	100.0	83.3	96.4	100.0	98.0	98.8	95.5	97.4	97.1
K	0.0	50.0	100.0	100.0	92.9	100.0	100.0	100.0	98.4
L	63.6	97.5	90.8	98.9	99.1	98.1	98.6	99.7	97.8
M	71.4	69.2	100.0	95.0	100.0	100.0	100.0	98.9	98.1
N	77.4	86.7	100.0	100.0	100.0	97.5	100.0	99.2	96.2
O	66.7	90.9	88.9	92.0	97.4	95.1	100.0	80.0	92.4
P	100.0	85.7	100.0	100.0	100.0	100.0	100.0	99.4	99.5
Q [‡]	88.9	100.0	96.0	93.9	100.0	NA	50.0	100.0	97.0
R [‡]	100.0	100.0	90.0	100.0	100.0	100.0	100.0	100.0	99.0
S	NA	NA	0.0	100.0	100.0	100.0	100.0	100.0	98.8
T	70.6	66.7	94.6	96.2	100.0	100.0	98.9	97.5	97.2
U	69.2	95.2	96.2	94.6	98.4	96.0	98.6	97.5	95.8
V	0.0	85.7	83.3	94.7	97.5	100.0	93.8	97.3	96.5
W	0.0	100.0	100.0	100.0	83.3	100.0	100.0	98.2	98.1
X	0.0	100.0	80.0	95.8	100.0	100.0	97.8	99.3	97.4
Y	44.7	75.0	89.1	94.0	98.4	98.5	99.0	98.8	95.6
Z [‡]	NA	71.4	95.2	97.4	100.0	100.0	NA	NA	96.5
AA	52.6	79.2	94.6	96.7	95.4	98.0	96.8	97.2	95.6
AB	NA	100.0	100.0	100.0	91.7	100.0	100.0	100.0	99.7
AC	NA	0.0	100.0	100.0	87.5	94.3	100.0	98.1	97.1
AD	54.5	71.4	83.3	100.0	93.2	98.1	96.8	96.7	95.3
AE	0.0	0.0	83.3	100.0	100.0	100.0	100.0	97.5	96.3
AF	75.0	95.7	94.7	97.1	99.2	100.0	100.0	86.8	94.8
AG	75.0	81.3	100.0	96.8	100.0	100.0	98.4	98.8	98.2
Overall survival rate for GA**	67.2	86.3	94.2	97.5	98.2	99.0	98.5	98.3	97.0

These analyses included 15 493 neonates from 33 sites. **Twenty-eight sites collected data on all eligible admissions whereas five sites (marked by[‡]) collected data on selected eligible admissions only.** [‡] Please note the data collection criteria were not the same for these five sites, and thus their rates may not be comparable with other sites.

Overall* = (number of neonates who survived per site / total number of neonates for that site)*100

Overall** = (number of neonates who survived for each GA category / total number of neonates in each GA category)*100

NA = no data available, 0 = no neonates survived, Delivery room deaths were not included

Presentation #32
Survival rates by site: All BW

Site	Percentage survival for each BW (g) category							Overall survival rate for sites*
	<500	500-749	750-999	1000-1249	1250-1499	1500-2499	≥2500	
A	60.0	77.8	100.0	94.9	100.0	99.0	99.1	97.7
B	100.0	61.5	94.4	100.0	100.0	99.2	99.6	98.9
C ^φ	NA	85.7	76.5	96.4	100.0	95.8	77.8	92.6
D ^φ	50.0	72.7	89.2	92.9	92.0	96.0	50.0	88.1
E	100.0	83.3	87.5	100.0	100.0	99.2	98.3	98.0
F	NA	75.0	100.0	90.9	85.7	99.1	100.0	98.4
G	NA	80.0	88.9	100.0	100.0	100.0	99.5	98.9
H	NA	NA	NA	100.0	100.0	96.6	98.2	98.0
I	77.8	83.6	94.0	96.1	96.6	98.2	99.2	97.2
J	NA	100.0	86.4	95.5	100.0	96.9	97.5	97.1
K	0.0	50.0	NA	100.0	100.0	98.3	100.0	98.4
L	60.0	81.0	95.3	96.4	97.8	99.0	99.1	97.8
M	NA	44.4	93.3	100.0	95.0	100.0	99.1	98.1
N	30.0	86.5	94.6	98.9	98.6	98.8	100.0	96.2
O	NA	75.0	91.7	93.8	95.8	95.9	83.3	92.4
P	NA	50.0	100.0	100.0	100.0	100.0	99.5	99.5
Q ^φ	NA	81.8	100.0	96.6	96.3	100.0	94.4	97.0
R ^φ	NA	100.0	100.0	93.8	100.0	100.0	100.0	99.0
S	NA	NA	0.0	100.0	100.0	100.0	100.0	98.8
T	100.0	68.0	87.0	96.4	97.4	98.9	98.0	97.2
U	66.7	78.3	83.9	96.4	100.0	97.1	97.8	95.8
V	0.0	0.0	85.7	100.0	95.2	96.1	97.2	96.5
W	NA	50.0	100.0	100.0	90.9	98.0	99.3	98.1
X	0.0	60.0	100.0	91.3	95.2	97.6	99.5	97.4
Y	80.0	44.7	86.5	92.6	97.2	98.9	98.6	95.6
Z ^φ	NA	0.0	93.8	100.0	95.2	98.2	100.0	96.5
AA	100.0	60.9	83.8	94.1	98.2	95.7	97.8	95.6
AB	NA	100.0	100.0	100.0	100.0	99.2	100.0	99.7
AC	NA	0.0	NA	66.7	100.0	96.6	98.3	97.1
AD	20.0	66.7	85.0	96.3	94.6	95.8	97.2	95.3
AE	NA	33.3	50.0	100.0	83.3	98.0	99.0	96.3
AF	75.0	92.6	91.8	98.1	95.7	97.7	88.4	94.8
AG	100.0	70.0	93.8	100.0	100.0	99.4	98.5	98.2
Overall survival rate for BW**	57.1	74.4	91.0	96.5	97.4	98.2	98.5	97.0

These analyses included 15 493 neonates from 33 sites. **Twenty-eight sites collected data on all eligible admissions whereas five sites (marked by^φ) collected data on selected eligible admissions only.** ^φ Please note the data collection criteria were not the same for these five sites, and thus their rates may not be comparable with other sites.

Overall* = (number of neonates who survived per site / total number of neonates for site)*100

Overall** = (number of neonates who survived for each BW category / total number of neonates in each BW category)*100

NA = no data available, 0 = no neonates survived, Delivery room deaths were not included

Presentation #33a
Mortality: GA<33 weeks: Adjusted standardized ratios by site

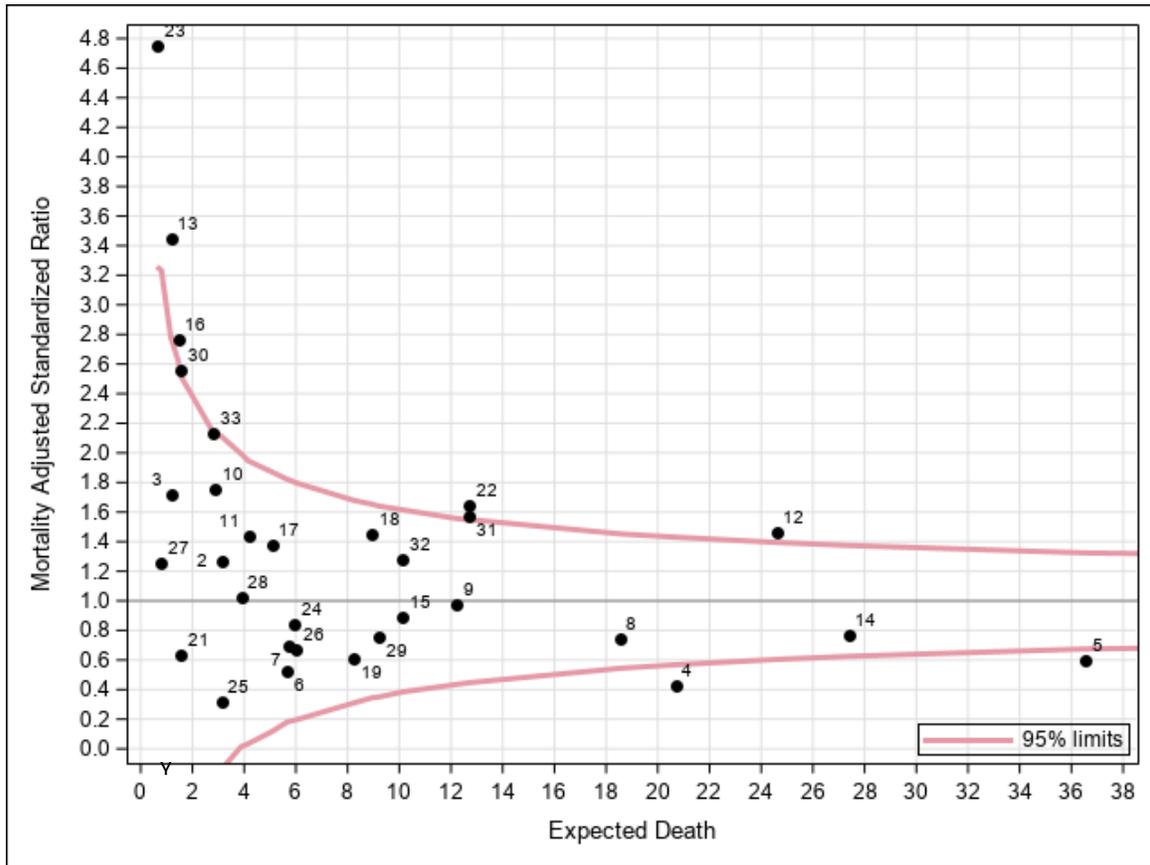
Site	Number of neonates	Number of deaths	Adjusted# expected number of deaths	Adjusted# standardized ratio	95% confidence interval (CI) for adjusted standardized ratio	
2	110	4	3.1	1.3	0.3	3.3
3	19	2	1.2	1.7	0.2	6.2
4	301	9	20.7	0.4	0.2	0.8
5	365	22	36.6	0.6	0.4	0.9
6	83	3	5.7	0.5	0.1	1.5
7	147	4	5.7	0.7	0.2	1.8
8	318	14	18.6	0.8	0.4	1.3
9	161	12	12.2	1.0	0.5	1.7
10	50	5	2.9	1.7	0.6	4.1
11	85	6	4.2	1.4	0.5	3.1
12	298	36	24.6	1.5	1.0	2.0
13	25	4	1.2	3.5	0.9	8.8
14	362	21	27.4	0.8	0.5	1.2
15	158	9	10.1	0.9	0.4	1.7
16	65	4	1.5	2.8	0.7	7.1
17	102	7	5.1	1.4	0.6	2.8
18	142	13	8.9	1.5	0.8	2.5
19	134	5	8.2	0.6	0.2	1.4
21	47	1	1.6	0.6	0.0	3.5
22	172	21	12.7	1.7	1.0	2.5
23	18	3	0.6	4.8	1.0	13.9
24	120	5	6.0	0.8	0.3	2.0
25	76	1	3.1	0.3	0.0	1.8
26	143	4	6.0	0.7	0.2	1.7
27	30	1	0.8	1.3	0.0	7.0
28	84	4	3.9	1.0	0.3	2.6
29	120	7	9.2	0.8	0.3	1.6
30	28	4	1.6	2.6	0.7	6.6
31	188	20	12.7	1.6	1.0	2.4
32	182	13	10.1	1.3	0.7	2.2
33	87	6	2.8	2.1	0.8	4.6

Numeric site codes were used in Presentations 33a-f and they may not correspond to other presentations in this report. Neonates with major congenital anomalies were excluded.

#The prediction model was adjusted for GA, SGA, sex, and SNAPII > 20.

Note: Sites 1 and 20 were not included in this analysis due to small number of eligible neonates in this category.

Presentations #33b
Mortality: GA<33 weeks: Adjusted standardized ratios by site



Explanation for Presentation 33a

- Column 1: Numeric site codes
- Column 2: Number of eligible neonates at each site (<33 weeks GA and no major anomaly)
- Column 3: Number of neonates with the outcome of interest among those eligible neonates
- Column 4: Expected number of neonates with outcome of interest after adjustment for GA, SGA, sex, and SNAPII > 20
- Column 5: Adjusted standardized ratio calculated based on observed deaths/expected deaths
- Columns 6 and 7: 95% CI around the adjusted standardized ratio for the outcome

Explanation for Presentation 33b

- X-axis: Expected number of neonates with outcome (value from Column 4 of previous presentation)
- Y-axis: Adjusted standardized ratio (value from Column 5 of previous presentation)
- Dark points with numerical notation: Site and its location matching x and y axis values
- Red funnel shaped lines: 95% confidence limits based on entire network information.
- Sites outside of red 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.

Presentation #33c
Mortality: GA<29 weeks: Adjusted standardized ratios by site

Site	Number of neonates	Number of deaths	Adjusted# expected number of deaths	Adjusted# standardized ratio	95% confidence interval (CI) for adjusted standardized ratio	
2	27	3	1.6	1.9	0.4	5.6
3	8	1	1.0	1.0	0.0	5.7
4	122	8	17.4	0.5	0.2	0.9
5	214	22	33.3	0.7	0.4	1.0
6	34	3	4.7	0.6	0.1	1.9
7	37	4	3.9	1.0	0.3	2.6
8	122	13	15.5	0.8	0.4	1.4
9	71	10	10.9	0.9	0.4	1.7
10	13	3	2.2	1.3	0.3	3.9
11	23	3	2.9	1.0	0.2	3.0
12	115	31	21.1	1.5	1.0	2.1
13	9	4	0.8	5.2	1.4	13.4
14	191	20	25.0	0.8	0.5	1.2
15	58	7	8.4	0.8	0.3	1.7
16	12	2	0.7	2.8	0.3	10.0
17	32	6	4.3	1.4	0.5	3.1
18	55	12	7.7	1.6	0.8	2.7
19	55	4	6.6	0.6	0.2	1.6
21	16	1	1.2	0.8	0.0	4.7
22	81	16	11.1	1.4	0.8	2.3
24	41	4	4.6	0.9	0.2	2.2
25	18	1	2.2	0.5	0.0	2.6
26	43	2	4.5	0.4	0.0	1.6
27	6	0	0.4	0.0	.	8.3
28	29	3	2.9	1.0	0.2	3.1
29	43	6	7.4	0.8	0.3	1.8
30	9	3	1.2	2.4	0.5	7.1
31	79	16	10.8	1.5	0.8	2.4
32	66	11	8.6	1.3	0.6	2.3
33	21	5	1.8	2.7	0.9	6.4

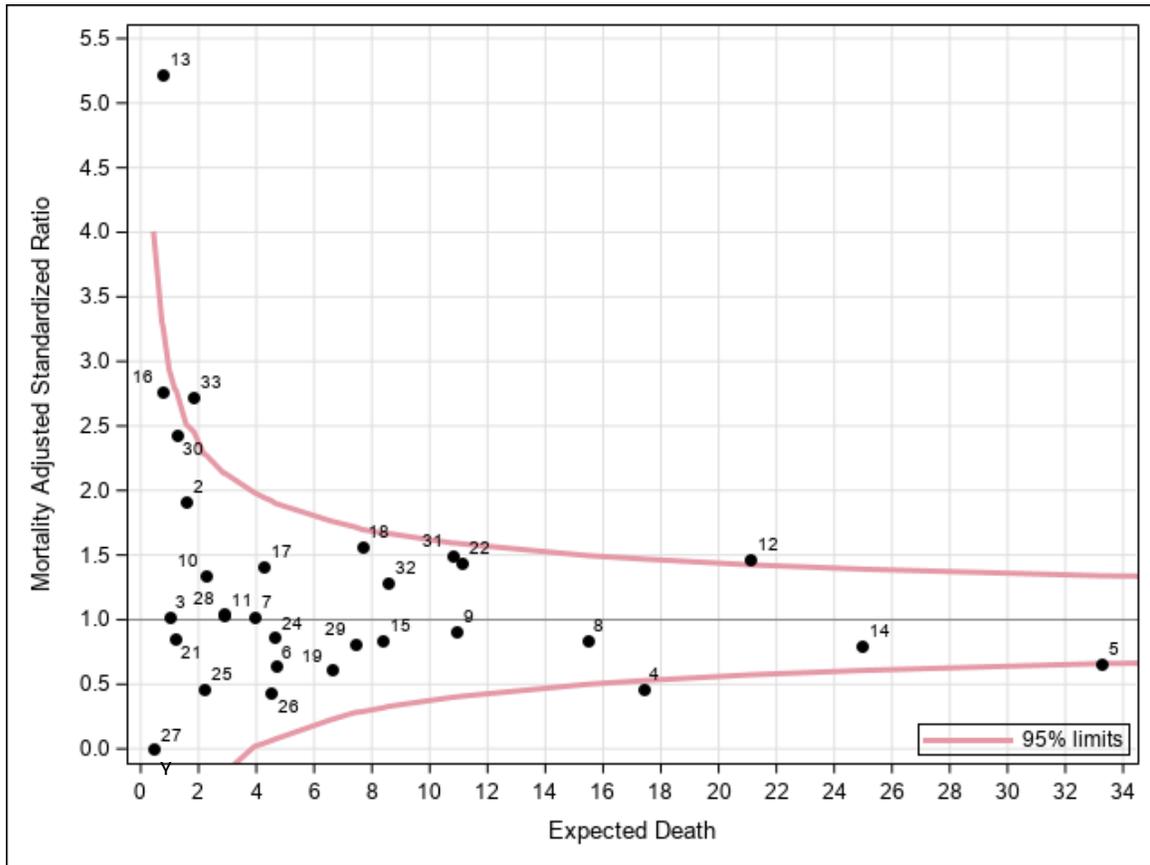
Numeric site codes were used in Presentations 33a-f and they may not correspond to other presentations in this report.

Neonates with major congenital anomalies were excluded.

The prediction model was adjusted for GA, SGA, sex, and SNAP-III > 20.

Note: Sites 1, 20, 23 were excluded from the analysis due to the small number of eligible neonates.

Presentations #33d
Mortality: GA<29 weeks: Adjusted standardized ratios by site



Explanation for Presentation 33c

- Column 1: Numeric site codes
- Column 2: Number of eligible neonates at each site (<29 weeks GA and no major anomaly)
- Column 3: Number of neonates with the outcome of interest among those eligible neonates
- Column 4: Expected number of neonates with outcome of interest after adjustment for GA, SGA, sex, and SNAPII > 20
- Column 5: Adjusted standardized ratio calculated based on observed deaths/expected deaths
- Columns 6 and 7: 95% CI around the adjusted standardized ratio for the outcome

Explanation for Presentation 33d

- X-axis: Expected number of neonates with outcome (value from Column 4 of previous presentation)
- Y-axis: Adjusted standardized ratio (value from Column 5 of previous presentation)
- Dark points with numerical notation: Site and its location matching x and y axis values
- Red funnel shaped lines: 95% confidence limits based on entire network information.
- Sites outside of red 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.

Presentation #33e
Mortality: All neonates: Adjusted standardized ratios by site

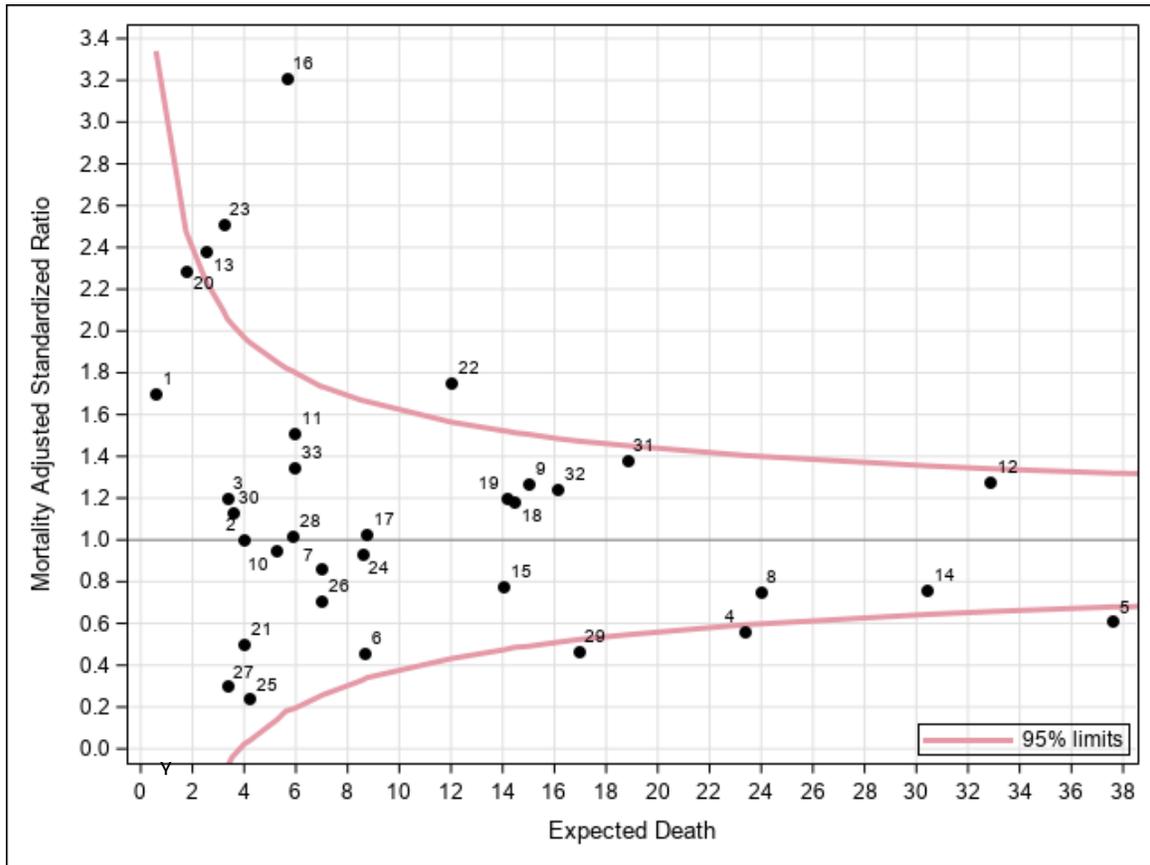
Site	Number of neonates	Number of deaths	Adjusted# expected number of deaths	Adjusted# standardized ratio	95% confidence interval (CI) for adjusted standardized ratio	
1	80	1	0.6	1.7	0.0	9.5
2	112	4	4.0	1.0	0.3	2.6
3	202	4	3.3	1.2	0.3	3.1
4	341	13	23.4	0.6	0.3	1.0
5	638	23	37.6	0.6	0.4	0.9
6	366	4	8.7	0.5	0.1	1.2
7	165	6	7.0	0.9	0.3	1.9
8	1017	18	24.0	0.7	0.4	1.2
9	463	19	15.0	1.3	0.8	2.0
10	300	5	5.3	0.9	0.3	2.2
11	141	9	5.9	1.5	0.7	2.9
12	1061	42	32.9	1.3	0.9	1.7
13	160	6	2.5	2.4	0.9	5.2
14	1037	23	30.4	0.8	0.5	1.1
15	525	11	14.1	0.8	0.4	1.4
16	498	18	5.6	3.2	1.9	5.1
17	468	9	8.7	1.0	0.5	2.0
18	629	17	14.5	1.2	0.7	1.9
19	652	17	14.2	1.2	0.7	1.9
20	178	4	1.8	2.3	0.6	5.9
21	380	2	4.0	0.5	0.1	1.8
22	173	21	12.0	1.7	1.1	2.7
23	270	8	3.2	2.5	1.1	4.9
24	430	8	8.6	0.9	0.4	1.8
25	95	1	4.2	0.2	0.0	1.3
26	162	5	7.0	0.7	0.2	1.7
27	336	1	3.3	0.3	0.0	1.7
28	282	6	5.9	1.0	0.4	2.2
29	839	8	17.0	0.5	0.2	0.9
30	251	4	3.5	1.1	0.3	2.9
31	742	26	18.9	1.4	0.9	2.0
32	870	20	16.1	1.2	0.8	1.9
33	355	8	5.9	1.3	0.6	2.7

Numeric site codes were used in Presentations 33a-f and they may not correspond to other presentations in this report.

Neonates with major congenital anomalies were excluded.

The prediction model was adjusted for GA, SGA, sex, and SNAPII > 20.

Presentations #33f
Mortality: All neonates: Adjusted standardized ratios by site



Explanation for Presentation 33e

- Column 1: Numeric site codes
- Column 2: Number of eligible neonates at each site (no major anomaly)
- Column 3: Number of neonates with outcome of interest among those eligible neonates
- Column 4: Expected number of neonates with the outcome of interest after adjustment for GA, SGA, sex, and SNAP-II > 20
- Column 5: Adjusted standardized ratio calculated based on observed deaths/expected deaths
- Columns 6 and 7: 95% CI around the adjusted standardized ratio for the outcome

Explanation for Presentation 33f

- X-axis: Expected number of neonates with outcome (value from Column 4 of previous presentation)
- Y-axis: Adjusted standardized ratio (value from Column 5 of previous presentation)
- Dark points with numerical notation: Site and its location matching x and y axis values
- Red funnel shaped lines: 95% confidence limits based on entire network information.
- Sites outside of red 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.

**E.3. Site Comparisons –
Mortality / Morbidities**

Presentation #34
Mortality/morbidities: GA<33 weeks: Site specific crude rates

Site	Number of neonates	Mortality	Severe neurological injury (incl. PVL)	PVL	Severe ROP	CLD at 36 weeks PMA or discharge*	NEC stage 2 or 3	Late onset sepsis	Mortality or severe morbidity
	N	%	%	%	%	%	%	%	%
S	< 40	16.7	66.7	33.3	0.0	20.0	16.7	0.0	50.0
AC		16.7	15.4	7.7	0.0	13.3	0.0	11.1	33.3
W		10.0	0.0	0.0	0.0	11.1	10.0	20.0	35.0
AE		16.0	9.5	0.0	0.0	4.8	0.0	4.0	24.0
K		13.8	16.0	4.0	5.9	24.0	0.0	0.0	37.9
H		0.0	0.0	0.0	0.0	50.0	20.0	0.0	40.0
AB		3.3	8.0	8.0	5.6	20.7	3.3	0.0	26.7
P	41 – 100	2.1	0.0	0.0	7.7	27.7	0.0	6.3	35.4
F		9.4	2.2	2.2	3.6	22.9	9.4	3.8	32.1
V		6.9	11.5	4.9	7.7	47.7	9.6	4.1	56.2
R		1.2	3.1	1.6	18.2	26.3	2.5	13.6	30.9
G		3.5	4.8	2.4	10.5	27.4	1.2	14.1	35.3
O		7.0	6.9	0.0	7.9	25.0	0.0	5.8	36.1
E		4.5	2.7	1.4	15.6	22.1	0.0	10.1	28.1
X		7.6	8.8	2.5	0.0	35.3	0.0	4.4	41.3
M	101 – 150	6.7	11.5	3.9	12.0	32.3	2.9	12.4	41.9
Z		3.6	4.7	0.9	1.9	30.6	4.5	7.1	37.5
AG		4.1	8.9	5.0	7.9	20.5	1.6	4.1	27.1
B		5.7	11.4	5.7	12.7	37.4	2.5	8.2	44.3
J		3.7	9.8	6.3	5.9	26.5	5.1	16.8	40.2
Q		2.7	9.0	6.0	7.6	38.2	2.0	10.8	47.3
C	151 – 300	4.0	8.7	0.8	10.9	23.0	4.6	12.6	32.5
A		5.7	6.7	3.0	12.8	25.8	1.9	12.6	35.2
AD		11.9	9.4	3.1	18.0	81.6	5.6	11.9	84.4
U		7.6	8.5	6.3	21.6	28.7	5.9	17.0	43.9
D		11.9	11.3	2.8	10.7	40.3	8.0	15.3	48.3
T		7.4	7.0	3.8	10.5	27.3	1.1	9.0	33.9
AA		10.7	8.9	3.3	9.3	34.5	10.2	10.7	43.7
Y	> 300	12.8	11.2	6.6	18.0	32.0	4.2	13.1	41.7
AF		4.4	17.0	5.2	8.8	37.5	3.1	11.0	46.4
L		5.2	4.4	2.7	8.8	43.9	1.2	7.3	48.2
N		5.9	10.0	3.3	15.2	33.0	6.2	12.3	46.5
I		6.3	9.7	4.1	13.6	41.8	5.2	15.4	51.7
Total CNN		6.8	8.9	3.8	10.8	34.5	4.0	11.1	43.7

Mortality or severe morbidity = Mortality prior to discharge or any of the morbidities

*PMA: Post-menstrual age

NA = no data available

These are unadjusted rates.

Presentation #35
Mortality/morbidities: GA<29 weeks: Site specific crude rates

Site	Number of neonates	Mortality	Severe neurological injury (incl PVL)	PVL	Severe ROP	CLD at 36 weeks PMA or discharge*	NEC stage 2 or 3	Late onset sepsis	Mortality or severe morbidity
	N	%	%	%	%	%	%	%	%
AB	≤ 10	0.0	16.7	16.7	16.7	50.0	16.7	0.0	50.0
AC		66.7	0.0	0.0	0.0	0.0	0.0	33.3	66.7
AE		44.4	28.6	0.0	0.0	20.0	0.0	0.0	55.6
W		11.1	0.0	0.0	0.0	25.0	11.1	33.3	55.6
S		100.0	0.0	0.0	100.0
K		30.0	22.2	0.0	14.3	71.4	0.0	0.0	80.0
F	11 – 30	21.4	0.0	0.0	9.1	45.5	28.6	14.3	64.3
V		21.4	14.3	0.0	0.0	81.8	14.3	0.0	92.9
P		6.3	0.0	0.0	14.3	53.3	0.0	6.3	62.5
R		5.0	10.0	5.0	33.3	68.4	10.0	30.0	70.0
O		13.0	13.6	0.0	16.7	65.0	0.0	8.7	78.3
X		26.1	26.1	8.7	0.0	70.6	0.0	8.7	78.3
Z	10.7	14.3	0.0	4.0	72.0	10.7	7.1	78.6	
E	31 – 50	9.7	6.5	3.2	22.2	53.6	0.0	25.8	61.3
M		18.2	16.7	3.3	21.4	75.0	0.0	30.3	84.9
G		8.6	8.6	2.9	18.2	55.9	2.9	31.4	68.6
C		13.2	23.7	2.6	25.7	60.0	2.6	31.6	73.7
AG		9.8	15.0	10.0	16.7	46.0	4.9	7.3	53.7
B		14.0	26.2	11.9	24.3	75.7	7.0	23.3	86.1
Q	4.4	15.6	8.9	20.0	65.1	6.7	22.2	75.6	
J	51 – 100	7.3	11.3	5.7	8.0	56.9	7.3	32.7	72.7
A		12.1	14.3	5.4	16.2	53.9	3.5	32.8	70.7
AD		24.6	16.1	3.6	28.0	91.3	8.2	24.6	95.1
T		17.4	15.2	7.6	17.5	59.7	2.9	24.6	71.0
U		13.7	11.6	8.7	29.0	54.0	9.6	30.1	69.9
AA		20.0	18.0	6.4	13.8	67.2	20.0	17.5	76.3
D	19.5	15.2	3.8	12.5	71.0	14.6	29.3	79.3	
Y	> 100	28.1	22.5	14.4	21.3	62.6	9.9	25.6	75.2
AF		8.7	25.4	4.8	12.0	62.1	5.5	23.6	77.2
L		11.8	8.3	5.0	10.1	78.8	2.4	15.8	83.5
I		10.4	12.5	5.5	17.0	50.3	7.9	25.3	62.9
N		9.9	13.8	4.6	16.5	45.3	9.4	18.8	64.1
Total CNN		14.1	15.3	5.8	16.1	60.2	7.6	22.4	72.7

Mortality or severe morbidity = Mortality prior to discharge or any of the five morbidities

*PMA: Post-menstrual age

Note: Site H had no neonates with GA<29.

These are unadjusted rates.

E.3.1. Site Comparisons – Late Onset Sepsis and Antimicrobial Use

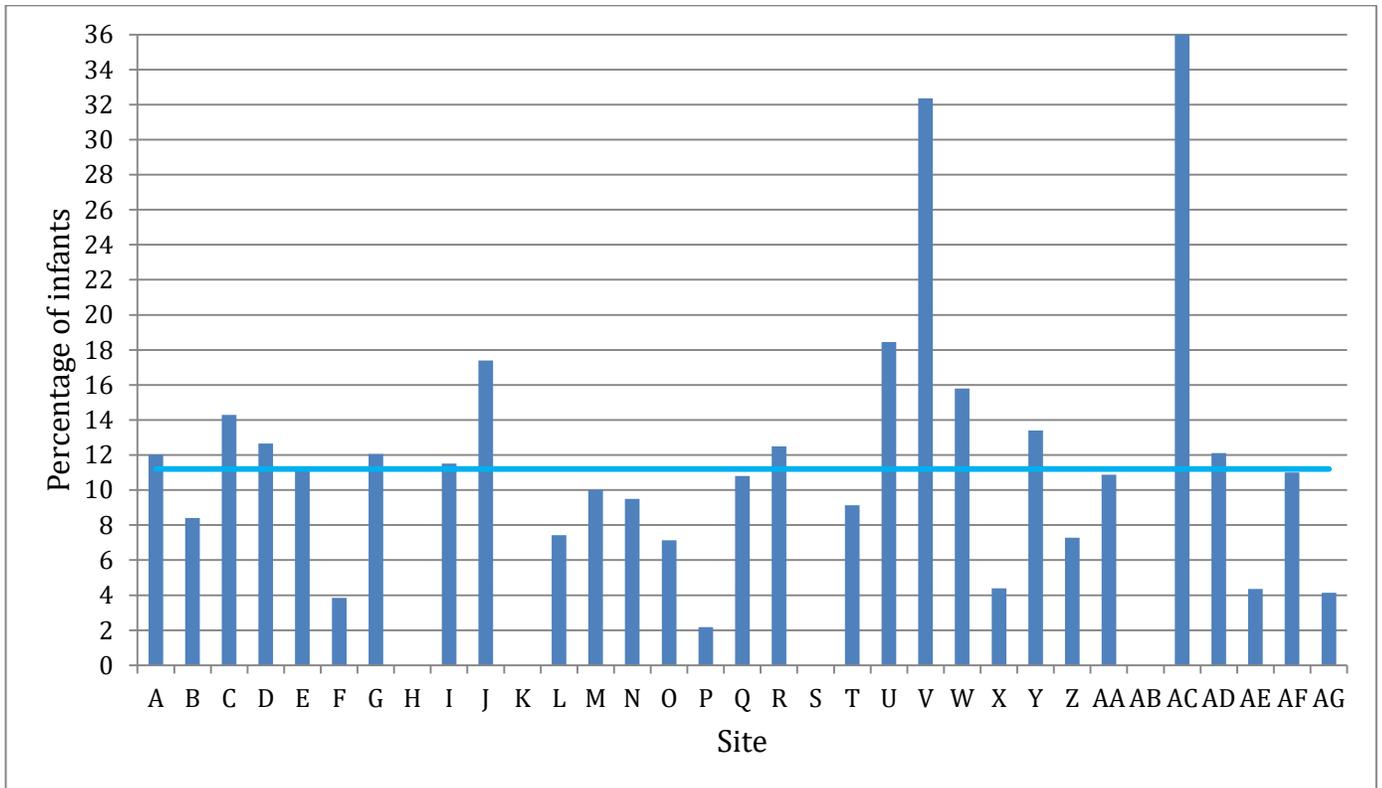
In presentations #36 and #37, late onset sepsis was attributed to the hospital where the first episode of sepsis was acquired. Each neonate was counted only once even if there were multiple episodes of infections.

In presentations #38 and #39, assignment of infection was based on location where the infection happened and not assigned to the hospital where the first episode of sepsis was acquired. Each episode of infection was counted (the total number of episodes exceeds the total number of neonates).

In all other presentations of this report, all morbidities including late onset sepsis were attributed to the hospital where the neonate was first admitted.

Presentation #36

Late onset sepsis: GA<33 weeks: Site specific crude rates
(n=4 352 neonates, 53 excluded due to death before 3 days of age)



Site	A	B	C	D	E	F	G	H	I	J	K	
%	12.0	8.4	14.3	12.7	11.1	3.8	12.0	0.0	11.5	17.4	0.0	
Site	L	M	N	O	P	Q	R	S	T	U	V	
%	7.4	10.0	9.5	7.1	2.2	10.8	12.5	0.0	9.1	18.5	32.4	
Site	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	CNN
%	15.8	4.4	13.4	7.3	10.9	0.0	36.0	12.1	4.3	11.0	4.1	11.2

COMMENTS: Late onset sepsis is defined as any positive blood and/or cerebrospinal fluid culture after 2 days of age (analysis is neonate-based and deaths before 3 days of age are excluded).

In presentations #36 and #37, late onset sepsis was attributed to the hospital where the first episode of sepsis was acquired. Each neonate was counted only once even if there were multiple episodes of infections.

Presentation #37a
Late onset sepsis: GA<33 weeks: Adjusted standardized ratios by site

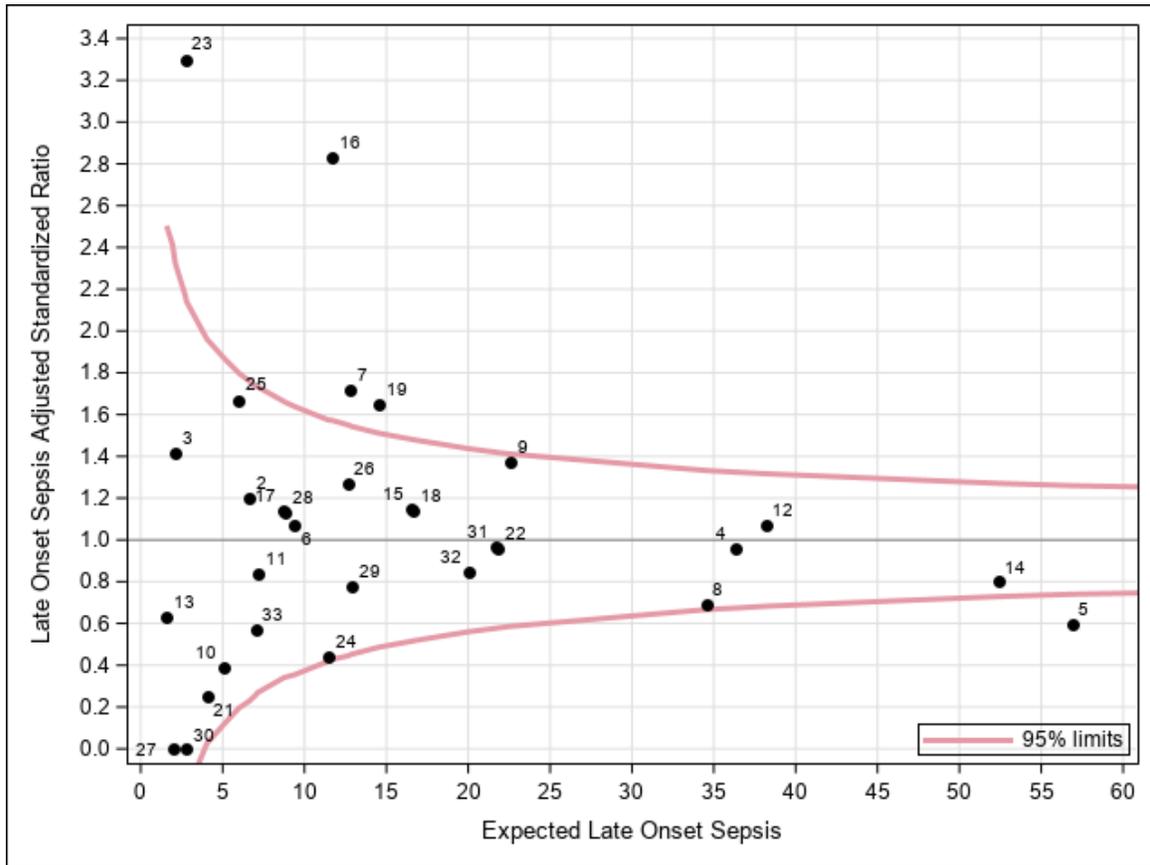
Site	Number of neonates	Number of NI	Adjusted# expected number of NI	Adjusted# standardized ratio	95% confidence interval (CI) for adjusted standardized ratio	
2	110	8	6.7	1.2	0.5	2.4
3	19	3	2.1	1.4	0.3	4.1
4	318	35	36.4	1.0	0.7	1.3
5	358	34	56.9	0.6	0.4	0.8
6	83	10	9.4	1.1	0.5	2.0
7	154	22	12.8	1.7	1.1	2.6
8	323	24	34.6	0.7	0.4	1.0
9	168	31	22.6	1.4	0.9	2.0
10	52	2	5.1	0.4	0.0	1.4
11	84	6	7.1	0.8	0.3	1.8
12	306	41	38.2	1.1	0.8	1.5
13	23	1	1.6	0.6	0.0	3.5
14	365	42	52.4	0.8	0.6	1.1
15	158	19	16.5	1.1	0.7	1.8
16	102	33	11.7	2.8	1.9	4.0
17	100	10	8.8	1.1	0.5	2.1
18	157	19	16.7	1.1	0.7	1.8
19	138	24	14.5	1.7	1.1	2.5
21	46	1	4.0	0.2	0.0	1.4
22	166	21	21.8	1.0	0.6	1.5
23	25	9	2.7	3.3	1.5	6.3
24	121	5	11.5	0.4	0.1	1.0
25	80	10	6.0	1.7	0.8	3.1
26	148	16	12.6	1.3	0.7	2.1
27	30	0	1.9	0.0	.	1.9
28	90	10	8.9	1.1	0.5	2.1
29	119	10	12.9	0.8	0.4	1.4
30	29	0	2.8	0.0	.	1.3
31	193	21	21.7	1.0	0.6	1.5
32	186	17	20.0	0.8	0.5	1.4
33	91	4	7.0	0.6	0.2	1.5

Numeric site codes were used in Presentations 37a-d and they may not correspond to other presentations in this report. *Late onset sepsis was attributed to the hospital where the first episode of sepsis was acquired. *Neonates who died before 3 days of age were excluded.

#The prediction model was adjusted for GA, SGA, sex, and SNAP-II > 20.

Note: Sites 1 and 20 were not included in this analysis due to small number of eligible neonates in this category.

Presentation # 37b
Late onset sepsis: GA<33 weeks: Adjusted standardized ratios by site



Explanation for Presentation 37a

- Column 1: Numeric site codes
- Column 2: Number of eligible neonates at each site (<33 weeks GA)
- Column 3: Number of neonates with outcome of interest among those eligible neonates
- Column 4: Expected number of neonates with outcome of interest after adjustment for GA, SGA, sex, and SNAPII > 20
- Column 5: Adjusted standardized ratio calculated based on observed late onset sepsis/expected late onset sepsis
- Columns 6 and 7: 95% CI around the adjusted standardized ratio for the outcome

Explanation for Presentation 37b

- X-axis: Expected number of neonates with outcome (value from Column 4 of previous presentation)
- Y-axis: Adjusted standardized ratio (value from Column 5 of previous presentation)
- Dark points with numerical notation: Site and its location matching x and y axis values
- Red funnel shaped lines: 95% confidence limits based on entire network information.
- Sites outside of red 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.

Presentation #37c
Late onset sepsis: GA<29 weeks: Adjusted standardized ratios by site

Site	Number of neonates	Number of NI	Adjusted# expected number of NI	Adjusted# standardized ratio	95% confidence interval (CI) for adjusted standardized ratio	
2	27	2	3.4	0.6	0.1	2.1
3	8	2	1.8	1.1	0.1	4.1
4	126	30	29.2	1.0	0.7	1.5
5	209	32	50.1	0.6	0.4	0.9
6	33	9	7.3	1.2	0.6	2.3
7	40	14	8.6	1.6	0.9	2.7
8	122	20	26.7	0.7	0.5	1.2
9	73	26	19.0	1.4	0.9	2.0
10	13	2	3.6	0.6	0.1	2.0
11	22	3	4.7	0.6	0.1	1.9
12	116	31	31.1	1.0	0.7	1.4
13	7	0	0.9	0.0	.	4.0
14	188	38	44.8	0.8	0.6	1.2
15	56	17	12.5	1.4	0.8	2.2
16	37	23	9.3	2.5	1.6	3.7
17	29	8	6.3	1.3	0.5	2.5
18	59	15	13.1	1.1	0.6	1.9
19	56	19	11.7	1.6	1.0	2.5
21	16	1	3.0	0.3	0.0	1.9
22	73	19	18.0	1.1	0.6	1.7
24	40	3	8.4	0.4	0.1	1.0
25	19	5	3.9	1.3	0.4	3.0
26	45	10	9.1	1.1	0.5	2.0
27	6	0	1.1	0.0	.	3.4
28	31	8	6.4	1.2	0.5	2.4
29	41	10	10.1	1.0	0.5	1.8
30	10	0	2.2	0.0	.	1.7
31	78	14	17.9	0.8	0.4	1.3
32	67	17	15.2	1.1	0.6	1.8
33	23	2	4.6	0.4	0.0	1.6

Numeric site codes were used in Presentations 37a-d and they may not correspond to other presentations in this report.

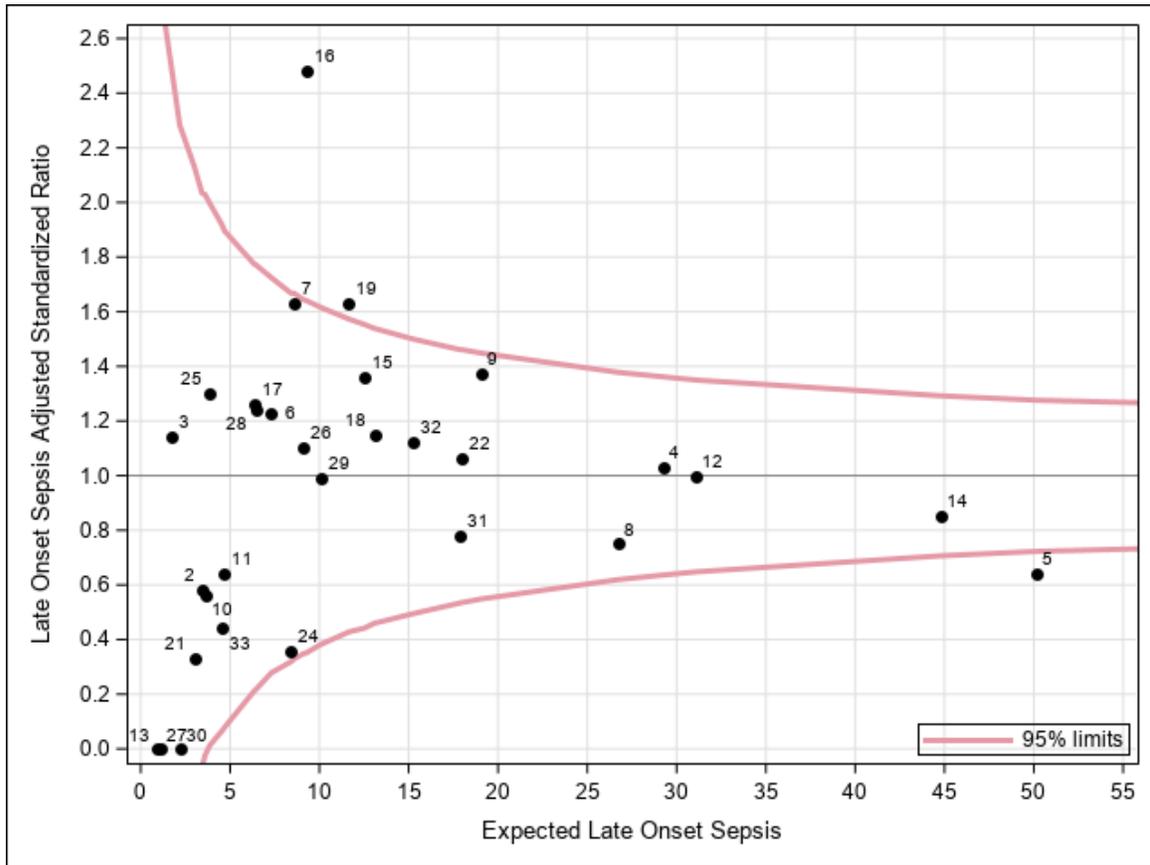
*Late onset sepsis was attributed to the hospital where the first episode of sepsis was acquired.

*Neonates who died before 3 days of age are excluded.

#The prediction model was adjusted for GA, SGA, sex, and SNAPII > 20.

Note: Sites 1, 20, 23 were excluded from the analysis due to the small number of eligible neonates.

Presentation # 37d
Late onset sepsis: GA<29 weeks: Adjusted standardized ratios by site



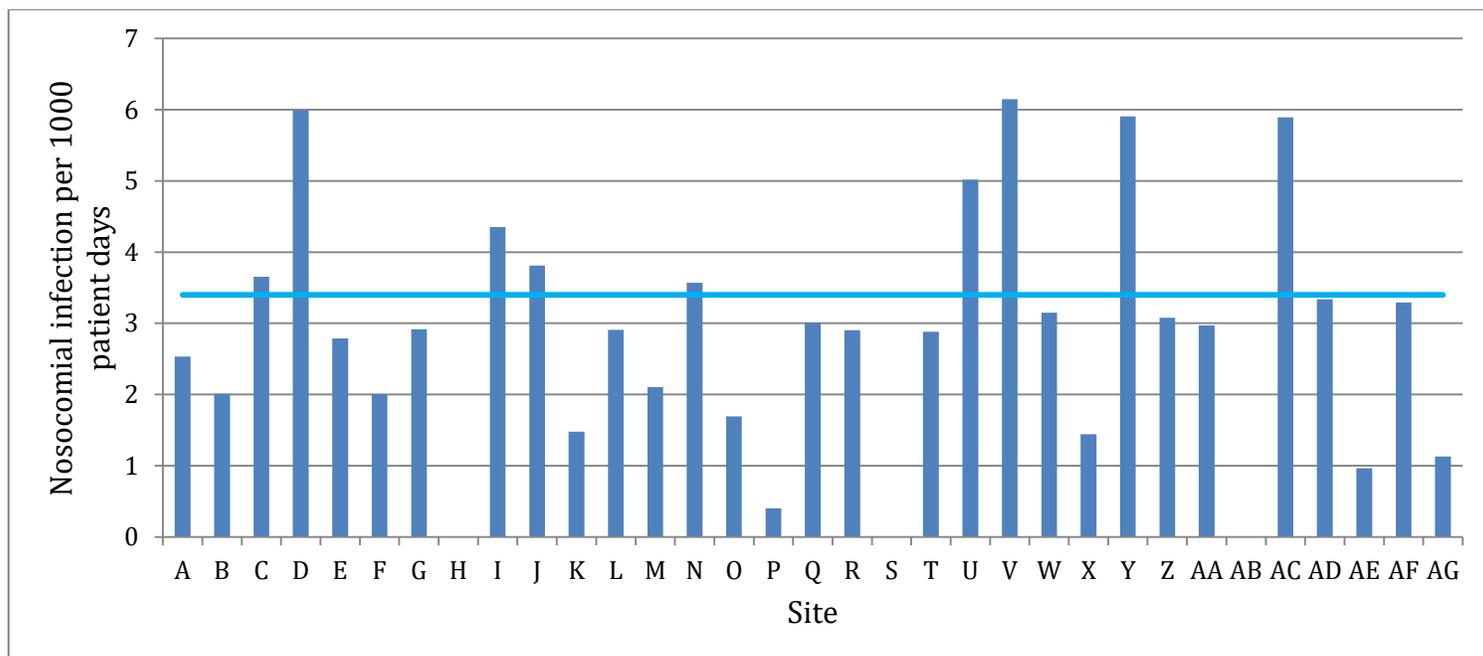
Explanation for Presentation 37c

- Column 1: Numeric site codes
- Column 2: Number of eligible neonates at each site (<29 weeks GA)
- Column 3: Number of neonates with outcome of interest among those eligible neonates
- Column 4: Expected number of neonates with outcome of interest after adjustment for GA, SGA, sex, and SNAPII > 20
- Column 5: Adjusted standardized ratio calculated based on observed late onset sepsis/expected late onset sepsis
- Columns 6 and 7: 95% CI around the adjusted standardized ratio for the outcome

Explanation for Presentation 37d

- X-axis: Expected number of neonates with outcome (value from Column 4 of previous presentation)
- Y-axis: Adjusted standardized ratio (value from Column 5 of previous presentation)
- Dark points with numerical notation: Site and its location matching x and y axis values
- Red funnel shaped lines: 95% confidence limits based on entire network information.
- Sites outside of red 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.

Presentation #38
Late onset sepsis per 1000 patient days: GA<33 weeks: Site specific crude rates



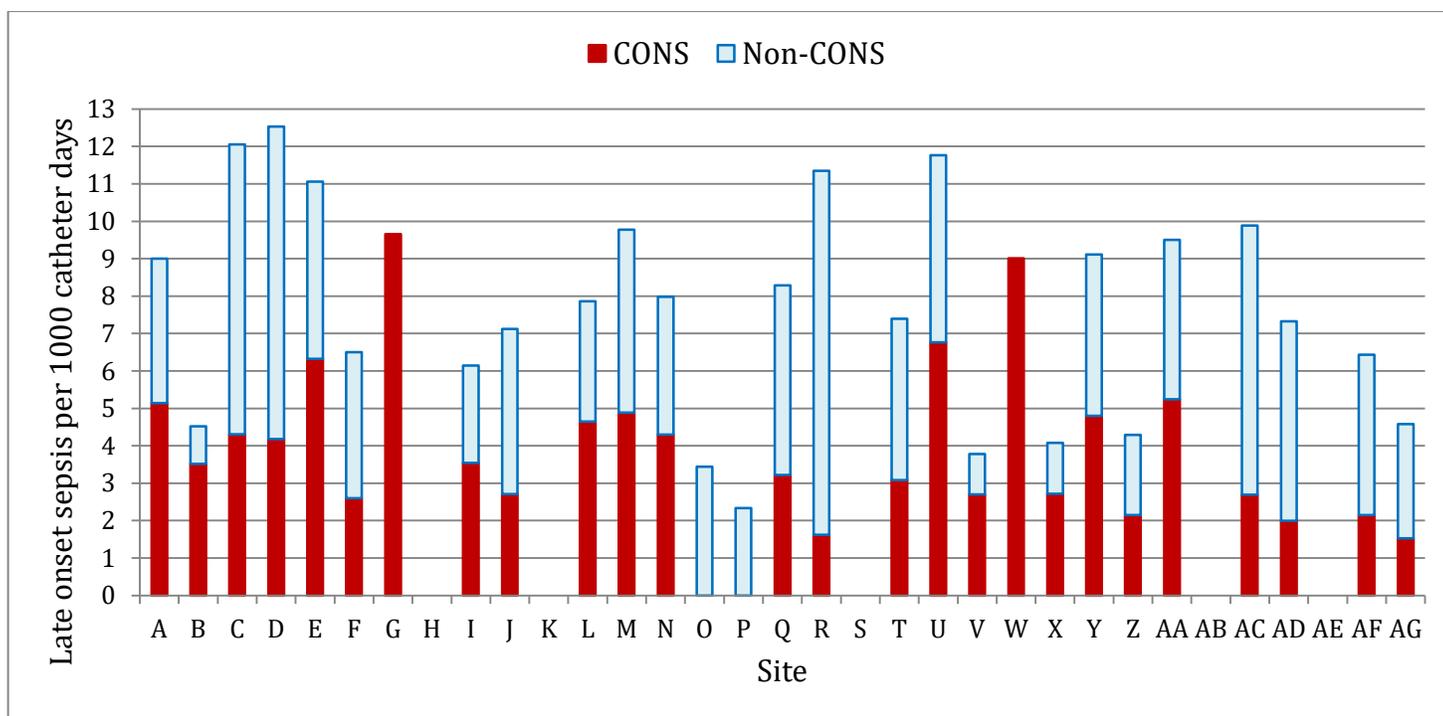
Site	Infections per 1000 patient days	Site	Infections per 1000 patient days	Site	Infections per 1000 patient days
A	2.5	L	2.9	W	3.1
B	2.0	M	2.1	X	1.4
C	3.7	N	3.6	Y	5.9
D	6.0	O	1.7	Z	3.1
E	2.8	P	0.4	AA	3.0
F	2.0	Q	3.0	AB	0.0
G	2.9	R	2.9	AC	5.9
H	0.0	S	0.0	AD	3.3
I	4.3	T	2.9	AE	1.0
J	3.8	U	5.0	AF	3.3
K	1.5	V	6.1	AG	1.1
				CNN	3.4

Total number of neonates = 4 405

COMMENTS: Late onset sepsis is defined as positive blood and/or cerebrospinal fluid culture after 2 days of age (includes all admissions). Considerable variation exists when late onset sepsis is analyzed as infections per 1000 patient days. Note that it is possible that certain sites with high retro transfer rates may report a high incidence per 1000 patient days since neonates who are transferred out are those with lower acuity. If a neonate had >1 distinct episodes of infection, each episode will be counted as separate infections in the numerator.

In presentations #38 and #39, the infection was assigned to the hospital where the infection happened and not assigned to the hospital where the first episode of sepsis happened.

Presentation #39a
Central Line-Associated Bloodstream Infections per 1000 central line* days:
GA < 33 weeks: Site specific crude rates

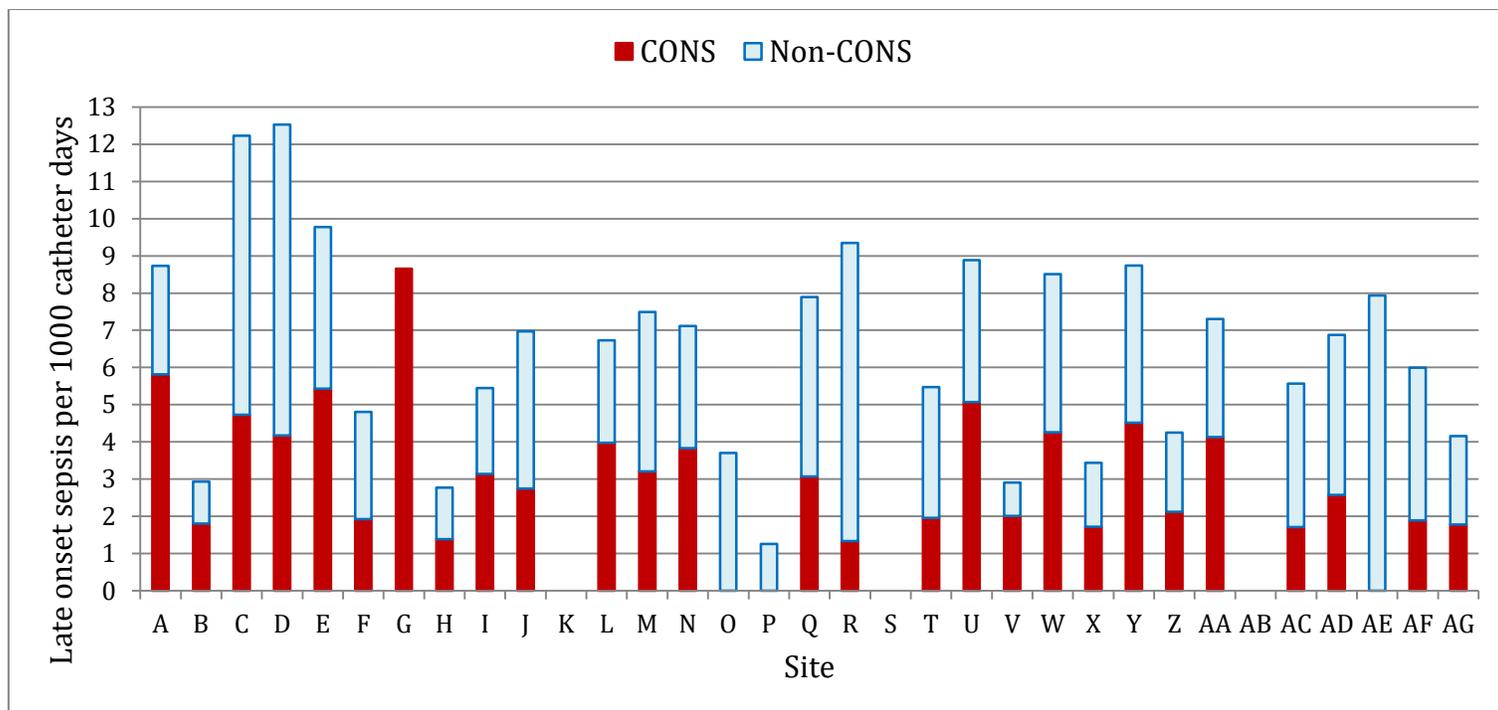


Site	CLABSI**		Central line days	CLABSI per 1000 central line days	
	CONS	Non-CONS		CONS	Non-CONS
A	4	3	778	5.1	3.9
B	7	2	1992	3.5	1.0
C	10	18	2323	4.3	7.7
D	8	16	1916	4.2	8.4
E	4	3	633	6.3	4.7
F	2	3	769	2.6	3.9
G	5	0	518	9.7	0.0
H	0	0	492	0.0	0.0
I	15	11	4233	3.5	2.6
J	8	13	2950	2.7	4.4
K	0	0	151	0.0	0.0
L	13	9	2799	4.6	3.2
M	3	3	614	4.9	4.9
N	14	12	3257	4.3	3.7
O	0	4	1162	0.0	3.4
P	0	1	428	0.0	2.3
Q	7	11	2173	3.2	5.1
R	1	6	617	1.6	9.7
S	0	0	7	0.0	0.0
T	5	7	1623	3.1	4.3
U	23	17	3399	6.8	5.0
V	15	6	5551	2.7	1.1
W	1	0	111	9.0	0.0
X	2	1	735	2.7	1.4
Y	20	18	4170	4.8	4.3
Z	2	2	933	2.1	2.1
AA	16	13	3051	5.2	4.3
AB	0	0	245	0.0	0.0
AC	3	8	1113	2.7	7.2
AD	3	8	1502	2.0	5.3
AE	0	0	164	0.0	0.0
AF	12	24	5598	2.1	4.3
AG	2	4	1310	1.5	3.1
CNN	205	223	57317	3.6	3.9

*Central line = Any of UV, surgical CVL, or PICC

** CLABSI was defined as a primary bloodstream infection in a neonate who developed infection while a central line was in situ or within 2 days of removal of the central line.

Presentation #39b
Central Line-Associated Bloodstream Infections per 1000 central line* days:
All neonates: Site specific crude rates

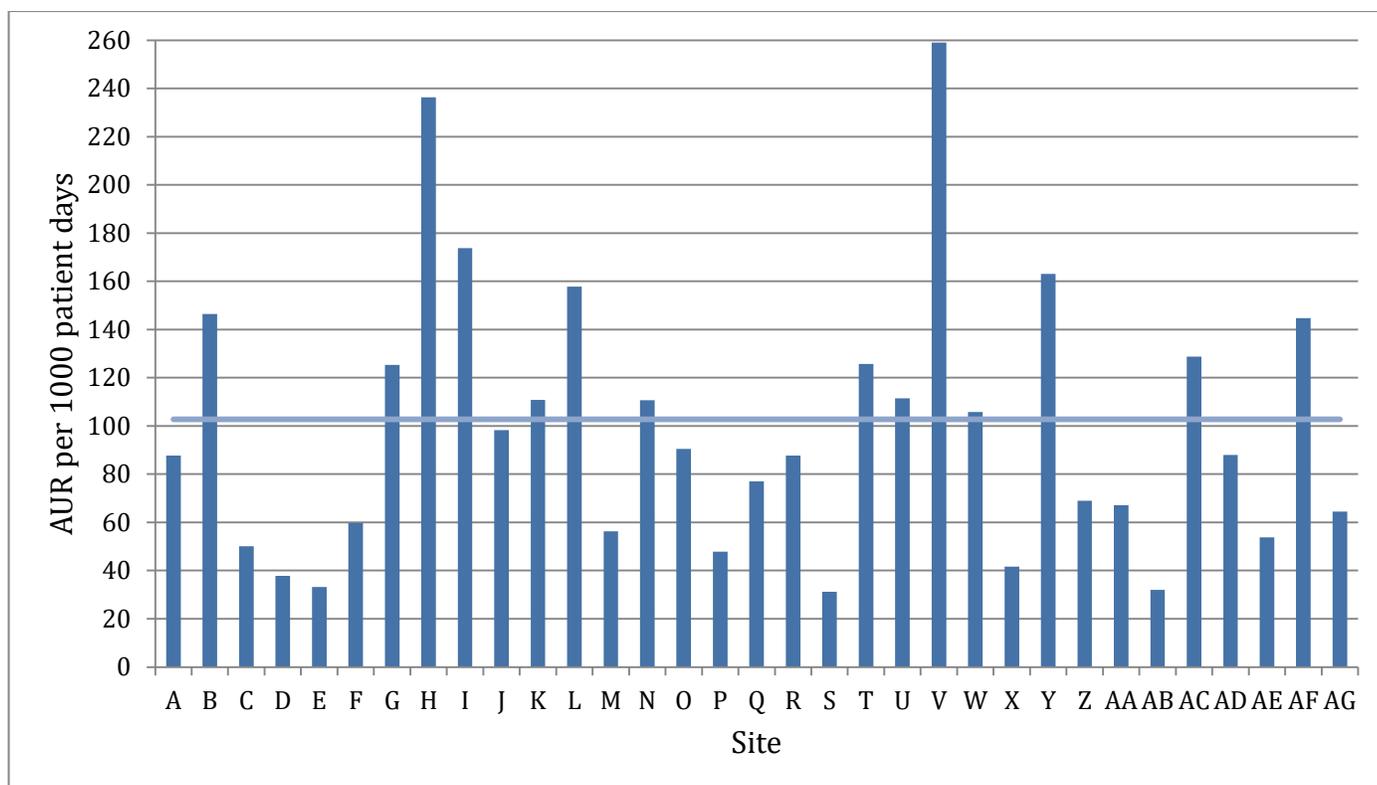


Site	CLABSI**		Central line days	CLABSI per 1000 central line days	
	CONS	Non-CONS		CONS	Non-CONS
A	6	3	1031	5.8	2.9
B	8	5	4432	1.8	1.1
C	12	19	2535	4.7	7.5
D	8	16	1916	4.2	8.4
E	5	4	921	5.4	4.3
F	2	3	1041	1.9	2.9
G	5	0	578	8.7	0.0
H	3	3	2163	1.4	1.4
I	15	11	4776	3.1	2.3
J	15	23	5454	2.8	4.2
K	0	0	190	0.0	0.0
L	13	9	3267	4.0	2.8
M	3	4	934	3.2	4.3
N	14	12	3656	3.8	3.3
O	0	7	1888	0.0	3.7
P	0	1	792	0.0	1.3
Q	7	11	2280	3.1	4.8
R	1	6	749	1.3	8.0
S	0	0	38	0.0	0.0
T	5	9	2557	2.0	3.5
U	28	21	5517	5.1	3.8
V	18	8	8948	2.0	0.9
W	1	1	235	4.3	4.3
X	2	2	1163	1.7	1.7
Y	30	28	6637	4.5	4.2
Z	2	2	941	2.1	2.1
AA	26	20	6295	4.1	3.2
AB	0	0	383	0.0	0.0
AC	4	9	2335	1.7	3.9
AD	6	10	2327	2.6	4.3
AE	0	2	252	0.0	7.9
AF	12	26	6343	1.9	4.1
AG	3	4	1683	1.8	2.4
CNN	254	279	84257	3.0	3.3

*Central line = Any of UV, surgical CVL, or PICC

** CLABSI was defined as a primary bloodstream infection in a neonate who developed infection while a central line was in situ or within 2 days of removal of the central line.

Presentation #40
Days of antimicrobial use per 1000 patient days among neonates who did not develop NEC, early-onset sepsis or late onset sepsis: GA <33 weeks*

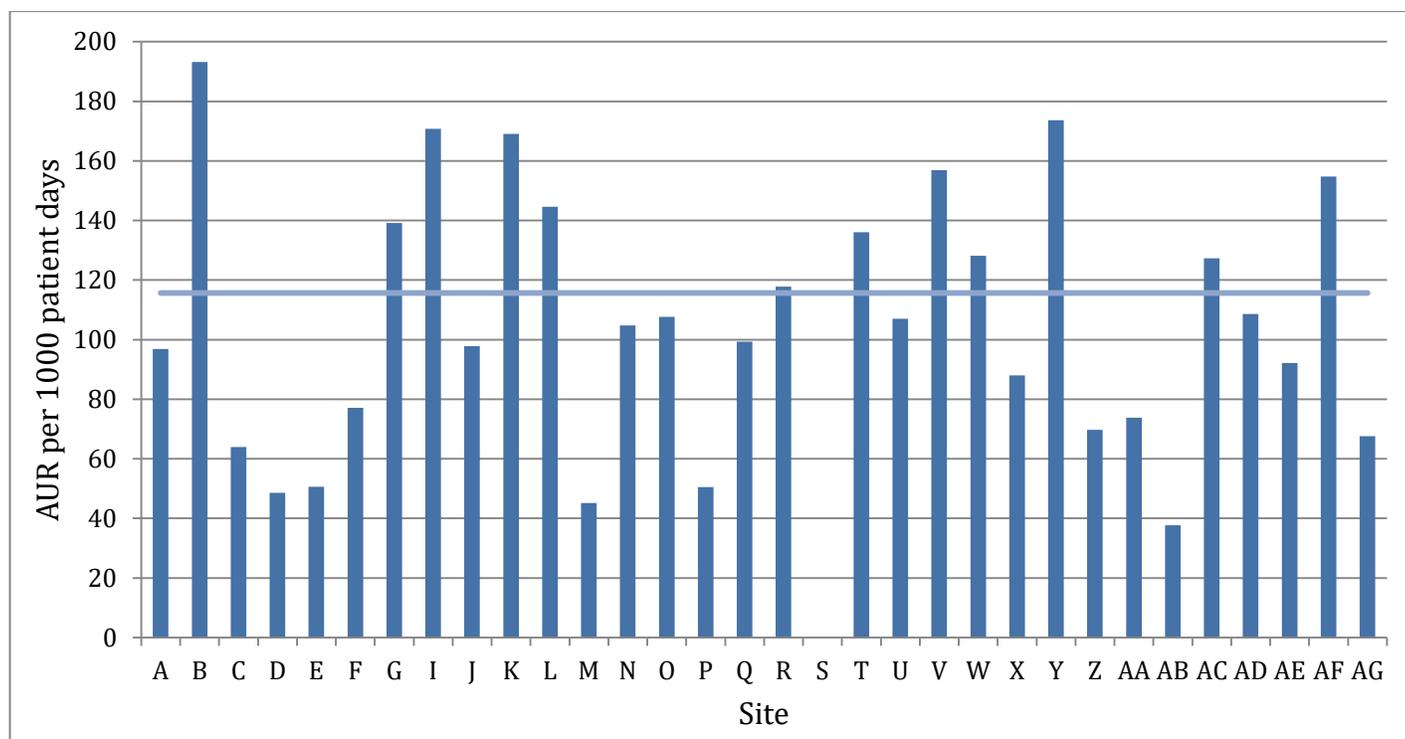


Site	Days of antimicrobial use per 1000 patient days	Site	Days of antimicrobial use per 1000 patient days	Site	Days of antimicrobial use per 1000 patient days
A	87.7	L	157.8	W	105.8
B	146.5	M	56.3	X	41.7
C	50.1	N	110.7	Y	163.1
D	37.8	O	90.5	Z	68.9
E	33.3	P	47.9	AA	67.1
F	59.7	Q	77.1	AB	32.0
G	125.4	R	87.7	AC	128.8
H	236.4	S	31.3	AD	87.9
I	173.8	T	125.7	AE	53.8
J	98.2	U	111.5	AF	144.8
K	110.8	V	259.0	AG	64.4
				CNN	102.8

*Denominators were based on neonates born < 33 weeks' GA without major congenital anomaly who did not develop early-onset sepsis, late-onset sepsis or necrotising enterocolitis.

Note: Prophylactic administration of trimethoprim or amoxicillin for the prevention of urinary tract infections with a suspected renal anomaly was not included.

Presentation #41
Days of antimicrobial use per 1000 patient days among neonates who did not develop NEC, early-onset sepsis or late onset sepsis: GA <29 weeks*



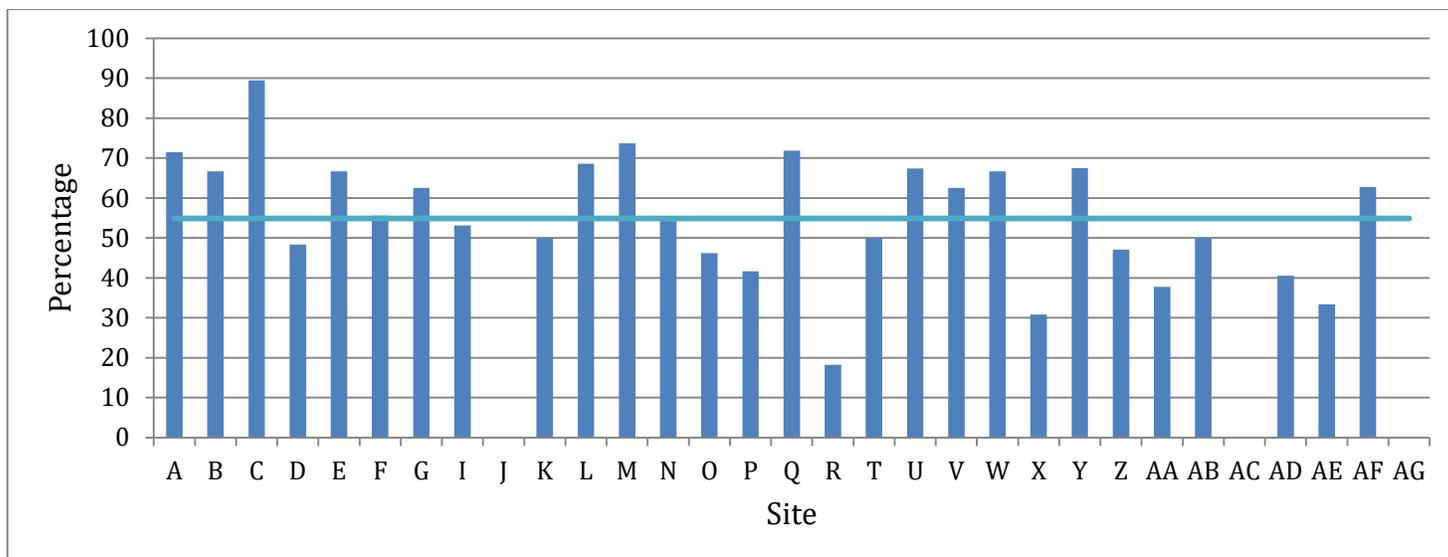
Site	Days of antimicrobial use per 1000 patient days	Site	Days of antimicrobial use per 1000 patient days	Site	Days of antimicrobial use per 1000 patient days
A	96.8	M	45.2	X	88.0
B	193.2	N	104.8	Y	173.7
C	63.9	O	107.6	Z	69.7
D	48.6	P	50.5	AA	73.8
E	50.6	Q	99.3	AB	37.7
F	77.1	R	117.8	AC	127.3
G	139.2	S	0.0	AD	108.6
I	170.7	T	136.1	AE	92.2
J	97.9	U	107.0	AF	154.7
K	169.1	V	156.9	AG	67.6
L	144.6	W	128.2	CNN	115.7

*Denominators were based on neonates born < 29 weeks' GA without major congenital anomaly who did not develop early-onset sepsis, late-onset sepsis or necrotising enterocolitis.

Note: Site H does not have any neonates with GA < 29.

Note: Prophylactic administration of trimethoprim or amoxicillin for the prevention of urinary tract infections with a suspected renal anomaly was not included.

Presentation #42
Rate of treatment[#] for patent ductus arteriosus (PDA): GA<29 weeks who had PDA*:
Site specific crude rates



Site	Treatment [#] for PDA among neonates who had PDA (%)	Site	Treatment [#] for PDA among neonates who had PDA (%)
A	71.4	R	18.2
B	66.7	T	50.0
C	89.5	U	67.4
D	48.3	V	62.5
E	66.7	W	66.7
F	55.6	X	30.8
G	62.5	Y	67.4
I	53.1	Z	47.1
J	0.0	AA	37.7
K	50.0	AB	50.0
L	68.6	AC	0.0
M	73.7	AD	40.5
N	54.2	AE	33.3
O	46.2	AF	62.8
P	41.7	AG	0.0
Q	71.9	CNN	54.9

Total number of neonates who had PDA (GA<29) = 1 027

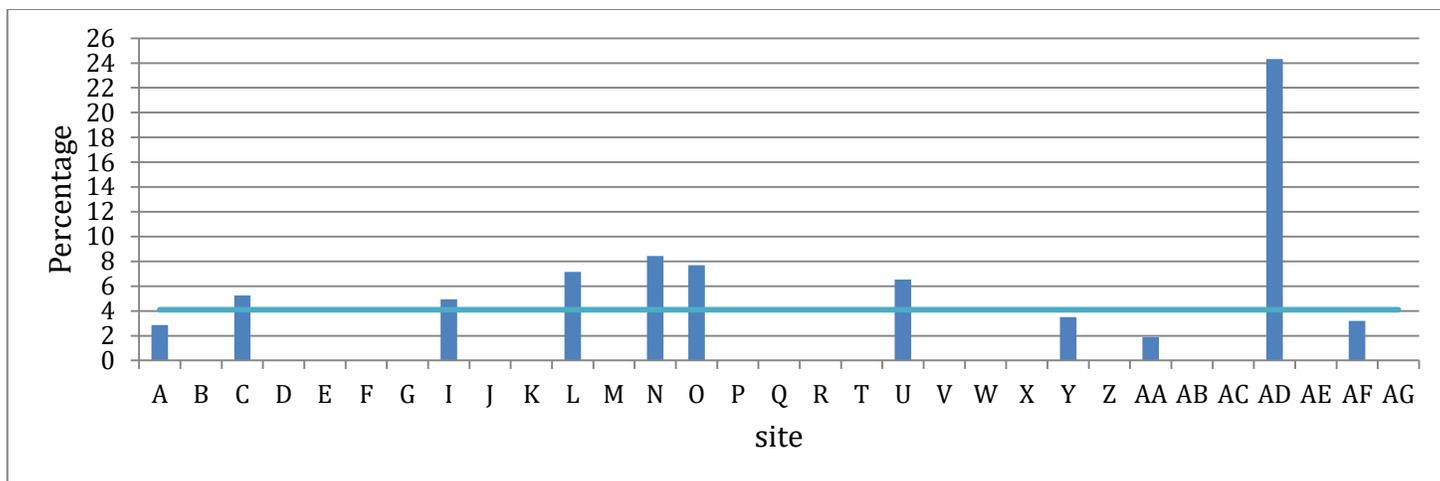
*PDA diagnosis is based on clinical suspicion and/or echocardiography findings.

#Treatment of PDA includes any of indomethacin, ibuprofen, acetaminophen, or ligation.

The percentage of neonates with treated PDA was attributed to the site where the neonate was first admitted.

Note: Sites H and S do not have any neonates with GA < 29 who had PDA.

Presentation #43
Surgical or device patent ductus arteriosus (PDA) closure rate: GA<29 weeks who had PDA: Site specific crude rates



Site	Surgical ligation for PDA among neonates who had PDA (%)	Site	Surgical ligation for PDA among neonates who had PDA (%)
A	2.9	R	0.0
B	0.0	T	0.0
C	5.3	U	6.5
D	0.0	V	0.0
E	0.0	W	0.0
F	0.0	X	0.0
G	0.0	Y	3.5
I	4.9	Z	0.0
J	0.0	AA	1.9
K	0.0	AB	0.0
L	7.1	AC	0.0
M	0.0	AD	24.3
N	8.4	AE	0.0
O	7.7	AF	3.2
P	0.0	AG	0.0
Q	0.0	CNN	4.1

Total number of neonates who had PDA (GA<29) = 1 027

Note: Sites H and S do not have any neonates with GA < 29 who had PDA.

The percentage of neonates with treated PDA was attributed to the site where the neonate was first admitted.

Presentation #44a
IVH grade 3 or 4 or PVL: GA<33 weeks: Adjusted standardized ratios by site

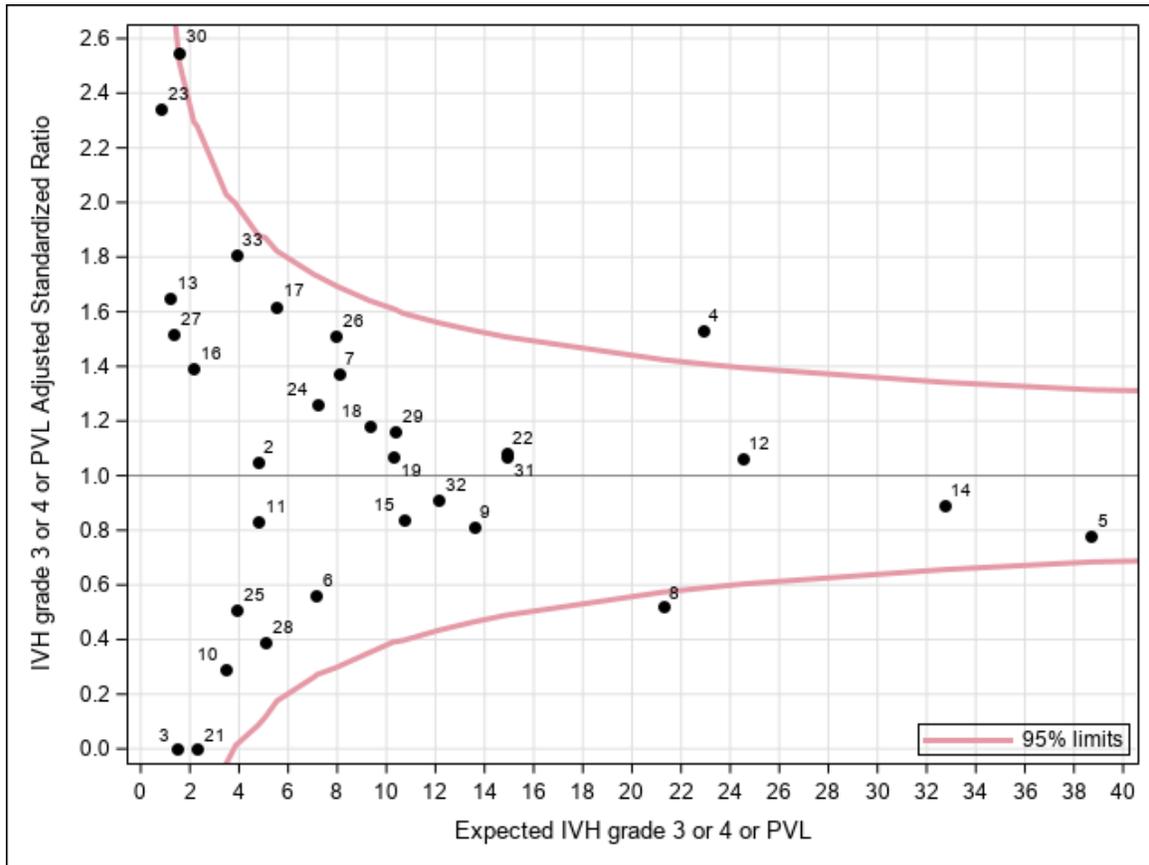
Site	Total number of neonates	Number of neonates with available data	Number of neonates with IVH G3/4 or PVL	Adjusted# expected number of neonates with IVH G3/4 or PVL	Adjusted# standardized ratio	95% confidence interval for adjusted standardized ratio	
2	110	104	5	4.8	1.0	0.3	2.4
3	19	16	0	1.5	0.0	.	2.5
4	301	212	35	22.9	1.5	1.1	2.1
5	365	320	30	38.7	0.8	0.5	1.1
6	83	82	4	7.1	0.6	0.2	1.4
7	147	122	11	8.0	1.4	0.7	2.4
8	318	285	11	21.3	0.5	0.3	0.9
9	161	134	11	13.6	0.8	0.4	1.5
10	50	43	1	3.5	0.3	0.0	1.6
11	85	57	4	4.8	0.8	0.2	2.1
12	298	230	26	24.5	1.1	0.7	1.6
13	25	21	2	1.2	1.6	0.2	5.9
14	362	321	29	32.7	0.9	0.6	1.3
15	158	135	9	10.7	0.8	0.4	1.6
16	65	53	3	2.2	1.4	0.3	4.1
17	102	75	9	5.5	1.6	0.7	3.1
18	142	112	11	9.3	1.2	0.6	2.1
19	134	109	11	10.3	1.1	0.5	1.9
21	47	38	0	2.3	0.0	.	1.6
22	172	138	16	14.9	1.1	0.6	1.7
23	18	13	2	0.9	2.3	0.3	8.5
24	120	99	9	7.2	1.3	0.6	2.4
25	76	60	2	3.9	0.5	0.1	1.9
26	143	129	12	8.0	1.5	0.8	2.6
27	30	25	2	1.3	1.5	0.2	5.5
28	84	68	2	5.1	0.4	0.0	1.4
29	120	103	12	10.3	1.2	0.6	2.0
30	28	24	4	1.6	2.6	0.7	6.5
31	188	172	16	14.9	1.1	0.6	1.7
32	182	152	11	12.1	0.9	0.5	1.6
33	87	75	7	3.9	1.8	0.7	3.7

Numeric site codes were used in Presentations 44a-d and they may not correspond to other presentations in this report. Neonates with major congenital anomalies are excluded.

The prediction model was adjusted for GA, SGA, sex, and SNAPII > 20.

Note: Sites 1 and 20 were not included in this analysis due to small number of eligible neonates in this category.

Presentation #44b
IVH grade 3 or 4 or PVL: GA<33 weeks: Adjusted standardized ratios by site



Explanation for Presentation 44a

- Column 1: Numeric site codes
- Column 2: Total number of neonates at each site (<33 weeks GA and no major anomaly)
- Column 3: Number of eligible neonates at each site (<33 weeks GA and no major anomaly) who were actually used to fit the model
- Column 4: Number of neonates with outcome of interest among those eligible neonates
- Column 5: Expected number of neonates with outcome of interest after adjustment for GA, SGA, sex, and SNAPII > 20
- Column 6: Adjusted standardized ratio calculated based on observed IVH or PVL/expected IVH or PVL
- Columns 7 and 8: 95% CI around the adjusted standardized ratio for the outcome

Explanation for Presentation 44b

- X-axis: Expected number of neonates with outcome (value from Column 4 of previous presentation)
- Y-axis: Adjusted standardized ratio (value from Column 5 of previous presentation)
- Dark points with numerical notation: Site and its location matching x and y axis values
- Red funnel shaped lines: 95% confidence limits based on entire network information.
- Sites outside of red 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.

Presentation #44c
IVH grade 3 or 4 or PVL: GA<29 weeks: Adjusted standardized ratios by site

Site	Total number of neonates	Number of neonates with available data	Number of neonates with IVH G3/4 or PVL	Adjusted# expected number of neonates with IVH G3/4 or PVL	Adjusted# standardized ratio	95% confidence interval for adjusted standardized ratio	
2	27	27	4	2.1	1.9	0.5	4.8
3	8	8	0	1.2	0.0	#DIV/0!	3.2
4	122	121	31	19.1	1.6	1.1	2.3
5	214	208	27	34.2	0.8	0.5	1.1
6	34	34	3	5.5	0.5	0.1	1.6
7	37	37	9	5.2	1.7	0.8	3.3
8	122	116	9	15.7	0.6	0.3	1.1
9	71	67	8	11.6	0.7	0.3	1.4
10	13	12	0	2.4	0.0	.	1.5
11	23	22	3	3.3	0.9	0.2	2.6
12	115	107	24	20.2	1.2	0.8	1.8
13	9	7	2	0.6	3.3	0.4	11.8
14	191	190	22	28.5	0.8	0.5	1.2
15	58	56	8	7.9	1.0	0.4	2.0
16	12	12	1	1.1	0.9	0.0	5.0
17	32	29	5	4.0	1.2	0.4	2.9
18	55	50	8	7.2	1.1	0.5	2.2
19	55	53	6	8.3	0.7	0.3	1.6
21	16	16	0	1.5	0.0	.	2.4
22	81	78	12	12.7	0.9	0.5	1.7
24	41	40	6	5.2	1.2	0.4	2.5
25	18	18	2	2.6	0.8	0.1	2.8
26	43	43	7	5.4	1.3	0.5	2.7
27	6	6	1	0.7	1.5	0.0	8.1
28	29	29	2	3.7	0.5	0.1	2.0
29	43	42	11	8.0	1.4	0.7	2.5
30	9	8	2	1.0	2.0	0.2	7.2
31	79	77	14	12.0	1.2	0.6	2.0
32	66	64	10	9.2	1.1	0.5	2.0
33	21	21	6	2.3	2.7	1.0	5.8

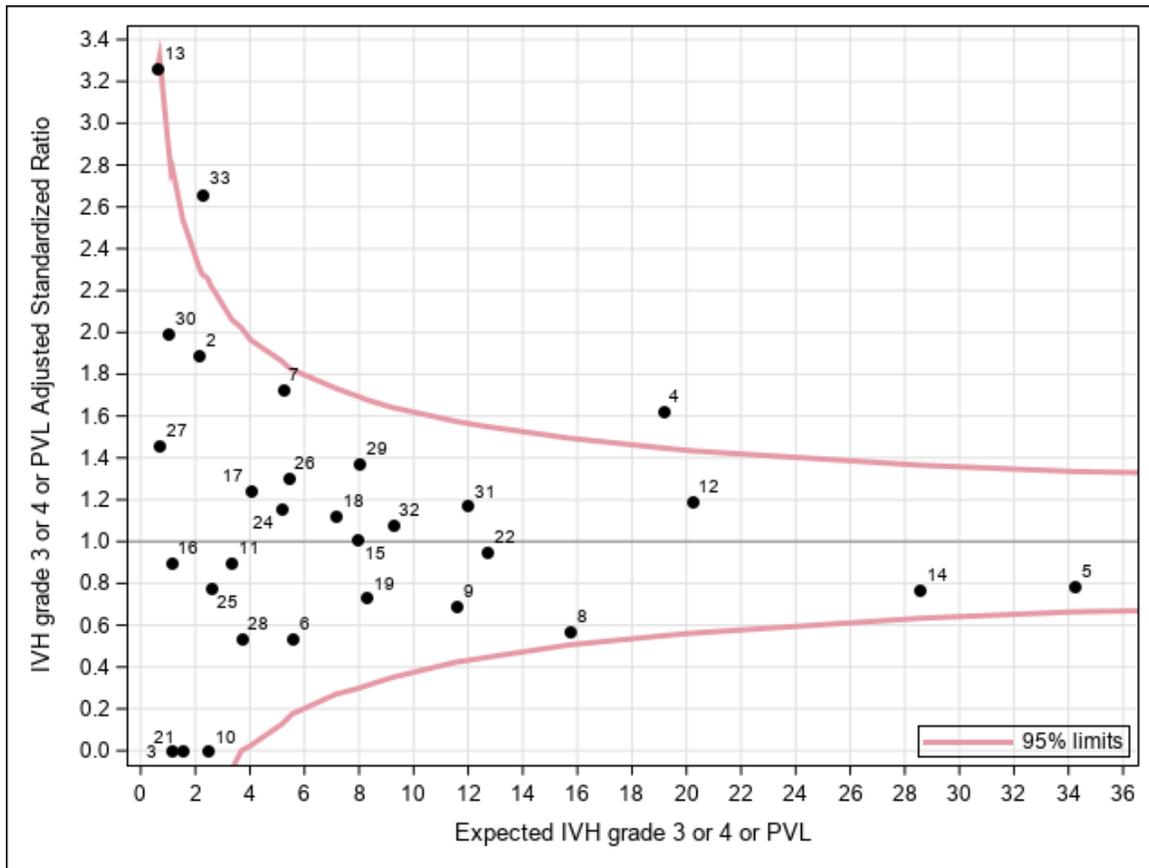
Numeric site codes were used in Presentations 44a-d and they may not correspond to other presentations in this report.

Neonates with major congenital anomalies are excluded.

##The prediction model was adjusted for GA, SGA, sex, and SNAPII > 20.

Note: Sites 1, 20, 23 were excluded from the analysis due to the small number of eligible neonates.

Presentation #44d
IVH grade 3 or 4 or PVL: GA<29 weeks: Adjusted standardized ratios by site



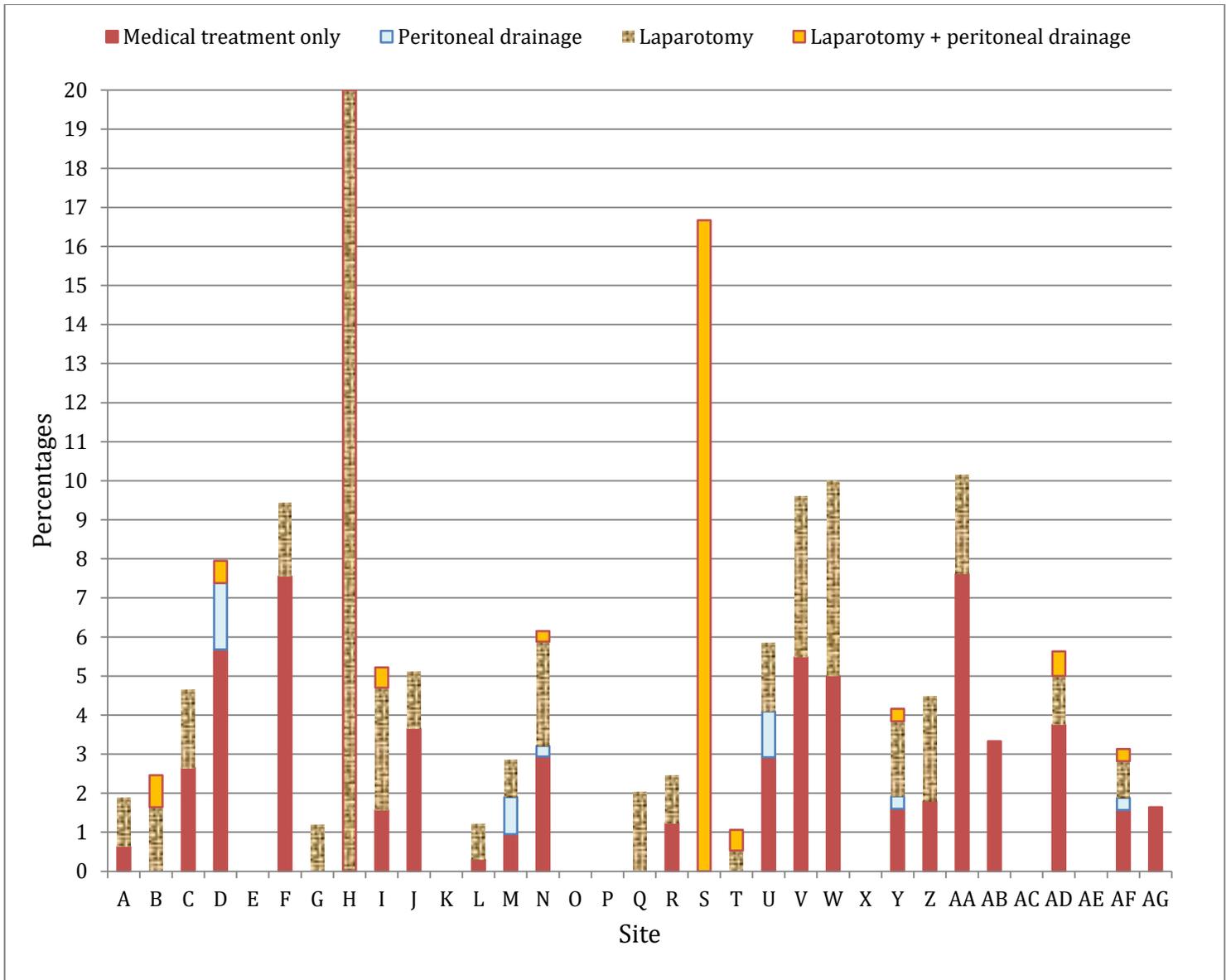
Explanation for Presentation 44c

- Column 1: Numeric site codes
- Column 2: Total number of neonates at each site (<29 weeks GA and no major anomaly)
- Column 3: Number of eligible neonates at each site (<29 weeks GA and no major anomaly) who were actually used to fit the model
- Column 4: Number of neonates with outcome of interest among those eligible neonates
- Column 5: Expected number of neonates with outcome of interest after adjustment for GA, SGA, sex, and SNAPII > 20
- Column 6: Adjusted standardized ratio calculated based on observed IVH or PVL/expected IVH or PVL
- Columns 7 and 8: 95% CI around the adjusted standardized ratio for the outcome

Explanation for Presentation 44d

- X-axis: Expected number of neonates with outcome (value from Column 4 of previous presentation)
- Y-axis: Adjusted standardized ratio (value from Column 5 of previous presentation)
- Dark points with numerical notation: Site and its location matching x and y axis values
- Red funnel shaped lines: 95% confidence limits based on entire network information.
- Sites outside of red 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.

Presentation #45
 Necrotizing enterocolitis (NEC) rates by treatment strategies: GA<33 weeks:
 Site specific crude rates



Presentation #45 (continued)
Necrotizing enterocolitis (NEC) treatment rates: GA<33 weeks:
Site specific crude rates

Site	Treatment (%)				NEC
	Medical treatment only	Peritoneal drainage	Laparotomy	Peritoneal drainage + Laparotomy	
A	0.6	0.0	1.3	0.0	1.9
B	0.0	0.0	1.6	0.8	2.5
C	2.7	0.0	2.0	0.0	4.6
D	5.7	1.7	0.0	0.6	8.0
E	0.0	0.0	0.0	0.0	0.0
F	7.6	0.0	1.9	0.0	9.4
G	0.0	0.0	1.2	0.0	1.2
H	0.0	0.0	20.0	0.0	20.0
I	1.6	0.0	3.1	0.5	5.2
J	3.7	0.0	1.5	0.0	5.1
K	0.0	0.0	0.0	0.0	0.0
L	0.3	0.0	0.9	0.0	1.2
M	1.0	1.0	1.0	0.0	2.9
N	2.9	0.3	2.7	0.3	6.2
O	0.0	0.0	0.0	0.0	0.0
P	0.0	0.0	0.0	0.0	0.0
Q	0.0	0.0	2.0	0.0	2.0
R	1.2	0.0	1.2	0.0	2.5
S	0.0	0.0	0.0	16.7	16.7
T	0.0	0.0	0.5	0.5	1.1
U	2.9	1.2	1.8	0.0	5.8
V	5.5	0.0	4.1	0.0	9.6
W	5.0	0.0	5.0	0.0	10.0
X	0.0	0.0	0.0	0.0	0.0
Y	1.6	0.3	1.9	0.3	4.2
Z	1.8	0.0	2.7	0.0	4.5
AA	7.6	0.0	2.5	0.0	10.2
AB	3.3	0.0	0.0	0.0	3.3
AC	0.0	0.0	0.0	0.0	0.0
AD	3.8	0.0	1.3	0.6	5.6
AE	0.0	0.0	0.0	0.0	0.0
AF	1.6	0.3	0.9	0.3	3.1
AG	1.6	0.0	0.0	0.0	1.6
Total	2.0	0.2	1.6	0.2	4.0

COMMENTS: These analyses include 4 405 neonates from 33 sites.

Presentation #46a

Necrotizing enterocolitis (NEC): GA<33 weeks: Adjusted standardized ratios by site

Site	Number of neonates	Number of neonates with NEC	Adjusted# expected number of neonates with NEC	Adjusted# standardized ratio	95% confidence interval for adjusted standardized ratio	
2	110	4	2.6	1.5	0.4	3.9
3	19	2	0.7	2.7	0.3	9.9
4	301	9	11.9	0.8	0.3	1.4
5	365	21	19.9	1.1	0.7	1.6
6	83	1	3.3	0.3	0.0	1.7
7	147	6	4.2	1.4	0.5	3.1
8	318	3	12.1	0.2	0.0	0.7
9	161	9	7.2	1.2	0.6	2.4
10	50	5	1.7	2.9	0.9	6.8
11	85	0	2.7	0.0	.	1.3
12	298	11	13.0	0.8	0.4	1.5
13	25	0	0.7	0.0	.	4.9
14	362	20	18.1	1.1	0.7	1.7
15	158	3	6.1	0.5	0.1	1.4
16	65	5	1.5	3.3	1.1	7.8
17	102	3	3.4	0.9	0.2	2.6
18	142	9	5.4	1.7	0.8	3.1
19	134	7	4.8	1.5	0.6	3.0
21	47	0	1.5	0.0	.	2.5
22	172	14	7.9	1.8	1.0	3.0
23	18	0	0.4	0.0	.	8.3
24	120	2	4.1	0.5	0.1	1.7
25	76	2	2.1	0.9	0.1	3.4
26	143	3	4.3	0.7	0.1	2.0
27	30	1	0.7	1.5	0.0	8.1
28	84	0	2.8	0.0	.	1.3
29	120	3	4.6	0.6	0.1	1.9
30	28	0	0.9	0.0	.	4.0
31	188	19	7.4	2.6	1.5	4.0
32	182	2	7.0	0.3	0.0	1.0
33	87	0	2.3	0.0	.	1.6

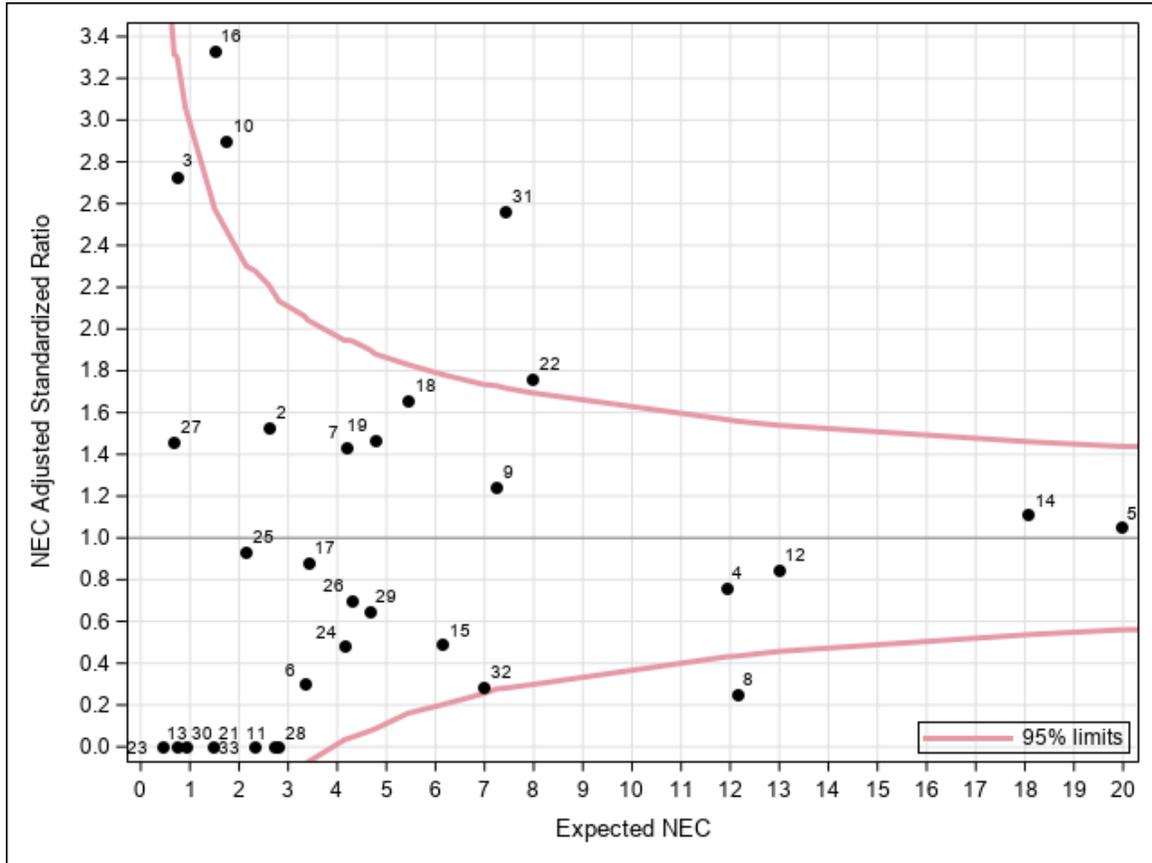
Numeric site codes were used in Presentations 46a-d and they may not correspond to other presentations in this report. Neonates with major congenital anomalies are excluded.

Variables adjusted for in the prediction model: GA, SGA, sex, and SNAPII > 20

Note: Sites 1 and 20 were not included in this analysis due to small number of eligible neonates in this category.

Presentation #46b

Necrotizing enterocolitis (NEC): GA<33 weeks: Adjusted standardized ratios by site



Explanation for Presentation 46a

- Column 1: Numeric site codes
- Column 2: Number of eligible neonates at each site (<33 weeks GA and no major anomaly)
- Column 3: Number of neonates with outcome of interest among those eligible neonates
- Column 4: Expected number of neonates with outcome of interest after adjustment for GA, SGA, sex, and SNAPII > 20
- Column 5: Adjusted standardized ratio calculated based on observed NEC/expected NEC
- Columns 6 and 7: 95% CI around the adjusted standardized ratio for the outcome

Explanation for Presentation 46b

- X-axis: Expected number of neonates with outcome (value from Column 4 of previous presentation)
- Y-axis: Adjusted standardized ratio (value from Column 5 of previous presentation)
- Dark points with numerical notation: Site and its location matching x and y axis values
- Red funnel shaped lines: 95% confidence limits based on entire network information.
- Sites outside of red 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.

Presentation #46c
NEC: GA<29 weeks: Adjusted standardized ratios by site

Site	Number of neonates	Number of neonates with NEC	Adjusted# expected number of neonates with NEC	Adjusted# standardized ratio	95% confidence interval for adjusted standardized ratio	
2	27	2	1.4	1.5	0.2	5.3
3	8	1	0.6	1.7	0.0	9.5
4	122	7	9.1	0.8	0.3	1.6
5	214	19	17.0	1.1	0.7	1.7
6	34	1	2.5	0.4	0.0	2.2
7	37	1	2.5	0.4	0.0	2.2
8	122	2	8.8	0.2	0.0	0.8
9	71	7	5.7	1.2	0.5	2.5
10	13	4	1.1	3.6	1.0	9.2
11	23	0	1.8	0.0	.	2.1
12	115	10	9.7	1.0	0.5	1.9
13	9	0	0.5	0.0	.	7.4
14	191	16	15.1	1.1	0.6	1.7
15	58	2	4.3	0.5	0.1	1.7
16	12	2	0.6	3.1	0.3	11.1
17	32	0	2.4	0.0	.	1.5
18	55	5	4.0	1.3	0.4	2.9
19	55	4	3.8	1.1	0.3	2.7
21	16	0	1.0	0.0	.	3.5
22	81	12	6.4	1.9	1.0	3.3
24	41	2	2.9	0.7	0.1	2.4
25	18	2	1.3	1.5	0.2	5.4
26	43	3	2.9	1.0	0.2	3.0
27	6	1	0.4	2.8	0.0	15.8
28	29	0	1.9	0.0	.	2.0
29	43	3	3.3	0.9	0.2	2.6
30	9	0	0.7	0.0	.	5.6
31	79	16	5.8	2.7	1.6	4.4
32	66	2	4.9	0.4	0.0	1.5
33	21	0	1.3	0.0	.	2.8

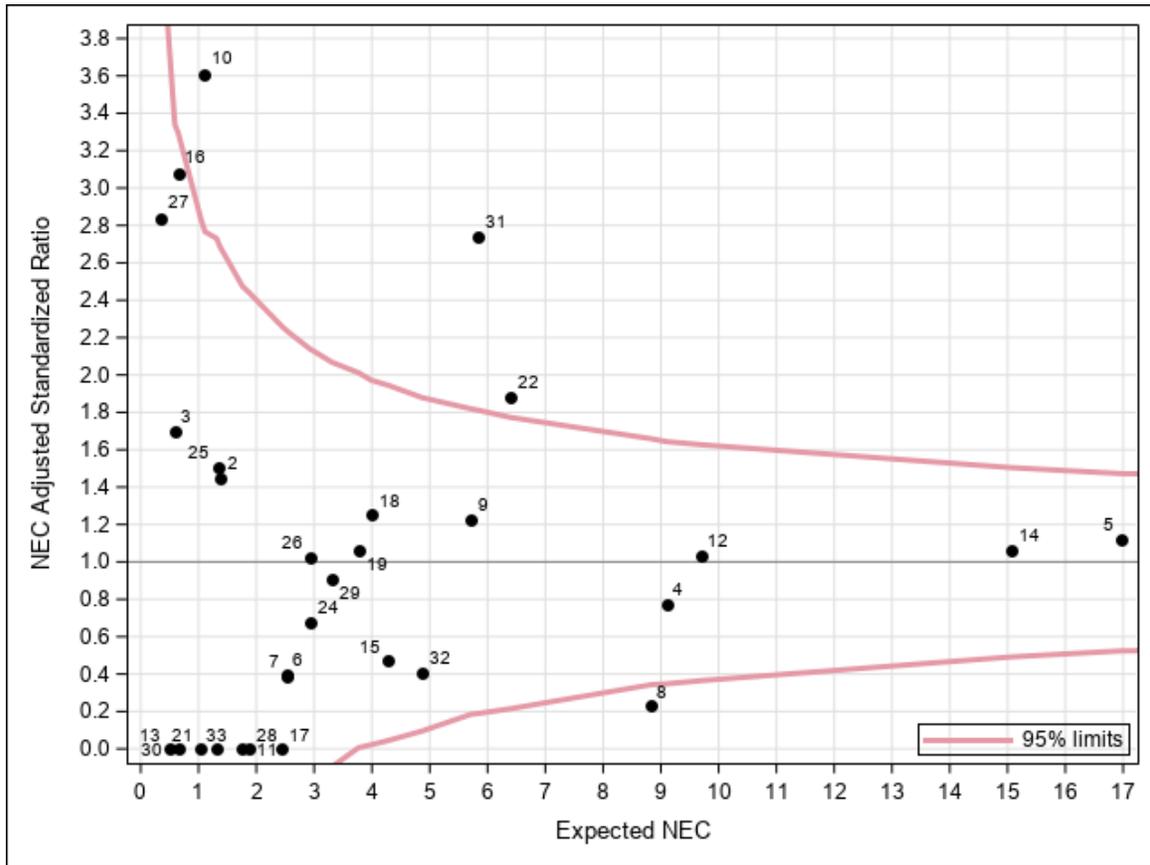
Numeric site codes were used in Presentations 46a-d and they may not correspond to other presentations in this report.

Neonates with major congenital anomalies are excluded.

##The prediction model was adjusted for GA, SGA, sex, and SNAPII > 20.

Note: Sites 1, 20, 23 were excluded from the analysis due to the small number of eligible neonates.

Presentation #46d
NEC: GA<29 weeks: Adjusted standardized ratios by site



Explanation for Presentation 46c

- Column 1: Numeric site codes
- Column 2: Number of eligible neonates at each site (<29 weeks GA and no major anomaly)
- Column 3: Number of neonates with outcome of interest among those eligible neonates
- Column 4: Expected number of neonates with outcome of interest after adjustment for GA, SGA, sex, and SNAPII > 20
- Column 5: Adjusted standardized ratio calculated based on observed NEC/expected NEC
- Columns 6 and 7: 95% CI around the adjusted standardized ratio for the outcome

Explanation for Presentation 46d

- X-axis: Expected number of neonates with outcome (value from Column 4 of previous presentation)
- Y-axis: Adjusted standardized ratio (value from Column 5 of previous presentation)
- Dark points with numerical notation: Site and its location matching x and y axis values
- Red funnel shaped lines: 95% confidence limits based on entire network information.
- Sites outside of red 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.

Presentation #47
Chronic lung disease (CLD): GA<33 weeks: Site specific crude rates

	GA at birth										Overall rate of CLD	Overall rate of Mod-Sev CLD
	<25		25-26		27-28		29-30		31-32			
	Any CLD	Mod-Sev CLD	Any CLD	Mod-Sev CLD	Any CLD	Mod-Sev CLD	Any CLD	Mod-Sev CLD	Any CLD	Mod-Sev CLD		
A	100.0	100.0	71.4	57.1	37.5	37.5	11.9	9.5	10.5	7.0	25.8	22.5
B	100.0	40.0	76.9	53.9	68.4	42.1	36.0	20.0	11.3	3.8	37.4	20.9
C	100.0	100.0	76.9	69.2	35.3	35.3	11.6	11.6	11.4	10.0	23.0	21.6
D	95.2	90.0	63.2	44.4	58.6	41.4	25.0	12.5	10.0	4.0	40.3	28.7
E	50.0	0.0	75.0	25.0	35.7	7.1	13.3	13.3	0.0	0.0	22.1	9.3
F	100.0	100.0	40.0	20.0	0.0	0.0	18.8	12.5	14.3	9.5	22.9	16.7
G	83.3	83.3	69.2	69.2	33.3	33.3	17.4	17.4	0.0	0.0	27.4	27.4
H	NA	NA	NA	NA	NA	NA	100.0	100.0	33.3	33.3	50.0	50.0
I	92.1	92.1	60.7	50.9	25.3	18.4	50.7	49.3	20.4	18.6	41.8	37.8
J	100.0	100.0	66.7	66.7	37.0	37.0	12.9	12.9	4.0	4.0	26.5	26.5
K	NA	NA	100.0	100.0	60.0	40.0	20.0	20.0	0.0	0.0	24.0	20.0
L	100.0	100.0	92.3	92.3	65.0	61.7	34.1	28.4	16.2	16.2	43.9	41.7
M	80.0	60.0	90.0	70.0	61.5	50.0	31.6	21.1	9.6	5.8	32.3	23.5
N	56.3	31.3	32.7	30.8	46.5	40.0	25.3	22.9	5.9	4.5	33.0	26.6
O	100.0	50.0	90.0	70.0	25.0	25.0	26.1	17.4	2.7	2.7	25.0	18.8
P	100.0	100.0	50.0	50.0	50.0	42.9	25.0	10.0	10.0	0.0	27.7	19.1
Q	100.0	100.0	81.8	81.8	45.8	45.8	32.3	32.3	24.3	23.2	38.2	37.8
R	100.0	100.0	62.5	62.5	66.7	66.7	20.0	20.0	9.8	7.3	26.3	25.0
S	NA	NA	NA	NA	NA	NA	0.0	0.0	33.3	0.0	20.0	0.0
T	100.0	83.3	80.0	40.0	40.0	25.7	17.3	15.4	7.5	4.5	27.3	19.3
U	83.3	76.5	65.0	60.0	24.0	24.0	17.1	17.1	8.5	8.5	28.7	26.9
V	NA	NA	83.3	66.7	80.0	80.0	70.6	70.6	27.0	25.0	47.7	45.3
W	NA	NA	40.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1	11.1
X	NA	NA	100.0	20.0	58.3	33.3	21.7	8.7	28.9	13.3	35.3	15.3
Y	94.7	89.5	59.1	54.6	52.0	51.0	22.2	22.2	14.5	14.5	32.0	31.1
Z	NA	NA	100.0	80.0	65.0	65.0	18.4	15.8	17.8	15.9	30.6	28.0
AA	90.0	60.0	79.0	57.9	54.3	42.9	24.1	13.8	12.4	11.1	34.5	25.9
AB	NA	NA	50.0	50.0	50.0	0.0	8.3	8.3	18.2	9.1	20.7	10.3
AC	NA	NA	NA	NA	0.0	0.0	16.7	0.0	12.5	12.5	13.3	6.7
AD	100.0	100.0	100.0	80.0	86.7	50.0	72.5	27.5	80.0	7.3	81.6	31.2
AE	NA	NA	NA	NA	20.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0
AF	88.9	88.9	68.2	65.9	48.2	44.4	36.8	36.8	14.2	13.3	37.5	36.2
AG	100.0	100.0	69.2	69.2	23.8	23.8	16.7	16.7	4.0	4.0	20.5	20.5
Overall	86.6	76.5	68.0	58.0	46.6	38.7	27.5	22.6	15.0	10.4	34.5	28.2

Total number of neonates = 4 118

287 neonates were excluded due to death prior to week 36 or first admission after week 36

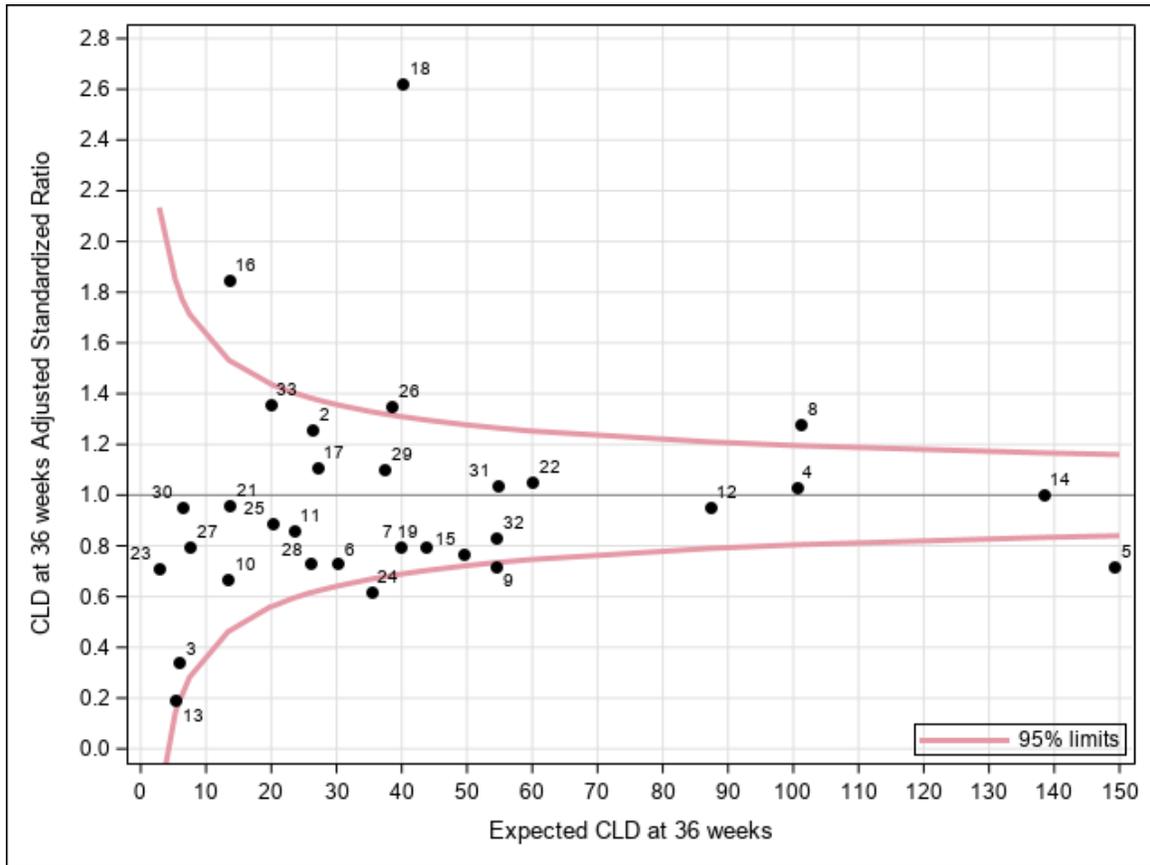
NA = Data not available

Presentation #48a
Chronic lung disease (CLD): GA <33 weeks: Adjusted standardized ratios by site

Site	Total number of neonates	Number of neonates with available data	Number of neonates with CLD at 36w or discharge	Adjusted# expected number of CLD at 36w or discharge	Adjusted# standardized ratio	95% confidence interval for adjusted standardized ratio	
2	110	106	33	26.2	1.3	0.9	1.8
3	19	17	2	5.9	0.3	0.0	1.2
4	301	290	103	100.5	1.0	0.8	1.2
5	365	343	108	149.3	0.7	0.6	0.9
6	83	82	22	30.2	0.7	0.5	1.1
7	147	144	32	39.8	0.8	0.6	1.1
8	318	304	130	101.2	1.3	1.1	1.5
9	161	148	39	54.3	0.7	0.5	1.0
10	50	45	9	13.4	0.7	0.3	1.3
11	85	79	20	23.4	0.9	0.5	1.3
12	298	267	83	87.2	1.0	0.8	1.2
13	25	21	1	5.3	0.2	0.0	1.1
14	362	341	138	138.3	1.0	0.8	1.2
15	158	150	38	49.5	0.8	0.5	1.1
16	65	58	25	13.5	1.9	1.2	2.7
17	102	96	30	27.0	1.1	0.8	1.6
18	142	129	105	40.0	2.6	2.1	3.2
19	134	129	35	43.7	0.8	0.6	1.1
21	47	46	13	13.6	1.0	0.5	1.6
22	172	155	63	59.8	1.1	0.8	1.3
23	18	15	2	2.8	0.7	0.1	2.6
24	120	115	22	35.3	0.6	0.4	0.9
25	76	75	18	20.3	0.9	0.5	1.4
26	143	139	52	38.6	1.3	1.0	1.8
27	30	29	6	7.5	0.8	0.3	1.7
28	84	81	19	25.9	0.7	0.4	1.1
29	120	113	41	37.2	1.1	0.8	1.5
30	28	24	6	6.3	1.0	0.3	2.1
31	188	166	57	54.7	1.0	0.8	1.4
32	182	170	45	54.5	0.8	0.6	1.1
33	87	81	27	19.8	1.4	0.9	2.0

Numeric site codes were used in Presentations 48a-d and they may not correspond to other presentations in this report. Neonates with major congenital anomalies and death before 36 weeks were excluded. #The prediction model was adjusted for GA, SGA, sex, and SNAPII > 20. **Note:** Site 1 and 20 were not included in this analysis due to small number of eligible neonates in this category.

Presentation #48b
Chronic lung disease (CLD): GA <33 weeks: Adjusted standardized ratios by site



Explanation for Presentation 48a

- Column 1: Numeric site codes
- Column 2: Total number of neonates at each site (<33 weeks GA and no major anomaly)
- Column 3: Number of eligible neonates at each site (<33 weeks GA and no major anomaly) who were actually used to fit the model
- Column 4: Number of neonates with outcome of interest among those eligible neonates
- Column 5: Expected number of neonates with outcome of interest after adjustment for GA, SGA, sex, and SNAPII > 20
- Column 6: Adjusted standardized ratio calculated based on observed CLD/expected CLD
- Columns 7 and 8: 95% CI around the adjusted standardized ratio for the outcome

Explanation for Presentation 48b

- X-axis: Expected number of neonates with outcome (value from Column 4 of previous presentation)
- Y-axis: Adjusted standardized ratio (value from Column 5 of previous presentation)
- Dark points with numerical notation: Site and its location matching x and y axis values
- Red funnel shaped lines: 95% confidence limits based on entire network information.
- Sites outside of red 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.

Note: Deaths before 36 weeks were excluded in the denominator.

Presentation #48c
Chronic lung disease (CLD): GA <29 weeks: Adjusted standardized ratios by site

Site	Total number of neonates	Number of neonates with available data	Number of neonates with CLD at 36w or discharge	Adjusted# expected number of neonates with CLD at 36w or discharge	Adjusted# standardized ratio	95% confidence interval for adjusted standardized ratio	
2	27	24	18	10.6	1.7	1.0	2.7
3	8	7	2	4.2	0.5	0.1	1.7
4	122	114	70	68.5	1.0	0.8	1.3
5	214	192	83	115.6	0.7	0.6	0.9
6	34	33	18	20.3	0.9	0.5	1.4
7	37	34	20	19.9	1.0	0.6	1.5
8	122	109	85	64.4	1.3	1.1	1.6
9	71	61	32	38.6	0.8	0.6	1.2
10	13	10	4	6.6	0.6	0.2	1.5
11	23	20	13	12.2	1.1	0.6	1.8
12	115	88	54	54.3	1.0	0.7	1.3
13	9	5	1	2.1	0.5	0.0	2.6
14	191	171	84	103.6	0.8	0.6	1.0
15	58	52	28	30.9	0.9	0.6	1.3
16	12	10	8	5.1	1.6	0.7	3.1
17	32	27	20	15.9	1.3	0.8	1.9
18	55	43	39	24.6	1.6	1.1	2.2
19	55	51	29	29.5	1.0	0.7	1.4
21	16	15	8	8.0	1.0	0.4	2.0
22	81	68	48	42.6	1.1	0.8	1.5
24	41	37	17	21.4	0.8	0.5	1.3
25	18	17	11	10.4	1.1	0.5	1.9
26	43	41	26	22.7	1.1	0.7	1.7
27	6	6	3	3.4	0.9	0.2	2.6
28	29	26	15	15.2	1.0	0.6	1.6
29	43	37	28	23.0	1.2	0.8	1.8
30	9	6	5	3.4	1.5	0.5	3.5
31	79	63	42	36.8	1.1	0.8	1.5
32	66	55	33	32.4	1.0	0.7	1.4
33	21	16	11	8.4	1.3	0.7	2.3

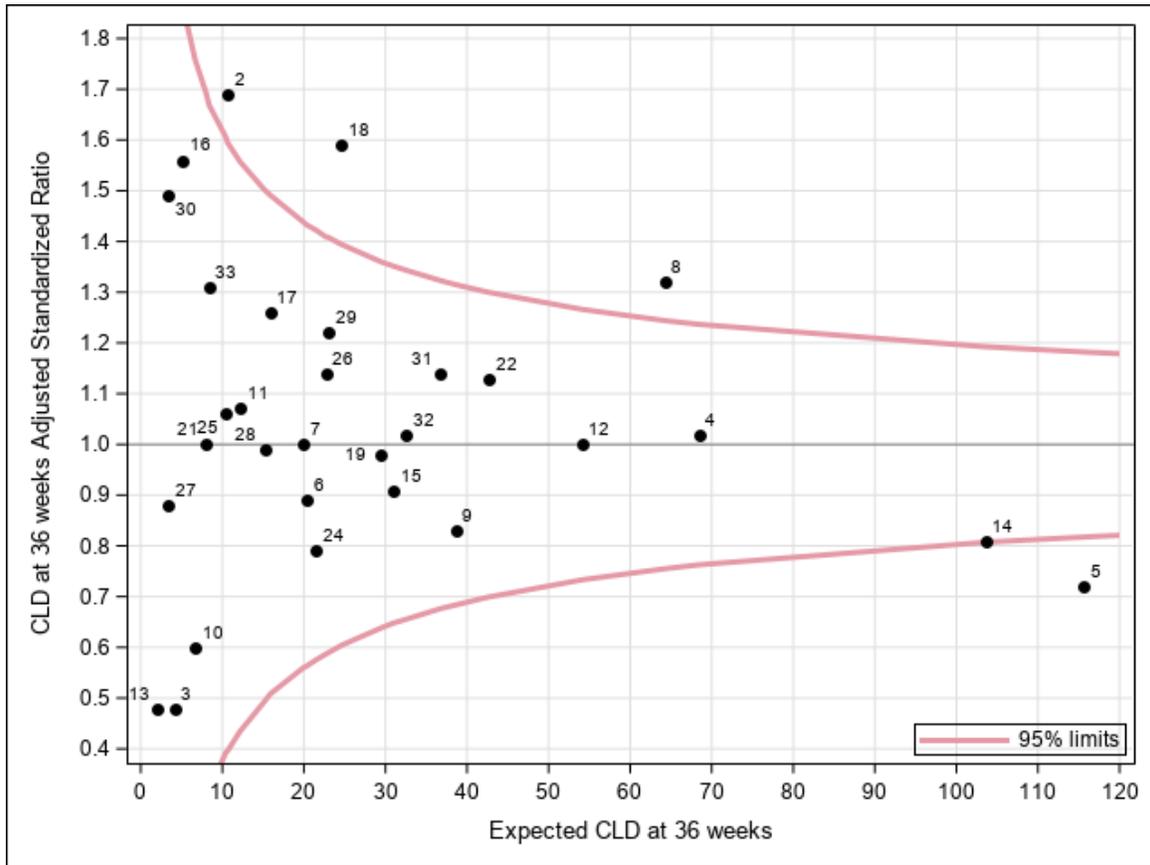
Numeric site codes were used in Presentations 48a-d and they may not correspond to other presentations in this report.

Neonates with major congenital anomalies and death before 36 weeks were excluded.

#The prediction model was adjusted for GA, SGA, sex, and SNAPII > 20.

Note: Sites 1, 20, 23 were excluded from the analysis due to the small number of eligible neonates.

Presentation #48d
Chronic lung disease (CLD): GA <29 weeks: Adjusted standardized ratios by site



Explanation for Presentation 48c

- Column 1: Numeric site codes
- Column 2: Total number of neonates at each site (<29 weeks GA and no major anomaly)
- Column 3: Number of eligible neonates at each site (<29 weeks GA and no major anomaly) who were actually used to fit the model
- Column 4: Number of neonates with outcome of interest among those eligible neonates
- Column 5: Expected number of neonates with outcome of interest after adjustment for GA, SGA, sex, and SNAPII > 20
- Column 6: Adjusted standardized ratio calculated based on observed CLD/expected CLD
- Columns 7 and 8: 95% CI around the adjusted standardized ratio for the outcome

Explanation for Presentation 48d

- X-axis: Expected number of neonates with outcome (value from Column 4 of previous presentation)
- Y-axis: Adjusted standardized ratio (value from Column 5 of previous presentation)
- Dark points with numerical notation: Site and its location matching x and y axis values
- Red funnel shaped lines: 95% confidence limits based on entire network information.
- Sites outside of red 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.

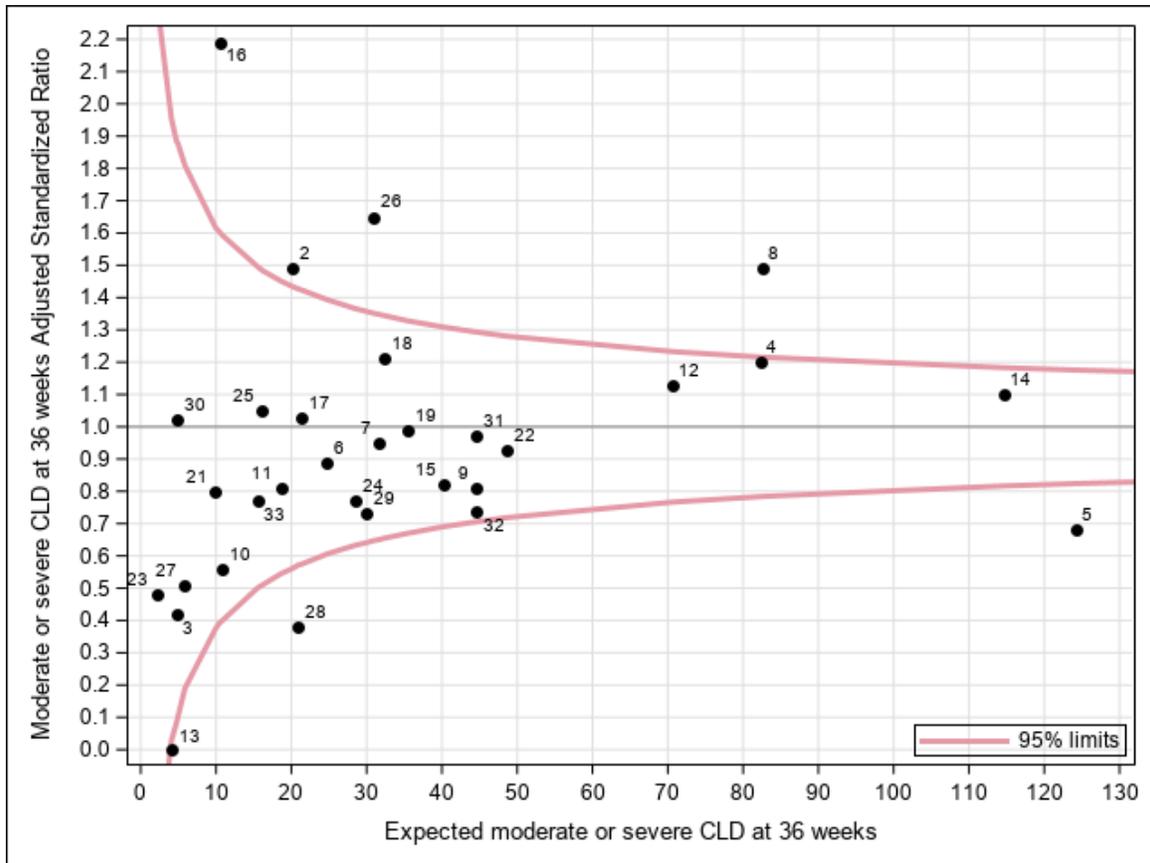
Note: Deaths before 36 weeks were excluded in the denominator.

Presentation #49a
Moderate or severe chronic lung disease (CLD): GA <33 weeks:
Adjusted standardized ratios by site

Site	Total number of neonates	Number of neonates with available data	Number of neonates with m/s CLD at 36w or discharge	Adjusted# expected number of m/s CLD at 36w or discharge	Adjusted# standardized ratio	95% confidence interval for adjusted standardized ratio	
2	110	105	30	20.2	1.5	1.0	2.1
3	19	17	2	4.8	0.4	0.0	1.5
4	301	290	99	82.3	1.2	1.0	1.5
5	365	341	85	124.2	0.7	0.5	0.8
6	83	82	22	24.8	0.9	0.6	1.3
7	147	144	30	31.7	0.9	0.6	1.4
8	318	304	123	82.7	1.5	1.2	1.8
9	161	147	36	44.5	0.8	0.6	1.1
10	50	45	6	10.8	0.6	0.2	1.2
11	85	79	15	18.6	0.8	0.5	1.3
12	298	266	80	70.7	1.1	0.9	1.4
13	25	21	0	4.1	0.0	.	0.9
14	362	340	126	114.7	1.1	0.9	1.3
15	158	150	33	40.3	0.8	0.6	1.1
16	65	57	23	10.5	2.2	1.4	3.3
17	102	95	22	21.3	1.0	0.6	1.6
18	142	129	39	32.3	1.2	0.9	1.7
19	134	129	35	35.4	1.0	0.7	1.4
21	47	41	8	9.9	0.8	0.3	1.6
22	172	153	45	48.5	0.9	0.7	1.2
23	18	15	1	2.1	0.5	0.0	2.7
24	120	115	22	28.5	0.8	0.5	1.2
25	76	75	17	16.2	1.1	0.6	1.7
26	143	138	51	31.0	1.6	1.2	2.2
27	30	29	3	5.9	0.5	0.1	1.5
28	84	81	8	20.9	0.4	0.2	0.8
29	120	113	22	30.1	0.7	0.5	1.1
30	28	24	5	4.9	1.0	0.3	2.4
31	188	166	43	44.5	1.0	0.7	1.3
32	182	170	33	44.5	0.7	0.5	1.0
33	87	81	12	15.5	0.8	0.4	1.4

Numeric site codes were used in Presentations 49a-d and they may not correspond to other presentations in this report. Neonates with major congenital anomalies and death before 36 weeks were excluded. #The prediction model was adjusted for GA, SGA, sex, and SNAP II > 20. **Note:** Site 1 and 20 were not included in this analysis due to small number of eligible neonates in this category.

Presentation #49b
Moderate or severe chronic lung disease (CLD): GA <33 weeks:
Adjusted standardized ratios by site



Explanation for Presentation 49a

- Column 1: Numeric site codes
- Column 2: Total number of neonates at each site (<33 weeks GA and no major anomaly)
- Column 3: Number of eligible neonates at each site (<33 weeks GA and no major anomaly) who were actually used to fit the model
- Column 4: Number of neonates with outcome of interest among those eligible neonates
- Column 5: Expected number of neonates with outcome of interest after adjustment for GA, SGA, sex, and SNAPII > 20
- Column 6: Adjusted standardized ratio calculated based on observed CLD/expected CLD
- Columns 7 and 8: 95% CI around the adjusted standardized ratio for the outcome

Explanation for Presentation 49b

- X-axis: Expected number of neonates with outcome (value from Column 4 of previous presentation)
- Y-axis: Adjusted standardized ratio (value from Column 5 of previous presentation)
- Dark points with numerical notation: Site and its location matching x and y axis values
- Red funnel shaped lines: 95% confidence limits based on entire network information.
- Sites outside of red 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.

Note: Deaths before 36 weeks were excluded in the denominator.

Presentation #49c
Moderate or severe chronic lung disease (CLD): GA <29 weeks:
Adjusted standardized ratios by site

Site	Total number of neonates	Number of neonates with available data	Number of neonates with m/s CLD at 36w or discharge	Adjusted# expected number of neonates with m/s CLD at 36w or discharge	Adjusted# standardized ratio	95% confidence interval for adjusted standardized ratio	
2	27	24	17	9.0	1.9	1.1	3.0
3	8	7	2	3.5	0.6	0.1	2.1
4	122	114	67	58.4	1.1	0.9	1.5
5	214	191	63	98.5	0.6	0.5	0.8
6	34	33	18	17.2	1.0	0.6	1.7
7	37	34	19	16.9	1.1	0.7	1.8
8	122	109	83	55.1	1.5	1.2	1.9
9	71	60	29	32.4	0.9	0.6	1.3
10	13	10	3	5.6	0.5	0.1	1.6
11	23	20	10	10.2	1.0	0.5	1.8
12	115	87	51	45.8	1.1	0.8	1.5
13	9	5	0	1.8	0.0	.	2.1
14	191	170	74	88.2	0.8	0.7	1.1
15	58	52	26	26.4	1.0	0.6	1.4
16	12	10	7	4.3	1.6	0.7	3.4
17	32	26	15	13.2	1.1	0.6	1.9
18	55	43	27	20.9	1.3	0.9	1.9
19	55	51	29	25.0	1.2	0.8	1.7
21	16	14	7	6.4	1.1	0.4	2.2
22	81	66	38	35.3	1.1	0.8	1.5
24	41	37	17	18.2	0.9	0.5	1.5
25	18	17	11	8.8	1.2	0.6	2.2
26	43	41	26	19.4	1.3	0.9	2.0
27	6	6	1	2.8	0.4	0.0	2.0
28	29	26	4	12.8	0.3	0.1	0.8
29	43	37	17	19.5	0.9	0.5	1.4
30	9	6	4	2.8	1.4	0.4	3.7
31	79	63	32	31.3	1.0	0.7	1.4
32	66	55	23	27.8	0.8	0.5	1.2
33	21	16	5	7.0	0.7	0.2	1.7

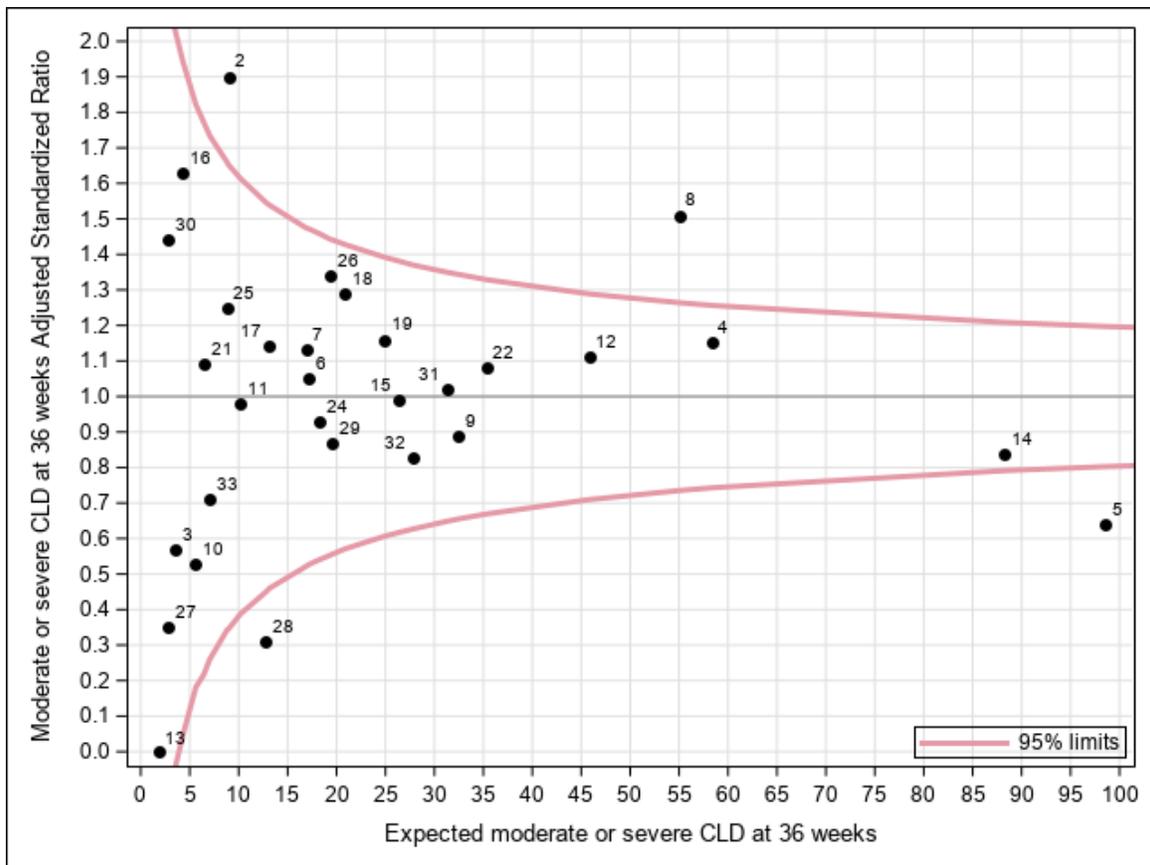
Numeric site codes were used in Presentations 49a-d and they may not correspond to other presentations in this report.

Neonates with major congenital anomalies and death before 36 weeks were excluded.

The prediction model was adjusted for GA, SGA, sex, and SNAPII > 20.

Note: Sites 1, 20, 23 were excluded from the analysis due to the small number of eligible neonates.

Presentation #49d
Moderate or severe chronic lung disease (CLD): GA <29 weeks:
Adjusted standardized ratios by site



Explanation for Presentation 49c

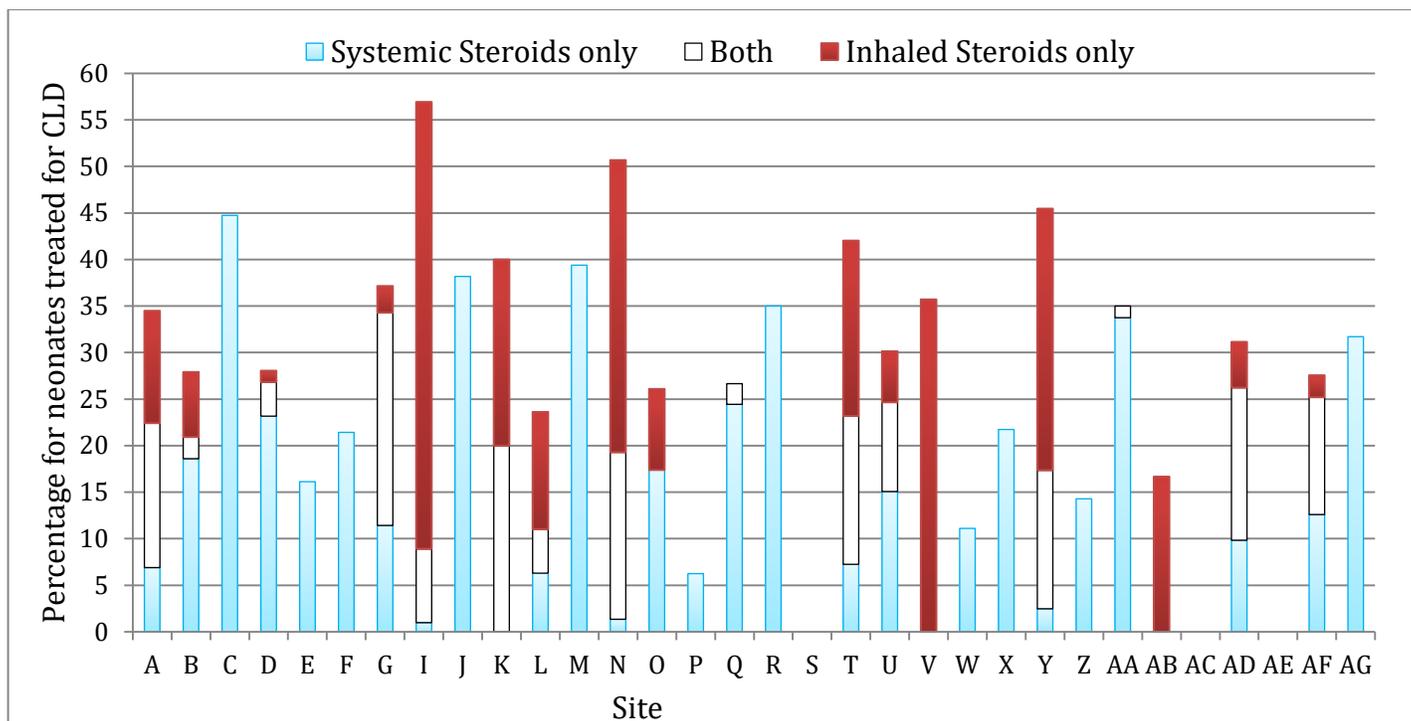
- Column 1: Numeric site codes
- Column 2: Total number of neonates at each site (<29 weeks GA and no major anomaly)
- Column 3: Number of eligible neonates at each site (<29 weeks GA and no major anomaly) who were actually used to fit the model
- Column 4: Number of neonates with outcome of interest among those eligible neonates
- Column 5: Expected number of neonates with outcome of interest after adjustment for GA, SGA, sex, and SNAPII > 20
- Column 6: Adjusted standardized ratio calculated based on observed CLD/expected CLD
- Columns 7 and 8: 95% CI around the adjusted standardized ratio for the outcome

Explanation for Presentation 49d

- X-axis: Expected number of neonates with outcome (value from Column 4 of previous presentation)
- Y-axis: Adjusted standardized ratio (value from Column 5 of previous presentation)
- Dark points with numerical notation: Site and its location matching x and y axis values
- Red funnel shaped lines: 95% confidence limits based on entire network information.
- Sites outside of red 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.

Note: Deaths before 36 weeks were excluded in the denominator.

Presentation #50a
Postnatal use of steroids for treatment of CLD: GA<29 weeks: Site specific crude rates†



Site	Postnatal steroid use (%)		
	Systemic Steroids only	Both	Inhaled Steroids only
A	6.9	15.5	12.1
B	18.6	2.3	7.0
C	44.7	0.0	0.0
D	23.2	3.7	1.2
E	16.1	0.0	0.0
F	21.4	0.0	0.0
G	11.4	22.9	2.9
I	1.0	7.9	48.0
J	38.2	0.0	0.0
K	0.0	20.0	20.0
L	6.3	4.7	12.6
M	39.4	0.0	0.0
N	1.4	17.9	31.4
O	17.4	0.0	8.7
P	6.3	0.0	0.0
Q	24.4	2.2	0.0
R	35.0	0.0	0.0

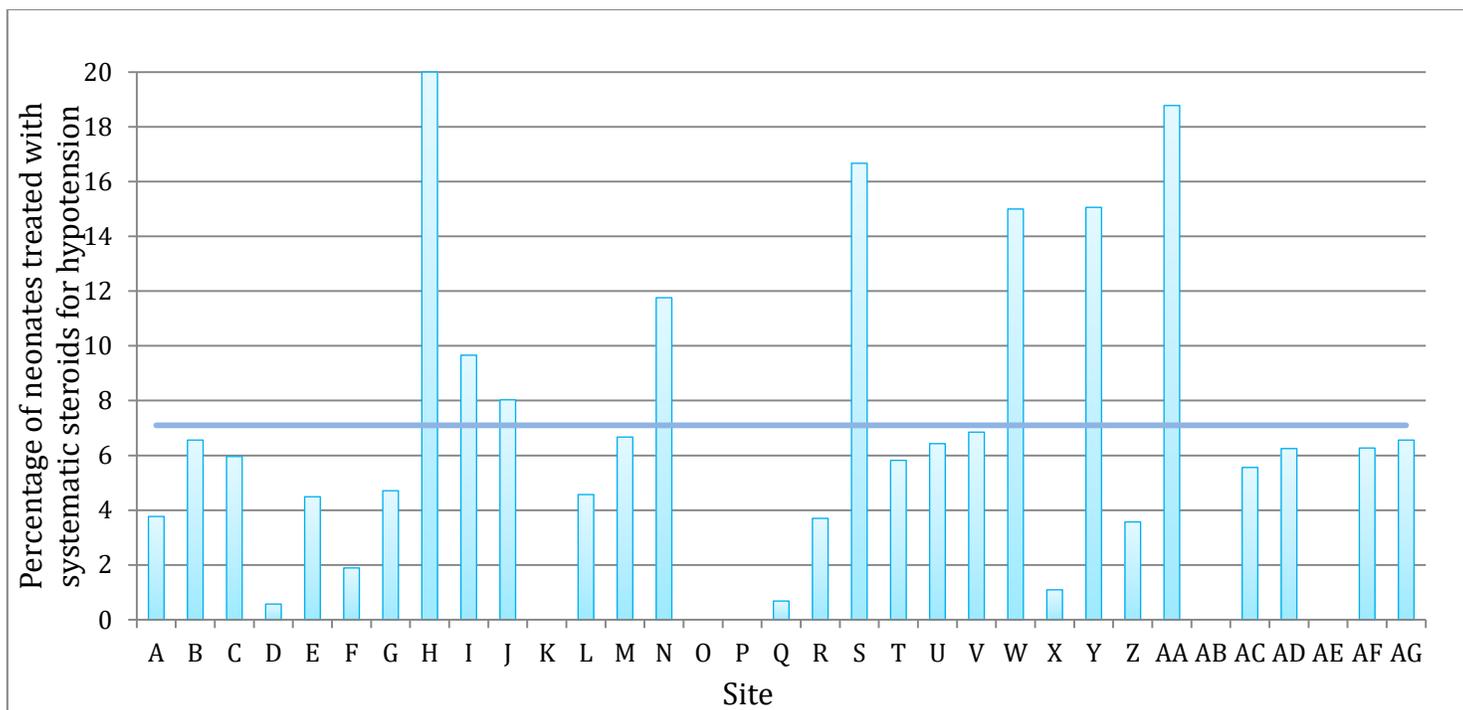
Site	Postnatal steroid use (%)		
	Systemic Steroids only	Both	Inhaled Steroids only
S	0.0	0.0	0.0
T	7.3	15.9	18.8
U	15.1	9.6	5.5
V	0.0	0.0	35.7
W	11.1	0.0	0.0
X	21.7	0.0	0.0
Y	2.5	14.9	28.1
Z	14.3	0.0	0.0
AA	33.8	1.3	0.0
AB	0.0	0.0	16.7
AC	0.0	0.0	0.0
AD	9.8	16.4	4.9
AE	0.0	0.0	0.0
AF	12.6	12.6	2.4
AG	31.7	0.0	0.0
Total	12.8	8.7	15.2

Total number of neonates = 1 720

† Percentage of neonates treated for CLD at each network site; results were attributed to the site of first admission; Site H did not have any neonates with GA<29.

COMMENTS: Specific criteria for these treatments at each site were not documented here.

Presentation #50b
Systemic steroids for hypotension: GA<33 weeks: Site specific crude rates[†]



Site	Postnatal systemic steroids use for hypotension (%)	Site	Postnatal systemic steroids use for hypotension (%)
A	3.8	R	3.7
B	6.6	S	16.7
C	6.0	T	5.8
D	0.6	U	6.4
E	4.5	V	6.9
F	1.9	W	15.0
G	4.7	X	1.1
H	20.0	Y	15.1
I	9.7	Z	3.6
J	8.0	AA	18.8
K	0.0	AB	0.0
L	4.6	AC	5.6
M	6.7	AD	6.3
N	11.8	AE	0.0
O	0.0	AF	6.3
P	0.0	AG	6.6
Q	0.7	Total	7.1

Total number of neonates = 4 405

[†] Percentage of neonates treated with systemic steroids for hypotension at each network site; results were attributed to the site of first admission.

COMMENTS: Specific criteria for these treatments at each site were not documented here.

Presentation #51a
ROP \geq Stage 3: GA < 33 weeks: Adjusted standardized ratios by site

Site	Total number of neonates	Number of neonates with available data	Number of neonates with ROP \geq Stage 3	Adjusted# expected number of neonates with ROP \geq Stage 3	Adjusted# standardized ratio	95% confidence interval for adjusted standardized ratio	
2	110	51	1	1.0	1.0	0.0	5.8
3	19	14	0	0.7	0.0	.	5.0
4	301	127	11	15.5	0.7	0.4	1.3
5	365	156	22	29.9	0.7	0.5	1.1
6	83	56	6	5.0	1.2	0.4	2.6
7	147	88	10	4.6	2.2	1.0	4.0
8	318	108	10	14.4	0.7	0.3	1.3
9	161	47	11	10.0	1.1	0.5	2.0
10	50	26	1	1.9	0.5	0.0	3.0
11	85	37	3	2.3	1.3	0.3	3.8
12	298	85	15	12.9	1.2	0.7	1.9
13	25	12	0	0.1	0.0	.	25.3
14	362	183	26	28.5	0.9	0.6	1.3
15	158	47	6	4.6	1.3	0.5	2.8
16	65	12	0	0.4	0.0	.	8.4
17	102	47	6	3.6	1.6	0.6	3.6
18	142	33	7	3.2	2.2	0.9	4.5
19	134	68	4	6.7	0.6	0.2	1.5
21	47	26	2	1.3	1.6	0.2	5.7
22	172	73	8	12.8	0.6	0.3	1.2
24	18	74	6	4.2	1.4	0.5	3.1
25	120	20	3	1.9	1.6	0.3	4.7
26	76	52	4	4.4	0.9	0.2	2.3
27	143	18	1	0.5	1.9	0.0	10.4
28	30	40	6	2.9	2.1	0.8	4.6
29	84	71	9	5.4	1.7	0.8	3.1
30	120	16	1	0.5	2.2	0.0	12.1
31	28	83	8	8.3	1.0	0.4	1.9
32	188	91	10	8.3	1.2	0.6	2.2
33	182	46	0	1.0	0.0	.	3.8

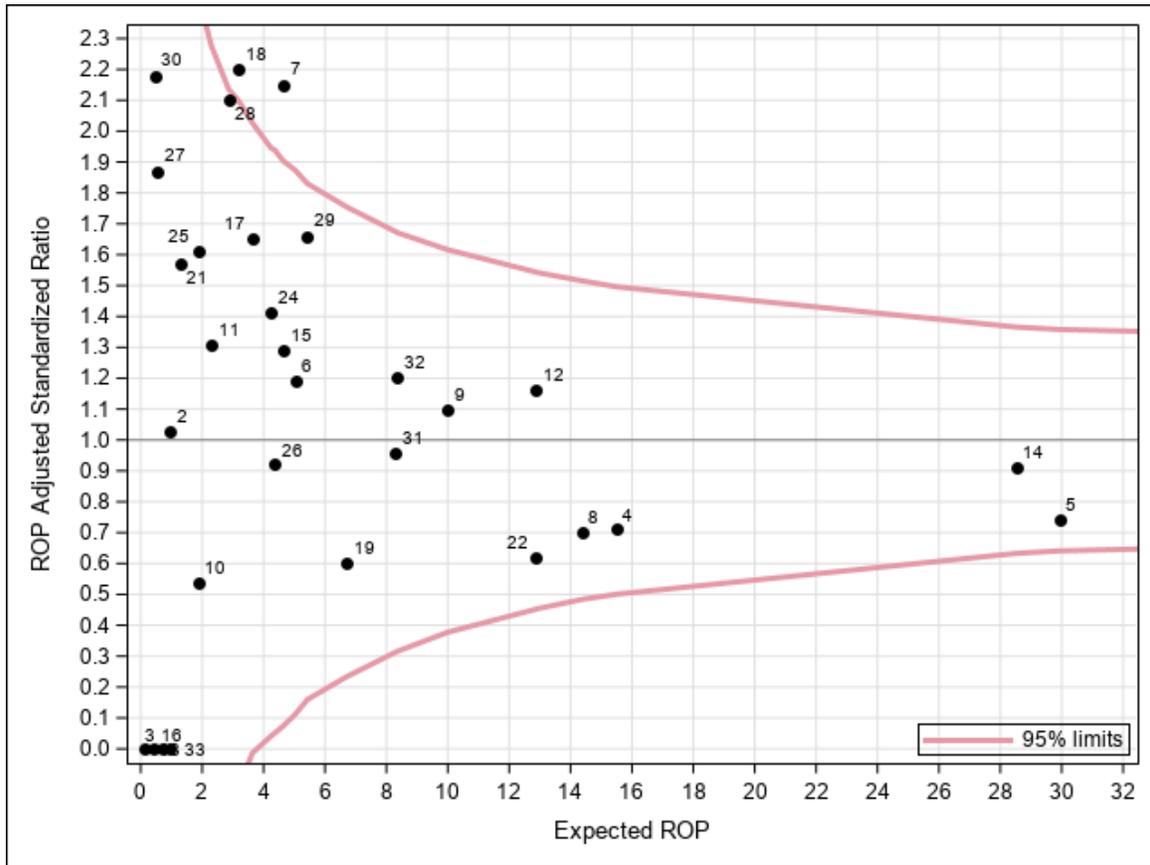
Numeric site codes were used in Presentations 51a-d and they may not correspond to other presentations in this report.

Neonates with major congenital anomalies are excluded.

The prediction model was adjusted for GA, SGA, sex, and SNAPII > 20.

Note: Sites 1, 20, 23 were not included in this analysis due to small number of eligible neonates in this category.

Presentation #51b
ROP \geq Stage 3: GA < 33 weeks: Adjusted standardized ratios by site



Explanation for Presentation 51a

- Column 1: Numeric site codes
- Column 2: Total number of neonates at each site (<33 weeks GA and no major anomaly)
- Column 3: Number of eligible neonates at each site (<33 weeks GA and no major anomaly) who were actually used to fit the model
- Column 4: Number of neonates with outcome of interest among those eligible neonates
- Column 5: Expected number of neonates with outcome of interest after adjustment for GA, SGA, sex, and SNAPII > 20
- Column 6: Adjusted standardized ratio calculated based on observed ROP/expected ROP
- Columns 7 and 8: 95% CI around the adjusted standardized ratio for the outcome

Explanation for Presentation 51b

- X-axis: Expected number of neonates with outcome (value from Column 4 of previous presentation)
- Y-axis: Adjusted standardized ratio (value from Column 5 of previous presentation)
- Dark points with numerical notation: Site and its location matching x and y axis values
- Red funnel shaped lines: 95% confidence limits based on entire network information.
- Sites outside of red 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.

Presentation #51c
ROP \geq Stage 3: GA < 29 weeks: Adjusted standardized ratios by site

Site	Total number of neonates	Number of neonates with available data	Number of neonates with ROP \geq Stage 3	Adjusted# expected number of neonates with ROP \geq Stage 3	Adjusted# standardized ratio	95% confidence interval for adjusted standardized ratio	
2	27	24	1	0.9	1.1	0.0	6.2
3	8	7	0	0.7	0.0	.	5.0
4	122	98	11	15.6	0.7	0.4	1.3
5	214	143	22	29.9	0.7	0.5	1.1
6	34	32	6	5.0	1.2	0.4	2.6
7	37	34	9	4.5	2.0	0.9	3.8
8	122	95	10	14.5	0.7	0.3	1.3
9	71	36	11	9.9	1.1	0.6	2.0
10	13	10	1	1.8	0.6	0.0	3.1
11	23	18	3	2.2	1.4	0.3	4.0
12	115	73	15	12.9	1.2	0.7	1.9
13	9	6	0	0.1	0.0	.	29.7
14	191	149	26	28.4	0.9	0.6	1.3
15	58	37	6	4.7	1.3	0.5	2.8
16	12	6	0	0.4	0.0	.	8.4
17	32	27	6	3.6	1.7	0.6	3.6
18	55	24	7	3.2	2.2	0.9	4.5
19	55	50	4	6.7	0.6	0.2	1.5
21	16	14	2	1.3	1.6	0.2	5.8
22	81	63	8	12.8	0.6	0.3	1.2
24	41	36	6	4.2	1.4	0.5	3.1
25	18	10	3	1.8	1.6	0.3	4.8
26	43	20	4	4.3	0.9	0.3	2.4
27	6	6	1	0.5	2.0	0.0	10.9
28	29	25	6	2.8	2.1	0.8	4.6
29	43	37	9	5.4	1.7	0.8	3.2
30	9	6	1	0.4	2.2	0.0	12.4
31	79	57	8	8.3	1.0	0.4	1.9
32	66	55	10	8.2	1.2	0.6	2.3
33	21	16	0	0.9	0.0	.	4.0

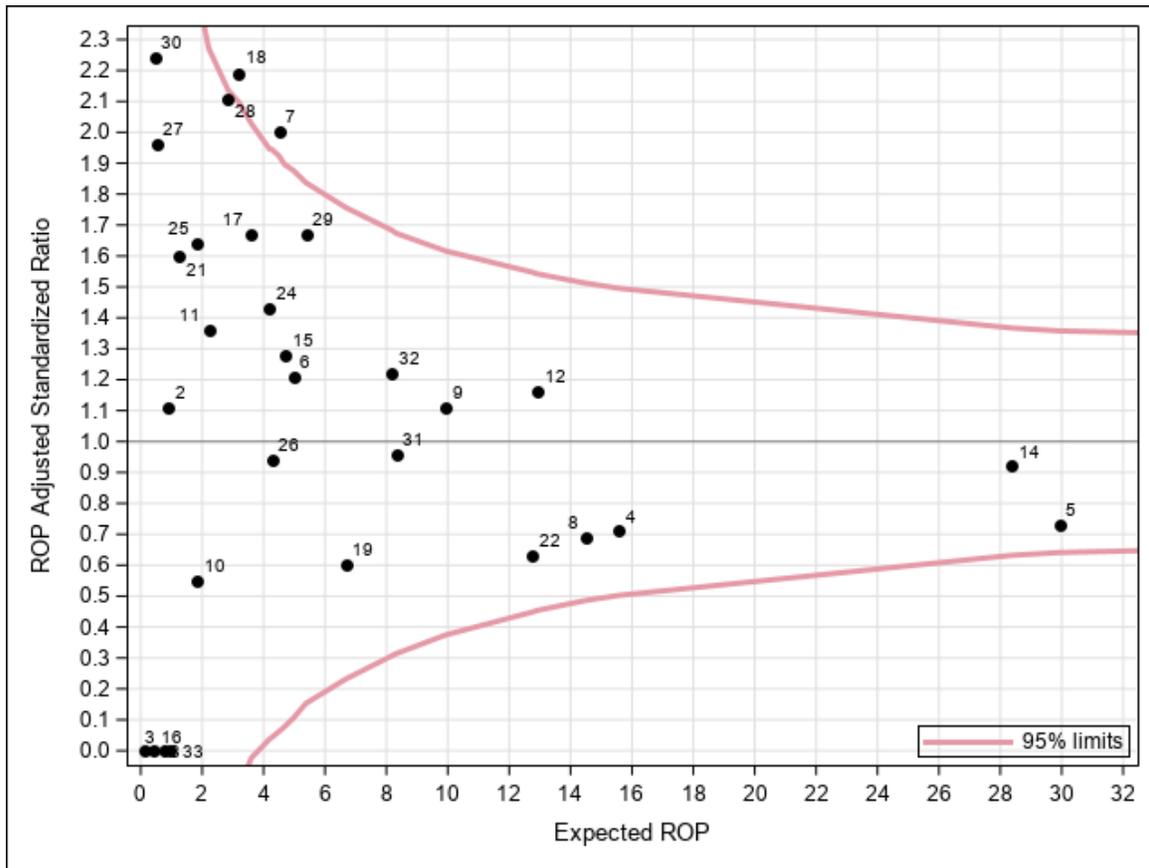
Numeric site codes were used in Presentations 51a-d and they may not correspond to other presentations in this report.

Neonates with major congenital anomalies are excluded.

The prediction model was adjusted for GA, SGA, sex, and SNAPII > 20.

Note: Sites 1, 20, 23 were excluded from the analysis due to the small number of eligible neonates.

Presentation #51d
ROP \geq Stage 3: GA < 29 weeks: Adjusted standardized ratios by site



Explanation for Presentation 51c

- Column 1: Numeric site codes
- Column 2: Total number of neonates at each site (<29 weeks GA and no major anomaly)
- Column 3: Number of eligible neonates at each site (<29 weeks GA and no major anomaly) who were actually used to fit the model
- Column 4: Number of neonates with outcome of interest among those eligible neonates
- Column 5: Expected number of neonates with outcome of interest after adjustment for GA, SGA, sex, and SNAPII > 20
- Column 6: Adjusted standardized ratio calculated based on observed ROP/expected ROP
- Columns 7 and 8: 95% CI around the adjusted standardized ratio for the outcome

Explanation for Presentation 51d

- X-axis: Expected number of neonates with outcome (value from Column 4 of previous presentation)
- Y-axis: Adjusted standardized ratio (value from Column 5 of previous presentation)
- Dark points with numerical notation: Site and its location matching x and y axis values
- Red funnel shaped lines: 95% confidence limits based on entire network information.
- Sites outside of red 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.

Presentation #52a
Mortality or major morbidity: GA < 33 weeks: Adjusted standardized ratios by site

Site	Number of neonates	Number of neonates with mortality or major morbidities	Adjusted# expected number of neonates with mortality or major morbidities	Adjusted# standardized ratio	95% confidence interval for adjusted standardized ratio	
2	110	41	35.5	1.2	0.8	1.6
3	19	7	8.2	0.8	0.3	1.7
4	301	133	128.3	1.0	0.9	1.2
5	365	166	197.0	0.8	0.7	1.0
6	83	29	36.9	0.8	0.5	1.1
7	147	47	51.1	0.9	0.7	1.2
8	318	149	131.6	1.1	1.0	1.3
9	161	67	73.3	0.9	0.7	1.2
10	50	15	19.0	0.8	0.4	1.3
11	85	31	32.2	1.0	0.7	1.4
12	298	119	130.5	0.9	0.8	1.1
13	25	6	9.7	0.6	0.2	1.3
14	362	179	181.9	1.0	0.8	1.1
15	158	55	65.0	0.8	0.6	1.1
16	65	33	19.2	1.7	1.2	2.4
17	102	42	37.4	1.1	0.8	1.5
18	142	119	58.5	2.0	1.7	2.4
19	134	55	55.8	1.0	0.7	1.3
21	47	17	17.5	1.0	0.6	1.6
22	172	84	84.0	1.0	0.8	1.2
23	18	6	5.7	1.0	0.4	2.3
24	120	31	46.4	0.7	0.5	0.9
25	76	22	25.0	0.9	0.6	1.3
26	143	67	49.2	1.4	1.1	1.7
27	30	8	9.3	0.9	0.4	1.7
28	84	23	34.1	0.7	0.4	1.0
29	120	52	51.0	1.0	0.8	1.3
30	28	11	10.8	1.0	0.5	1.8
31	188	81	80.7	1.0	0.8	1.2
32	182	60	75.4	0.8	0.6	1.0
33	87	34	28.4	1.2	0.8	1.7

Major morbidity = IVH 3 or 4 or PVL or BPD or ROP >stage 2 or NEC or nosocomial sepsis

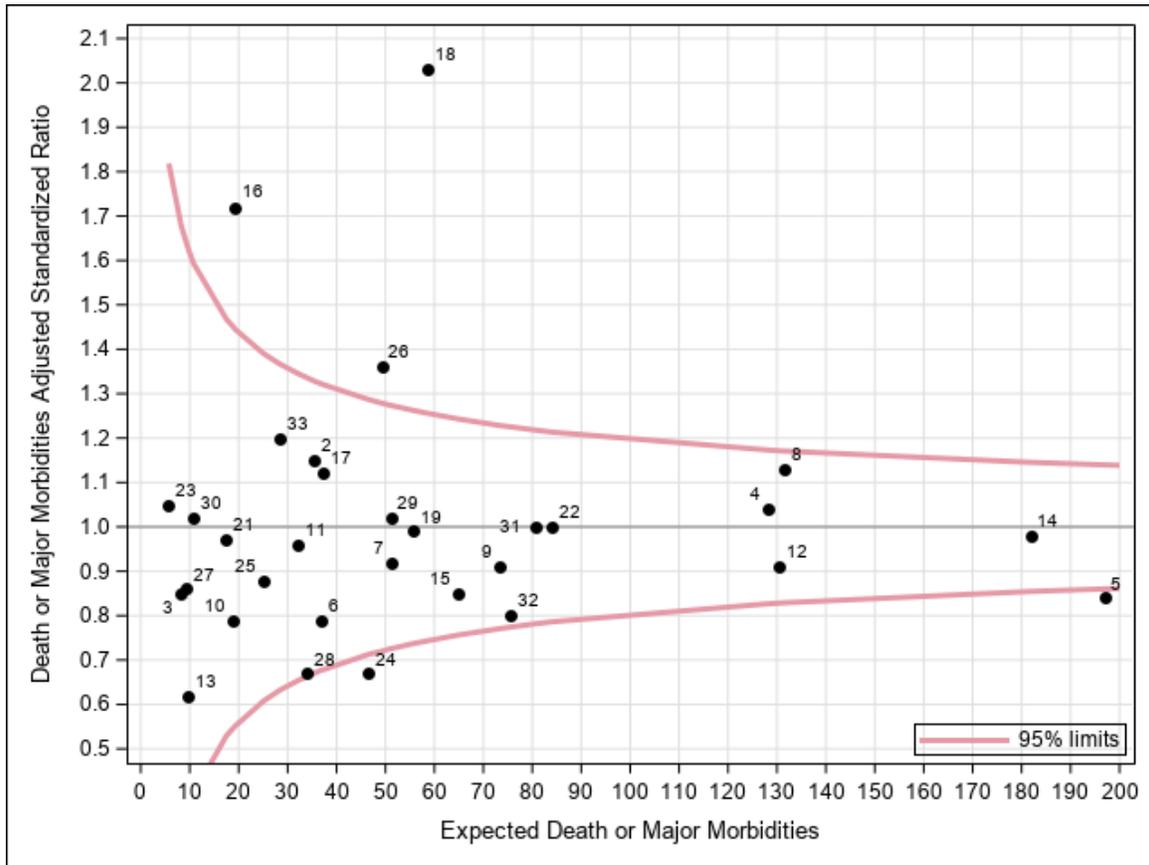
Numeric site codes were used in Presentations 52a-d and they may not correspond to other presentations in this report. Neonates with major congenital anomalies were excluded.

The prediction model was adjusted for GA, SGA, sex, and SNAP II > 20.

Note: Sites 1 and 20 were not included in this analysis due to small number of eligible neonates in this category.

Presentation #52b

Mortality or major morbidity: GA < 33 weeks: Adjusted standardized ratios by site



Explanation for Presentation 52a

- Column 1: Numeric site codes
- Column 2: Number of eligible neonates at each site (<33 weeks GA and no major anomaly)
- Column 3: Number of neonates with outcome of interest among those eligible neonates
- Column 4: Expected number of neonates with outcome of interest after adjustment for GA, small for gestational age, sex, and SNAP-II > 20
- Column 5: Adjusted standardized ratio calculated based on observed death or morbidities/expected deaths or morbidities
- Columns 6 and 7: 95% CI around the adjusted standardized ratio for the outcome

Explanation for Presentation 52b

- X-axis: Expected number of neonates with outcome (value from Column 4 of previous presentation)
- Y-axis: Adjusted standardized ratio (value from Column 5 of previous presentation)
- Dark points with numerical notation: Site and its location matching x and y axis values
- Red funnel shaped lines: 95% confidence limits based on entire network information.
- Sites outside of red 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.

Presentation #52c
Mortality or major morbidity: GA < 29 weeks: Adjusted standardized ratios by site

Site	Number of neonates	Number of neonates with mortality or major morbidities	Adjusted# expected number of neonates with mortality or major morbidities	Adjusted# standardized ratio	95% confidence interval for adjusted standardized ratio	
2	27	21	15.1	1.4	0.9	2.1
3	8	5	5.9	0.8	0.3	2.0
4	122	93	87.6	1.1	0.9	1.3
5	214	135	154.8	0.9	0.7	1.0
6	34	23	24.8	0.9	0.6	1.4
7	37	27	26.3	1.0	0.7	1.5
8	122	101	85.1	1.2	1.0	1.4
9	71	49	52.8	0.9	0.7	1.2
10	13	8	10.3	0.8	0.3	1.5
11	23	18	17.3	1.0	0.6	1.6
12	115	85	87.5	1.0	0.8	1.2
13	9	5	5.6	0.9	0.3	2.1
14	191	116	137.8	0.8	0.7	1.0
15	58	41	41.5	1.0	0.7	1.3
16	12	11	7.8	1.4	0.7	2.5
17	32	27	23.3	1.2	0.8	1.7
18	55	52	39.1	1.3	1.0	1.7
19	55	40	37.8	1.1	0.8	1.4
21	16	10	10.4	1.0	0.5	1.8
22	81	64	60.8	1.1	0.8	1.3
24	41	22	28.7	0.8	0.5	1.2
25	18	12	12.7	0.9	0.5	1.7
26	43	32	28.1	1.1	0.8	1.6
27	6	3	4.1	0.7	0.1	2.1
28	29	18	20.7	0.9	0.5	1.4
29	43	37	32.7	1.1	0.8	1.6
30	9	8	6.7	1.2	0.5	2.3
31	79	60	57.2	1.0	0.8	1.3
32	66	47	47.7	1.0	0.7	1.3
33	21	16	13.8	1.2	0.7	1.9

Major morbidity = IVH 3 or 4 or PVL or BPD or ROP >stage 2 or NEC or nosocomial sepsis

Numeric site codes were used in Presentations 52a-d and they may not correspond to other presentations in this report.

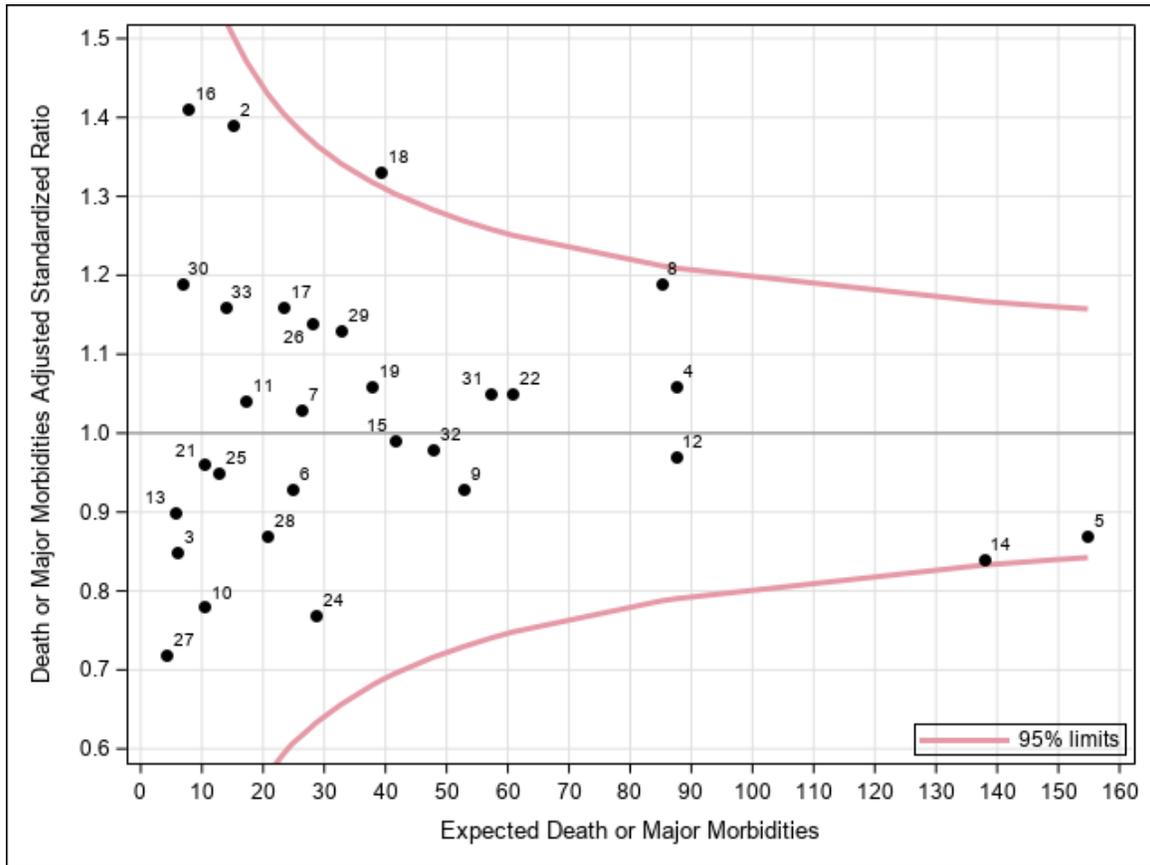
Neonates with major congenital anomalies were excluded.

The prediction model was adjusted for GA, SGA, sex, and SNAPII > 20.

Note: Sites 1, 20, 23 were excluded from the analysis due to the small number of eligible neonates.

Presentation #52d

Mortality or major morbidity: GA < 29 weeks: Adjusted standardized ratios by site



Explanation for Presentation 52c

Column 1: Numeric site codes

Column 2: Number of eligible neonates at each site (<29 weeks GA and no major anomaly)

Column 3: Number of neonates with outcome of interest among those eligible neonates

Column 4: Expected number of neonates with outcome of interest after adjustment for GA, SGA, sex, and SNAPII > 20

Column 5: Adjusted standardized ratio calculated based on observed death or morbidities/expected deaths or morbidities

Columns 6 and 7: 95% CI around the adjusted standardized ratio for the outcome

Explanation for Presentation 52d

X-axis: Expected number of neonates with outcome (value from Column 4 of previous presentation)

Y-axis: Adjusted standardized ratio (value from Column 5 of previous presentation)

Dark points with numerical notation: Site and its location matching x and y axis values

Red funnel shaped lines: 95% confidence limits based on entire network information.

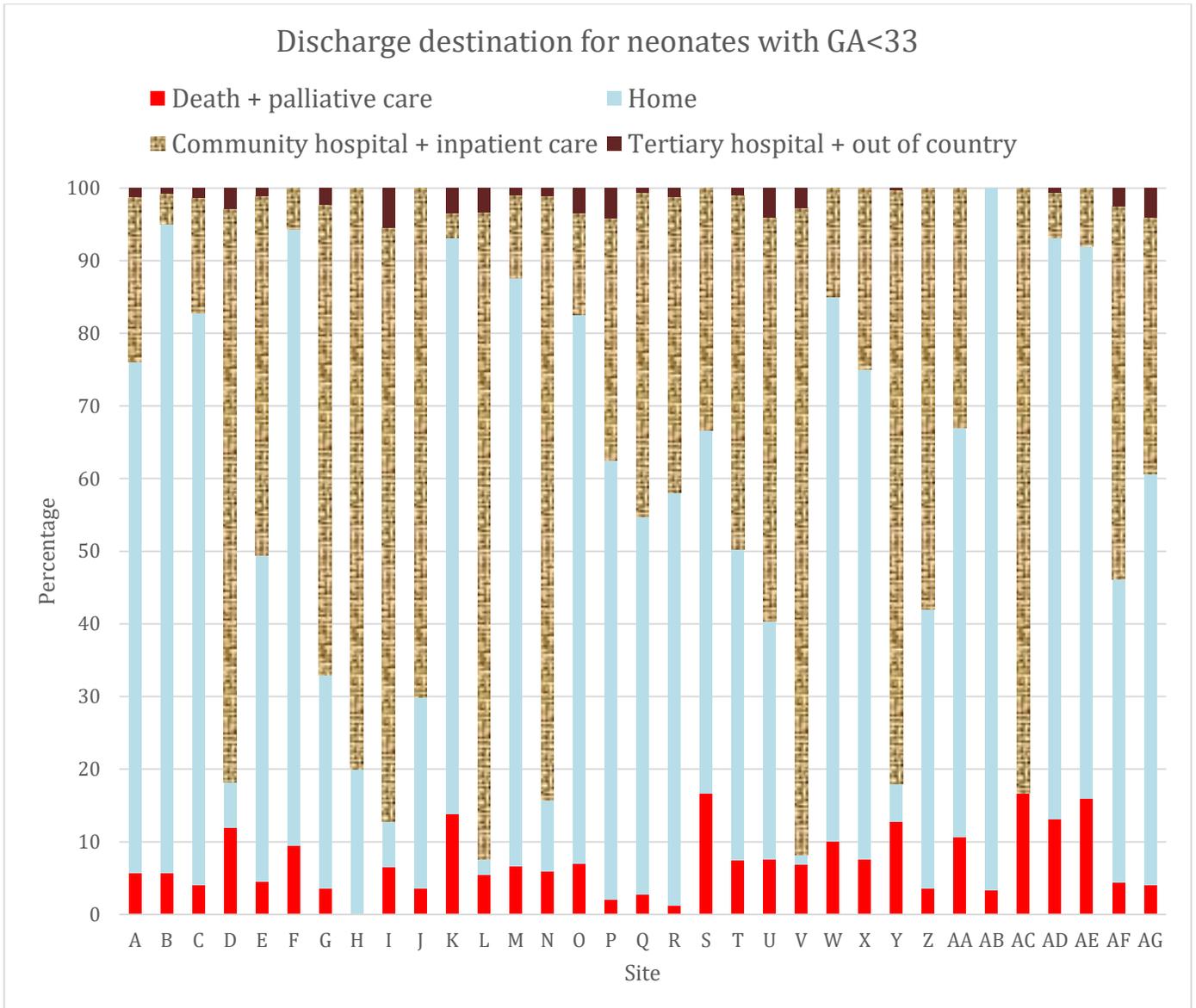
Sites outside of red lines represent higher or lower (depending upon position in graph) adjusted standardized ratio. However, for determining whether site is statistically different from others, one should also assess 95% CI and check whether both upper and lower boundaries are also outside of the funnel area or not.

F. Discharge Disposition and Status

Presentation #53a
Final discharge destination: All GA: Crude rates

		GA (completed weeks)								Total
		< 25	25-26	27-28	29-30	31-32	33-34	35-36	≥37	
Home	N	130	210	304	398	615	1038	1226	3552	7473
	%	34.4	39.9	37.3	37.5	37.9	47.1	49.6	55.4	48.2
Community hospital	N	57	179	372	556	841	840	536	636	4017
	%	15.1	34.0	45.6	52.4	51.8	38.1	21.7	9.9	25.9
Tertiary hospital	N	26	11	14	14	14	20	49	258	406
	%	6.9	2.1	1.7	1.3	0.9	0.9	2.0	4.0	2.6
Died	N	124	72	47	26	30	23	38	111	471
	%	32.8	13.7	5.8	2.5	1.9	1.0	1.5	1.7	3.0
Palliative care (home/other institute)	N	0	1	1	2	0	1	3	18	26
	%	0.0	0.2	0.1	0.2	0.0	0.1	0.1	0.3	0.2
Another inpatient area in site	N	40	53	75	64	124	281	619	1838	3094
	%	10.6	10.1	9.2	6.0	7.6	12.8	25.1	28.7	20.0
Out of country discharge	N	1	1	2	1	0	1	0	0	6
	%	0.3	0.2	0.3	0.1	0.0	0.1	0.0	0.0	0.0
Total neonates included	N	378	527	815	1061	1624	2204	2471	6413	15493
	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Discharge destination missing	N									0
GA missing	N									0
Total number of neonates	N									15493

Presentation #53b
Final discharge destination by site: GA<33



Presentation #53b (continued)
 Final discharge destination by site: GA<33

Site	Discharge destination			
	Death + Palliative care	Home	Community hospital + inpatient area	Tertiary hospital + Out of country
A	5.7	70.4	22.6	1.3
B	5.7	89.3	4.1	0.8
C	4.0	78.8	15.9	1.3
D	11.9	6.3	79.0	2.8
E	4.5	44.9	49.4	1.1
F	9.4	84.9	5.7	0.0
G	3.5	29.4	64.7	2.4
H	0.0	20.0	80.0	0.0
I	6.5	6.3	81.7	5.5
J	3.7	26.3	70.1	0.0
K	13.8	79.3	3.5	3.5
L	5.5	2.1	89.0	3.4
M	6.7	81.0	11.4	1.0
N	5.9	9.9	83.2	1.1
O	7.0	75.6	14.0	3.5
P	2.1	60.4	33.3	4.2
Q	2.7	52.0	44.6	0.7
R	1.2	56.8	40.7	1.2
S	16.7	50.0	33.3	0.0
T	7.4	42.9	48.7	1.1
U	7.6	32.8	55.6	4.1
V	6.9	1.4	89.0	2.7
W	10.0	75.0	15.0	0.0
X	7.6	67.4	25.0	0.0
Y	12.8	5.1	81.7	0.3
Z	3.6	38.4	58.0	0.0
AA	10.7	56.4	33.0	0.0
AB	3.3	96.7	0.0	0.0
AC	16.7	0.0	83.3	0.0
AD	13.1	80.0	6.3	0.6
AE	16.0	76.0	8.0	0.0
AF	4.4	41.7	51.4	2.5
AG	4.1	56.6	35.3	4.1
Total %	6.9	37.6	53.6	1.9
Total N	303	1657	2361	84

Presentation #54

Resource use (proportion of admissions and of total patient days) per case-mix group within each site among sites with COMPLETE data (n=28)

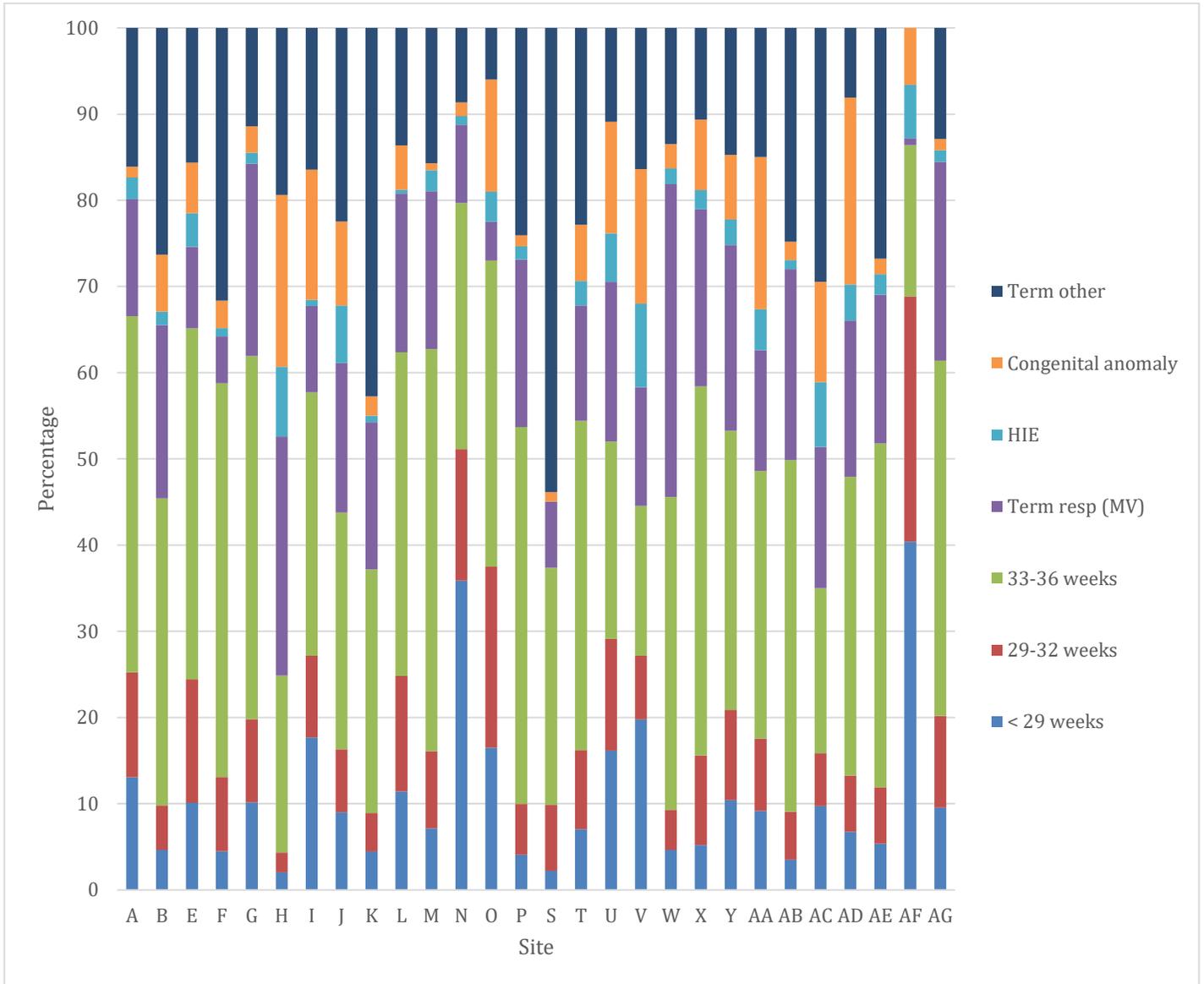
DEFINITIONS for case mix groups

For each site all admission were included (so same patient may be counted twice since unit of analysis is the admission)

Admissions to were categorized according to 1 diagnostic group – i.e. an admission can only be categorized in one of these groups

	DEFINITION
< 29 weeks	Born <29 weeks GA WITHOUT major congenital anomaly
29-32 weeks	Born 29-32 weeks GA WITHOUT major congenital anomaly
33-36 weeks	Born 33-36 weeks GA WITHOUT major congenital anomaly or HIE
Term resp (MV)	Born ≥ 37 weeks GA <ul style="list-style-type: none"> - WITHOUT major congenital anomaly - Without hypoxic ischemic encephalopathy (with and without cooling) - Received ≥ 1 days of respiratory support defined as any of the following <ul style="list-style-type: none"> o HFV o IPPV o NI Ventilation o CPAP o High flow
HIE	Infants born ≥ 35 weeks with hypoxic ischemic encephalopathy (with and without cooling)
Congenital anomaly	Infant with MAJOR congenital anomaly – regardless of GA
Term other	Infants born ≥ 37 weeks that do not meet any of the diagnostic categories

Presentation #54a
 Proportion of admissions per case-mix group within each site among sites with COMPLETE data (n=28) – Graph format

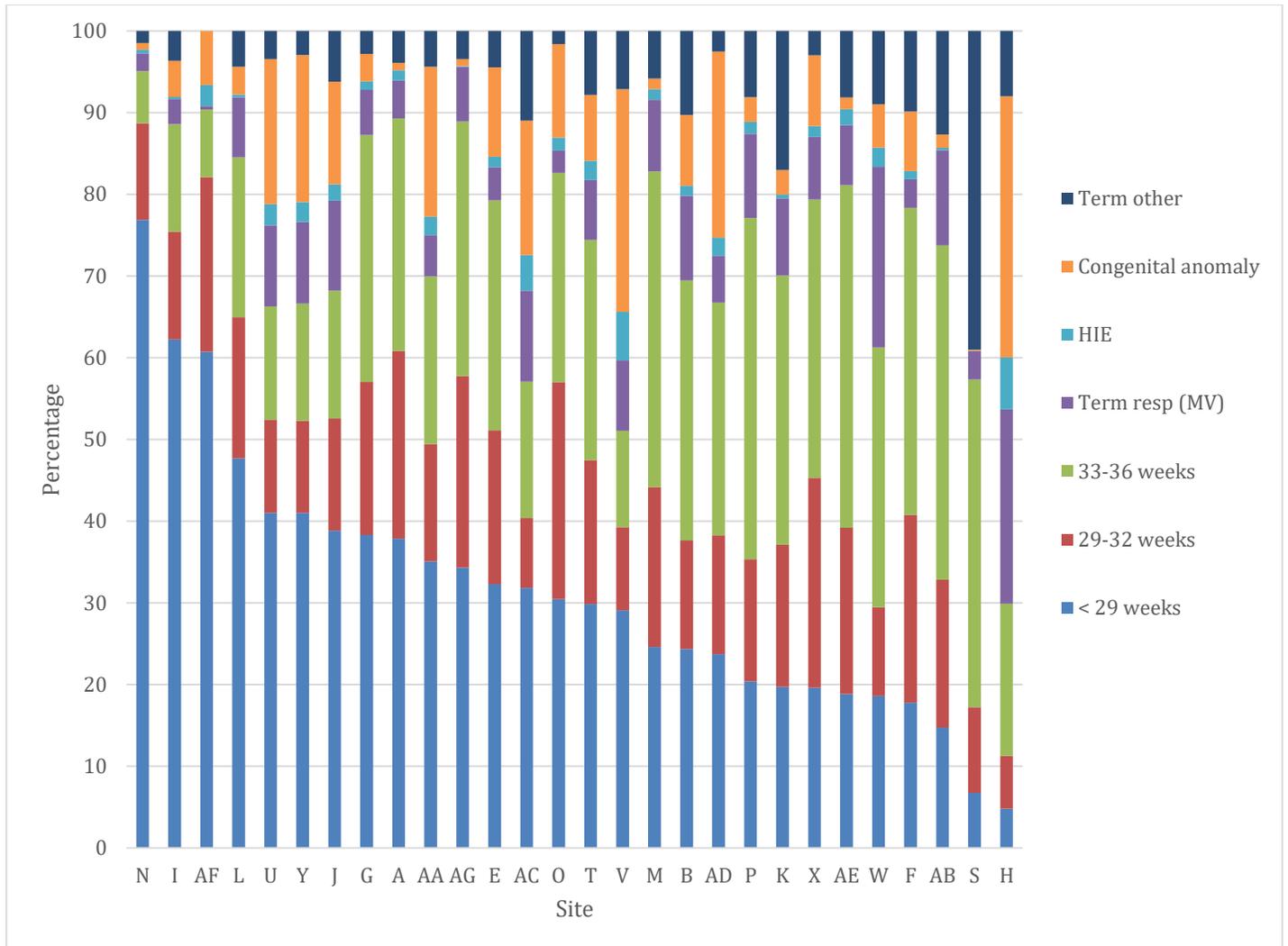


Presentation #54a (continued)
Proportion of admissions per case-mix group within each site among sites with
COMPLETE data (n=28) – Table format

Site	< 29 weeks	29-32 weeks	33-36 weeks	Term resp (MV)	HIE	Congenital anomaly	Term other
A	13.1	12.2	41.3	13.6	2.5	1.3	16.1
B	4.6	5.2	35.7	20.1	1.6	6.6	26.3
E	10.1	14.3	40.7	9.5	3.9	5.9	15.6
F	4.5	8.6	45.7	5.4	1.0	3.2	31.6
G	10.2	9.6	42.1	22.3	1.3	3.1	11.4
H	2.0	2.3	20.5	27.8	8.1	19.9	19.4
I	17.7	9.5	30.6	10.0	0.7	15.1	16.4
J	9.0	7.3	27.5	17.3	6.7	9.8	22.5
K	4.5	4.5	28.3	17.1	0.7	2.2	42.8
L	11.4	13.4	37.5	18.4	0.5	5.2	13.6
M	7.1	9.0	46.6	18.3	2.4	0.8	15.7
N	35.9	15.3	28.5	9.1	1.0	1.6	8.7
O	16.5	21.0	35.5	4.5	3.5	13.0	6.0
P	4.1	5.9	43.7	19.4	1.5	1.3	24.0
S	2.2	7.7	27.5	7.7	0.0	1.1	53.9
T	7.1	9.2	38.2	13.4	2.8	6.5	22.8
U	16.2	13.0	22.9	18.6	5.6	13.0	10.9
V	19.8	7.4	17.4	13.8	9.7	15.6	16.4
W	4.7	4.7	36.3	36.3	1.9	2.8	13.5
X	5.2	10.4	42.8	20.5	2.2	8.2	10.6
Y	10.4	10.5	32.4	21.6	3.0	7.5	14.7
AA	9.2	8.4	31.0	14.0	4.7	17.7	15.0
AB	3.5	5.6	40.8	22.1	1.1	2.1	24.8
AC	9.7	6.1	19.2	16.4	7.5	11.7	29.4
AD	6.7	6.5	34.7	18.1	4.2	21.7	8.1
AE	5.4	6.6	39.9	17.3	2.4	1.8	26.8
AF	40.4	28.5	17.5	0.8	6.2	6.6	0.0
AG	9.5	10.6	41.2	23.1	1.3	1.3	12.9
Total	12.0	9.8	33.0	16.2	3.3	8.8	17.0

Denominator = total admission in site
*only for sites with complete data

Presentation #54b
Proportion of total patient days per case-mix group within each site among sites with COMPLETE data (n=28) – Graph format



Presentation #54b (continued)
Proportion of total patient days per case-mix group within each site among sites with COMPLETE data (n=28) – Table format

Site	< 29 weeks	29-32 weeks	33-36 weeks	Term resp (MV)	HIE	Congenital anomaly	Term other
A	37.9	23.0	28.5	4.6	1.3	0.9	3.9
B	24.3	13.3	31.8	10.4	1.2	8.6	10.3
E	32.3	18.8	28.2	4.0	1.3	10.9	4.5
F	17.8	23.0	37.6	3.5	1.0	7.3	9.9
G	38.3	18.7	30.2	5.5	1.0	3.4	2.8
H	4.8	6.5	18.6	23.8	6.3	32.0	8.0
I	62.2	13.2	13.1	3.1	0.3	4.4	3.7
J	38.9	13.7	15.6	11.0	2.0	12.5	6.2
K	19.7	17.4	33.0	9.4	0.5	3.0	17.0
L	47.7	17.2	19.6	7.3	0.4	3.4	4.4
M	24.6	19.6	38.6	8.8	1.3	1.3	5.9
N	76.9	11.8	6.4	2.2	0.5	0.8	1.5
O	30.5	26.5	25.6	2.8	1.6	11.4	1.6
P	20.4	14.9	41.8	10.3	1.5	3.0	8.1
S	6.7	10.5	40.1	3.5	0.0	0.1	39.0
T	29.9	17.6	26.9	7.3	2.4	8.1	7.8
U	41.0	11.4	13.9	9.9	2.6	17.7	3.5
V	29.1	10.2	11.8	8.6	5.9	27.3	7.1
W	18.6	10.9	31.8	22.1	2.3	5.3	9.0
X	19.6	25.7	34.1	7.6	1.3	8.7	3.0
Y	41.0	11.3	14.4	10.0	2.4	18.0	3.0
AA	35.1	14.3	20.5	5.1	2.2	18.4	4.4
AB	14.7	18.1	40.9	11.6	0.3	1.7	12.7
AC	31.8	8.5	16.7	11.1	4.3	16.5	11.0
AD	23.7	14.6	28.5	5.7	2.2	22.8	2.5
AE	18.8	20.4	41.9	7.3	2.0	1.4	8.2
AF	60.7	21.4	8.3	0.4	2.6	6.6	0.0
AG	34.3	23.4	31.1	6.7	0.1	0.8	3.4
Total	37.1	15.8	22.3	7.1	1.9	10.8	5.0

Proportion of total patient days = (sum of length of stay of all the patients within a category) / (sum of length of stay of each patient admitted in the NICU for the year)

*only for sites with complete data

Presentation #55

Support at discharge: Neonates who were discharged directly home: Crude rates

		GA (completed weeks)								Total
		< 25	25-26	27-28	29-30	31-32	33-34	35-36	≥37	
Total available	N	378	527	815	1061	1624	2204	2471	6413	15493
Number of neonates who survived and were discharged home directly from the NICU	N	130	210	304	398	615	1038	1226	3552	7473
Oxygen	N	52	59	40	31	29	42	31	103	387
	%	40.0	28.1	13.2	7.8	4.7	4.1	2.5	2.9	5.2
Monitor	N	15	12	26	25	21	34	27	138	298
	%	11.5	5.7	8.6	6.3	3.4	3.3	2.2	3.9	4.0
Enterostomy	N	0	0	1	1	1	1	3	11	18
	%	0.0	0.0	0.3	0.3	0.2	0.1	0.2	0.3	0.2
Gavage	N	27	34	32	23	19	23	26	93	277
	%	20.8	16.2	10.5	5.8	3.1	2.2	2.1	2.6	3.7
Tracheostomy	N	1	1	2	0	1	0	0	3	8
	%	0.8	0.5	0.7	0.0	0.2	0.0	0.0	0.1	0.1
Gastrostomy	N	6	3	5	5	2	3	9	26	59
	%	4.6	1.4	1.6	1.3	0.3	0.3	0.7	0.7	0.8
Ventilation	N	0	2	1	0	0	0	2	2	7
	%	0.0	1.0	0.3	0.0	0.0	0.0	0.2	0.1	0.1
CPAP	N	4	0	2	0	0	0	0	8	14
	%	3.1	0.0	0.7	0.0	0.0	0.0	0.0	0.2	0.2
Feeding status at discharge directly home										
Mother's own milk only	N	49	60	109	166	276	352	361	1113	2486
	%	37.7	28.6	35.9	41.7	44.9	33.9	29.5	31.3	33.3
Formula only	N	33	71	90	120	172	262	315	765	1828
	%	25.4	33.8	29.6	30.2	28.0	25.2	25.7	21.5	24.5
Mother's own milk and formula	N	23	49	80	88	126	361	500	1469	2696
	%	17.7	23.3	26.3	22.1	20.5	34.8	40.8	41.4	36.1

Note: In this presentation, denominators were based on the number of neonates who survived and were discharged directly home.

G. Hypoxic Ischemic Encephalopathy

Presentation #56
Hypoxic Ischemic Encephalopathy

A. Sarnat staging at the time of admission and receipt of hypothermia

		Sarnat's staging of HIE on admission				
		Stage 1	Stage 2	Stage 3	Unknown stage	Total
Hypothermia treatment	Yes	45	338	120	37	540
	No	86	25	30	31	172
	Unknown	0	5	2	1	8
Total		131	368	152	69	720

B. Reason for not receiving hypothermia treatment*

Reason	Number
Chromosomal anomalies	0
Major congenital anomalies	4
Weight < 2000g or GA < 35 weeks	36
Extreme condition	13
Head trauma or intracranial hemorrhage	4
Mild HIE	78
Unit policy	14
Health care team preference	4
Delayed transfer	7
Parental request	1
Unknown	34

*One neonate can have more than one reasons.

C. Time of admission

Time	Number
<6 hours from birth	481
6 – 12 hours from birth	181
>12 hours from birth	58
Total	720

Presentation #56 (continued)
Hypoxic Ischemic Encephalopathy

D. Characteristics of neonates who received hypothermia (N=540)

Characteristics	N		Results
Target temperature	540	< 33°C	4 (1%)
		33-34°C	325 (60%)
		33.5-34.5°C	91 (17%)
		34-35°C	13 (2%)
		34.5-35.5°C	2 (0%)
		Unknown	105 (19%)
Seizures at initiation	540		160 (30%)
Seizures at completion	540		0 (0%)
GA	540	33	0 (0%)
		34	7 (1%)
		35	37 (7%)
		36	52 (10%)
		≥37	444 (82%)
Birthweight < 2000g	540		7 (1%)
During hypothermia	523	Hypotension	181 (35%)
	514	Thrombocytopenia	78 (15%)
	526	Coagulopathy	170 (32%)
	510	Persistent metabolic acidosis	88 (17%)
Death	540		49 (9%)
Discharge on palliation	540		10 (2%)

E. Encephalopathy stage in relation to hypothermia treatment

Encephalopathy stage*		At the end of hypothermia				Normal	Total
		Stage 1	Stage 2	Stage 3	Unknown		
At the start of hypothermia	Stage 1	11	1	0	5	23	40
	Stage 2	66	131	2	27	119	345
	Stage 3	6	12	69	18	9	114
	Unknown	1	0	2	23	15	41
Total		84	144	73	73	166	540

*The numbers may be different from table A because table E presents encephalopathy staging at the start and end of hypothermia, whereas table A presents encephalopathy staging at the first assessment.

Presentation #56 (continued)

F. Outcomes of infants with hypoxic ischemic encephalopathy that received therapeutic hypothermia stratified per stage of encephalopathy at time of initiation of therapeutic hypothermia and combined

	Stage 1	Stage 2	Stage 3	Stage unknown	Total
Number of infants	40	345	114	41	540
Mortality, %	0	4 (1%)	44 (39%)	1 (2%)	49 (9%)
Brain injury ^a , %	6/35 (17%)	79/319 (25%)	52/85 (61%)	10/37 (27%)	147/476 (31%)
Mortality or brain injury ^b , %	6/35 (17%)	82/322 (25%)	79/108 (73%)	11/38 (29%)	178/503 (35%)
Length of stay among survivors, days, median (IQR)	7.5 (6.5, 10)	9 (7, 13)	18.5 (11, 30)	11 (8, 16)	10 (7, 15)
Length of stay among infants who died, days, median (IQR)	N/A	4 (3, 4.5)	5 (3, 8)	1 (1, 1)	4 (3, 7)
Gavage feeds at NICU discharge or transfer among survivors, %*	7 (18%)	59 (17%)	24 (21%)	4 (10%)	94 (17%)

Brain injury defined as any of the following abnormalities on neonatal MRI: basal ganglia/thalamic injury and/or watershed/white matter injury, and diffusion changes

^a Brain injury rate is calculated among infants with magnetic resonance imaging results

^b Mortality or Brain injury rate is calculated among infants who died and/or had magnetic resonance imaging results

Presentation #56 (continued)
Hypoxic Ischemic Encephalopathy
 For neonates* who received hypothermia (N=485)

G. Timing of Hypothermia and Temperature ranges during Hypothermia

Characteristics		N	Mean (h)	SD (h)	Min (h)	1 st Q (h)	Median (h)	3 rd Q (h)	Max (h)	Outside of recommendation
Timing** of hypothermia (in hours)	Age at Initiation	540	5.2	4.6	0.0	3.0	4.7	6.2	69.6	After 6 hours 151 (28%)
	Age at re-warming	539	72.9	18.9	2.6	74.7	76.7	78.4	117.6	After 78 hours 159 (29%)
Temperature during hypothermia	Lowest temp during hypothermia	423	32.8	0.8	28.1	32.5	33.0	33.2	35.9	Lowest temp < 32.5C 91 (22%)
	Highest temp during hypothermia	423	34.0	0.6	32.2	33.7	33.9	34.1	37.5	Highest temp > 35.5C 17 (4%)

*Neonates with time of initiation > 72 hours were excluded.

**All timings were calculated from time of birth in hours of age.

H. Trend Analyses over last 12 years

This section includes trend analyses of specific outcomes from the last 12 years (2013-24) for neonates <33 weeks' GA in CNN sites. The following table describes the number of neonates in the respective GA categories that were included in these trend analyses. Delivery room deaths were excluded.

Number of neonates by admission year and GA

Year	Number of Sites	GA											Total
		<23	23	24	25	26	27	28	29	30	31	32	
2013	29	16	76	197	247	267	357	434	479	620	733	836	4262
2014	31	8	81	226	250	332	362	412	517	585	743	871	4387
2015	30	14	99	177	248	289	317	425	470	536	662	793	4030
2016	30	16	79	214	275	272	380	431	437	551	722	861	4238
2017	31	16	133	215	257	294	325	434	467	606	743	868	4358
2018	32	25	132	215	271	334	380	424	518	576	744	863	4482
2019	32	25	118	217	279	297	342	440	470	613	740	905	4446
2020	33	15	127	201	236	265	310	402	491	593	634	834	4108
2021	33	32	99	214	254	298	331	448	514	577	761	941	4469
2022	33	30	126	195	254	261	351	432	529	589	642	912	4321
2023	33	38	107	235	219	269	323	395	507	585	690	910	4278
2024	33	42	136	200	237	290	389	426	483	578	706	918	4405

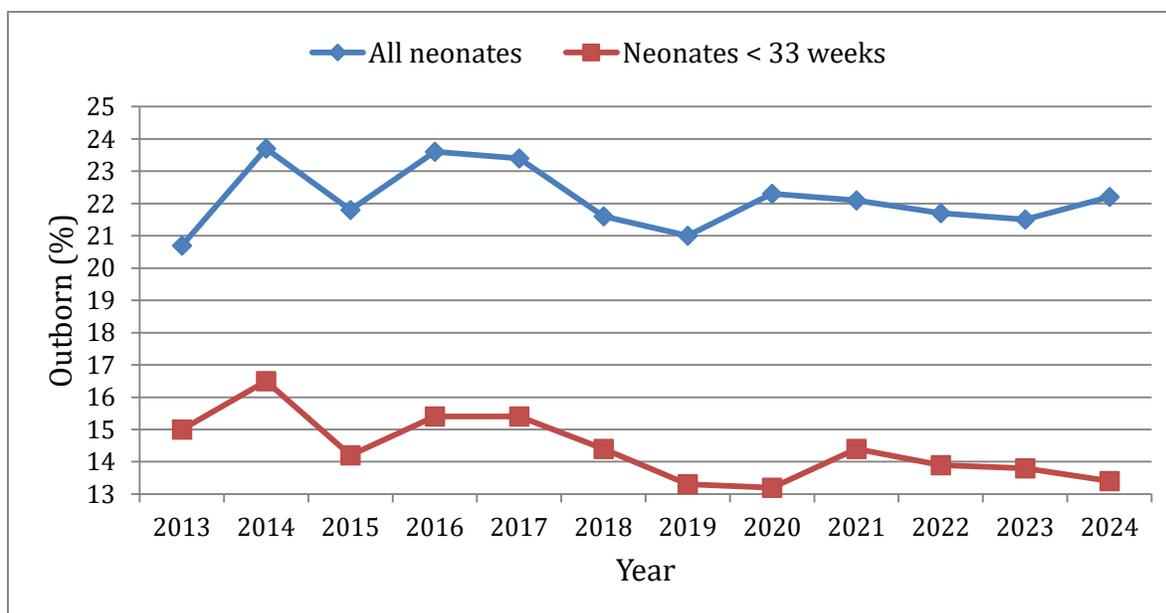
Number of neonates by admission year and birth weight

Year	Number of Sites	Birth weight					Total
		< 500	500 - 749	750 - 999	1000 – 1249	1250 – 1499	
2013	29	36	428	651	842	919	2876
2014	31	36	458	760	804	922	2980
2015	30	40	406	680	792	864	2782
2016	30	40	472	710	744	901	2867
2017	31	38	478	678	806	920	2920
2018	32	55	508	739	807	977	3086
2019	32	50	482	685	802	937	2956
2020	33	43	436	668	731	878	2756
2021	33	43	479	673	831	933	2959
2022	33	58	479	649	793	942	2921
2023	33	55	490	635	816	883	2879
2024	33	56	515	670	826	968	3035

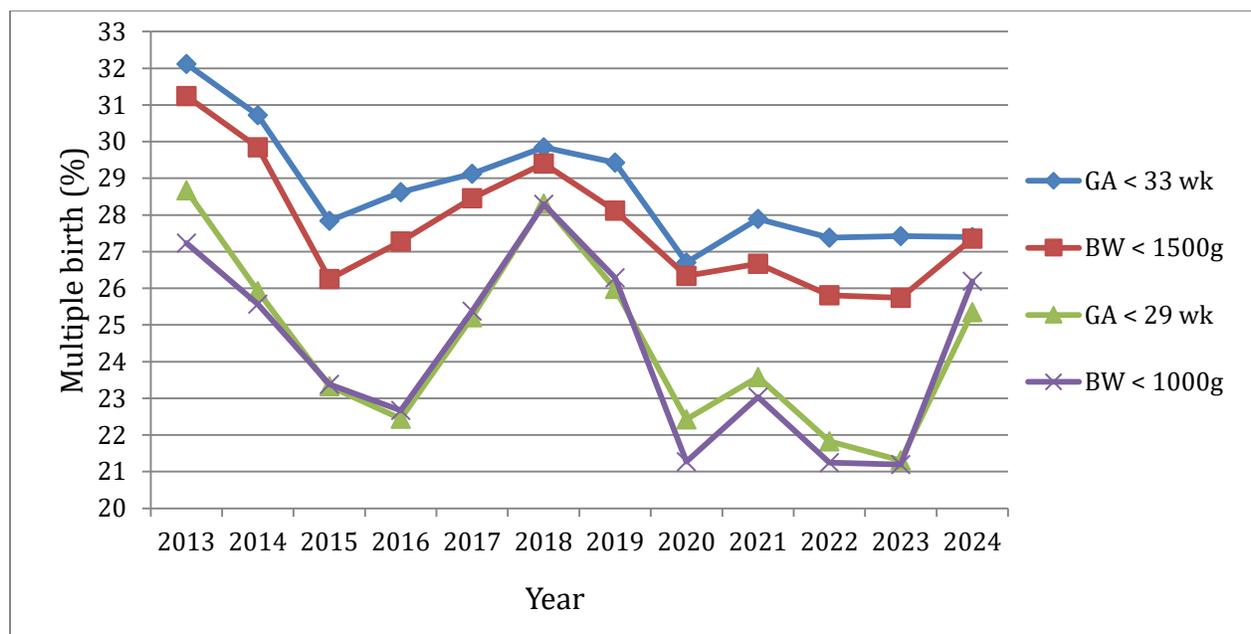
1. Neonates in the participating sites: Admission status:

Year	Number of Sites	All neonates			Infants with GA<33 weeks		
		Total Number of Neonates*	Inborn (%)	Outborn (%)	Number of Neonates* with GA<33	Inborn (%)	Outborn (%)
2013	29	14 489	11 487	3 002	4 262	3 624	638
			(79.2%)	(20.7%)		(85.0%)	(15.0%)
2014	31	14 038	11 473	3 565	4 383	3658	725
			(76.3%)	(23.7%)		(83.5%)	(16.5%)
2015	30	14 814	11 583	3 231	4 030	3 459	571
			(78.2%)	(21.8%)		(85.8%)	(14.2%)
2016	30	14 905	11 388	3 517	4 238	3 585	653
			(76.4%)	(23.6%)		(84.6%)	(15.4%)
2017	31	14 773	11 320	3 453	4 358	3 685	673
			(76.6%)	(23.4%)		(84.6%)	(15.4%)
2018	32	15 479	12 134	3 345	4 481	3 836	645
			(78.4%)	(21.6%)		(85.6%)	(14.4%)
2019	32	14 868	11 750	3 118	4 446	3 856	590
			(79.0%)	(21.0%)		(86.7%)	(13.3%)
2020	33	14 271	11 091	3 180	4 108	3 564	544
			(77.7%)	(22.3%)		(86.8%)	(13.2%)
2021	33	14 651	11 419	3 232	4 469	3 826	643
			(77.9%)	(22.1%)		(85.6%)	(14.4%)
2022	33	14 494	11 345	3 149	4 321	3 722	599
			(78.3%)	(21.7%)		(86.1%)	(13.9%)
2023	33	14 469	11 363	3 106	4 278	3 686	592
			(78.5%)	(21.5%)		(86.2%)	(13.8%)
2024	33	15 493	12 051	3 442	4 405	3 814	591
			(77.8%)	(22.2%)		(86.6%)	(13.4%)

*total number of neonates excluding those who are missing admission status

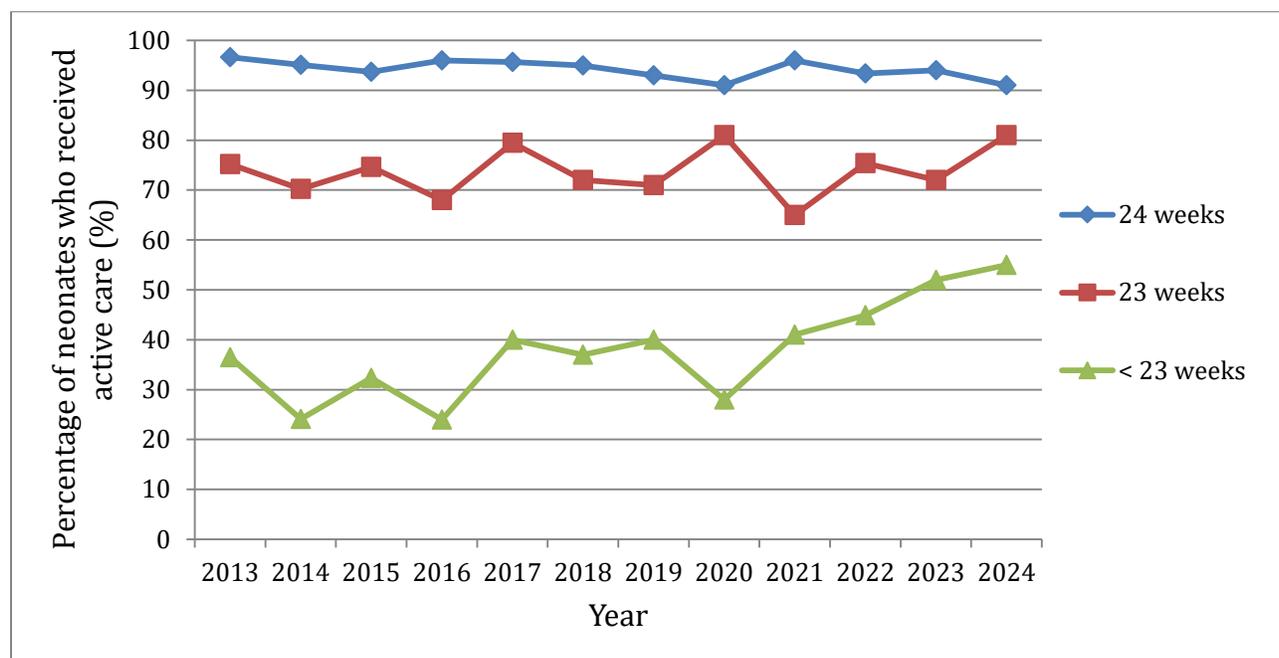


2. Multiple births



		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
GA < 29 weeks	Total	1569	1667	1674	1780	1717	1556	1675	1649	1586	1720
	Multiple	366	374	422	504	446	349	395	360	338	436
		(23%)	(22%)	(25%)	(28%)	(26%)	(22%)	(24%)	(22%)	(21%)	(25%)
	Twin	321	345	375	466	415	316	364	336	321	396
Higher-Order	45	29	47	38	31	33	31	24	17	40	
GA < 33 weeks	Total	4030	4238	4358	4481	4445	4108	4468	4321	4278	4405
	Multiple	1122	1213	1269	1337	1308	1097	1246	1183	1173	1207
		(28%)	(29%)	(29%)	(30%)	(29%)	(27%)	(28%)	(27%)	(27%)	(27%)
	Twin	996	1094	1156	1202	1191	1000	1112	1079	1075	1094
Higher-Order	126	119	113	135	117	97	134	104	98	113	
BW < 1000g	Total	1126	1222	1194	1301	1217	1147	1194	1186	1180	1241
	Multiple	264	277	303	368	320	244	275	252	250	325
		(23%)	(23%)	(25%)	(28%)	(26%)	(21%)	(23%)	(21%)	(21%)	(26%)
	Twin	236	260	269	338	295	218	249	232	233	300
Higher-Order	28	17	34	30	25	26	26	20	17	25	
BW < 1500g	Total	2782	2867	2920	3085	2955	2756	2958	2921	2879	3035
	Multiple	731	782	831	907	831	726	789	754	741	830
		(26%)	(27%)	(28%)	(29%)	(28%)	(26%)	(27%)	(26%)	(26%)	(27%)
	Twin	634	703	747	812	757	656	706	687	677	750
Higher-Order	97	79	84	95	74	70	83	67	64	80	

3a. Proportion of neonates who received active care out of all (including delivery room (DR) deaths)



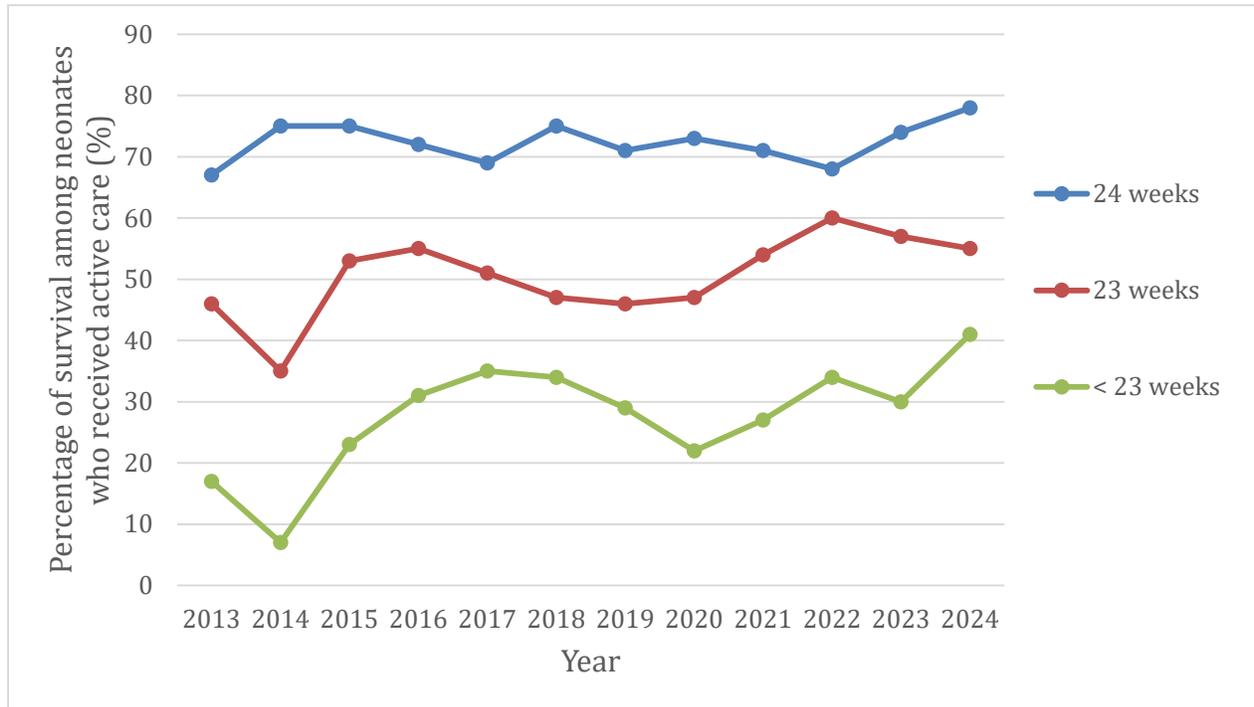
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
<23 weeks	Number of neonates who received active care $(a-c) + e$	22	16	26	35	35	18	37	35	46	51
	Total number of neonates including DR deaths $a+d+e$	68	67	65	95	88	64	91	78	89	92
	Percentage of neonates who received active care	32%	24%	40%	37%	40%	28%	41%	45%	52%	55%
23 weeks	Number of neonates who received active care $(a-c) + e$	106	82	136	133	127	131	101	129	116	141
	Total number of neonates including DR deaths $a+d+e$	142	121	171	185	178	162	155	171	161	175
	Percentage of neonates who received active care	75%	68%	80%	72%	71%	81%	65%	75%	72%	81%
24 weeks	Number of neonates who received active care $(a-c) + e$	178	217	221	224	224	199	216	197	235	200
	Total number of neonates including DR deaths $a+d+e$	190	227	231	235	240	218	226	211	249	219
	Percentage of neonates who received active care	94%	96%	96%	95%	93%	91%	96%	93%	94%	91%

Note: Refer to presentation #4 for detailed breakdown of neonates by GA.

The alphabet notations used in the table above are carried from presentation #4.

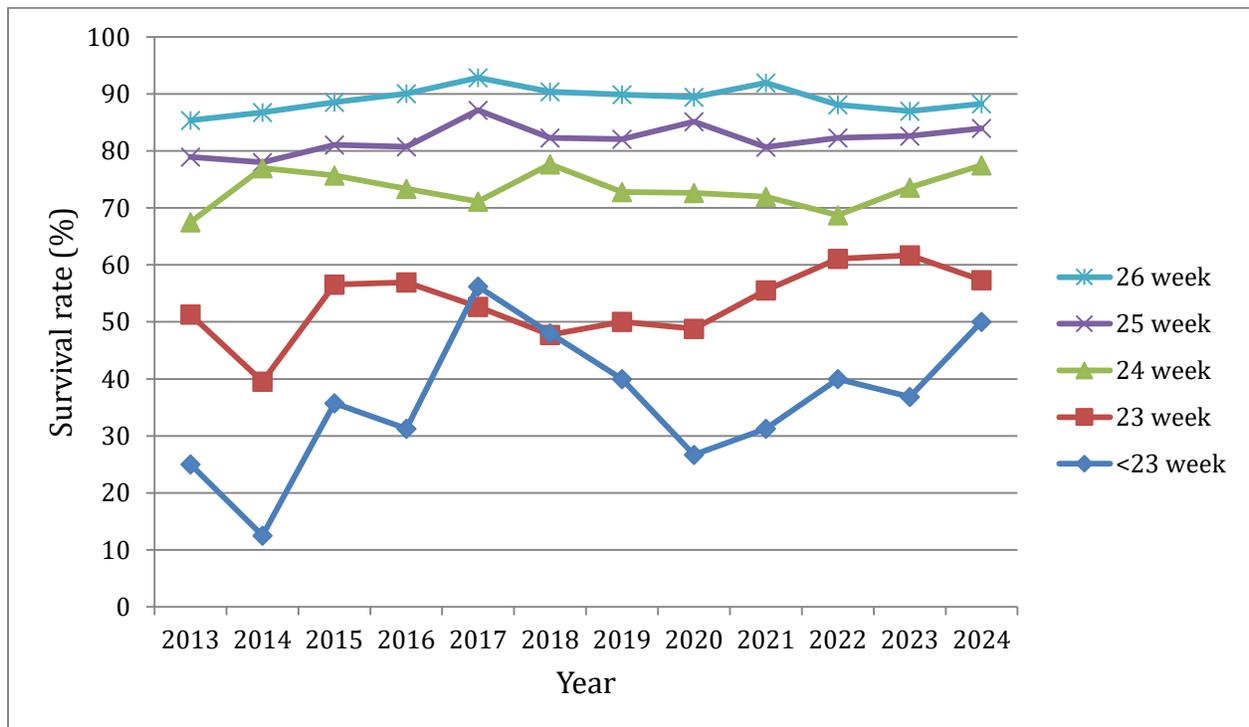
Information should be interpreted with caution as not all sites provided data on delivery room deaths. Active care refers to infants who received cardiopulmonary resuscitation at birth.

3b. Trends in survival among neonates who received active care (including delivery room deaths)

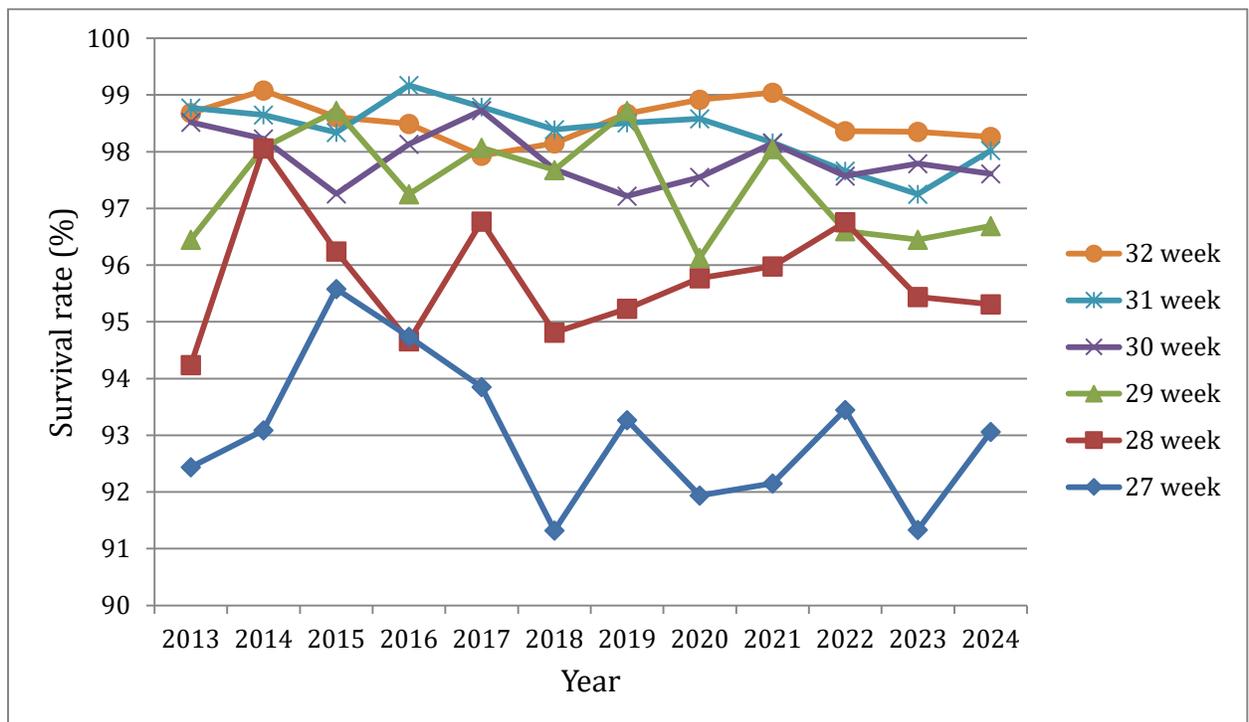


4. Survival rate among those who were admitted to NICU:

a. 22-26 weeks' GA:

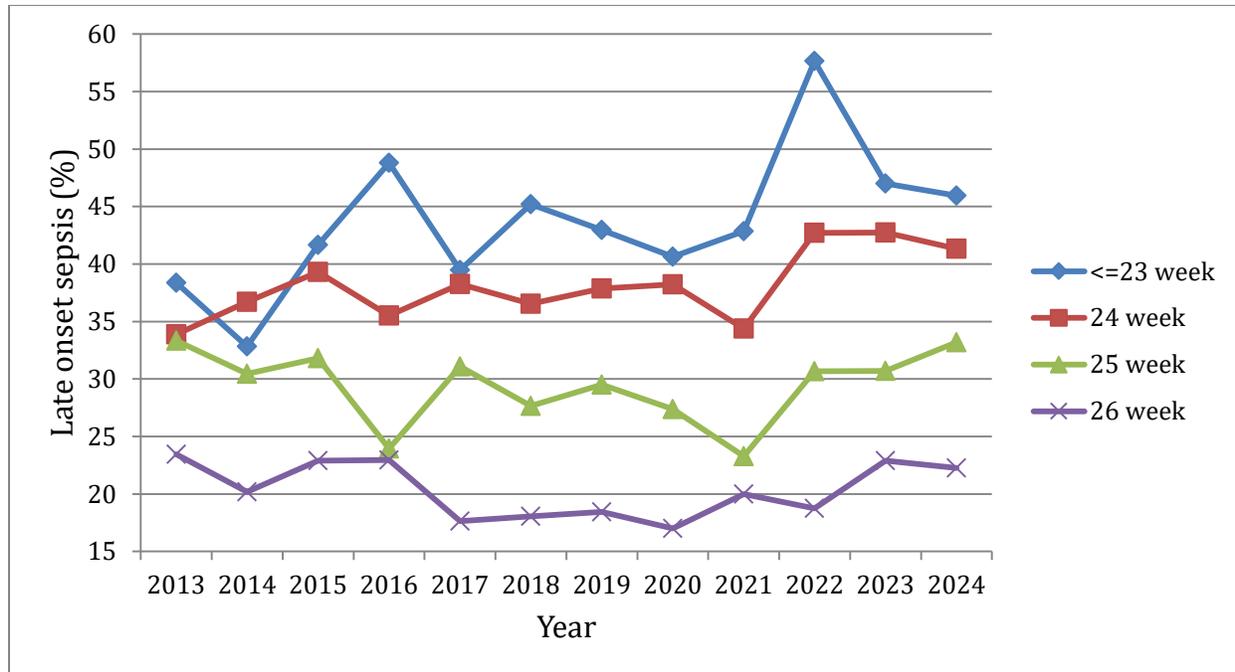


b. 27-32 weeks' GA:

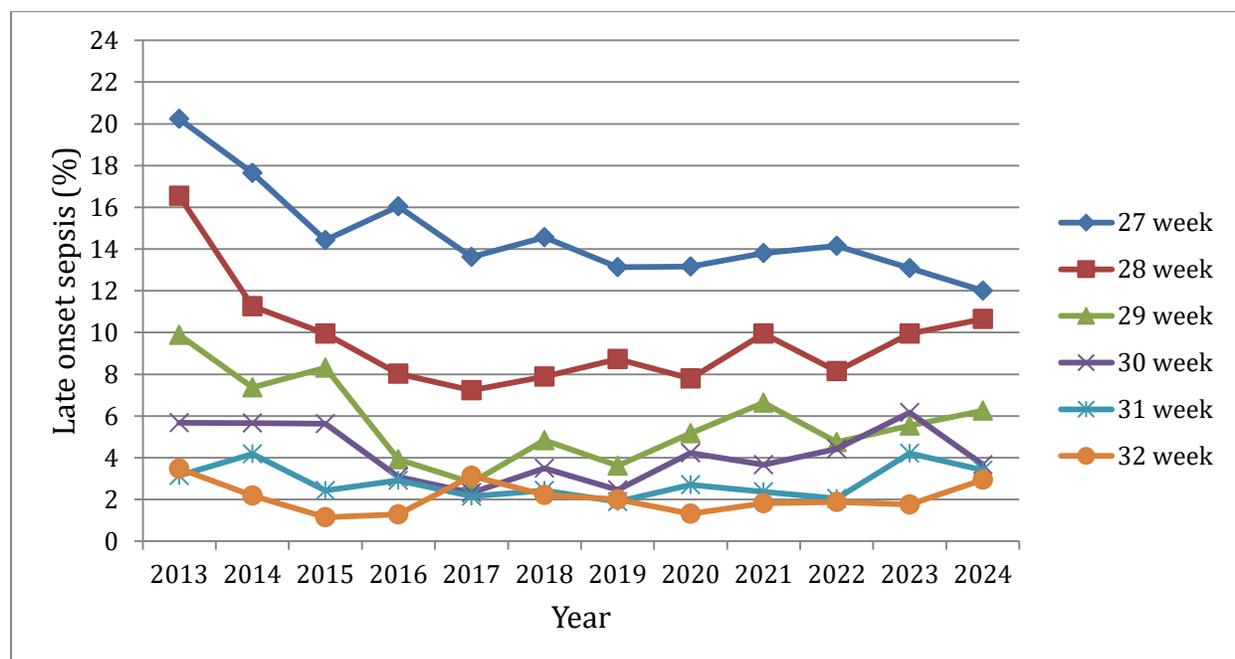


5. Late onset sepsis (with at least one infection) among neonates who survived beyond 2 days post birth

a. 22-26 weeks' GA:

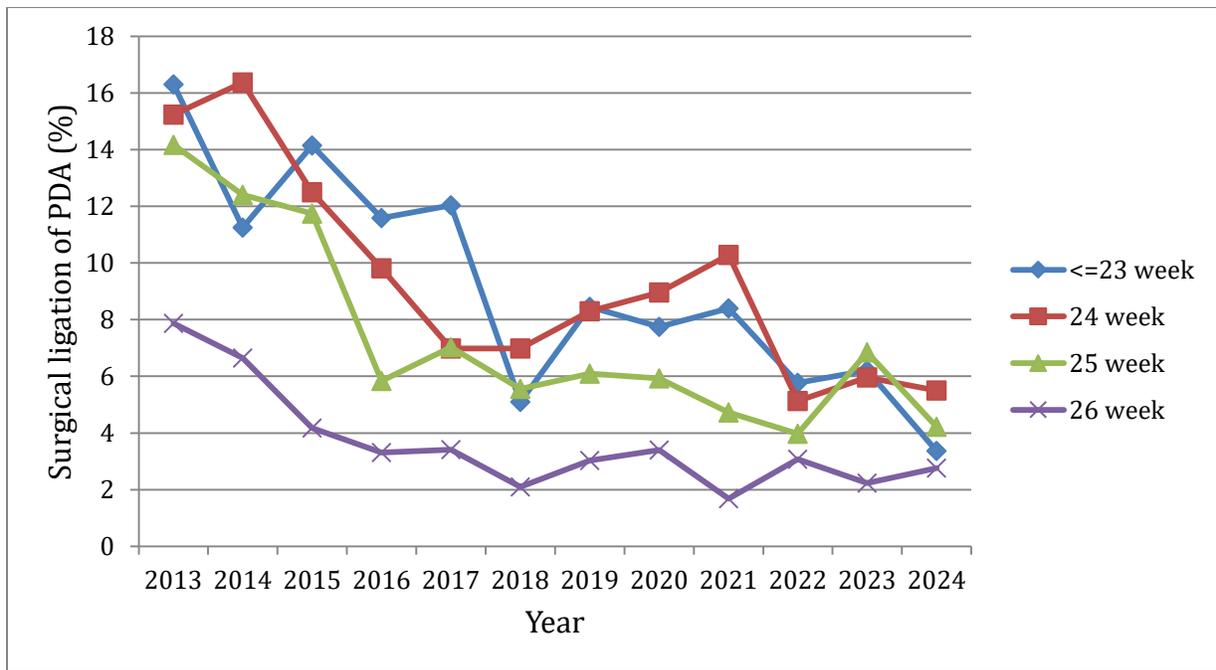


b. 27-32 weeks' GA:

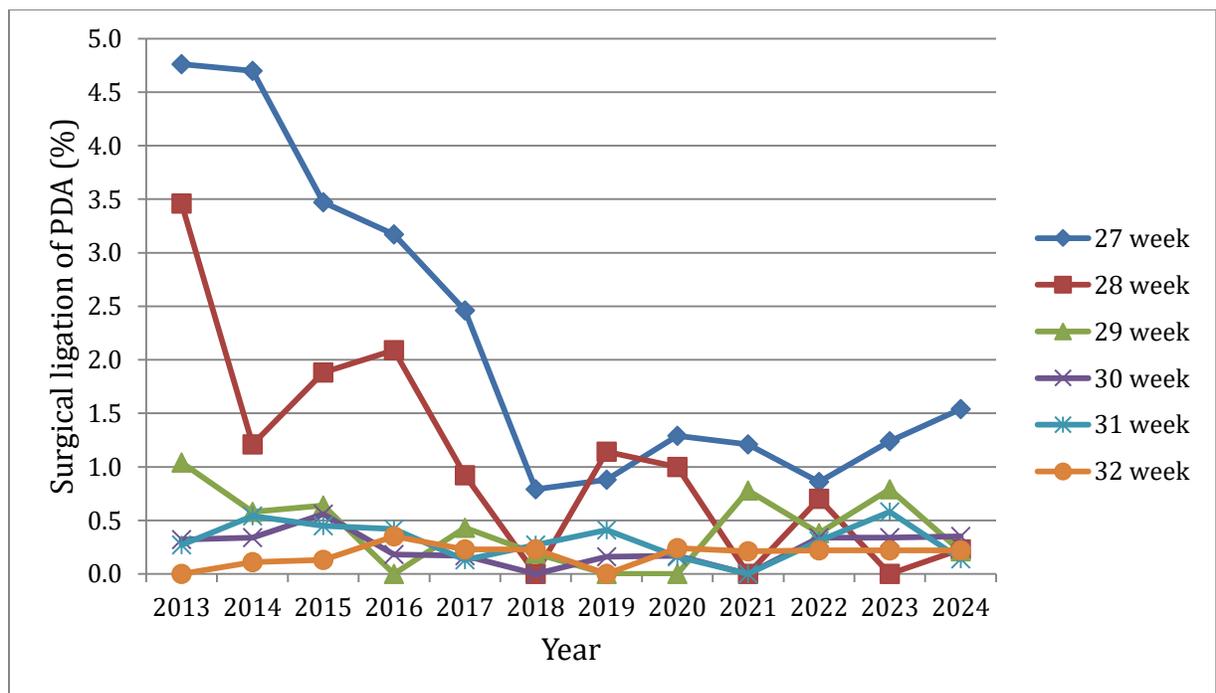


6. Surgical ligation or device closure of PDA among all neonates

a. 22-26 weeks' GA:

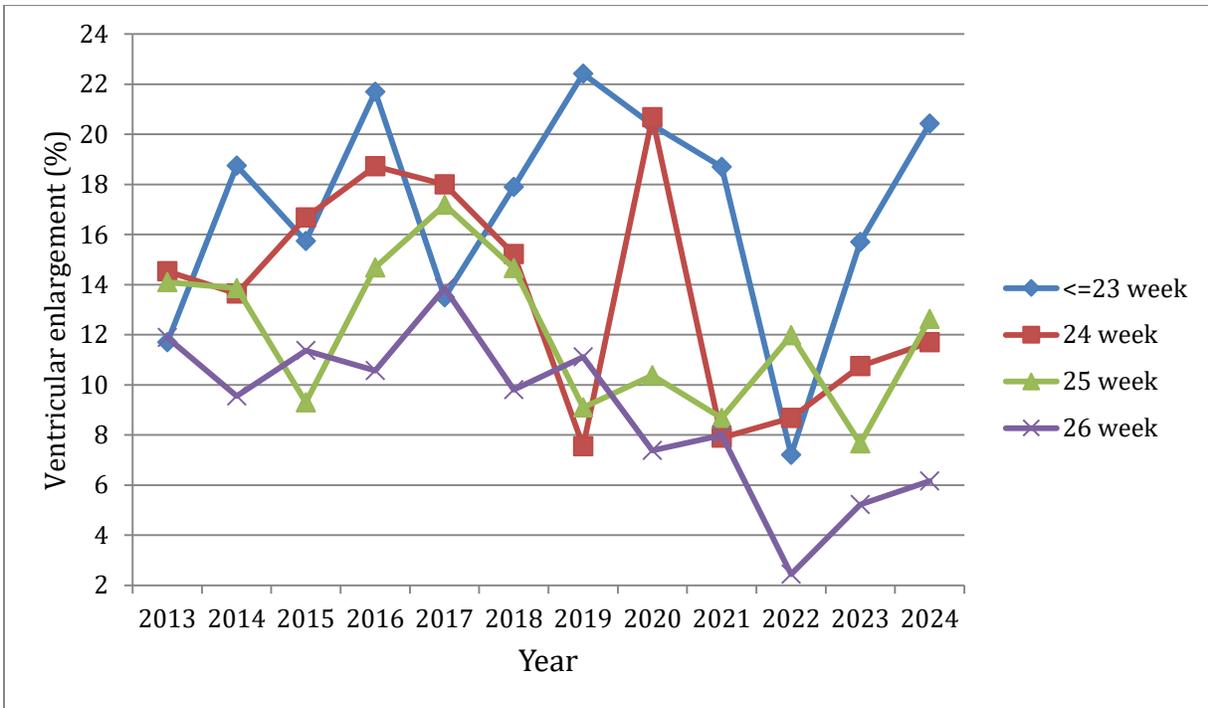


b. 27-32 weeks' GA:

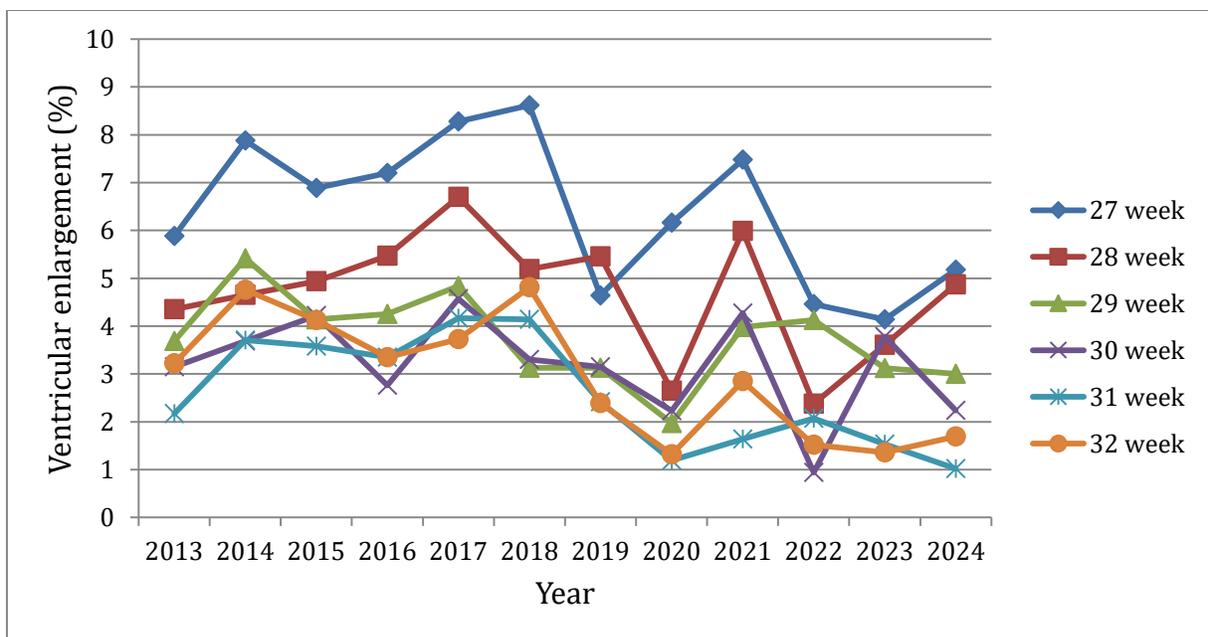


7. Ventricular enlargement (VE): (moderate and severe VE only; among neonates who received ultrasound exams)

a. 22-26 weeks' GA:

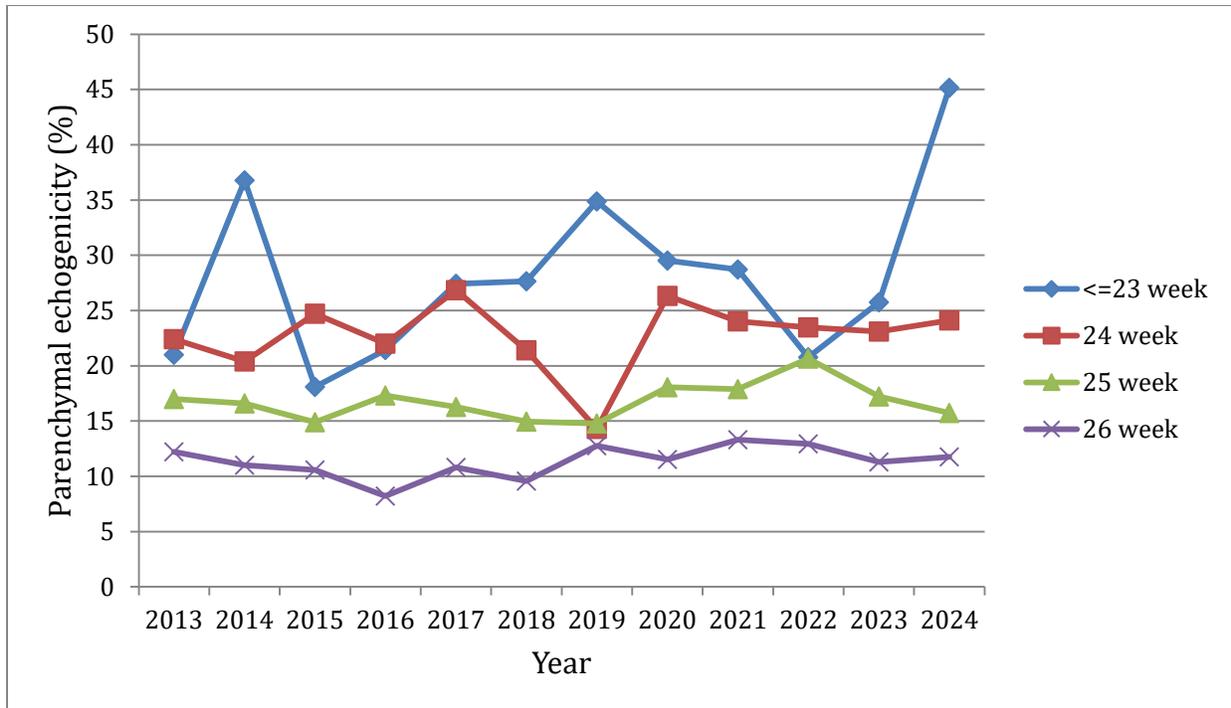


b. 27-32 weeks' GA:

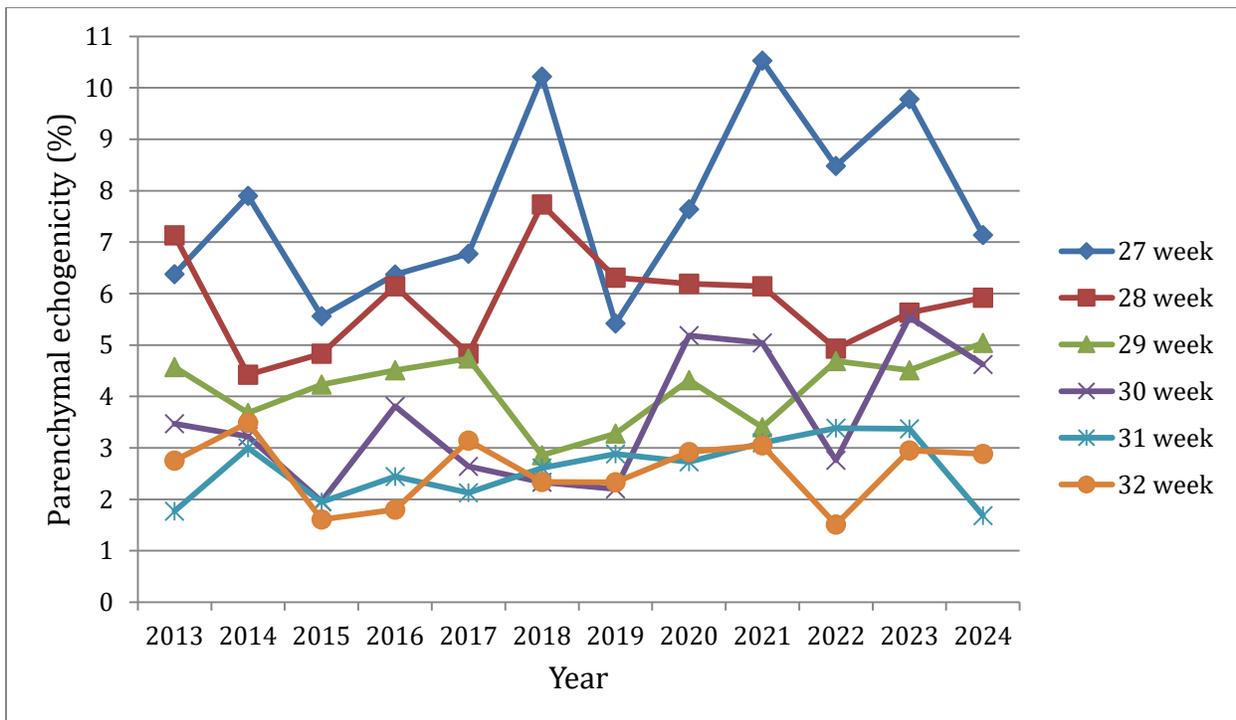


8. PVL or intra-parenchymal lesion (among neonates who received ultrasound exams)

a. 22-26 weeks' GA:

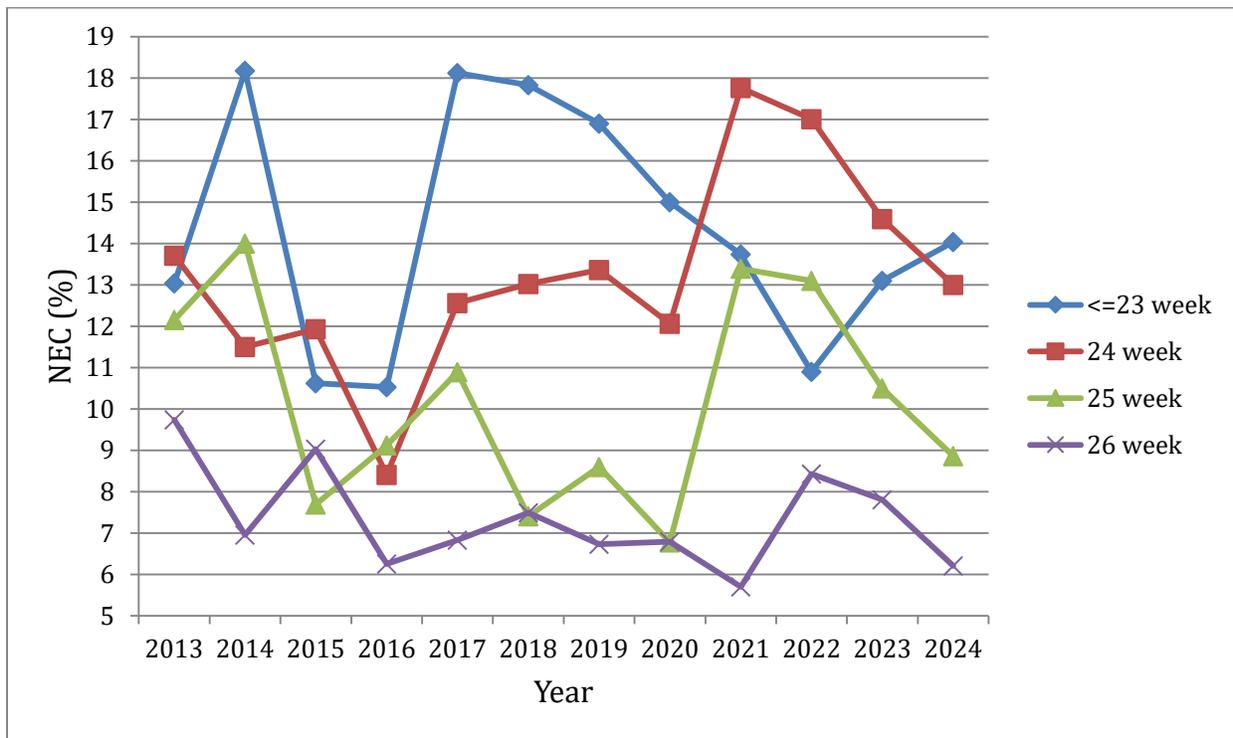


b. 27-32 weeks GA:

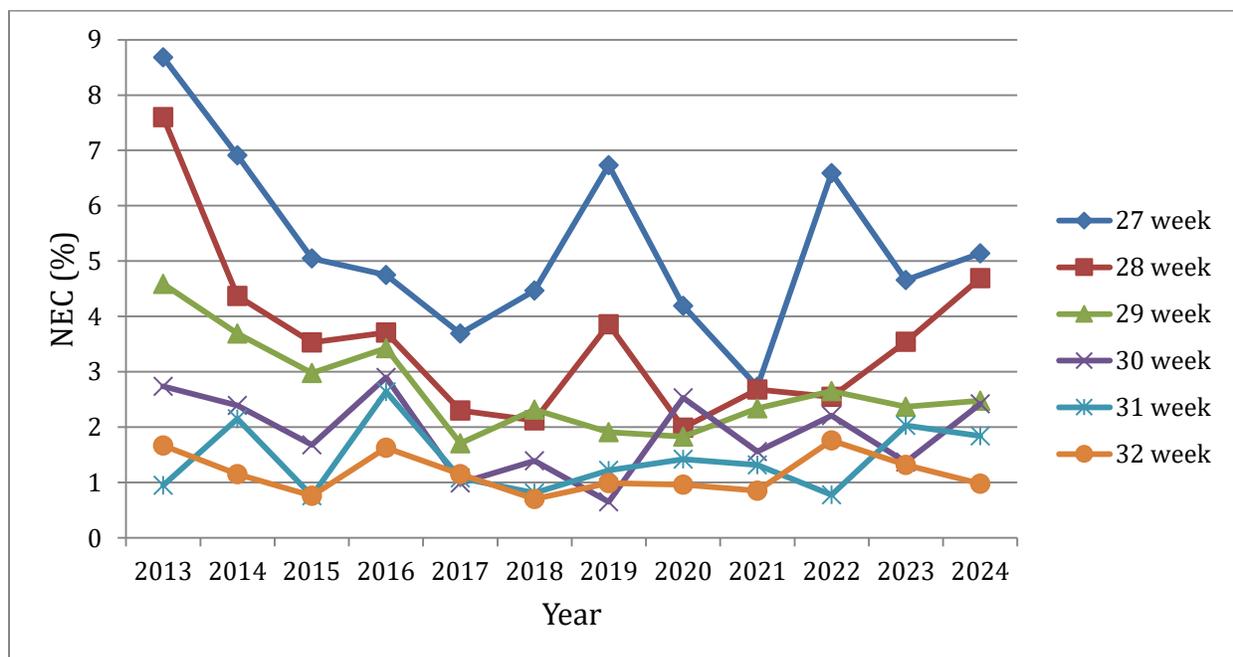


9. NEC:

a. 22-26 weeks' GA:

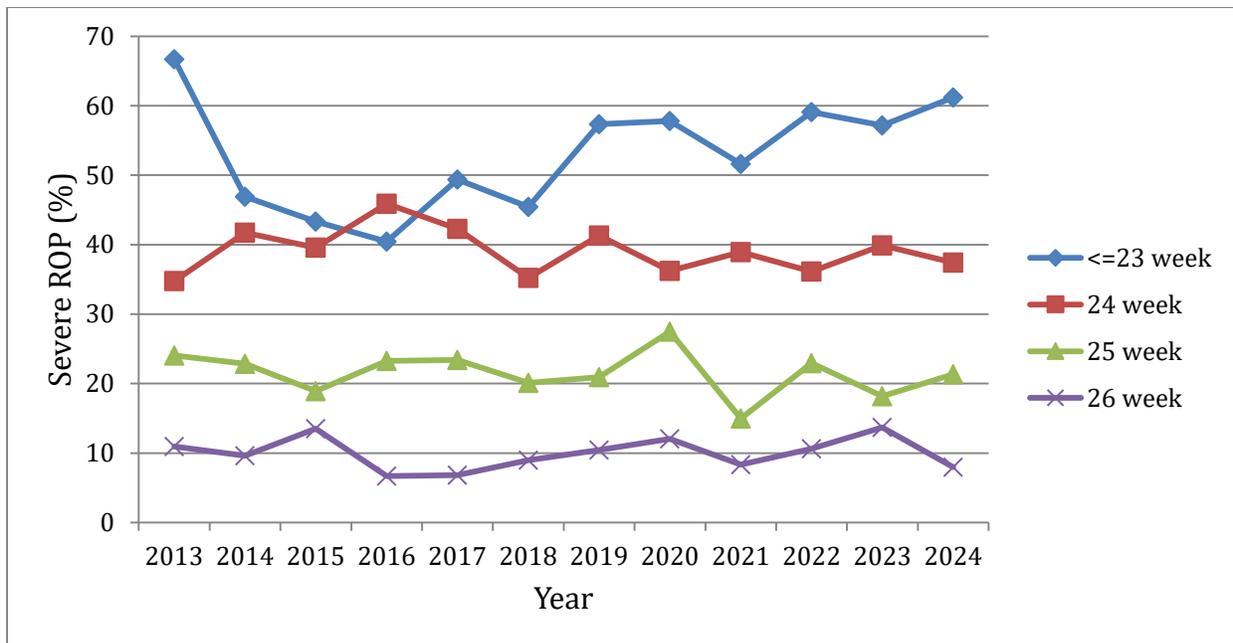


b. 27-32 weeks' GA:

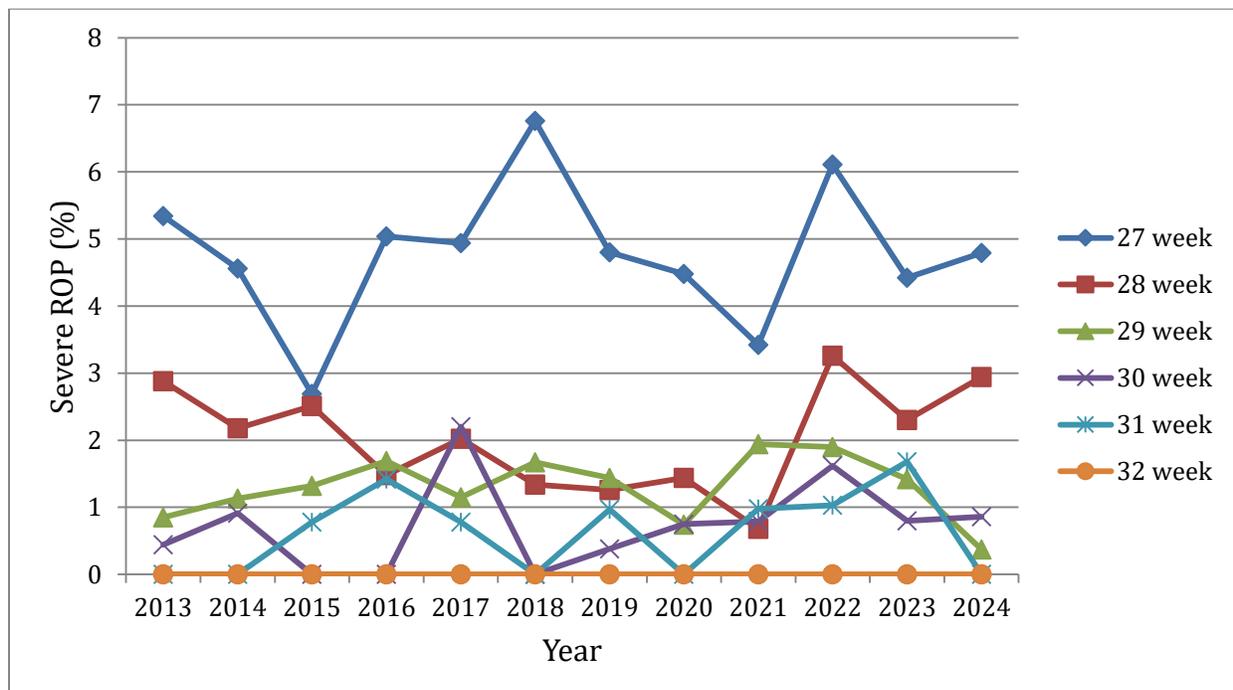


10. Severe ROP (\geq Stage 3 or ROP treatment) among neonates who received eye exams:

a. 22-26 weeks' GA:

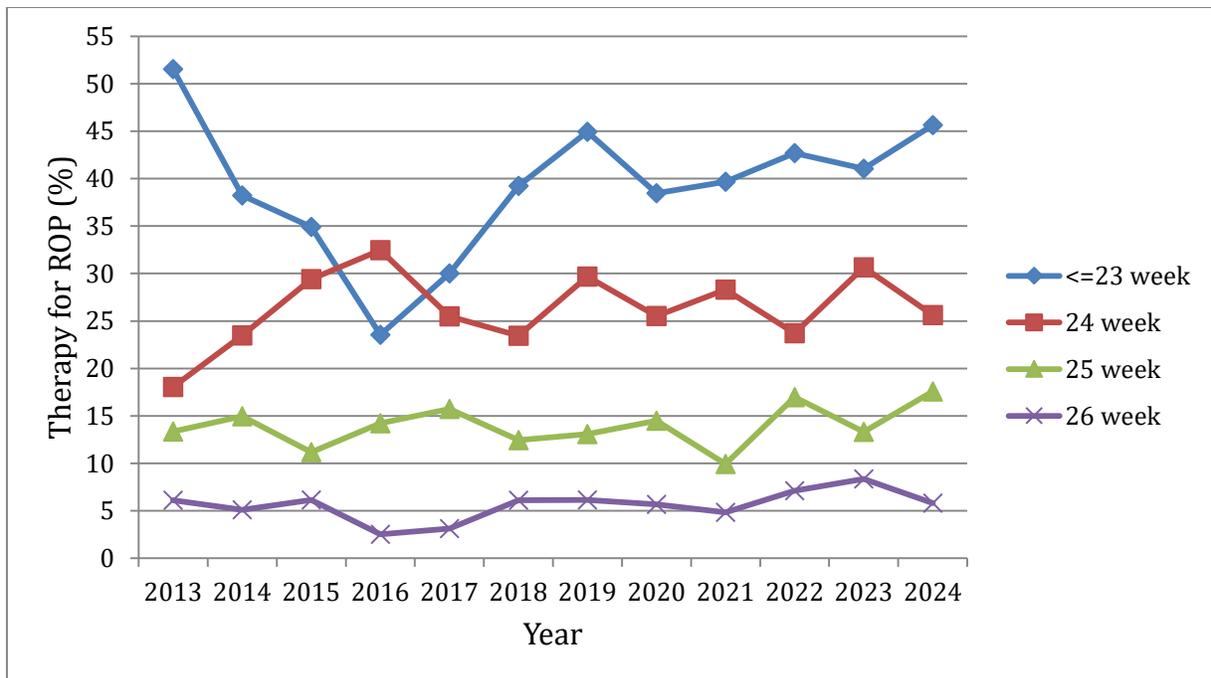


b. 27-32 weeks' GA:

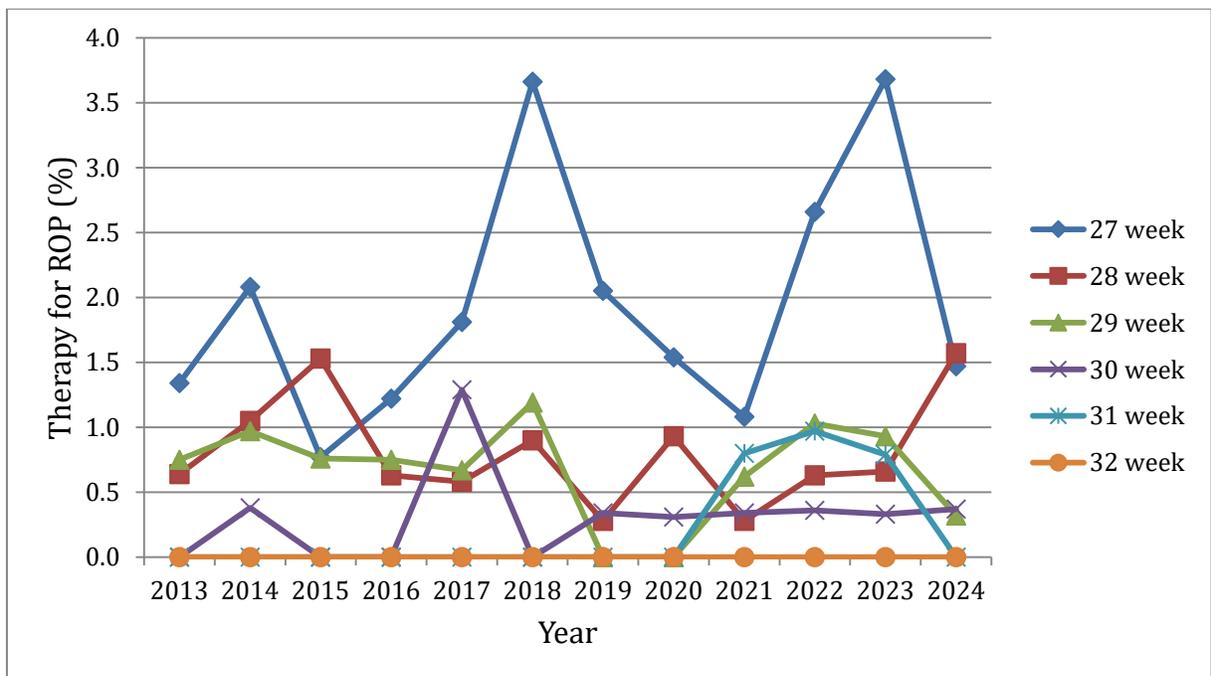


11. Therapy for ROP (among neonates who received eye exams)

a. 22-26 weeks' GA:

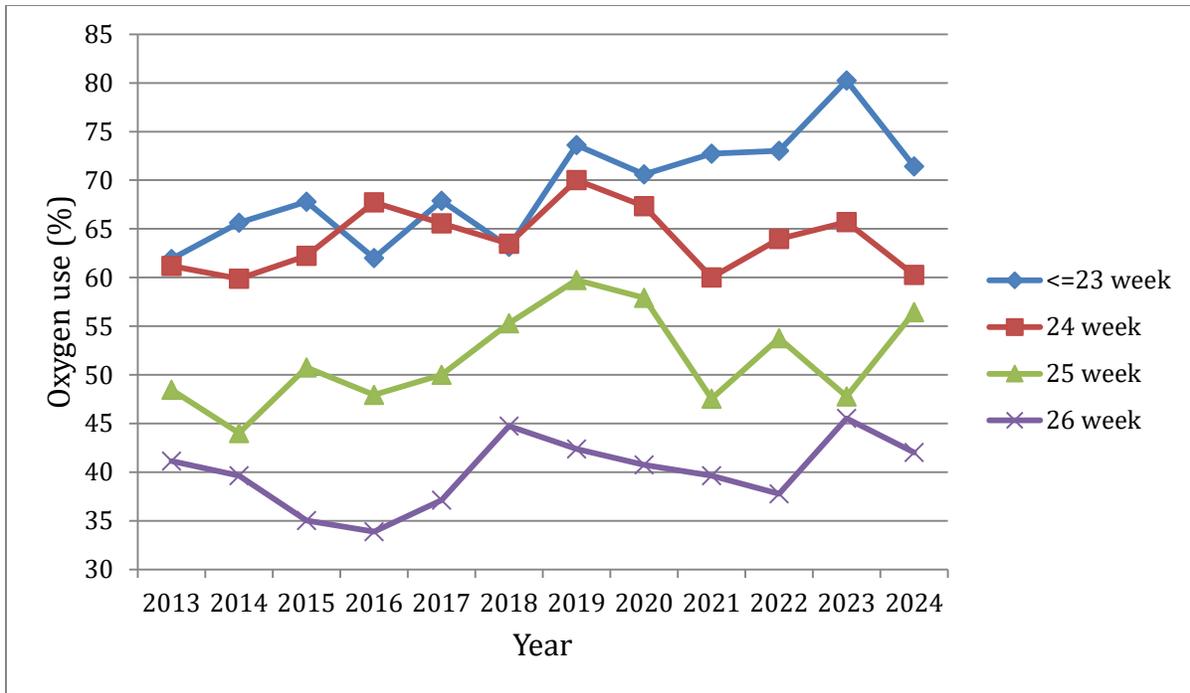


b. 27-32 weeks' GA:

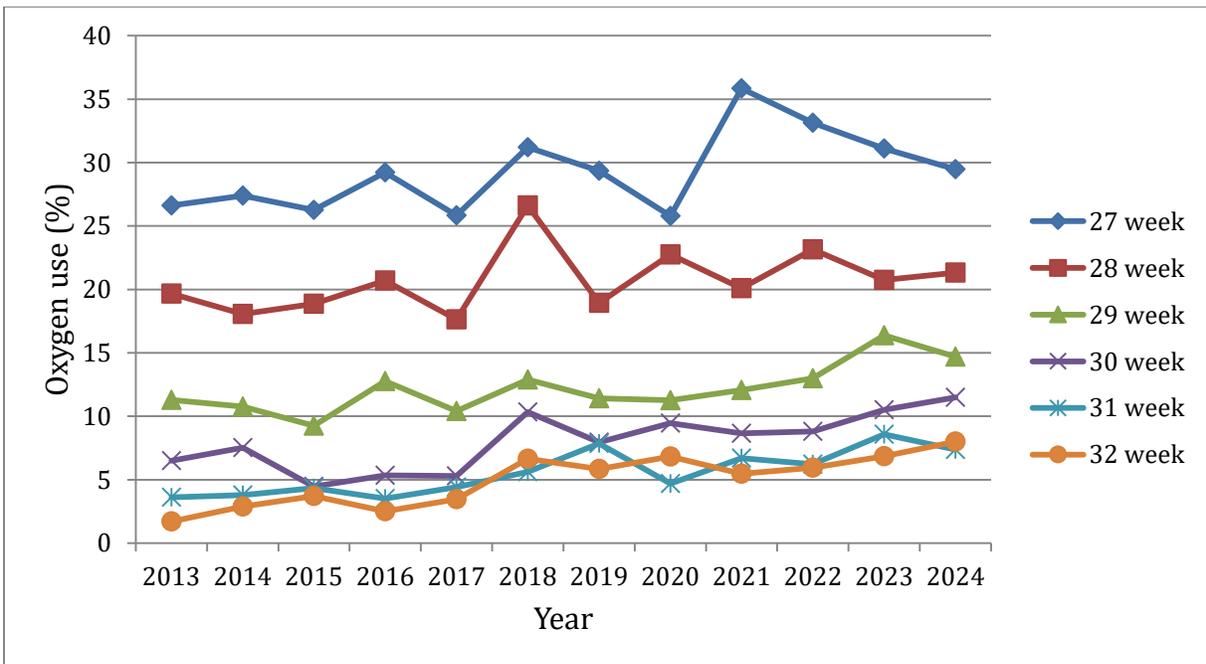


12a. Oxygen use at 36 weeks or at discharge:

a. 22-26 weeks' GA:

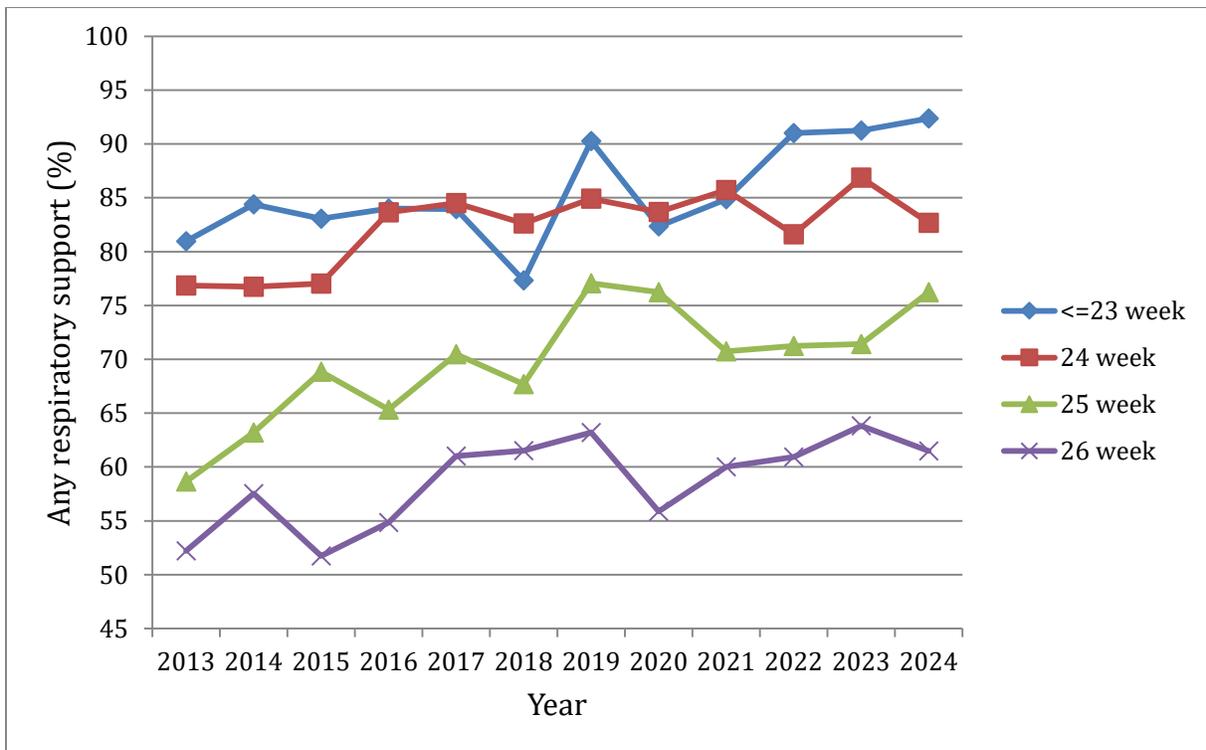


b. 27-32 weeks' GA:

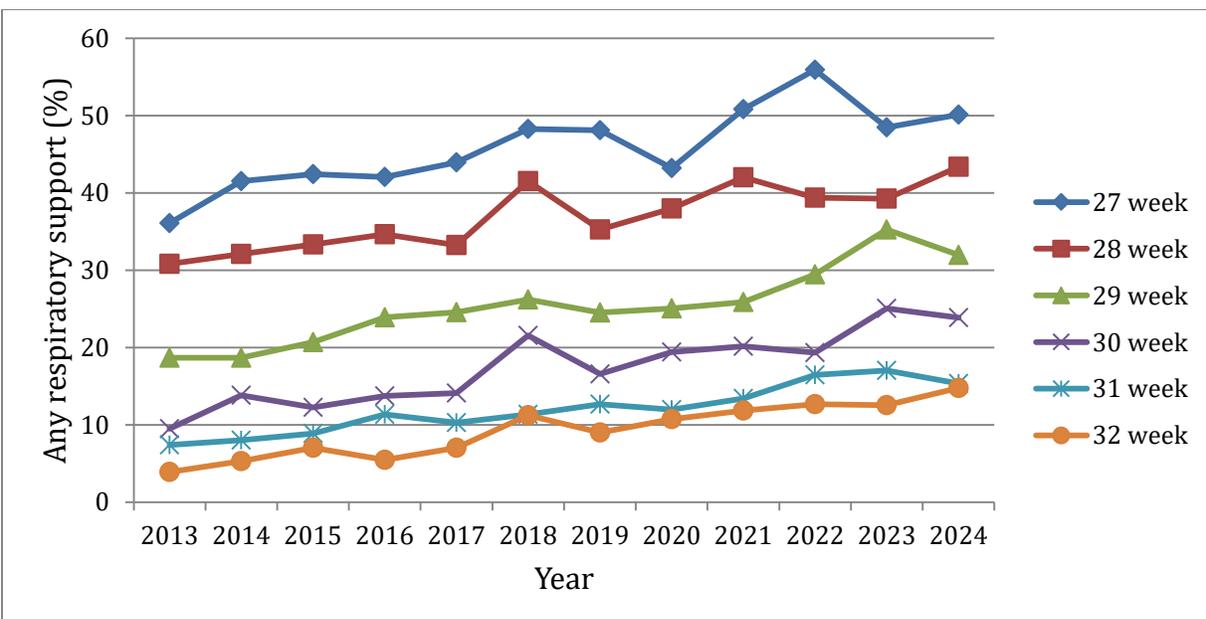


12b. Any respiratory support (including supplemental oxygen) at 36 weeks or at discharge:

a. 22-26 weeks' GA:

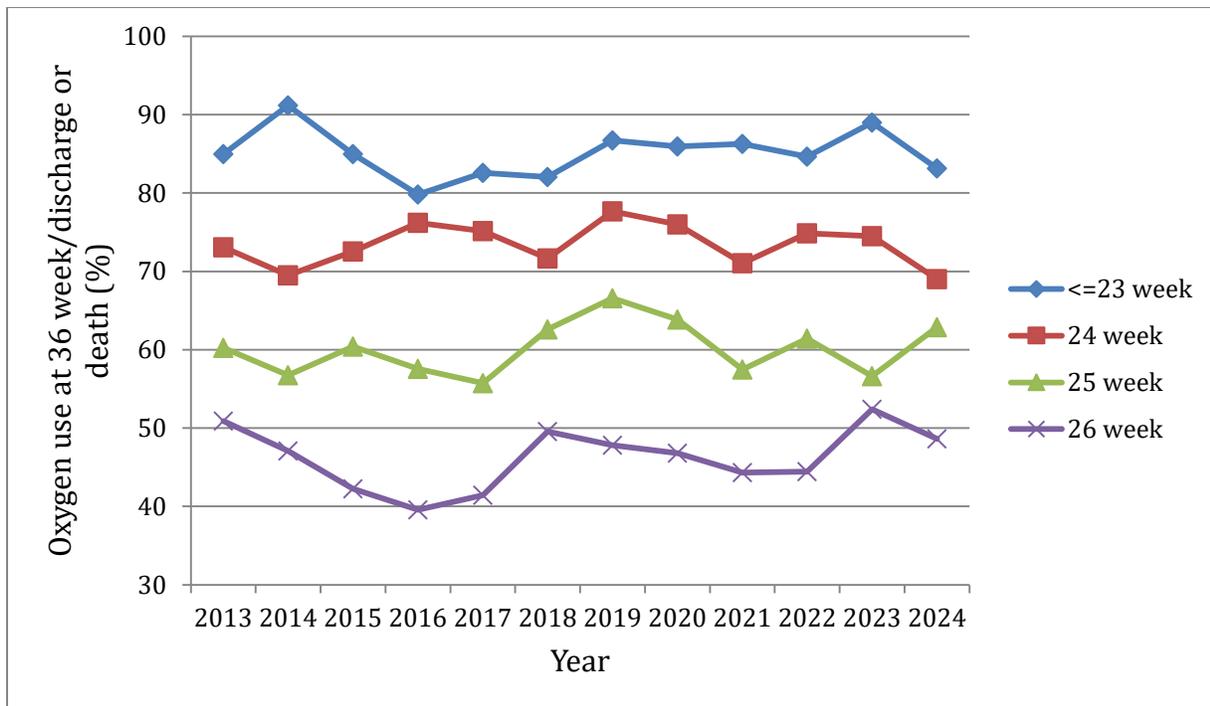


b. 27-32 weeks' GA:

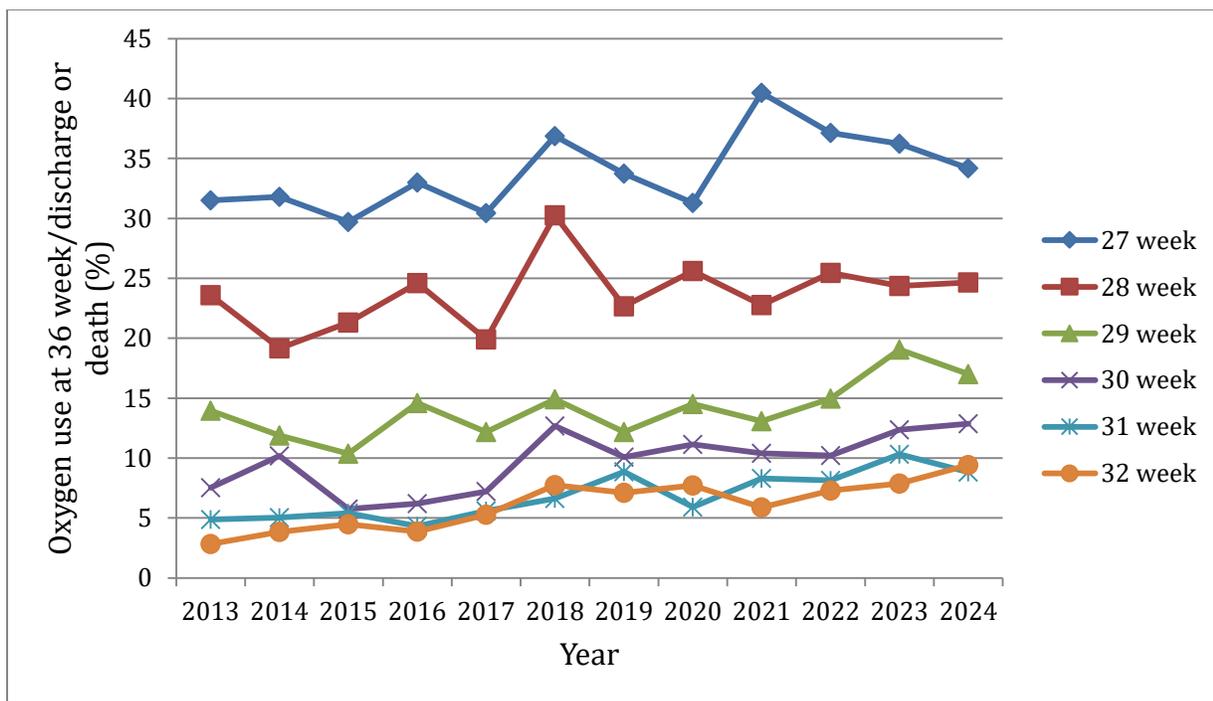


13a. Oxygen use at 36 weeks/discharge or death:

a. 22-26 weeks' GA:

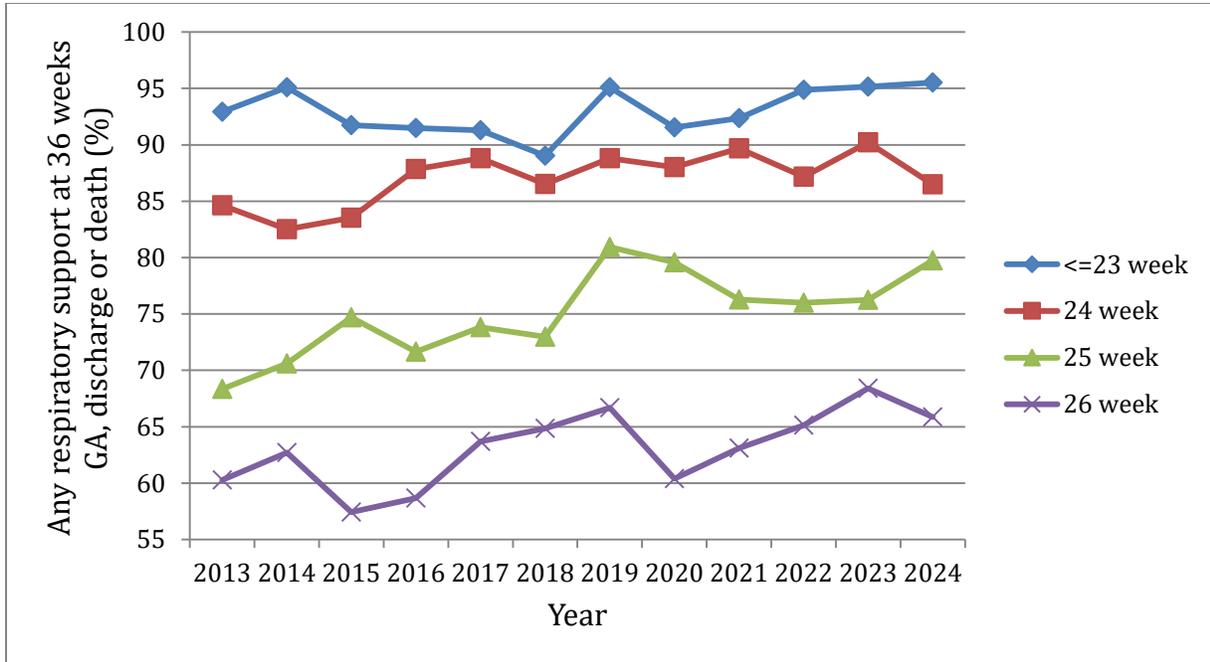


b. 27-32 weeks' GA:

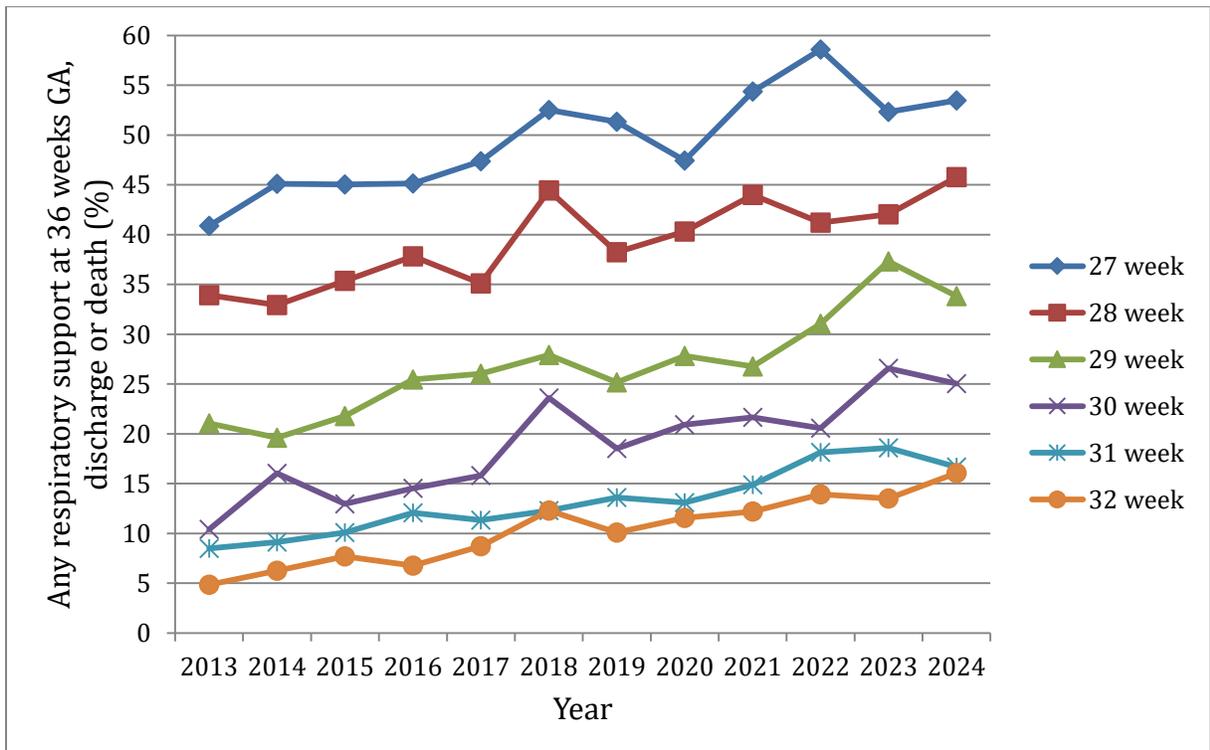


13b. Any respiratory support (including supplemental oxygen) at 36 weeks/discharge or death:

a. 22-26 weeks' GA:

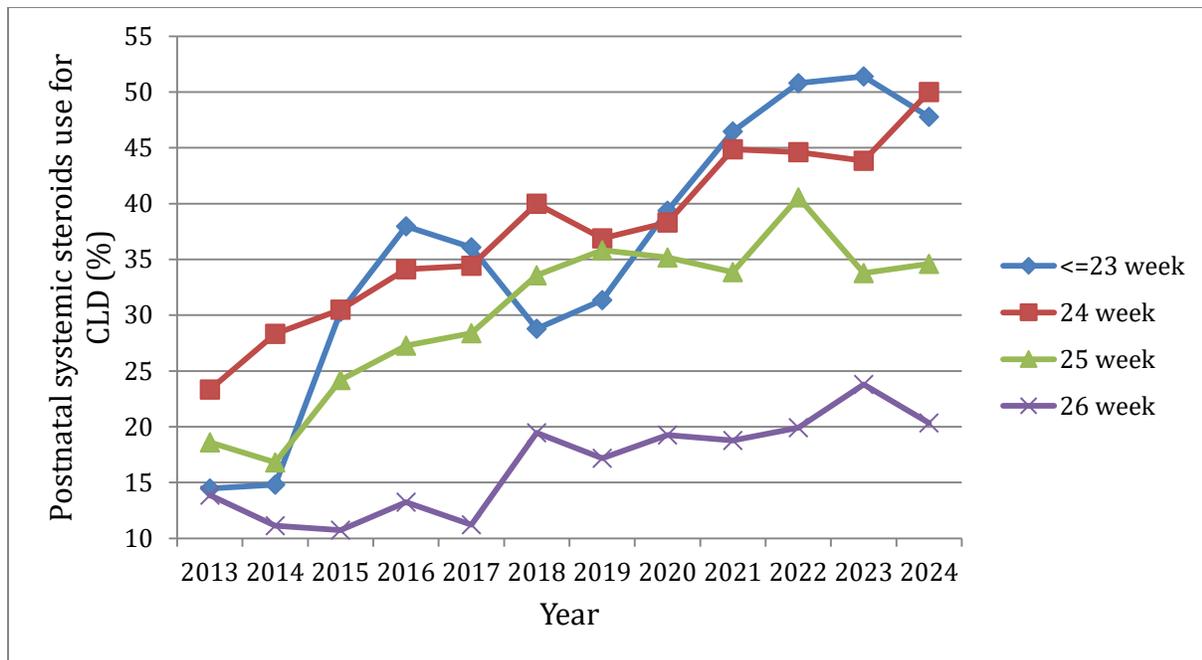


b. 27-32 weeks' GA:

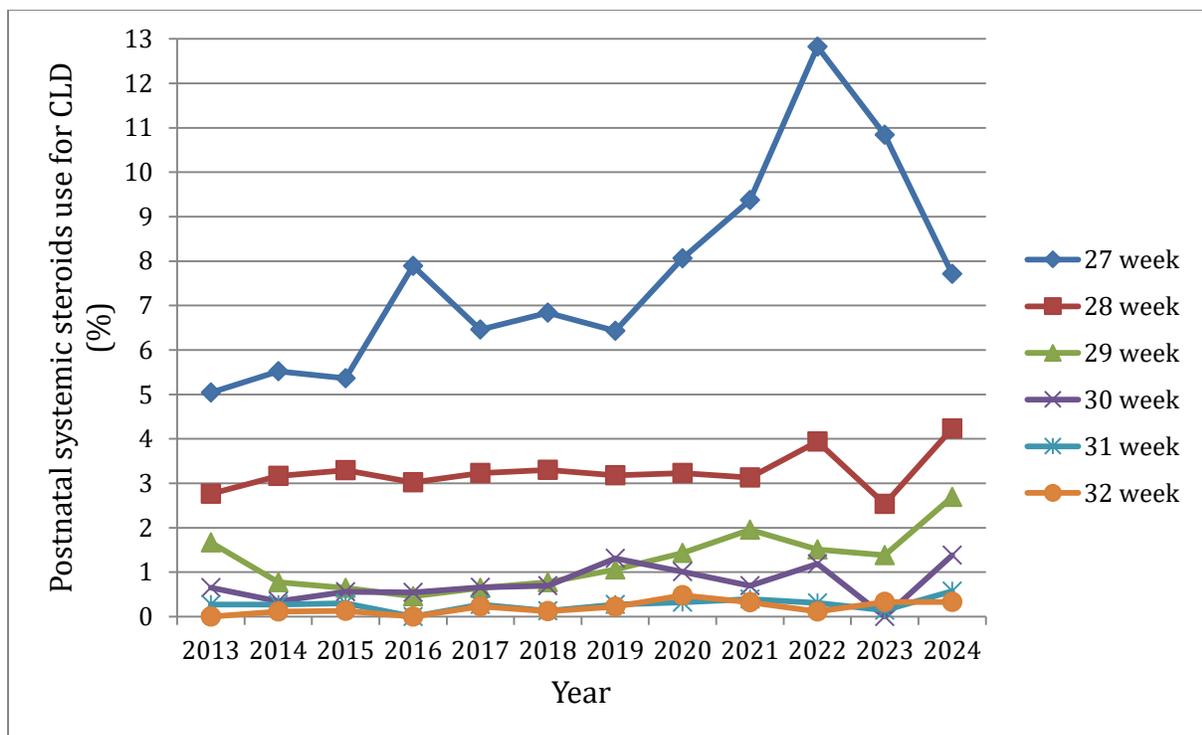


14. Postnatal systemic steroids use for chronic lung disease (CLD)

a. 22-26 weeks' GA:



b. 27-32 weeks' GA:

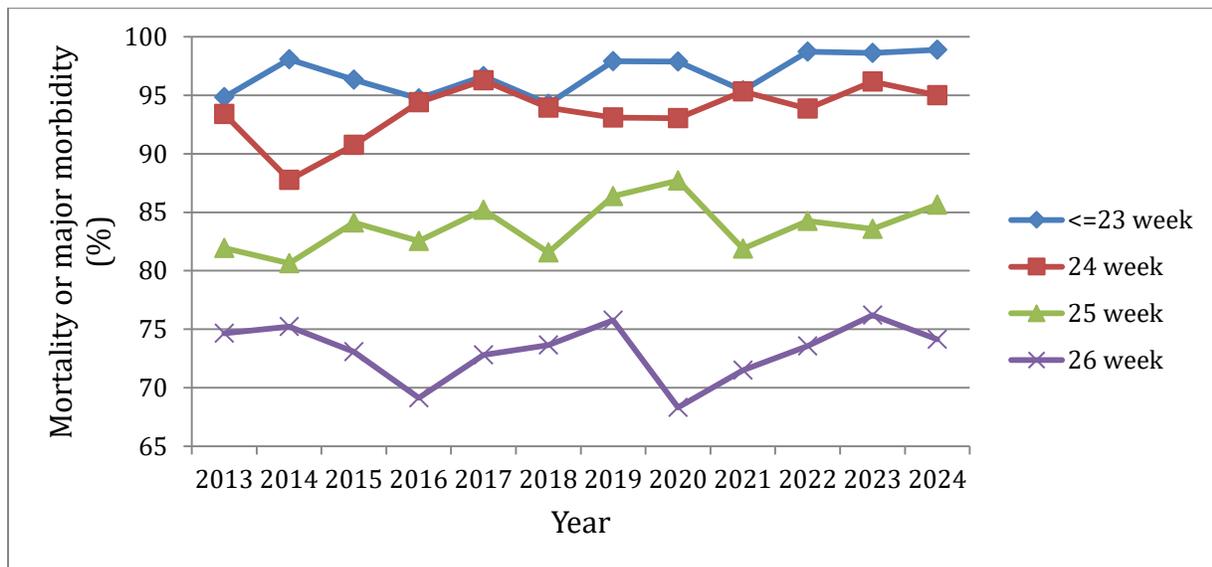


15. Mortality or major morbidity including CLD

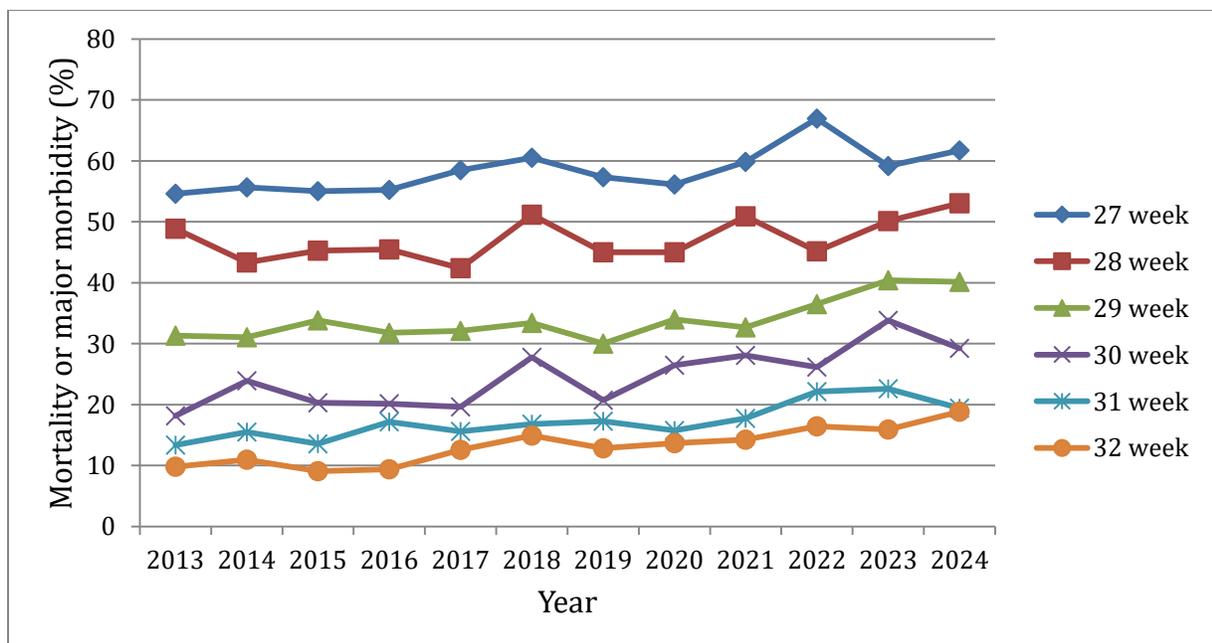
Major morbidity was counted as any one of the following:

1. CLD (any grade)
2. Severe ROP (stage 3,4,5 and/or those with ROP treatment)
3. Severe neurological injury (IVH grade 3 or grade 4 or PVL)
4. NEC (stage 2 or 3)
5. Late onset sepsis (any positive blood and/or cerebrospinal fluid culture after 2 days of age)

a. 22-26 weeks' GA:



b. 27-32 weeks' GA:

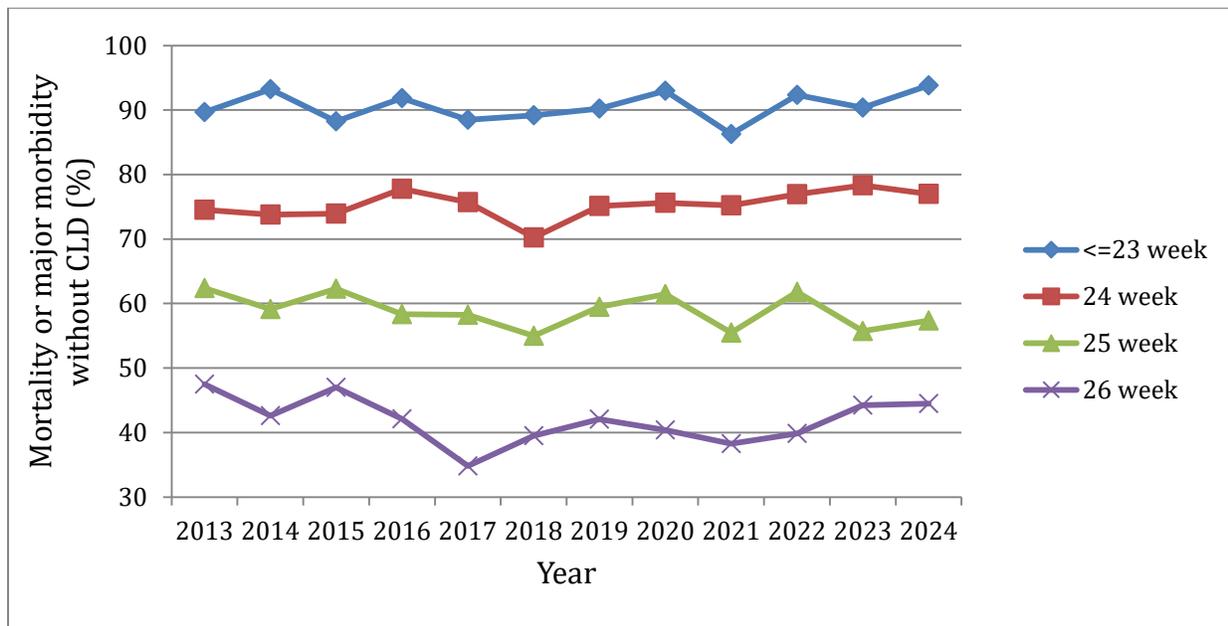


16. Mortality or major morbidity excluding CLD

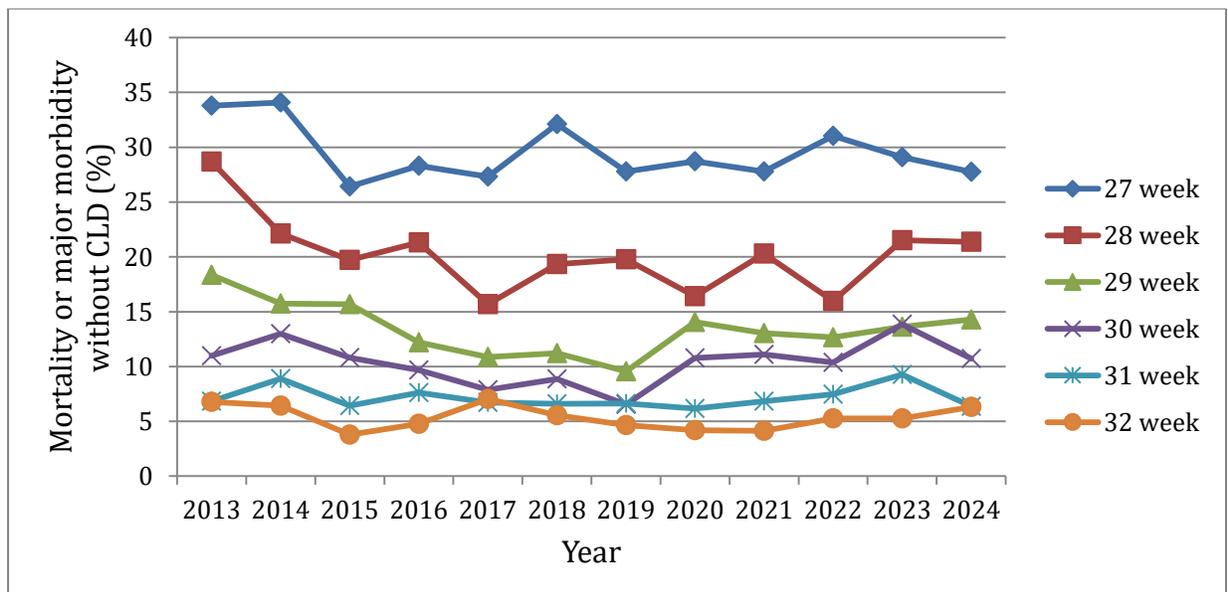
Major morbidity was counted as any one of the following:

1. Severe ROP (stage 3,4,5 and/or those with ROP treatment)
2. Severe neurological injury (IVH grade 3 or grade 4 or PVL)
3. NEC (stage 2 or 3)
4. Late onset sepsis (any positive blood and/or cerebrospinal fluid culture after 2 days of age)

a. 22-26 weeks' GA:



b. 27-32 weeks' GA:



I. 2024 CNN publications

Peer reviewed publications

- 1) Zhou, Q., Ong, M., Ye, X. Y., Ting, J. Y., Shah, P. S., Synnes, A., Luu, T. M., Lee, S., & Canadian Neonatal Network & Canadian Neonatal Follow-Up Network Investigators (2024). Long-Term Neurodevelopmental Impairment among Very Preterm Infants with Sepsis, Meningitis, and Intraventricular Hemorrhage. *Neonatology*, 121(1), 65–73. <https://doi.org/10.1159/000534178>
- 2) Gurram Venkata, S. K. R., Lodha, A., Hicks, M., Jain, A., Lapointe, A., Makary, H., Kanungo, J., Lee, K. S., Ye, X., Shah, P. S., Soraisham, A. S., Canadian Neonatal Network and Canadian Neonatal Follow Up Network, & Canadian Neonatal Network and Canadian Neonatal Follow Up Network™ (2024). Neurodevelopmental outcomes of preterm neonates receiving rescue inhaled nitric oxide in the first week of age: a cohort study. *Archives of disease in childhood. Fetal and neonatal edition*, 109(2), 211–216. <https://doi.org/10.1136/archdischild-2023-325418>
- 3) Yeung, T., Ahmed, A., Wong, J., Toye, J., Abou Mehrem, A., Mukerji, A., Lapointe, A., Ng, E., Beltempo, M., Pechlivanoglou, P., Lee, S., Shah, P. S., & Canadian Preterm Birth Network and Canadian Neonatal Network Investigators (2024). Variations in Site-Specific Costs for Infants Born Extremely Preterm in Canadian Neonatal Intensive Care Units. *The Journal of pediatrics*, 266, 113863. <https://doi.org/10.1016/j.jpeds.2023.113863>
- 4) Garfinkle, J., Khairy, M., Simard, M. N., Wong, J., Shah, P. S., Luu, T. M., Beltempo, M., & Canadian Neonatal Network and Canadian Neonatal Follow-Up Network Investigators (2024). Corrected Age at Bayley Assessment and Developmental Delay in Extreme Preterms. *Pediatrics*, 153(2), e2023063654. <https://doi.org/10.1542/peds.2023-063654>
- 5) Jabbour, E., Patel, S., Lacroix, G., Pechlivanoglou, P., Shah, P. S., Beltempo, M., & Canadian Preterm Birth Network Investigators Canadian Neonatal Network Investigators (2024). Validation of a Costing Algorithm and Cost Drivers for Neonates Admitted to the Neonatal Intensive Care Unit. *American journal of perinatology*, 41(12), 1688–1696. <https://doi.org/10.1055/a-2251-6238>
- 6) Abou Mehrem, A., Toye, J., Beltempo, M., Aziz, K., Bizgu, V., Wong, J., Singhal, N., Shah, P. S., & Canadian Neonatal Network and Canadian Preterm Birth Network Investigators (2024). Process and Outcome Measures for Infants Born Moderate and Late Preterm in Tertiary Canadian Neonatal Intensive Care Units. *The Journal of pediatrics*, 269, 113976. <https://doi.org/10.1016/j.jpeds.2024.113976>
- 7) Hodgson, E., Briatico, D., Klapman, S., Skarsgard, E., Beltempo, M., Shah, P. S., Huisman, E., Walton, J. M., Livingston, M. H., & Canadian Association of Pediatric Surgeons Network (CAPSNet) and Canadian Neonatal Network (CNN) investigators (2024). Association of Exclusive Breast Milk Intake and Outcomes in Infants With Uncomplicated Gastroschisis: A National Cohort Study. *Journal of pediatric surgery*, 59(5), 863–868. <https://doi.org/10.1016/j.jpedsurg.2024.01.045>
- 8) Mukerji, A., Read, B., Yang, J., Baczynski, M., Ng, E., Dunn, M., Ethier, G., Abou Mehrem, A., Beltempo, M., Drolet, C., da Silva, O., Louis, D., Lemyre, B., Afifi, J., Singh, B., Sherlock, R., Stavel, M., Masse, E., Kanungo, J., Wong, J., ... Shah, P. S. (2024). CPAP Versus NIPPV Postextubation in Preterm Neonates: A Comparative-Effectiveness Study. *Pediatrics*, 153(4), e2023064045. <https://doi.org/10.1542/peds.2023-064045>
- 9) Elkhoulouli, M., Raghuram, K., Elhanafy, T., Asztalos, E., Banihani, R., Shah, P. S., & Mohamed, A. (2024). Association of low hemoglobin at birth and neurodevelopmental outcomes in preterm neonates ≤28 weeks' gestation: a retrospective cohort study. *Journal of perinatology : official journal of the California Perinatal Association*, 44(6), 880–885. <https://doi.org/10.1038/s41372-024-01946-y>
- 10) Fazio, M., Jabbour, E., Patel, S., Bertelle, V., Lapointe, A., Lacroix, G., Gravel, S., Cabot, M., Piedboeuf, B., Beltempo, M., & Quebec investigators of the Canadian Neonatal Network (CNN) (2024). Association of Shift-Level Organizational Factors with Nosocomial Infection in the Neonatal

Intensive Care Unit. *Journal of pediatrics. Clinical practice*, 13, 200112.
<https://doi.org/10.1016/j.jpapedcp.2024.200112>

Abstracts

- 1) Kashkari H, El-Naggar W, Yoon E, Afifi J, McDonald S, Beltempo M, Shah P, Crane J. Umbilical cord management in preterm infants born by cesarean delivery. PAS 2024: 2135.4.
- 2) Lo E, Shah P, Chow JM, Stavel M, Harabor A, Alvaro R, Augustine S, Banihani R, Lee S, Rolnitsky A. Association of cytomegalovirus infection in preterm infants and neonatal outcomes. PAS 2024: 2425.3
- 3) Mukerji A, Read B, De Oliveira B, Louis D, Makary H, Zwicker J, Thomas K, Dunn M, Shah P. Severity of bronchopulmonary dysplasia using a Canadian definition and early childhood outcomes: A population-based cohort study. PAS 2024: 3080.1.
- 4) Afifi J, Shah P, Richter L, Lee S, Raghuram K, Thomas K, Mukerji A, Kanungo J, Lapointe A, Morin A, El-Naggar W, Salami O, Olukotun M. Predictors of neurodevelopmental impairment in extreme preterm infants with unremarkable cranial ultrasound: A Canadian population-based cohort. PAS 2024: 3055.3

Oral Poster Symposia

- 1) Ting J, Roberts A, Wong J, Khurshid F, Choudhury J, Autmizguine J, Elsharkawy A, Lemyre B, Ojah C, Mukerji A, Gupta-Bhatnagar S, Dunn M, Lapointe A, Yoon E, Richter L, Balay C, Robinson J, Afifi J, Louis D, Shah P. Epidemiology and outcomes of a multidrug-resistant sepsis in the neonatal intensive care unit: A national cohort study. PAS 2024: 606:318.
- 2) Bouadi N, Beltempo M, Ethier G, Boucoiran I, McDonald S, Villeneuve A. Deferred cord clamping in twin pregnancies across Canada: A national survey of practices. PAS 2024: 68.260
- 3) Afifi J, Richter L, Lee S, Hicks M, Beltempo M, Colby L, Bourque CJ, Salami O, Synnes A. Sociodemographic and family characteristics of children with and without neurodevelopmental impairment in a Canadian cohort of extreme preterm children. PAS 2024.

J. Appendices

Outcomes Definitions

Mortality: Death prior to discharge from the NICU.

Severe neurological injury: Intraventricular hemorrhage (IVH), ventricular enlargement or parenchymal echogenicity or periventricular leukomalacia (PVL): Defined as grade 3 IVH (intraventricular hemorrhage with ventricular enlargement) or grade 4 IVH (intraventricular hemorrhage and persistent parenchymal echogenicity) or persistent parenchymal echogenicity.

Ventricular enlargement

- **None:** Measurement of ventricles was <7 mm at any level section of lateral ventricle.
- **Mild:** Measurement was 7 to 10 mm at any level of the larger lateral ventricle. Classify as “mild” if there was no mention of “ventricular enlargement”, “ventriculomegaly” or “hydrocephalus”, or if the most severe report was of “mild ventriculomegaly” or “mild ventricular enlargement”, or if described as “suspected”
- **Moderate:** Measurement was 11 to 15 mm at any level of the larger lateral ventricle on sagittal scan. Classify as “moderate” if the terms “grade III IVH”, “ventricular enlargement”, “ventriculomegaly” or “hydrocephalus” were used with “moderate”, or without descriptors.
- **Severe:** Measurement was >15 mm at any level of the larger lateral ventricle on a sagittal scan, or ventricular drainage/shunting was required. If no measurement was made, classify as “severe” if the terms “severe” or “significant” were used to describe “grade III IVH”, “ventricular enlargement”, “ventriculomegaly” or “hydrocephalus”.
- **Not measured**
- **Unknown**

Severe retinopathy of prematurity (ROP): Stage 3, 4 or 5 ROP as defined by the International Classification of Retinopathy of Prematurity¹ and/or those infants requiring treatment (laser or intraocular injection). ROP was scored as the highest stage in either eye identified at any time.

Necrotizing enterocolitis (NEC): Stage 2 or 3 NEC according to Bell’s classification², diagnosed by clinical and imaging findings.

Sepsis: Isolation of bacterial, fungal or viral organism from blood or cerebrospinal fluid in a symptomatic infant.

Chronic lung disease (CLD): Defined as respiratory support given at 36 weeks’ post menstrual age or at discharge (if earlier than 36 weeks’ PMA) to level 2 centers and was classified in different degrees of severity described as follows (Note that some sites collect CLD status at 36 weeks’ PMA for infants transferred to level 2 centers):

¹ An International Committee for the Classification of Retinopathy of Prematurity. **The International Classification of Retinopathy of Prematurity Revisited.** Arch Ophthalmol 2005;123:991-999

² Bell MJ, Ternberg JL, Feigin RD, et al. **Neonatal necrotizing enterocolitis. Therapeutic decisions based upon clinical staging.** Ann Surg 1978;187:1-7

Chronic lung disease (CLD) continued:

Severity	Respiratory support at time of classification (at 36 weeks' PMA or at discharge if baby was discharged prior to 36 weeks' PMA)	Oxygen	Flow rate
No CLD	None	21%	None
Mild CLD	Headbox or incubator	>21%	Any amount
	Nasal cannula	100%	<0.1L/min
	Nasal cannula blended air/oxygen	21-99%	<1.5L/min
Moderate CLD	Nasal cannula	100%	≥0.1L/min
	Nasal cannula blended air/oxygen	21-29%	≥1.5L/min
	CPAP, SIPAP, NIPPV, NIHFV	21-29%	
Severe CLD	Nasal cannula blended oxygen	≥30%	≥1.5L/min
	CPAP, SIPAP, NIPPV, NIHFV	≥30%	
	Mechanical ventilation (intubated)	21-100%	

Survival without major morbidities: Defined as survival at discharge from the NICU without having any of CLD, NEC stage 2 or 3, IVH grade 3 or 4 or PVL, sepsis, or ROP stage 3, 4, 5, or ROP treatment.

Variables Definitions

Definitions of CNN variables can be found in the CNN abstractors' manual. The manual can be accessed on the CNN website (www.canadianneonatalnetwork.org/portal) via the following link:
<https://www.canadianneonatalnetwork.org/Doc/Manual/CNNManual.pdf>

Major Anomalies

A list of major anomalies can be found in the 2013 annual report, pages 124-127.

It is available via the following link:

<http://www.canadianneonatalnetwork.org/Portal/LinkClick.aspx?fileticket=lreR0871sjA%3d&tabid=39>

Abbreviations

ANCS	Antenatal Corticosteroids
BW	Birth Weight
BPD	Bronchopulmonary dysplasia
CONS	Coagulase-Negative Staphylococcus
CPAP	Continuous Positive Airway Pressure
CLABSI	Central Line-Associated Bloodstream Infection
CLD	Chronic Lung Disease
CVL	Central Venous Line
DR	Delivery Room
EPIQ	Evidence-based Practice for Improving Quality
ETT	Endotracheal Tube
GA	Gestational Age
GBS	Group B Streptococcus
GM	Germinal Matrix
HFV	High Frequency Ventilation
HIE	Hypoxic Ischemic Encephalopathy
ICROP	International Classification of Retinopathy of Prematurity
IPPV	Intermittent Positive Pressure Ventilation
IVH	Intra-Ventricular Hemorrhage
NEC	Necrotizing Enterocolitis
NI	Nosocomial Infection
NICE	Neonatal-Perinatal Interdisciplinary Capacity Enhancement
NICU	Neonatal Intensive Care Units
NTISS	Neonatal Therapeutic Intervention Scoring System
PDA	Patent Ductus Arteriosus
PEC	Parenchymal Echogenicity
PICC	Peripherally Inserted Central Catheters
PIV	Peripheral Intravenous
PMA	Postmenstrual Age
PPV	Positive Pressure Ventilation

PVL	Periventricular Leukomalacia
RDS	Respiratory Distress Syndrome
ROP	Retinopathy of Prematurity
SD	Standard Deviation
SEM	Standard Error of Mean
SGA	Small for Gestational Age
SNAP	Score for Acute Neonatal Physiology
SNAP-IIPE	Score for Acute Neonatal Physiology Version II, Perinatal Extension
SR	Standardized Ratio
TPN	Total Parenteral Nutrition
TRIPS	Transport Risk Index of Physiologic Stability
UV	Umbilical Vein
VE	Ventricular Enlargement
VEGF	Vascular Endothelial Growth Factor
VLBW	Very Low Birth Weight
VP	Ventriculoperitoneal

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