The Canadian Neonatal Network™
Le Rèseau Nèonatal Canadien™

Annual Report 2009 Rapport Annuel

Acknowledgements

This report is based upon data collected from 26 individual hospitals from across Canada that were members of the Canadian Neonatal Network™ during the year 2009. In addition to all investigators and the funding agency, we would like to recognize the invaluable support of the Neonatal Intensive Care Units (NICUs) that contributed to this information, the support of all of the participating hospitals and most importantly, the dedication and hard work of the Site Investigators and Data Abstractors.

Structure of the CNN

The Canadian Neonatal Network™ (CNN) is a group of Canadian researchers who collaborate on research issues relating to neonatal care. The Network was founded in 1995 by Dr. Shoo Lee. The Network maintains a standardized NICU database and provides a unique opportunity for researchers to participate in collaborative projects on a national and an 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 effectiveness and efficiency of neonatal care. Research results are published in Network reports and in peer-reviewed journals.

Funding

The CNN infrastructure is funded by the Canadian Institutes of Health Research. Individual participating hospitals provided additional funding for data collection and other related resources. The Maternal-Infant Care Research Center is supported by funding from the Ministry of Health and Long-Term Care, Ontario.

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Cover page by Sandy Maksimowska

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A. Executive summary

This report from the Canadian Neonatal Network™ (CNN) is based on data from 26 tertiary NICUs, which contributed data in the year 2009. The CNN is funded through the Canadian Institutes of Health Research (CIHR) and the coordinating center at the Maternal-Infant Care Research Center is supported by the Ministry of Health and Long-Term Care, Ontario. The purposes of the Network are to:

- Maintain a national neonatal-perinatal database and provide the infrastructure to facilitate collaborative research
- Provide benchmarking information for Canadian NICUs
- Maintain a national network of multidisciplinary researchers interested in neonatal-perinatal research
- Longitudinally study outcomes and variations in medical care and
- Examine the impact of resource utilization and practice patterns on patient outcomes and costs of care

Summary of Results/Methodology

Canadian Neonatal Network™ Database: Admissions between January 1, 2009 and December 31, 2009 who were discharged by March 31, 2010.

Total number of eligible admissions to participating Canadian NICUs (See section D.1 for analyses)	14 126
Total number of eligible individual neonates (See section D.2. for analyses)	13 065
Total number of eligible very preterm (<33 weeks GA) neonates (See section D.3. for analyses)	4 135
Total number of very low birth weight (VLBW) neonates (See section D.3. for analyses)	2 867
Number of neonates discharged directly home from participating NICUs (See section D.4. for analyses)	5 896
Total number of small for gestational age infants	2 280

Gestational age in weeks in this document refers to completed weeks (i.e. 32 weeks include infants of 32 weeks and 0 days to 32 weeks and 6 days of gestation). Infants who were transferred to a "normal newborn care area" (level I nursery) or discharged home within 24 hours of their admission to the NICU were excluded. Data on patient demographics, components of care and outcome until discharge from the hospital were entered into a computer and transferred electronically to the Coordinating Centre, at the Maternal-Infant Care Research Centre (MiCare), where the data were verified and analyzed.

Results presented in this report are comprised of:

Section D: Descriptive analyses
Section E: Site comparisons: Mortality
Section F: Site comparisons: Morbidities
Section G: Site comparisons: Risks adjusted analyses
Section H: Trend analyses over last 3 years

Some sites are limited by funding and therefore are only able to contribute data from a subset of the eligible infants admitted to their NICU. Characteristics of participating CNN sites are highlighted at the outset of the presentations to provide basic information regarding network hospitals. The 'missing' data on outcome variables vary for each presentation and caution should be used in interpreting the data.

B. Background and objectives

NICUs utilize the combined abilities of health care team members in expanding knowledge and advancing the technology to provide effective care of newborn infants. To support continuous improvement in newborn outcomes of Canadian NICUs, the CNN database provides ordinal and categorical data to identify variations in mortality, morbidity, and resource utilization. The first CNN report saw the validation of a newborn severity score [Score for Acute Neonatal Physiology (SNAPII)[1]], a severity of illness scale [Neonatal Therapeutic Intervention Scoring System (NTISS)[2]], and an instrument for assessing infant transport outcomes [Transport Risk Index of Physiologic Stability (TRIPS)[3]]. The use of these three scores permitted benchmarking of risk-adjusted variations in mortality and morbidity among Canadian NICUs. This demonstrated variations in outcomes and practices among Canadian NICUs, and indicated that different hospitals had different strengths as well as areas requiring improvement. The results suggested that practice and outcome variations are associated, and led to the inception of an additional research project investigating the targeting of specific practices for change in order to improve outcomes in NICUs across Canada.

The Evidence-based Practice for Improving Quality (EPIQ1) project explored new methodologies for identifying care practices associated with good or poor outcomes, and provided an evidence-based approach to improving quality of care. Building upon traditional continuous quality improvement techniques, EPIQ1 used multidisciplinary teams at CNN sites, who worked collaboratively to implement best practice changes. Results of this study were recently published.[1] The second version of this project, EPIQ2, is currently ongoing in NICUs across Canada.

Research using the data was overseen by a Steering Committee, which was elected by members of the Canadian Neonatal Network™. Separate ethics approvals were obtained from the participating institutions for specific projects. Studies conducted by the CNN researchers are supported by the Neonatal-Perinatal Interdisciplinary Capacity Enhancement (NICE) Team, comprising leading researchers from across Canada.

Background information regarding participating CNN sites is reported in the following page.

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[1] Shoo K. Lee et al. **Improving the quality of care for infants: a cluster randomized controlled trial.** Can. Med. Assoc. J., Oct 2009; 181: 469 - 476

CNN site characteristics

Site	Level II / step-down nursery?	Level II data included in CNN?	CNN data collection			Pediatric surgeries other than ROP/PDA?	ROP surgery?	PDA surgery?
			All GA/BW?	Specific GA	Specific BW			
BCWH	Yes	Yes	Yes			Yes	Yes	Yes
CHUQ	Yes	No	No	<29 weeks		Yes	Yes	Yes
CHUS#								
ECH	Yes	Yes	Yes			No	No	No
FMC	Yes	Yes	Yes			No	Yes	No
GVS	Yes	Yes	Yes			Yes	Yes	Yes
HHSC	Yes	No	Yes			Yes	Yes	Yes
HSC	No	No	Yes			Yes	Yes	Yes
HSCC	Yes	Yes	Yes			Yes	Yes	Yes
HSJ	Yes	Yes	Yes			Yes	Yes	Yes
IWK	Yes	Yes	Yes			Yes	Yes	Yes
JCHC	Yes	Yes	Yes			Yes	Yes	Yes
JGH	Yes	Yes	Yes			No	No	No
KGH	Yes	Yes	Yes			Yes	No	Yes
MCH	N o	No	No	<29 weeks		Yes	Yes	Yes
MSH	Yes	Yes	Yes			No	No	No
OTTA	Yes	Yes	No	<33 weeks		Yes	Yes	Yes
RAH	Yes	Yes	No	<33 weeks		Yes	Yes	Yes
RCH	Yes	Yes	Yes			Yes	No	Yes
RQHR	Yes	Yes	Yes			No	No	Yes
RUH	Yes	No	Yes			Yes	Yes	Yes
RVH	Yes	Yes	Yes			N o	N o	Yes
SBGH	No	No	Yes			Yes	Yes	Yes
SEHC	No	No	Yes			No	No	No
SJHC	Yes	Yes	Yes			Yes	Yes	Yes
SJRH	No	No	Yes			No	No	No
SUNY	No	No	Yes			No	No	No
SMH#	Yes	Yes	No			Yes	No	No
CBRH#	No	No				No	No	No
WRH#	No	No				No	Yes	No

sites did not contribute data to this report

C. Information systems

Infants included in this report are those who were admitted to a CNN participating site between January 1, 2009 and December 31, 2009, and were discharged by March 31, 2010. The infants must have had a length of stay in the NICU of 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. A total of 13 065 patients accounted for 14 126 admissions as some infants 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 usually entered into a laptop 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 NICU are available to the respective site investigator only. Patient identifiers were stripped prior to data transfer to the Coordinating Centre. Patient confidentiality was strictly observed. Individual-level data are used for analyses, but only aggregate data are reported. The results presented in this report will not identify participating NICUs by name; each site is anonymous using a randomly assigned number. Wherever a small cell size (≤5) was observed in the data output, the data were often grouped to maintain anonymity. This was not always possible due to small number of data points among all centers for select outcomes.

At each participating NICU, data are stored in a secured database in the NICU or in an alternate secured site used by the NICU 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 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 and birth weight). However, the principal accuracy rests upon the diligence and capabilities of the individual sites. Each site had one or occasionally two dedicated person(s) responsible for data acquisition and transmittance.

At the Coordinating Centre, analyses were conducted using univariate, bivariate, and multivariate analyses for the total cohort, and for individual sites. Multivariate regression analysis was used to identify risk factors associated with mortality and major morbidities. Grouped data enabled development of outcome graphs by gestational age and birth weight for mortality and selected major morbidities. Similar systems have been used to guide stratification in randomization trials, assist in quality assurance, and predict resource utilization.

D. Descriptive analyses

This section is divided into four sub-sections.

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

These include data from 14 126 eligible admissions to 26 NICUs. Of these 22 hospitals submitted complete data (n=12 947) on all admissions and four hospitals submitted data on a limited number of admissions (n=1 179).

Section D.2. Analyses based on number of eligible neonates provided care in participating NICUs

These include data from 13 065 eligible neonates in 26 NICUs. Of these 22 hospitals submitted complete data (n=12 164) on all admitted neonates and four hospitals submitted data on a limited number of admitted neonates (n=901).

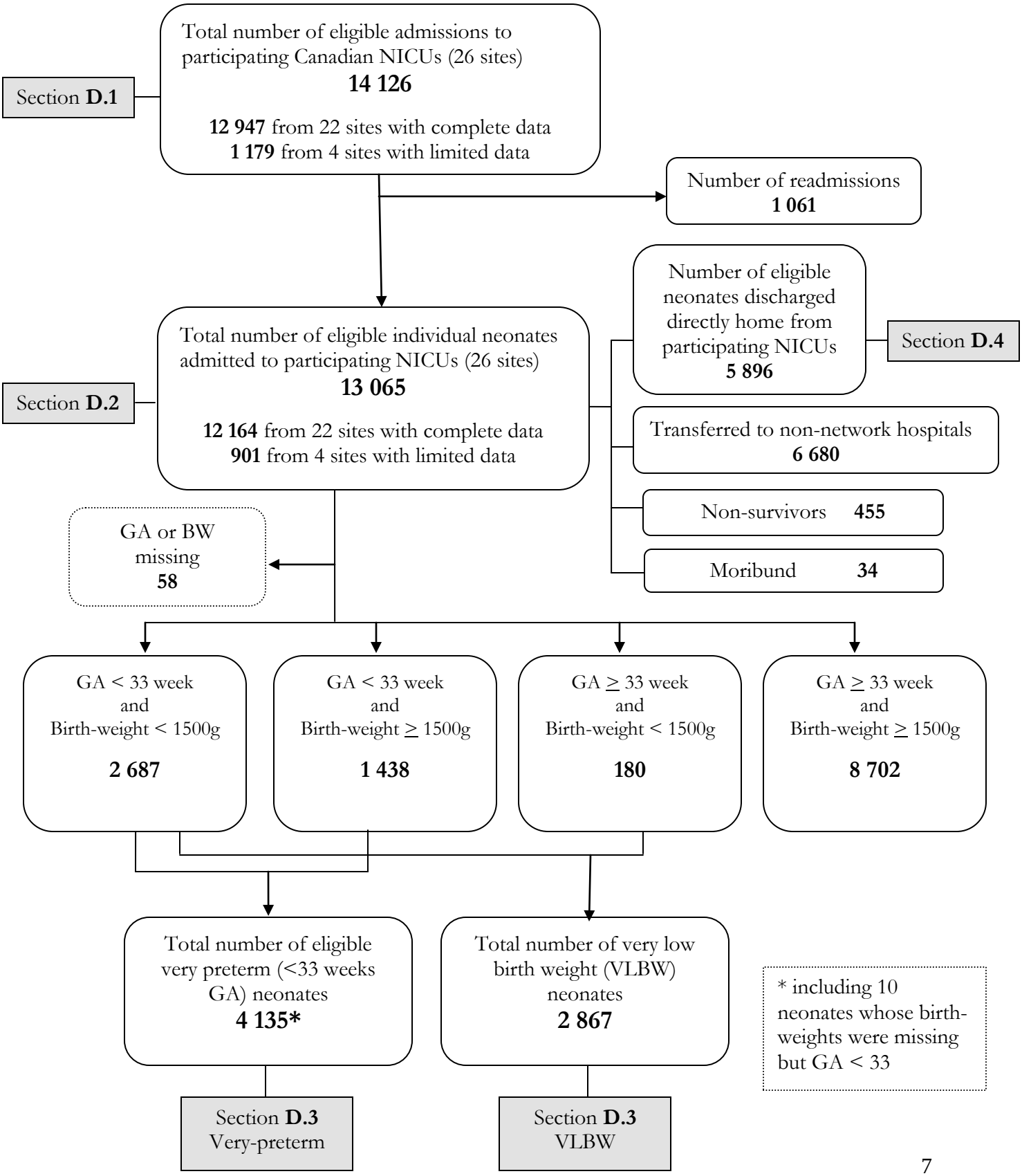
Section D.3. Analyses based on number of eligible very preterm (< 33 weeks GA) or very low birth weight (<1500g birth weight) neonates

These include data from 4 135 eligible very preterm neonates and 2 867 eligible VLBW neonates.

Section D.4. Analyses based on number of infants discharged home directly from network hospitals

These include 5 896 eligible neonates.

Canadian Neonatal Network™ Database: Admissions between January 1, 2009 and December 31, 2009 who were discharged by March 31, 2010

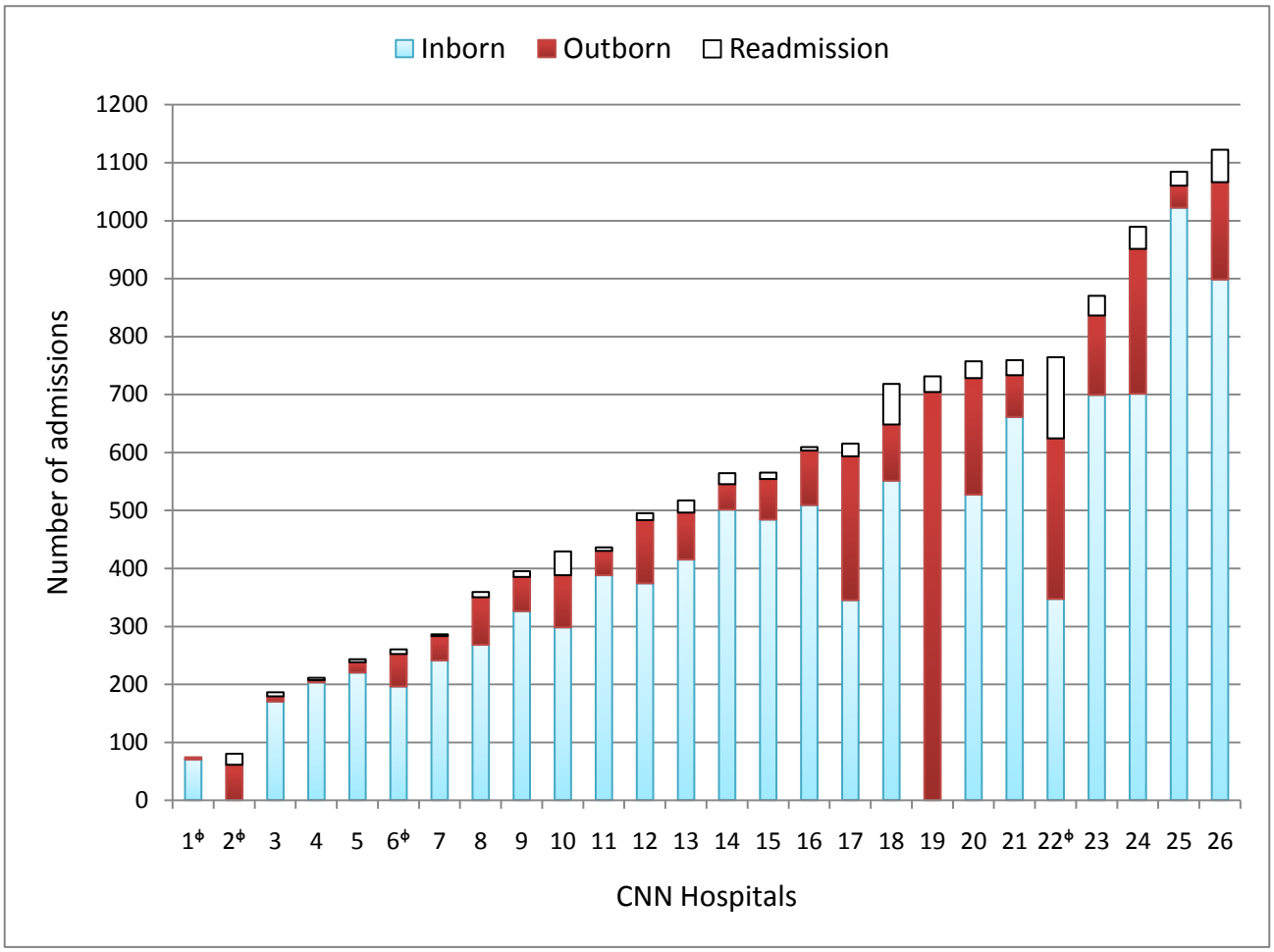


Section D.1

Analyses based on number of eligible admissions to participating NICUs

These include data from 14 126 eligible admissions to 26 NICUs. Of these 22 hospitals submitted complete data (n=1 2947) on all admissions and four hospitals submitted data on a limited number of admissions (n=1 179).

Presentation #1
Admissions to Canadian Neonatal Network participating hospitals



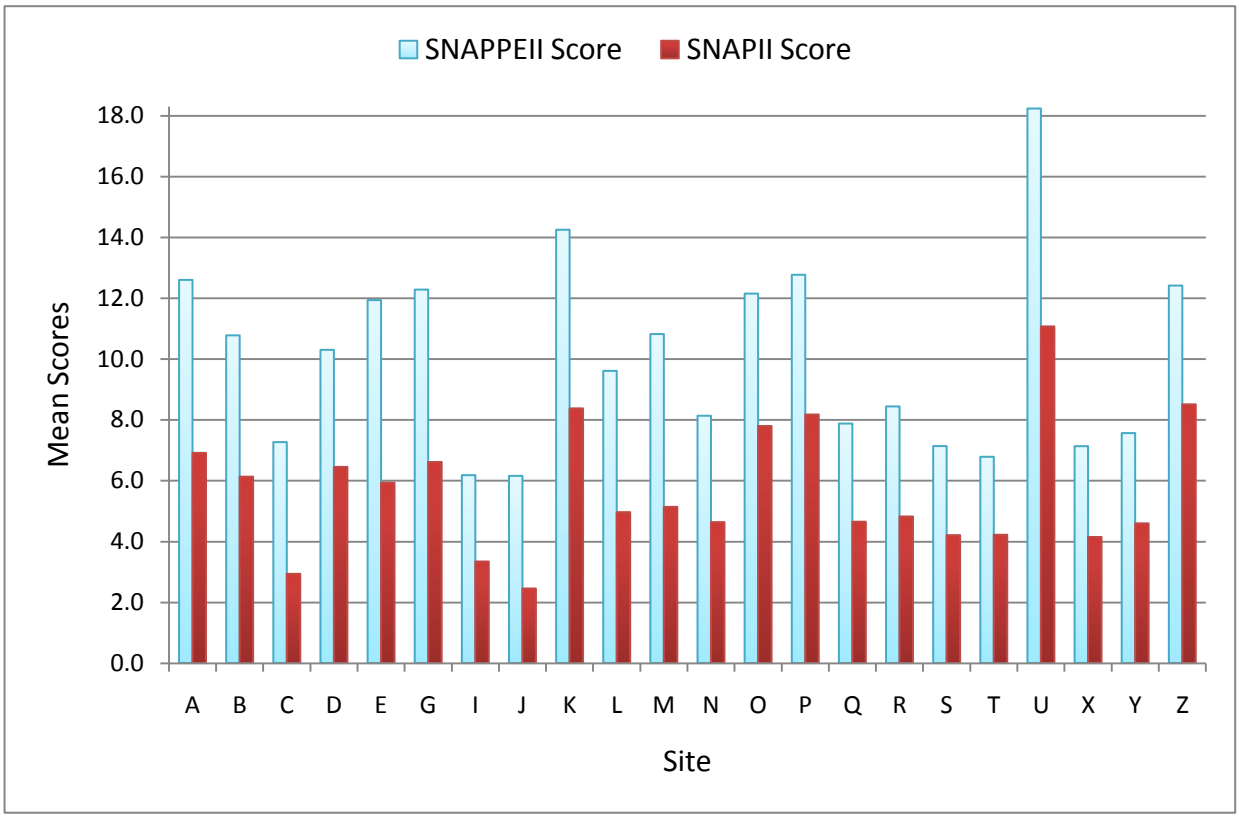
Presentation #1 (continued)
Admissions to Canadian Neonatal Network participating hospitals

Hospitals		Admission Status			Total
		Inborn	Outborn	Readmission	
1ϕ	Count	70	4	0	74
	%	94.59	5.41	0	(100.0)
2ϕ	Count	0	61	19	80
	%	0	76.25	23.75	(100.0)
3	Count	170	9	7	186
	%	91.4	4.84	3.76	(100.0)
4	Count	203	4	4	211
	%	96.21	1.9	1.9	(100.0)
5	Count	220	18	5	243
	%	90.53	7.41	2.06	(100.0)
6ϕ	Count	196	56	8	260
	%	75.38	21.54	3.08	(100.0)
7	Count	241	42	3	286
	%	84.27	14.69	1.05	(100.0)
8	Count	268	82	9	359
	%	74.65	22.84	2.51	(100.0)
9	Count	326	59	10	395
	%	82.53	14.94	2.53	(100.0)
10	Count	298	90	41	429
	%	69.46	20.98	9.56	(100.0)
11	Count	388	42	6	436
	%	88.99	9.63	1.38	(100.0)
12	Count	374	109	12	495
	%	75.56	22.02	2.42	(100.0)
13	Count	415	81	21	517
	%	80.27	15.67	4.06	(100.0)
14	Count	501	44	19	564
	%	88.83	7.8	3.37	(100.0)
15	Count	484	70	11	565
	%	85.66	12.39	1.95	(100.0)
16	Count	509	94	6	609
	%	83.58	15.44	0.99	(100.0)
17	Count	345	248	22	615
	%	56.1	40.33	3.58	(100.0)
18	Count	551	97	70	718
	%	76.74	13.51	9.75	(100.0)
19	Count	0	704	27	731
	%	0	96.31	3.69	(100.0)
20	Count	527	201	29	757
	%	69.62	26.55	3.83	(100.0)
21	Count	661	72	26	759
	%	87.09	9.49	3.43	(100.0)
22ϕ	Count	347	277	140	764
	%	45.42	36.26	18.32	(100.0)
23	Count	699	137	34	870
	%	80.34	15.75	3.91	(100.0)
24	Count	701	250	38	989
	%	70.88	25.28	3.84	(100.0)
25	Count	1022	38	24	1084
	%	94.28	3.51	2.21	(100.0)
26	Count	898	168	56	1122
	%	80.04	14.97	4.99	(100.0)

Total number of admissions:	14 126
Inborn:	10 414 (73.7%)
Outborn:	3 057 (21.6%)
Readmission:	647 (4.6%)
Missing data on admission status:	8 (0.06%)

COMMENTS: These analyses include 14 126 admissions to participating NICUs across Canada during the period of January 1, 2009 to December 31, 2009. Adjusting for readmission and transfers, these represent 13 065 infants. **Twenty-two hospitals collected data on all eligible admissions whereas four hospitals (marked by ϕ) collected data on selected eligible admissions only.**

Presentation #2
Admission illness severity scores (SNAPII and SNAPIIPE) by hospital
(for hospitals that contributed data on all eligible admissions)
(n=22 hospitals, 12 947 admissions, 55 missing data)



Presentation #2 (continued)

Admission illness severity scores (SNAPII and SNAPIIPE) by hospital

Site		SNAPIIPE	SNAPII	Site		SNAPIIPE	SNAPII
A	Mean	12.6	6.9	**N**	Mean	8.1	4.6
	SEM	0.5	0.3		SEM	0.8	0.5
B	Mean	10.8	6.1	**O**	Mean	12.1	7.8
	SEM	0.7	0.4		SEM	0.5	0.3
C	Mean	7.3	2.9	**P**	Mean	12.8	8.2
	SEM	0.6	0.3		SEM	0.5	0.3
D	Mean	10.3	6.4	**Q**	Mean	7.9	4.6
	SEM	0.8	0.5		SEM	0.8	0.5
E	Mean	11.9	5.9	**R**	Mean	8.4	4.8
	SEM	0.6	0.4		SEM	0.5	0.3
Fϕ	Mean	13.2	5.9	**S**	Mean	7.1	4.2
	SEM	0.6	0.4		SEM	0.6	0.4
G	Mean	12.3	6.6	**T**	Mean	6.8	4.2
	SEM	0.6	0.4		SEM	0.7	0.4
Hϕ	Mean	29.4	13.4	**U**	Mean	18.2	11.1
	SEM	2.4	1.8		SEM	0.9	0.6
I	Mean	6.2	3.3	**V**ϕ	Mean	22.1	12.8
	SEM	0.9	0.5		SEM	1.4	0.9
J	Mean	6.2	2.5	**W**ϕ	Mean	36.0	23.0
	SEM	0.4	0.3		SEM	2.6	1.8
K	Mean	14.2	8.4	**X**	Mean	7.1	4.1
	SEM	0.7	0.5		SEM	0.5	0.3
L	Mean	9.6	5.0	**Y**	Mean	7.6	4.6
	SEM	0.7	0.4		SEM	0.6	0.4
M	Mean	10.8	5.1	**Z**	Mean	12.4	8.5
	SEM	0.8	0.5		SEM	0.6	0.4

Overall Mean (SEM): SNAPIIPE 11.2 (0.1) SNAPII 6.3 (0.1)

COMMENTS: These analyses include 14 126 admissions (55 missing data) to participating NICUs across Canada during the period of January 1, 2009 to December 31, 2009. Adjusting for readmission and transfers, these analyses represent 13 065 infants. **Twenty-two hospitals collected data on all eligible admissions whereas four hospitals (marked by ϕ) collected data on selected eligible admissions only.**

ϕ Please note that the criteria for entering infants in the CNN dataset are not the same for these four hospitals and thus, the scores are not comparable with each other or with centers contributing complete data. These four hospitals included infants at lower gestational ages and/or lower birth weights; thus, their severity of illness scores may be higher than the remaining hospitals.

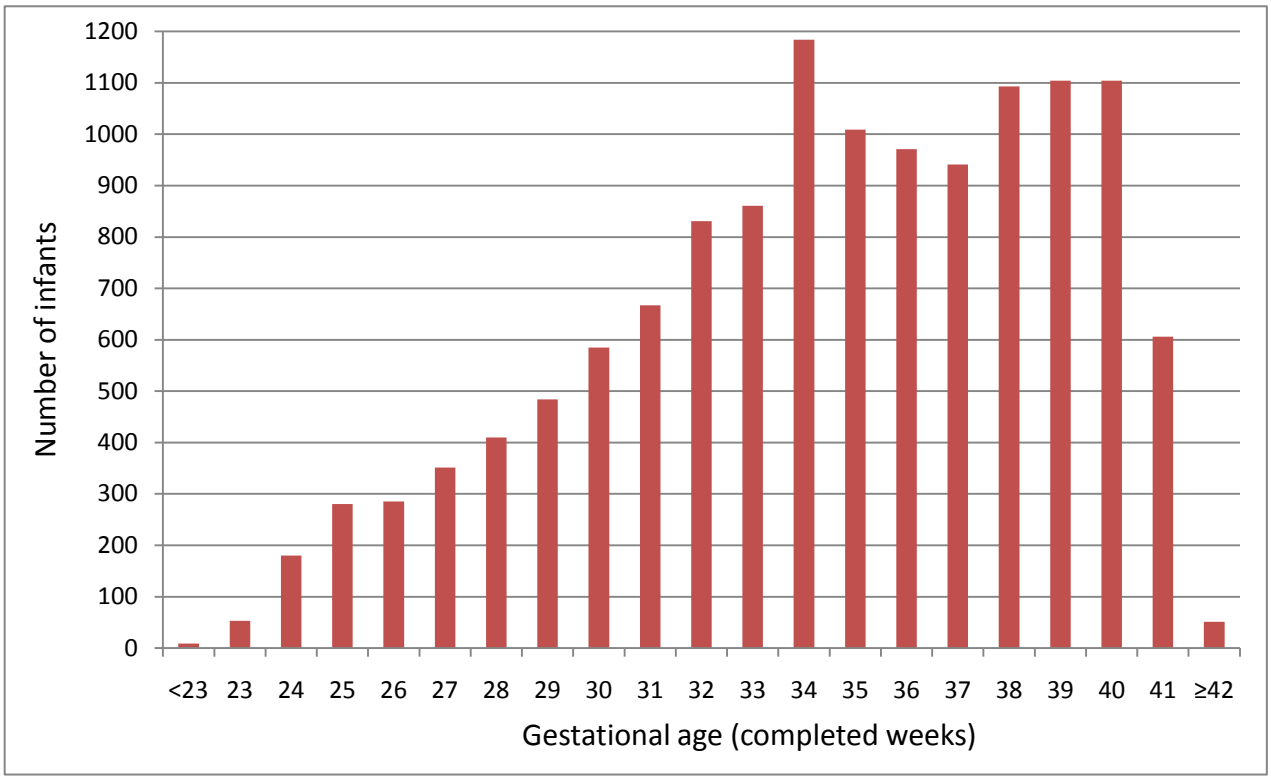
Section D.2

Analyses based on number of eligible neonates admitted to participating NICUs

These include data from 13 065 eligible neonates admitted to 26 NICUs. Of these, 22 hospitals submitted complete data (n=12 164) on all eligible admitted neonates and four hospitals submitted data on selected eligible admitted neonates (n=901).

Presentation #3

Gestational age at birth



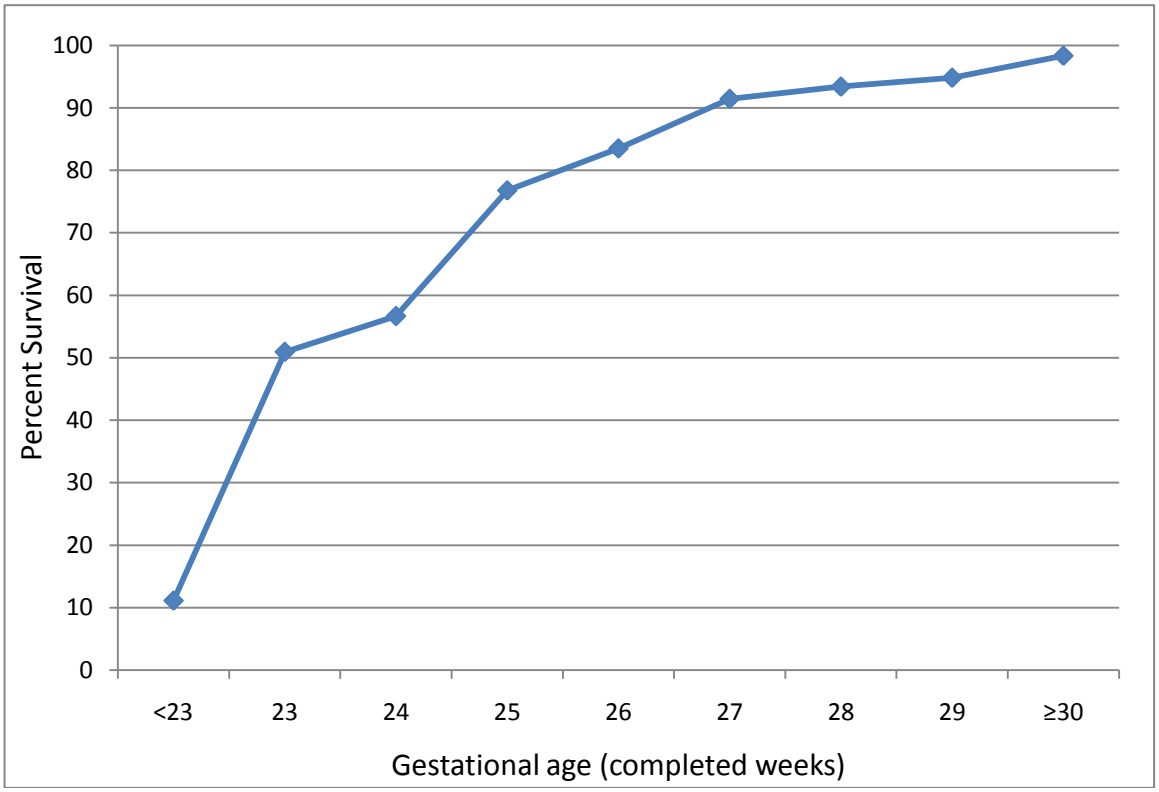
Presentation #3 (continued)
Gestational age at birth

Gestational age in completed weeks at birth	Frequency	Percent	Cumulative percent
<23	9	0.1	0.1
23	53	0.4	0.5
24	180	1.4	1.9
25	280	2.1	4.0
26	285	2.2	6.2
27	351	2.7	8.9
28	410	3.1	12.0
29	484	3.7	15.7
30	585	4.5	20.2
31	667	5.1	25.3
32	831	6.4	31.7
33	861	6.6	38.3
34	1 184	9.1	47.3
35	1 009	7.7	55.1
36	971	7.4	62.5
37	941	7.2	69.7
38	1 093	8.4	78.1
39	1 104	8.5	86.5
40	1 104	8.5	95.0
41	606	4.6	99.6
≥42	51	0.4	100.0
Total included	13 059	100.0	
Total # of missing (GA)	6		
Total # of infants	13 065		

COMMENTS: The gestational age distribution of infants is shown here. Term babies (≥37 weeks) represent approximately 37.5% of the total neonates. Twenty-two hospitals collected data on all eligible admissions whereas four hospitals collected data on selected eligible admissions.

Presentation #4

Gestational age at birth and survival to discharge from participating NICUs



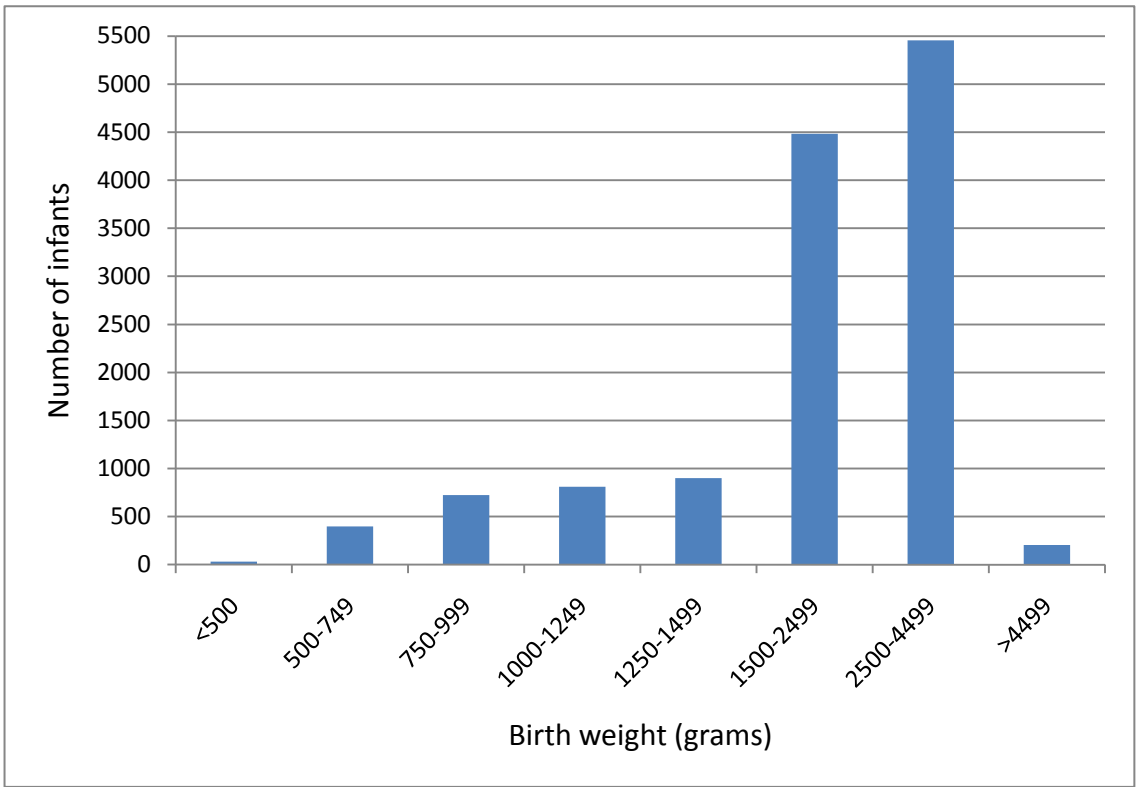
Gestational age (completed weeks)	Number of infants	Number of survivors	% survival
<23	9	1	11
23	53	27	51
24	180	102	57
25	280	215	77
26	285	238	84
27	351	321	91
28	410	383	93
29	484	459	95
≥30	11 007	10 825	98
Total included	13 059	12 571	96
Total # of missing (GA)	6		
Total # of infants	**13 065**		

Note: The survival rates refer only to infants admitted to the NICUs and should be used cautiously for antenatal counseling.

COMMENTS: The survival rates are based upon the final discharge from the participating neonatal site. Note that these rates include only infants admitted to NICUs and thus, are not reflective of the Canadian population. Numbers and rates do not include infants (especially those at very low gestational ages) who died prior to admission to any of the participating NICUs.

Presentation #5

Birth weight

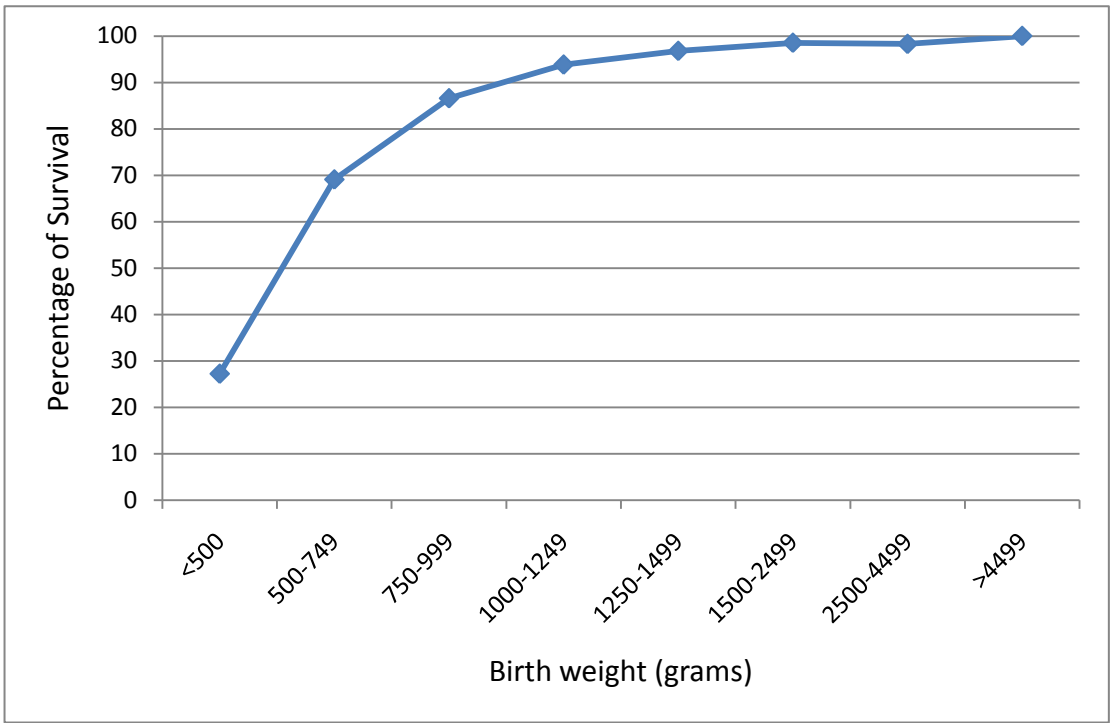


Birth weight (grams)	Frequency	Percent from total number of infants	Cumulative percent
<500	33	0.3	0.3
500-749	398	3.1	3.3
750-999	723	5.6	8.9
1000-1249	811	6.2	15.1
1250-1499	902	6.9	22.0
1500-2499	4 483	34.5	56.5
2500-4499	5 456	41.9	98.4
>4499	206	1.6	100.0
Total included	13 012	100.0	
Missing (BW)	53		
Total # of infants	13 065		

COMMENTS: The birth weight distribution of infants admitted to NICUs. Seventy-eight percent weighed over 1 500g at birth and 43.5% weighed over 2 500g. Twenty-two hospitals collected data on all admissions whereas four hospitals collected data on selected eligible admissions only.

Presentation #6

Birth weight and survival to discharge from participating NICUs

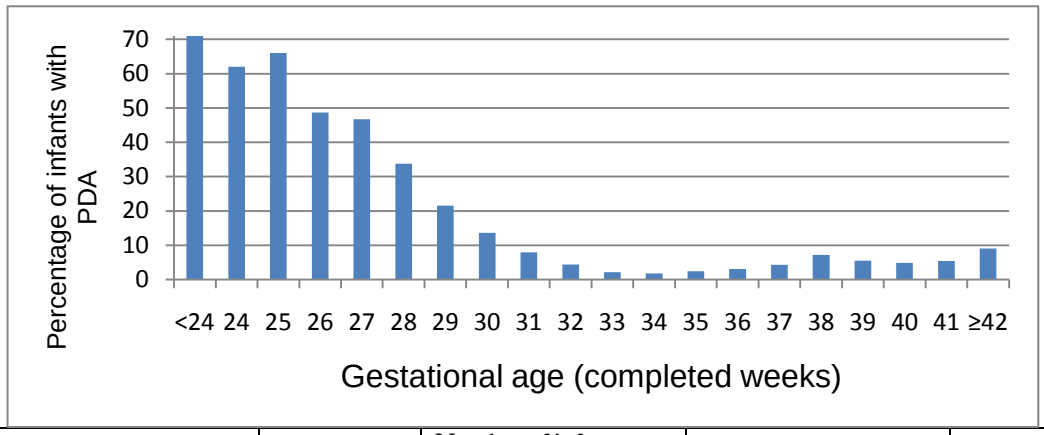


Birth weight (grams)	Number of infants	Number of survivors	% survival
<500	33	9	27
500-749	398	275	69
750-999	723	626	87
1000-1249	811	761	94
1250-1499	902	873	97
1500-2499	4 483	4 417	99
2500-4499	5 456	5 362	98
>4499	206	206	100
Total included	13 012	12 529	96
Missing (BW)	53		
Total # of infants	13 065		

Note: The survival rates refer only to infants admitted to the NICUs, and should be used cautiously for antenatal counseling.

COMMENTS: The survival rates are defined as survival to final discharge from the participating neonatal site. Note that these rates include only infants admitted to NICUs and thus, are not reflective of the Canadian population. Numbers and rates do not represent infants (especially those at very low gestational ages) who died prior to admission to participating NICUs.

Presentation #7
Incidence of patent ductus arteriosus (by gestational age)

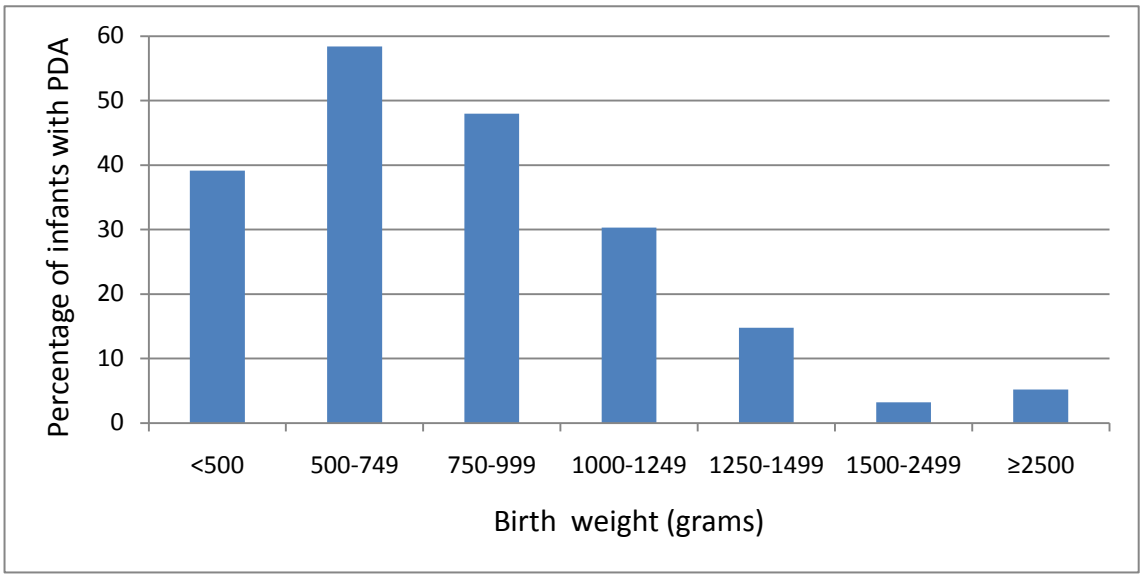


Gestational age (completed weeks)	Total number of infants	Number of infants with missing data on PDA (may include death prior to diagnosis)	Number of infants with data available on PDA	Number of infants with PDA	%
<24	62	17	45	32	71
24	180	14	166	103	62
25	280	18	262	173	66
26	285	18	267	130	49
27	351	17	334	156	47
28	410	10	400	135	34
29	484	15	469	101	22
30	585	18	567	77	14
31	667	26	641	51	8
32	831	25	806	35	4
33	861	32	829	18	2
34	1 184	62	1 122	20	2
35	1 009	63	946	23	2
36	971	71	900	28	3
37	941	60	881	38	4
38	1 093	82	1 011	73	7
39	1 104	90	1 014	56	6
40	1 104	83	1 021	50	5
41	606	29	577	31	5
≥42	51	7	44	4	9
Total included			12 302	1 334	11
Missing data (PDA)		757			
Missing data (GA)	**6**				
Total # of infants	**13 065**				

COMMENTS: The diagnosis of a patent ductus arteriosus (PDA) was clinical and did not require cardiac ultrasound confirmation. The incidence of PDA included infants who were commenced on treatment (indomethacin or ibuprofen >24 hours following admission and/or surgical ligation), and those who were diagnosed as "clinically significant/severe" but not treated due to other medical reasons. Infants who died before being diagnosed are included in the "Missing data" category.

Presentation #8

Incidence of patent ductus arteriosus (by birth weight)

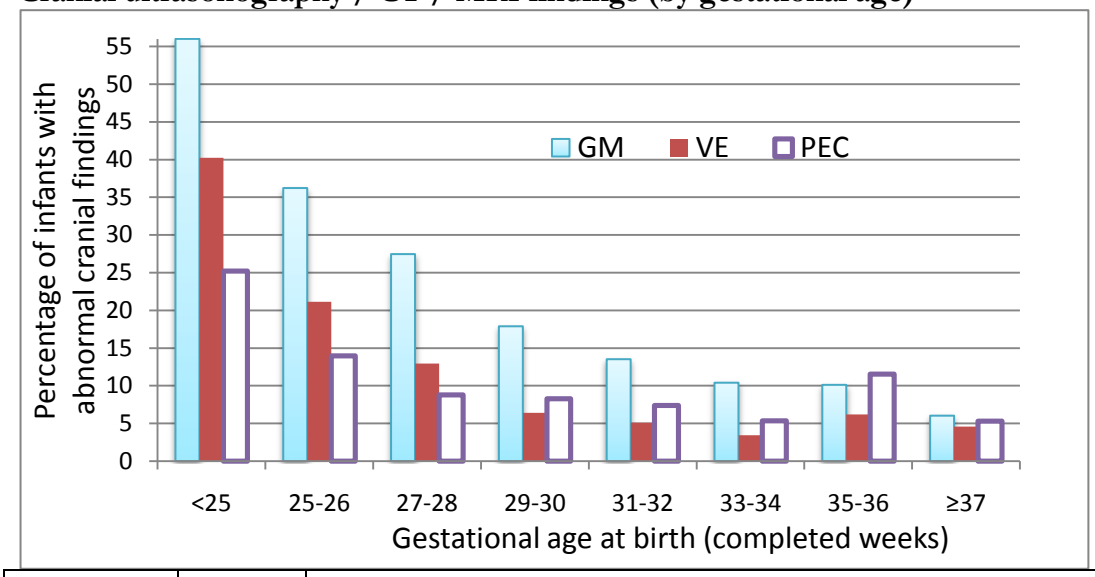


Birth weight (grams)	Total number of infants	Number of infants with missing data on PDA (may include death prior to diagnosis)	Number of infants with data available on PDA	Number of infants with PDA	%
<500	33	10	23	9	39
500-749	398	28	370	216	58
750-999	723	41	682	327	48
1000-1249	811	29	782	237	30
1250-1499	902	21	881	130	15
1500-2499	4 483	231	4 252	137	3
≥2500	5 662	382	5 280	273	5
Total included			12 270	1 329	11
Total missing data (PDA)		**742**			
Total missing (BW)	**53**				
Total	**13 065**				

COMMENTS: The incidence of clinically diagnosed PDA in relation to gestational age and birth weight is shown in Presentation #7 and #8. Diagnosis was made by a physician and did not require cardiac ultrasound confirmation. Incidence of PDA included infants who were commenced on treatment (indomethacin or ibuprofen >24 hours following admission and/or surgical ligation), and those who were diagnosed as "clinically significant/severe" but not treated due to other medical reasons. Infants who died before being diagnosed are included in the "Missing data" category.

Presentation #9

Cranial ultrasonography / CT / MRI findings (by gestational age)



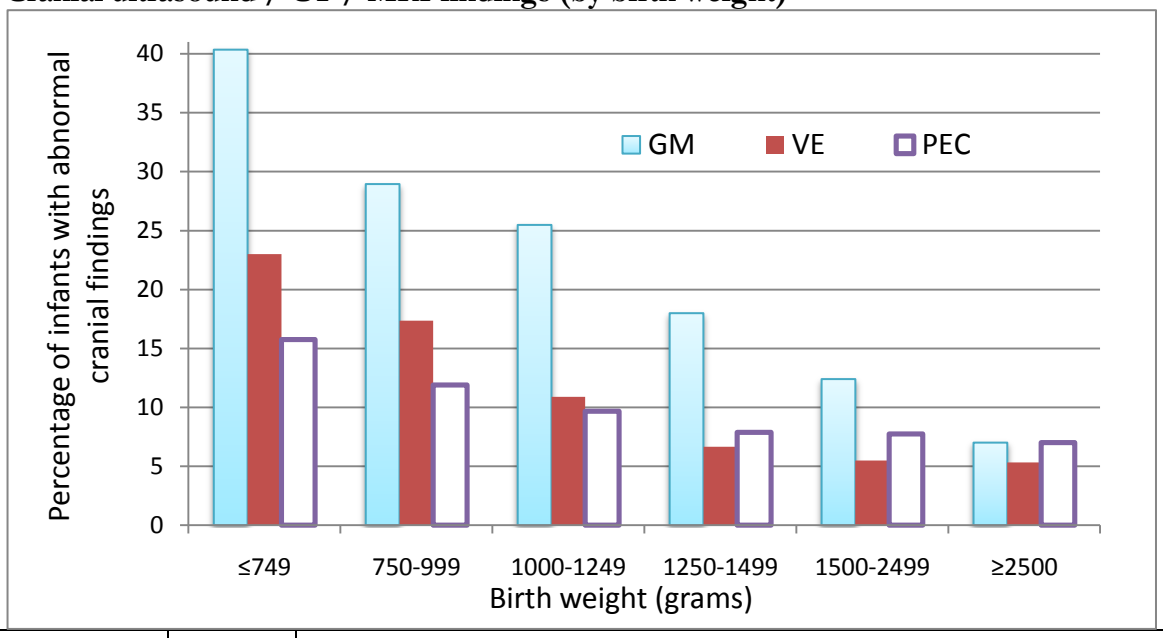
Birth gestational age (completed weeks)		Total number of infants	Findings of cranial ultrasonography / CT / MRI								
			GM incl. IVH without VE			VE			PEC		
			Data not available	None	GM	Data not available	None	VE	Data not available	None	PEC
<25	N	242	67	77	98	68	104	70	119	92	31
	%			44%	56%		60%	40%		75%	25%
25-26	N	565	79	310	176	87	377	101	192	321	52
	%			64%	36%		79%	21%		86%	14%
27-28	N	761	98	481	182	112	565	84	282	437	42
	%			73%	27%		87%	13%		91%	9%
29-30	N	1 069	213	703	153	240	776	53	609	422	38
	%			82%	18%		94%	6%		92%	8%
31-32	N	1 498	654	730	114	674	782	42	1 172	302	24
	%			86%	14%		95%	5%		93%	7%
33-34	N	2 045	1 660	345	40	1 666	366	13	1 970	71	4
	%			90%	10%		97%	3%		95%	5%
35-36	N	1 980	1 693	258	29	1 705	258	17	1 928	46	6
	%			90%	10%		94%	6%		88%	12%
≥37	N	4 899	3 802	1 031	66	3 830	1 020	49	4 729	161	9
	%			94%	6%		95%	5%		95%	5%
Total included	N	13 059	8 266	3 935	858	8 382	4 248	429	11 001	1 852	206
	%			82%	18%		91%	9%		90%	10%
Missing GA		6									
Total		13 065									

*Not all infants at these gestational age groups were screened. GM= germinal matrix hemorrhage, IVH = Intraventricular hemorrhage, VE= Ventricular enlargement and PEC= Parenchymal echogenicity

COMMENTS: GM and VE diagnoses are based on cranial ultrasound examination, CT Scans or MRIs in the first two weeks of age. PEC is based on cranial ultrasound examination, CT Scans or MRIs after 21 days of age. There may be discrepancy between the numbers of infants for whom data on GM or VE are available compared with PEC.

Presentation #10

Cranial ultrasound / CT / MRI findings (by birth weight)



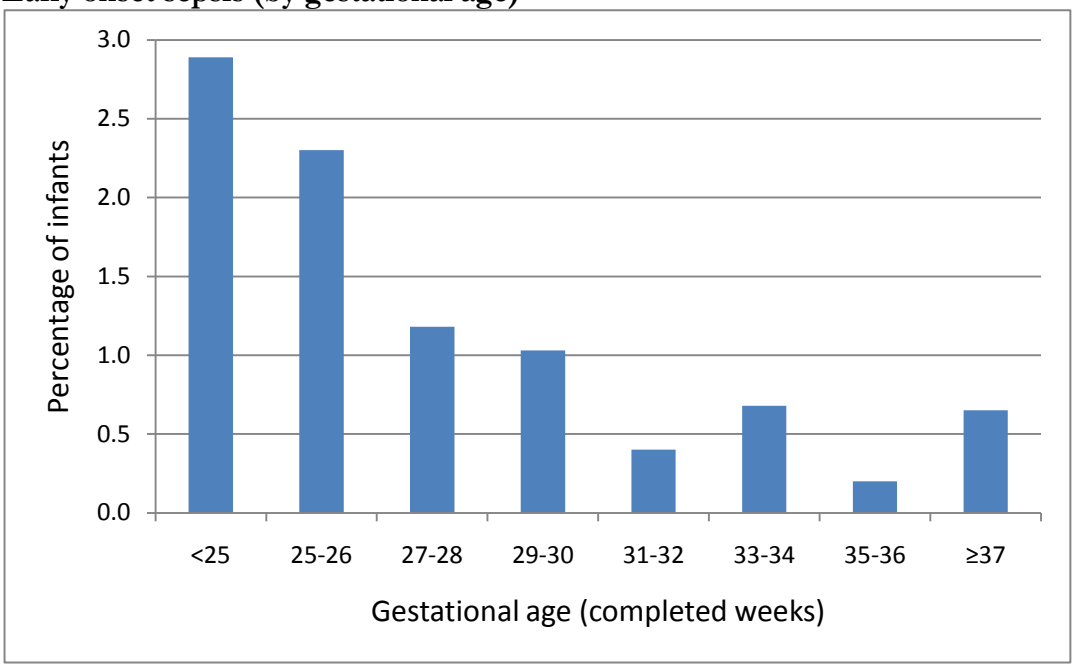
Birth weight (grams)		Total number of infants	Findings of cranial ultrasonography / CT / MRI								
			GM incl. IVH without VE			VE			PEC		
			Data not available	None	GM	Data not available	None	VE	Data not available	None	PEC
≤749	N	431	89	204	138	92	261	78	177	214	40
	%			60%	40%		77%	23%		84%	16%
750-999	N	723	108	437	178	118	500	105	278	392	53
	%			71%	29%		83%	17%		88%	12%
1000-1249	N	811	128	509	174	150	589	72	366	402	43
	%			75%	25%		89%	11%		90%	10%
1250-1499	N	902	207	570	125	226	631	45	572	304	26
	%			82%	18%		93%	7%		92%	8%
1500-2499	N	4 483	3 208	1 117	158	3 241	1 174	68	4 082	370	31
	%			88%	12%		95%	5%		92%	8%
≥2500	N	5 662	4 493	1 086	83	4 520	1 083	59	5 486	164	12
	%			93%	7%		95%	5%		93%	7%
Total included	N	13 012	8 233	3 923	856	8 347	4 238	427	10 961	1 846	205
	%			82%	18%		91%	9%		90%	10%
Missing birth weight		53									
Total		13 065									

GM= Germinal matrix hemorrhage, IVH = Intraventricular hemorrhage, VE= Ventricular enlargement and PEC= Parenchymal echogenicity

COMMENTS: GM and VE diagnoses are based upon cranial ultrasound examination, CT Scans or MRIs in the first two weeks of age. PEC diagnoses are based on cranial ultrasound examination, CT Scans or MRIs after 21 days of age. There may be discrepancy between the numbers of infants for whom data on GM or VE are available compared with PEC.

Presentation #11

Early onset sepsis (by gestational age)

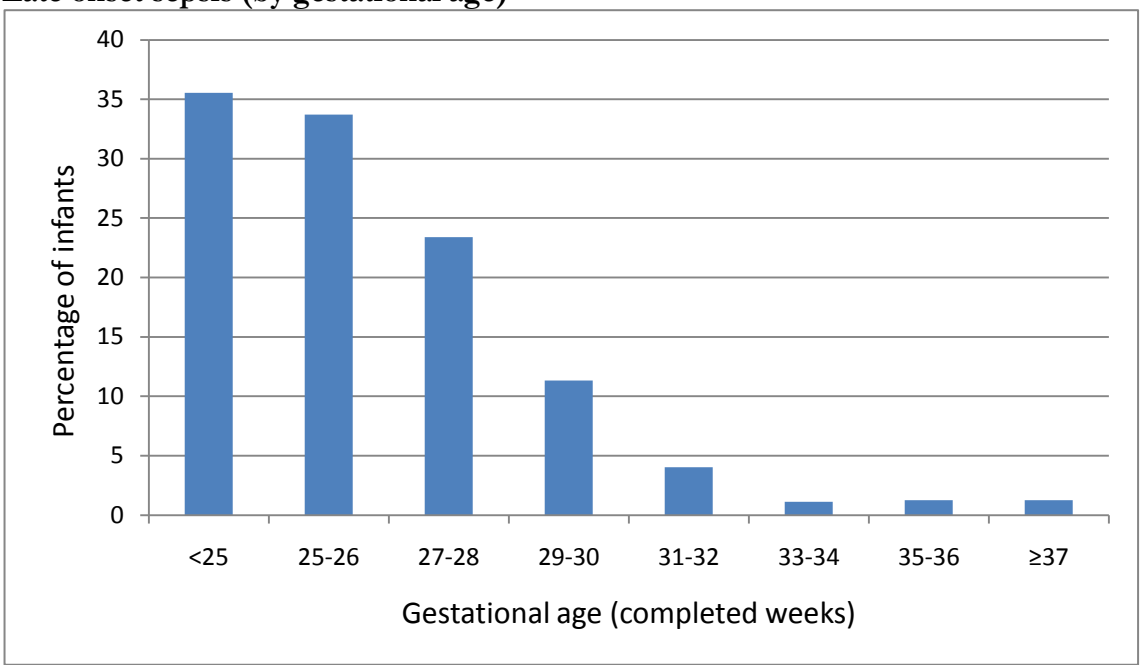


Gestational age at birth (completed weeks)	Total number of infants	No. of infants with infection	%
<25	242	7	2.9
25-26	565	13	2.3
27-28	761	9	1.2
29-30	1 069	11	1.0
31-32	1 498	6	0.4
33-34	2 045	14	0.7
35-36	1 980	4	0.2
≥37	4 899	32	0.7
Total included	**13 059**	**96**	**0.7**
Missing (GA)	**6**		
Total # of infants	**13 065**		

COMMENTS: Early onset sepsis is indicated by positive bacterial or fungal culture in blood and/or cerebrospinal fluid, in the first two days after birth.

Presentation #12

Late onset sepsis (by gestational age)

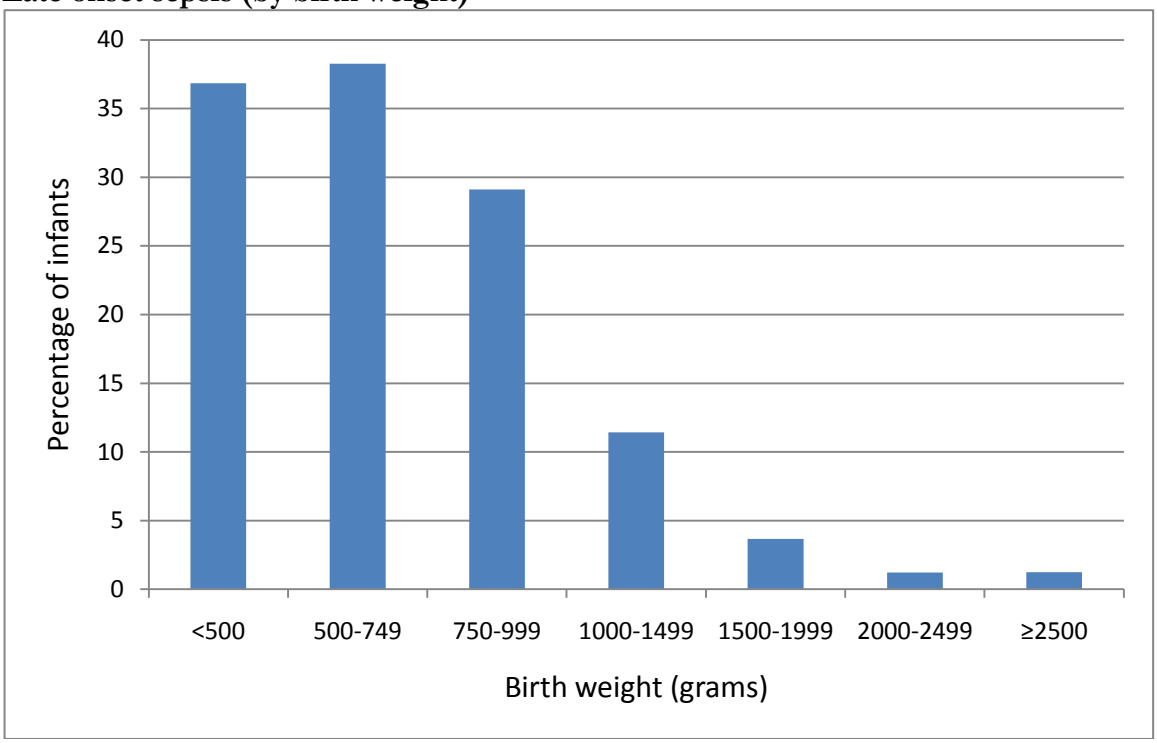


Gestational age at birth (completed weeks)	Total number of infants	Number of deaths in the first 2 days after birth	Number of infants survived beyond day 2 after birth	# with at least one infection	# with more than one infection	% of (at least one infection) / (survived beyond 2 days after birth)
<25	242	31	211	75	17	36
25-26	565	25	540	182	33	34
27-28	761	9	752	176	16	23
29-30	1 069	10	1 059	120	12	11
31-32	1 498	6	1 492	60	5	4
33-34	2 045	8	2 037	23	1	1
35-36	1 980	5	1 975	25	1	1
≥37	4 899	22	4 877	62	5	1
Total included	13 059	116	12 943	723	90	6
Missing (GA)	6					
Total # of infants	**13 065**					

COMMENTS: Late onset sepsis is indicated by any positive blood and/or cerebrospinal fluid culture for bacteria or fungi after 2 days of age (analysis is infant-based and deaths in first 2 days are excluded).The numbers are adjusted for readmission and transfer.

Presentation #13

Late onset sepsis (by birth weight)

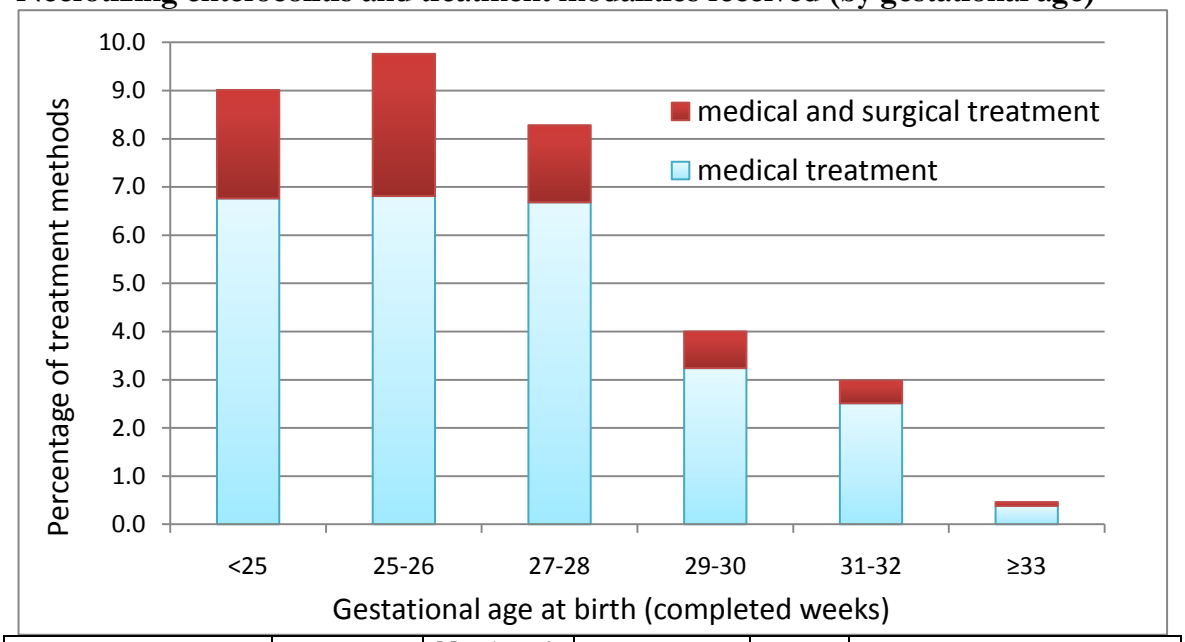


Birth weight (grams)	Total number of infants	Number of deaths in the first 2 days after birth	Number of infants survived beyond day 2 after birth	# with at least one infection	# with more than one infection	% of (at least one infection) / (survived beyond 2 days after birth)
<500	33	14	19	7	1	37
500-749	398	27	371	142	34	38
750-999	723	22	701	204	32	29
1000-1499	1 713	14	1 699	194	12	11
1500-1999	2 083	8	2 075	76	4	4
2000-2499	2 400	6	2 394	29	4	1
≥2500	5 662	23	5 639	70	3	1
Total included	13 012	114	12 898	722	90	6
Missing (BW)	53					
Total # of infants	**13 605**					

COMMENTS: Late onset sepsis is indicated by any positive blood and/or cerebrospinal fluid culture for bacteria or fungi after 2 days of age (analysis is infant-based and deaths in first 2 days are excluded). The numbers are adjusted for readmission and transfer.

Presentation #14

Necrotizing enterocolitis and treatment modalities received (by gestational age)



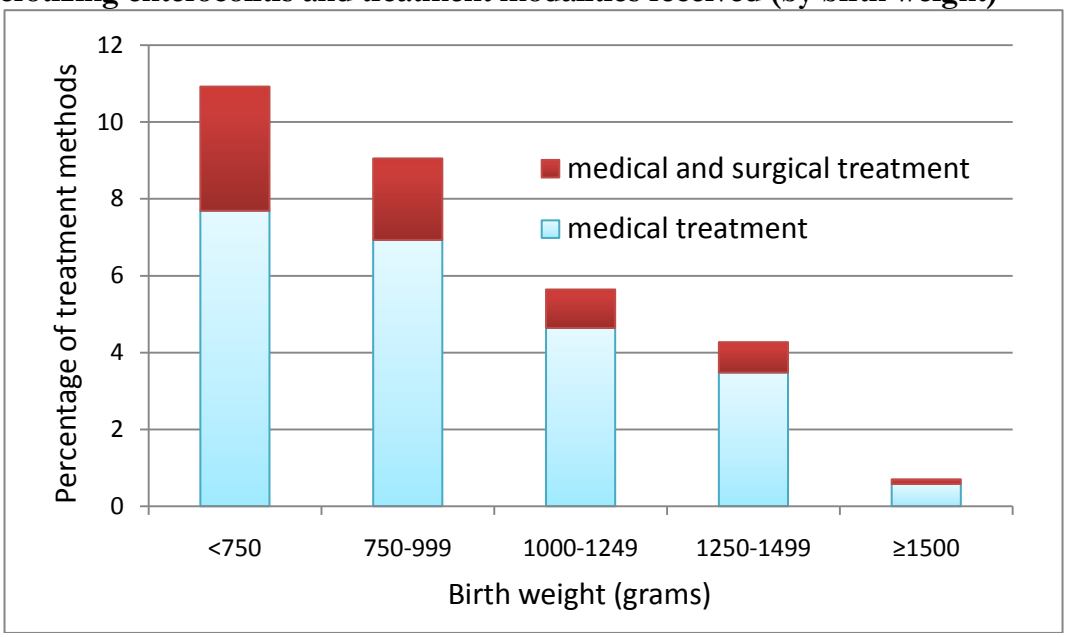
Gestational age at birth (completed weeks)		Total number of infants	Number of infants with missing data on NEC	Number of infants with data available on NEC	None	Necrotizing enterocolitis*	
						Medical treatment only	Medical and surgical treatment
<25	N	242	20	222	202	15	5
	%				91.0%	6.8%	2.3%
25-26	N	565	22	543	490	37	16
	%				90.2%	6.8%	3.0%
27-28	N	761	13	748	686	50	12
	%				91.7%	6.7%	1.6%
29-30	N	1 069	18	1 051	1 009	34	8
	%				96.0%	3.2%	0.8%
31-32	N	1 498	21	1 477	1 433	37	7
	%				97.0%	2.5%	0.5%
≥33	N	8 924	188	8 736	8 696	33	7
	%				99.5%	0.4%	0.1%
Total included	N	13 059	282	12 777	12 516	206	55
					98.0%	1.6%	0.4%
Missing (GA)		**6**					
Total # of infants		**13 065**					

***The percentages of necrotizing enterocolitis are calculated out of number of infants with data available on NEC.**

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

Presentation #15

Necrotizing enterocolitis and treatment modalities received (by birth weight)



Birth weight (grams)		Total number of infants	Number of infants with missing data on NEC	Number of infants with data available on NEC	None	Necrotizing enterocolitis*	
						Medical treatment only	Medical and surgical treatment
<750	N	431	28	403	359	31	13
	%				89.1%	7.7%	3.2%
750-999	N	723	16	707	643	49	15
	%				91.0%	6.9%	2.1%
1000-1249	N	811	13	798	753	37	8
	%				94.4%	4.6%	1.0%
1250-1499	N	902	12	890	852	31	7
	%				95.7%	3.5%	0.8%
≥1500	N	10 145	203	9 942	9 872	58	12
	%				99.3%	0.6%	0.1%
Total included	N	13 012	272	12 740	12 479	206	55
					98.0%	1.6%	0.4%
Missing (BW)		**53**					
Total # of infants		**13 065**					

***The percentages of necrotizing enterocolitis are calculated out of number of infants with data available on NEC.**

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

Section D.3

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

These include data from 4 135 eligible very preterm neonates and 2 867 eligible VLBW neonates.

Presentation #16

Antenatal corticosteroid administration to mothers for infants born at <33 weeks gestational age (n=26 hospitals, 4 135 infants)

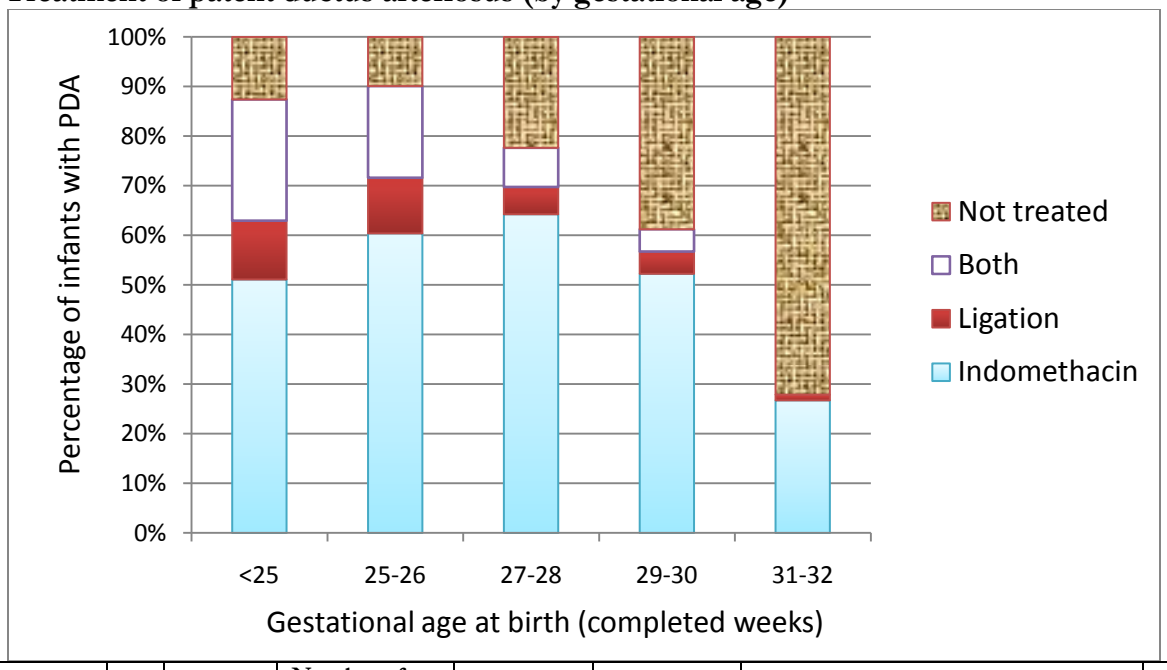
Site	Antenatal corticosteroid (%)			
	No treatment	Partial treatment	Complete treatment	Unknown
Overall	**15.8**	**37.7**	**41.9**	**4.6**
A	29.9	16.8	51.7	1.6
B	23.5	22.1	52.9	1.5
C	0.6	43.0	36.5	19.9
D	3.4	29.2	61.8	5.6
E	28.4	42.6	12.3	16.8
F	16.4	51.8	30.7	1.1
G	15.5	49.6	30.9	4.1
H$^{\phi}$	0.0	11.1	77.8	11.1
I	28.6	8.6	57.1	5.7
J	36.5	30.8	18.7	14.0
K	12.6	41.1	42.7	3.6
L	18.8	9.7	71.5	0.0
M	14.6	17.9	66.7	0.8
N	25.0	13.5	51.9	9.6
O	11.0	53.1	35.6	0.3
P	12.4	45.6	40.6	1.4
Q	28.8	21.2	50.0	0.0
R	7.4	63.1	29.5	0.0
S	20.0	30.0	45.0	5.0
T	17.7	35.3	41.2	5.9
U	6.0	21.0	56.2	16.7
V	11.8	24.0	62.6	1.7
W$^{\phi}$	0.0	48.5	44.1	7.4
X	23.9	39.6	35.8	0.8
Y	14.1	48.9	27.2	9.8
Z	15.8	53.4	28.2	2.6
Overall	**15.8**	**37.7**	**41.9**	**4.6**

$^{\phi}$Note: Two hospitals have selected eligible admissions among infants with GA<33 and thus, the rates may not be comparable with other sites.

COMMENTS: Doses of antenatal corticosteroid are scored according to the following criteria: a) complete = at least 1 dose of corticosteroids 24 hours or greater before birth AND another dose at 7 days or less prior to birth; a complete course is therefore comprised of 2 doses, and b) partial = at least 1 dose <24 hours or more than 7 days prior to birth.

Presentation #17

Treatment of patent ductus arteriosus (by gestational age)



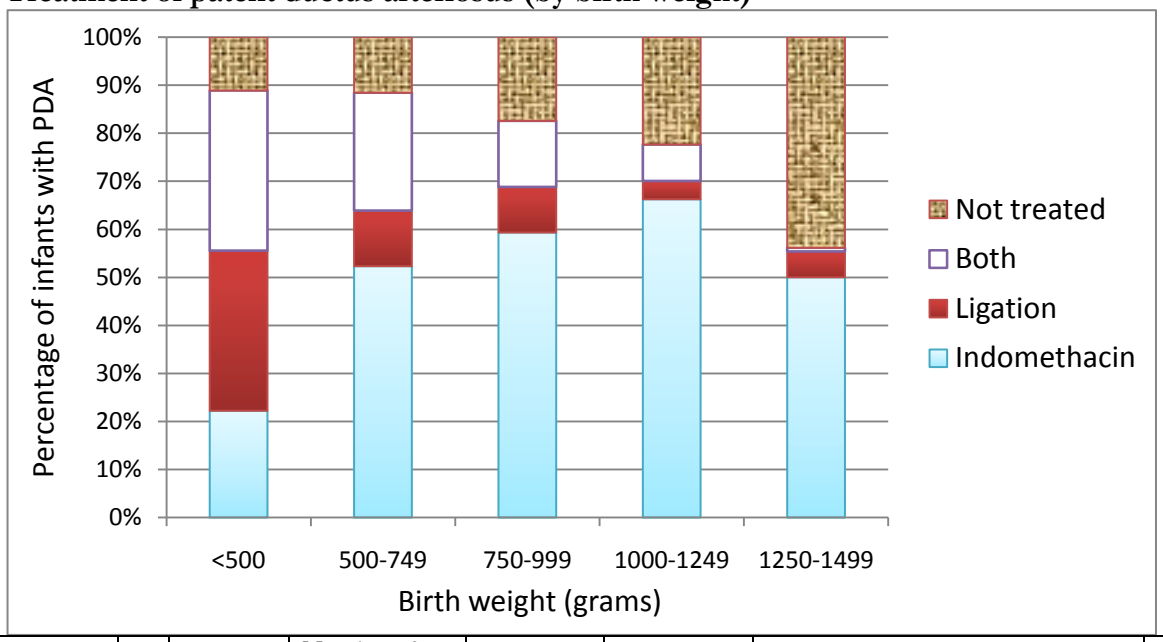
Birth gestational age (completed weeks)		Total number of infants	Number of infants with missing data on PDA treatment (may include death)	Number of infants with data available on PDA treatment	Infants with diagnosed PDA	Treatment*			Not treated
						Indomethacin	Ligation	Both	
<25	**N**	242	31	211	135	69	16	33	17
	%					51%	12%	24%	13%
25-26	**N**	565	36	529	303	183	34	56	30
	%					60%	11%	18%	10%
27-28	**N**	761	27	734	291	187	16	23	65
	%					64%	6%	8%	22%
29-30	**N**	1 069	33	1 036	178	93	8	8	69
	%					52%	4%	4%	39%
31-32	**N**	1 498	51	1 447	86	23	1	0	62
	%					27%	1%	0%	72%
Total included	**N**	4 135	178	3 957	993	555	75	120	243
						56%	8%	12%	24%

***The percentages of treatment of patent ductus arteriosus are calculated out of number of infants with diagnosed PDA.**

COMMENTS: Specific reasons for treatment with indomethacin and frequency of repeat course of indomethacin were not recorded. Excludes indomethacin prophylaxis started on the first day of age. Infants were identified as without PDA using the following criteria: no clinical PDA noted, PDA not considered serious enough to treat, or PDA treated with indomethacin in the first 24 hours after admission and not restarted after 24 hours following admission.

Presentation #18

Treatment of patent ductus arteriosus (by birth weight)



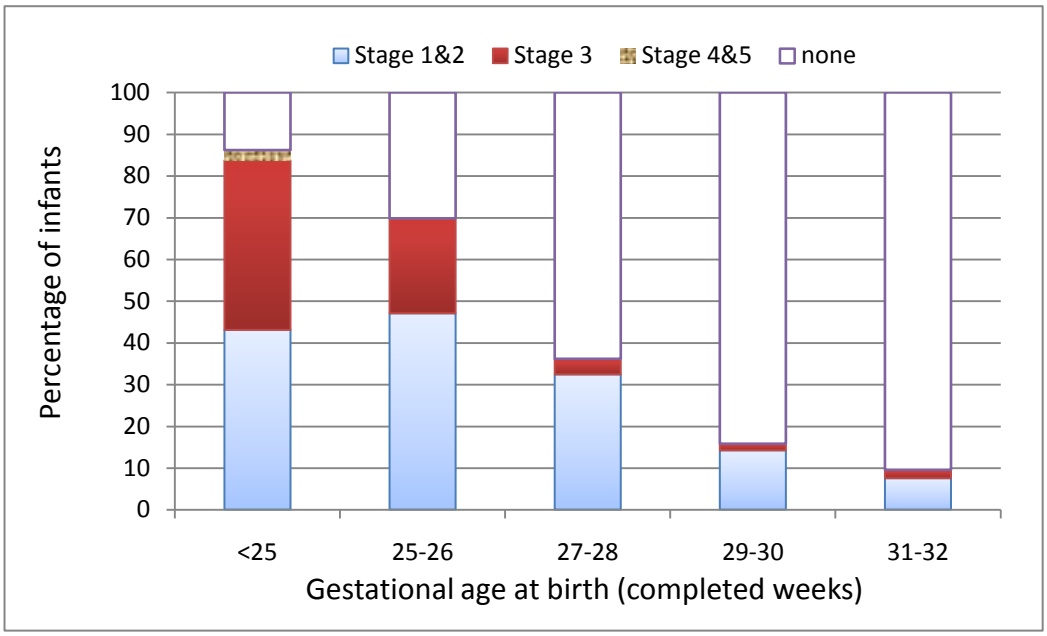
Birth weight (grams)		Total number of infants	Number of infants with missing data on PDA treatment (may include death)	Number of infants with data available on PDA treatment	Infants with diagnosed PDA	Treatment*			Not treated
						Indomethacin	Ligation	Both	
<500	**N**	33	10	23	9	2	3	3	1
	%					22%	33%	33%	11%
500-749	**N**	398	28	370	216	113	25	53	25
	%					52%	12%	25%	12%
750-999	**N**	723	41	682	327	194	31	45	57
	%					59%	9%	14%	17%
1000-1249	**N**	811	29	782	237	157	9	18	53
	%					66%	4%	8%	22%
1250-1499	**N**	902	21	881	130	65	7	1	57
	%					50%	5%	1%	44%
Total included	**N**	2 867	129	2 738	919	531	75	120	193
	%					58%	8%	13%	21%

***The percentages of treatment of patent ductus arteriosus are calculated out of number of infants with diagnosed PDA.**

COMMENTS: Specific reasons for treatment with indomethacin and frequency of a repeat course of indomethacin were not recorded. Excludes indomethacin prophylaxis started on the first day of age. Infants were identified as without PDA using the following criteria: no clinical PDA noted, PDA not considered serious enough to treat, or PDA treated with indomethacin in the first 24 hours after admission and not restarted after 24 hours following admission.

Presentation #19

Retinopathy of prematurity (by gestational age)



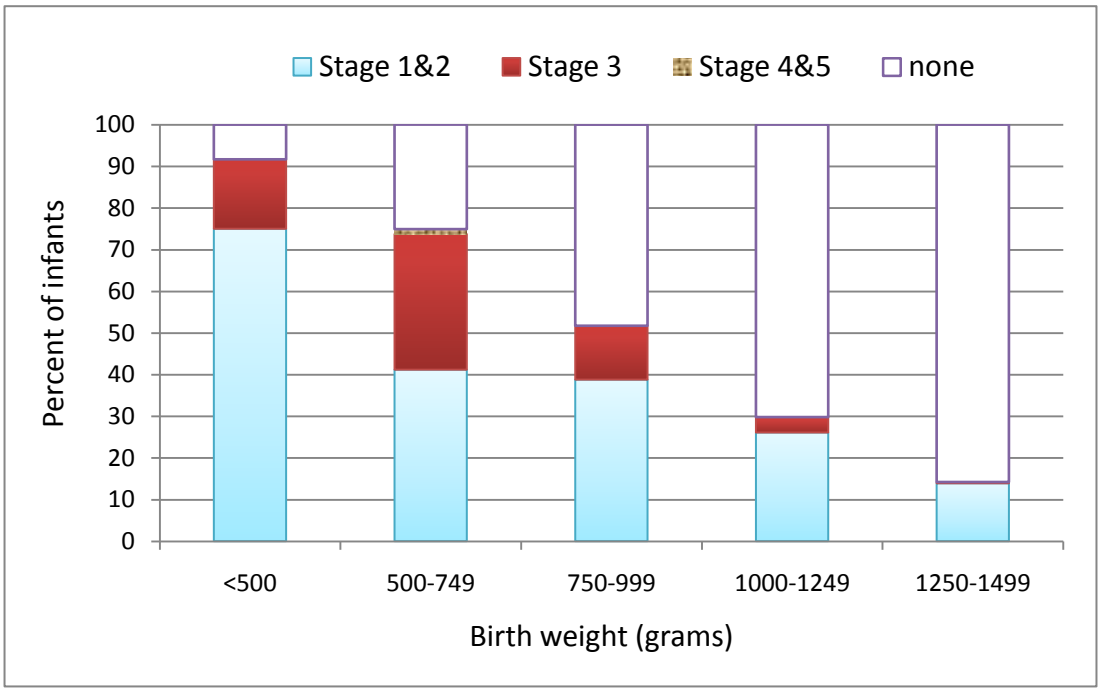
Birth gestational age (completed weeks)		Total number of infants	Number of infants alive at 6 weeks	Number of infants with known eye examination results	Retinopathy of prematurity*			
					None	Stages 1 & 2	Stage 3	Stage 4 & 5
<25	N	242	141	123	17	53	50	3
	%				14%	43%	41%	2%
25-26	N	565	461	391	118	184	89	0
	%				30%	47%	23%	0%
27-28	N	761	712	509	325	165	19	0
	%				64%	32%	4%	0%
29-30	N	1 069	1 030	443	373	63	7	0
	%				84%	14%	2%	0%
31-32	N	1 498	1 479	199	180	15	4	0
	%				91%	8%	2%	0%
Total included	N	4 135	3 823	1 665	1 013	480	169	3
	%				61%	29%	10%	0.2%

***The percentages of various stages of retinopathy of prematurity are calculated out of number of infants with known eye examination results.**

COMMENTS: Retinopathy of prematurity is defined according to the International Classification of Retinopathy of Prematurity (ICROP). Information is based on infants who received eye examinations. More advanced stages may have been detected in infants transferred from network NICUs to level II hospitals or units. **Caution should be used in interpreting these data.**

Presentation #20

Retinopathy of prematurity (by birth weight)



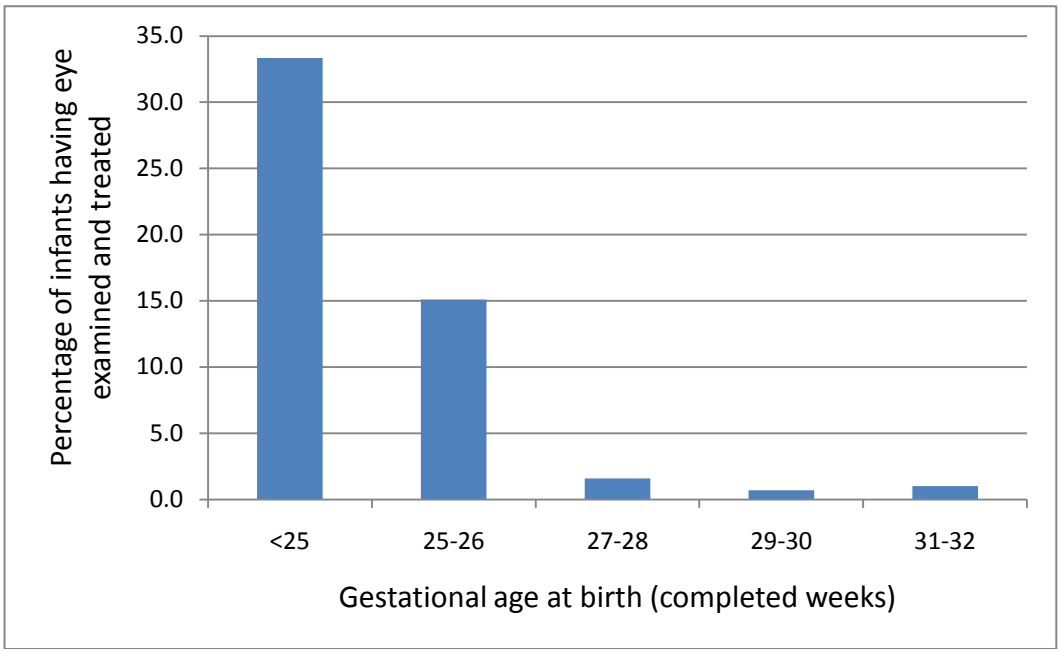
Birth weight (grams)		Total number of infants	Number of infants alive at 6 weeks	Number of infants with known eye examination results	Retinopathy of prematurity*			
					None	Stages 1 & 2	Stage 3	Stage 4 & 5
<500	N	33	12	12	1	9	2	0
	%				8%	75%	17%	0%
500-749	N	398	291	255	64	105	83	3
	%				25%	41%	33%	1%
750-999	N	723	634	495	239	192	64	0
	%				48%	39%	13%	0%
1000-1249	N	811	765	460	323	120	17	0
	%				70%	26%	4%	0%
1250-1499	N	902	875	331	284	46	1	0
	%				86%	14%	0.3%	0%
Total included	N	2 867	2 577	1 553	911	472	167	3
	%				59%	30%	11%	0.2%

***The percentages of various stages of retinopathy of prematurity are calculated out of number of infants with known eye examination results.**

COMMENTS: Retinopathy of prematurity is defined according to the International Classification of Retinopathy of Prematurity (ICROP). Information is based on infants who received eye examinations. More advanced stages may have been detected in infants transferred from network NICUs to level II hospitals or units. **Caution should be used in interpreting these data.**

Presentation #21

Cryo/laser therapy for infants with retinopathy of prematurity (by gestational age)

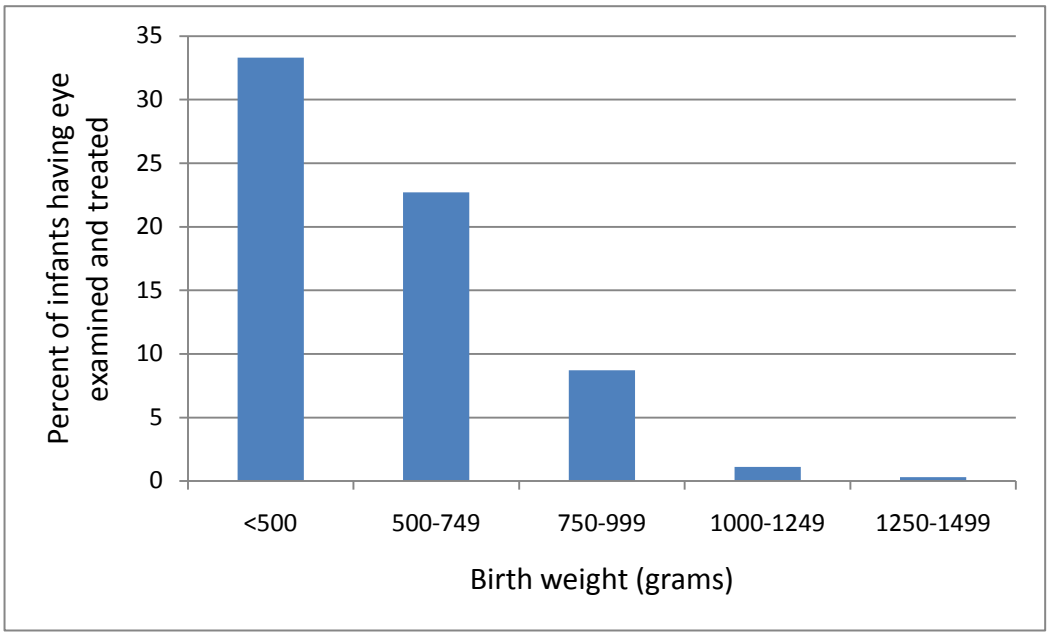


Birth gestational age (completed weeks)		Total number of infants	Number of infants with known eye examination results	Therapy*
<25	**N**	242	123	41
	%			33%
25-26	**N**	565	391	59
	%			15%
27-28	**N**	761	509	8
	%			2%
29-30	**N**	1 069	443	3
	%			1%
31-32	**N**	1 498	199	2
	%			1%
Total included	**N**	4 135	1 665	113
	%			7%

***The percentages of patient who received therapy are calculated out of number of infants with known eye examination results.**

COMMENTS: Retinopathy of prematurity is defined according to the International Classification of Retinopathy of Prematurity (ICROP). Information is based on infants who received eye examinations. More advanced stages may have been detected in infants transferred from network NICUs to level II hospitals or units. **Caution should be used in interpreting these data.**

Presentation #22
Cryo/laser therapy for infants with retinopathy of prematurity (by birth weight)



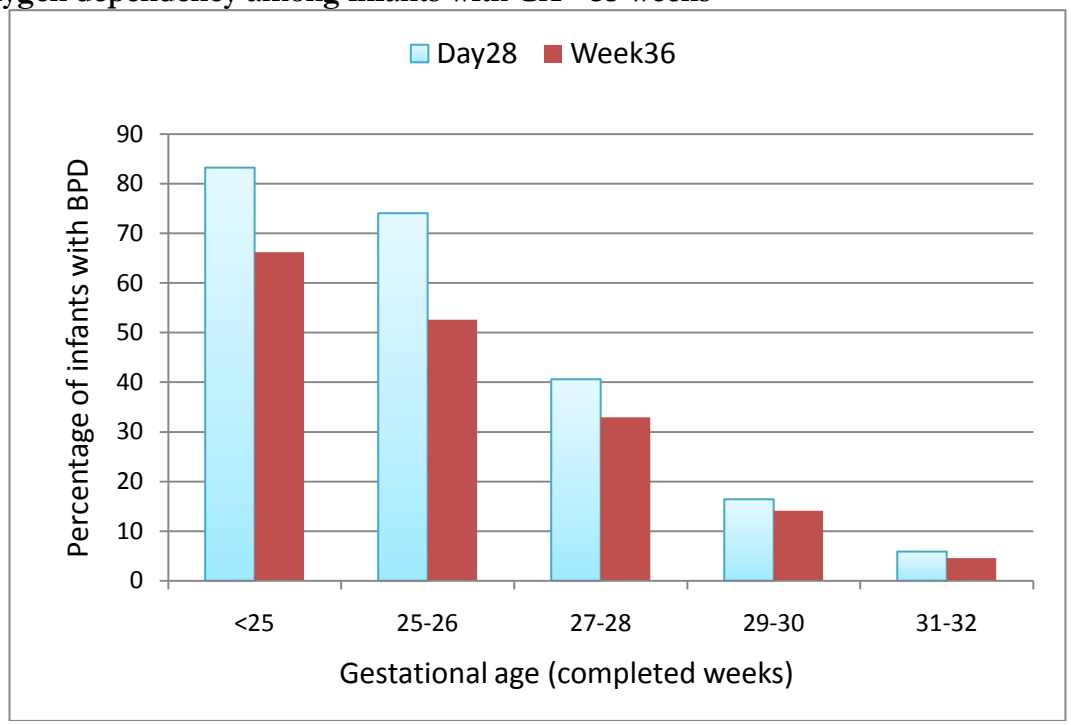
Birth weight (grams)		Total number of infants	Number of infants with known eye examination results	Therapy*
<500	N %	33	12	4 33%
500-749	N %	398	255	58 23%
750-999	N %	723	495	43 9%
1000-1249	N %	811	460	5 1%
1250-1499	N %	902	331	1 0%
Total included	N %	2 867	1 553	111 7%

***The percentages of patient who received therapy are calculated out of number of infants with known eye examination results.**

COMMENTS: Retinopathy of prematurity is defined according to the International Classification of Retinopathy of Prematurity (ICROP). Information is based on infants who received eye examinations. More advanced stages may have been detected in infants transferred from network NICUs to level II hospitals or units. **Caution should be used in interpreting these data.**

Presentation #23

Oxygen dependency among infants with GA <33 weeks

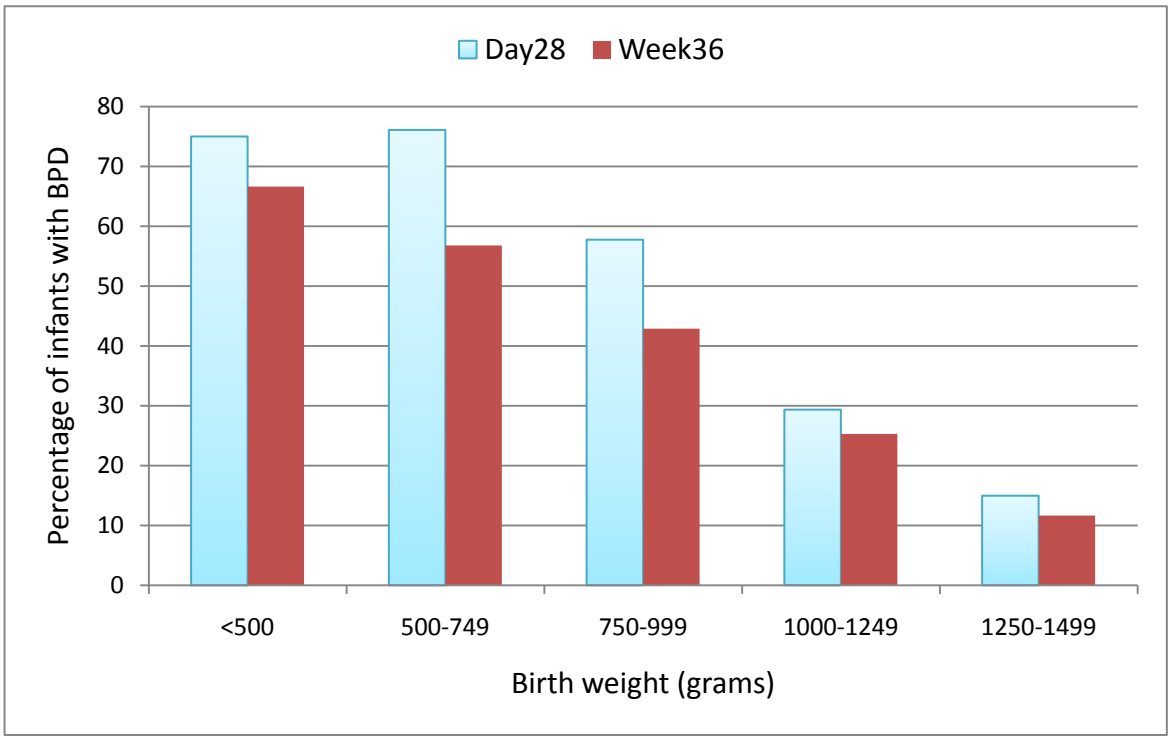


Gestational age	Day 28				Week 36			
	Total number of infants	Number of infants who survived beyond day 28 after birth	Number of infants with oxygen dependency	% of infants with oxygen dependency among survivors	Total number of infants	Number of infants who survived beyond 36 weeks PMA	Number of infants with oxygen dependency	% of infants with oxygen dependency among survivors
<25	242	143	119	83	242	136	90	66
25-26	565	470	348	74	565	456	240	53
27-28	761	717	291	41	761	710	234	33
29-30	1 069	1 029	169	16	1 069	1 028	145	14
31-32	1 498	1 478	87	6	1 498	1 478	68	5
Total	4 135	3 837	1 014	26	4 135	3 808	777	20

COMMENTS: This presentation includes infants who received supplemental oxygen on day 28 of age or week 36 postmenstrual age (PMA), and infants who were discharged prior to day 28 of age or week 36 PMA and receiving supplemental oxygen at discharge. Infants were excluded from analysis if they died prior to day 28 of age or week 36 PMA. There were no requirements for chest radiographs at the time of diagnosis.

Presentation #24

Oxygen dependency (by birth weight) among infants with BW < 1500g



Birth weight (grams)	Day 28				Week 36			
	Total number of infants	Number of infants who survived beyond day 28 after birth	Number of infants with oxygen dependency	% of infants with oxygen dependency among survivors	Total number of infants	Number of infants who survived beyond 36 weeks PMA	Number of infants with oxygen dependency	% of infants with oxygen dependency among survivors
<500	33	12	9	75	33	12	8	67
500-749	398	297	226	76	398	285	162	57
750-999	723	639	369	58	723	627	269	43
1000-1249	811	719	211	29	811	715	181	25
1250-1499	902	755	113	15	902	754	88	12
Total	2 867	2 422	928	38	2 867	2 393	708	30

COMMENTS: This presentation includes infants who received supplemental oxygen on day 28 of age or week 36 postmenstrual age (PMA), and infants who were discharged prior to day 28 of age or week 36 PMA and receiving supplemental oxygen at discharge. Infants were excluded from analysis if they died prior to day 28 of age or week 36 PMA. There were no requirements for chest radiographs at the time of diagnosis.

Presentation #25a
Gestational age specific mortality or significant morbidity (six morbidities)

GA	Number of infants	Number survived (%)	Number of infants discharged home directly from network hospitals	Number (%) with any one morbidity prior to discharge	Number (%) with any two morbidities prior to discharge	Number (%) with any three morbidities prior to discharge	Number (%) with any four morbidities prior to discharge	Number (%) with any five morbidities prior to discharge	Number (%) with all six morbidities prior to discharge	Number (%) without any of the six morbidities
<24	62	28 (45)	10	1 (10)	5 (50)	2 (20)	1 (10)	1 (10)	0	0 (0)
24	180	102 (57)	48	12 (25)	16 (33)	10 (21)	2 (4)	1 (2)	0	7 (15)
25	280	215 (77)	85	19 (22)	30 (35)	16 (19)	8 (9)	0	0	12 (14)
26	285	238 (84)	90	29 (32)	20 (22)	11 (12)	3 (3)	0	0	27 (30)
27	351	321 (91)	120	50 (42)	24 (20)	4 (3)	1 (1)	0	0	41 (34)
28	410	383 (93)	127	48 (38)	23 (18)	1 (1)	1 (1)	0	0	54 (43)
29	484	459 (95)	157	44 (28)	13 (8)	4 (3)	0	0	0	96 (61)
30	585	564 (96)	197	35 (18)	7 (4)	4 (2)	0	0	0	151 (77)
31	667	657 (99)	223	32 (14)	6 (3)	2 (1)	0	0	0	183 (82)
32	831	820 (99)	337	35 (10)	2 (1)	0	0	0	0	300 (89)
Total	**4 135**	**3787 (92)**	**1 394 (100%)**	**305 (22%)**	**146 (10%)**	**54 (4%)**	**16 (1%)**	**2 (0%)**	**0**	**871 (62%)**

Inclusion criteria for these analyses:

1. Infant born at <33 weeks GA
2. Infant discharged home from participating network hospital

COMMENTS:

Morbidities were counted as score of one for each of the following

i. Ventricular enlargement or PEC
ii. Stage 3 or 4 ROP
iii. Oxygen dependency at 36 weeks or discharge
iv. Culture proven early onset or late onset sepsis
v. Stage 2 or 3 NEC
vi. PDA requiring surgical ligation

Presentation #25b
Gestational age specific mortality or significant morbidity (three morbidities)

GA	Number of infants	Number survived (%)	Number of infants discharged home directly from network hospitals	Number (%) with any one morbidity prior to discharge	Number (%) with any two morbidities prior to discharge	Number (%) with any three morbidities prior to discharge	Number (%) without any of the three morbidities
<24	62	28 (45)	10	2 (20)	5 (50)	2 (20)	1 (10)
24	180	102 (57)	48	21 (44)	17 (35)	1 (2)	9 (19)
25	280	215 (77)	85	33 (39)	22 (26)	7 (8)	23 (27)
26	285	238 (84)	90	34 (38)	18 (20)	1 (1)	37 (41)
27	351	321 (91)	120	44 (37)	9 (8)	0	67 (56)
28	410	383 (93)	127	45 (35)	5 (4)	0	77 (61)
29	484	459 (95)	157	31 (20)	6 (4)	0	120 (76)
30	585	564 (96)	197	22 (11)	2 (1)	0	173 (88)
31	667	657 (99)	223	25 (11)	2 (1)	0	196 (88)
32	831	820 (99)	337	11 (3)	0	0	326 (97)
Total	**4 135**	**3 787 (92)**	**1 394**	**268 (19)**	**86 (6)**	**11 (1)**	**1 029 (74)**

Inclusion criteria for these analyses:

1. Infant born at <33 weeks GA
2. Infant discharged home from participating network hospital

COMMENTS:

Morbidities were counted as score of one for each of the following

i. Ventricular enlargement or PEC
ii. Stage 3 or 4 ROP
iii. Oxygen dependency at 36 weeks or discharge home

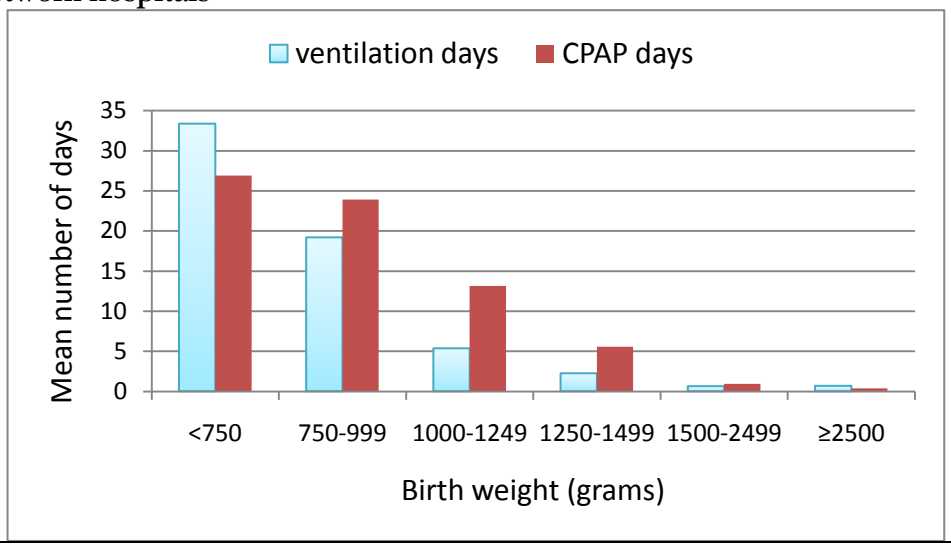
Section D.4

Analyses based on number of infants discharged directly home from network hospitals. This includes 5 896 eligible neonates out of a total of 13 065 neonates (45%).

Many units retro transfer infants to Level 2 centers when they are stable, those who are discharged directly from Network hospitals may be selected because of severe illness or high-risk of complications.

Presentation #26

Days on assisted ventilation (by birth weight) for infants discharged directly home from network hospitals



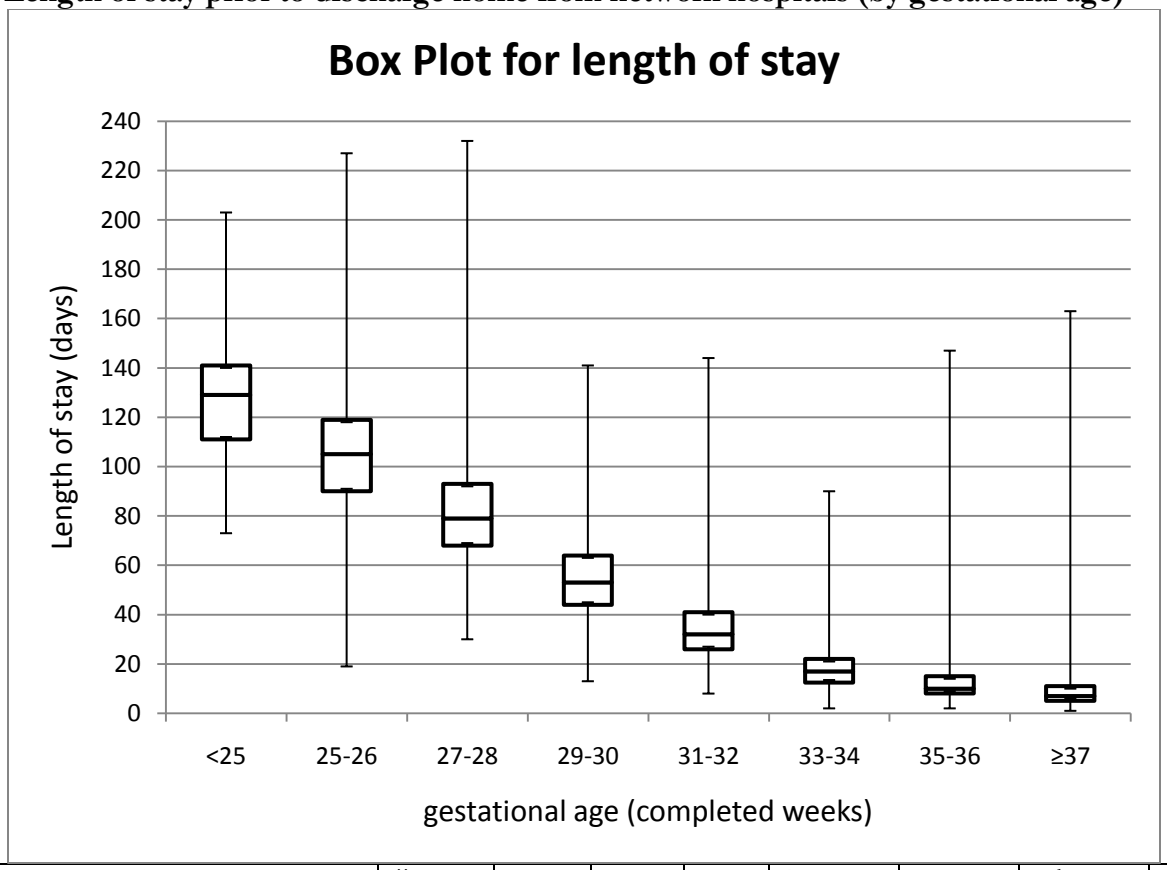
		Birth weight (grams)								
		<750	**750-999**	**1 000-1249**	**1 250-1 499**	**1 500-2 499**	**≥2 500**	**Total # of infants included**	**# of missing data**	**Total # of infants discharged home**
Ventilation days*	**N**	122	242	260	291	2 096	2 838	5 849	24(BW), 23(ventilation)	5 896
	Mean	33.4	19.2	5.4	2.2	0.6	0.7			
	SEM	2.2	1.3	0.5	0.3	0.1	0.0			
	Median	33	10	2	1	0	0			
CPAP days*	**N**	122	242	259	290	2 097	2 838	5 848	24(BW), 24(ventilation)	5 896
	Mean	26.9	23.9	13.2	5.6	1.0	0.4			
	SEM	1.7	1.3	0.8	0.6	0.1	0.0			
	Median	25	22	9	1	0	0			

GA	Total number of infants discharged home	# of infants intubated	Percentage of infants intubated
23	10	10	100
24	48	46	96
25	85	84	99
26	90	88	98
27	120	107	89
28	127	111	87
29	157	111	71
30	197	117	59
31	223	104	47
Total	1 057	778	74

COMMENTS: This presentation represents respiratory support information collected at time of discharge where only the highest form of support is recorded for each day. The information is only for infants discharged home directly from network hospitals and does not represent entire population.

Presentation #27

Length of stay prior to discharge home from network hospitals (by gestational age)*

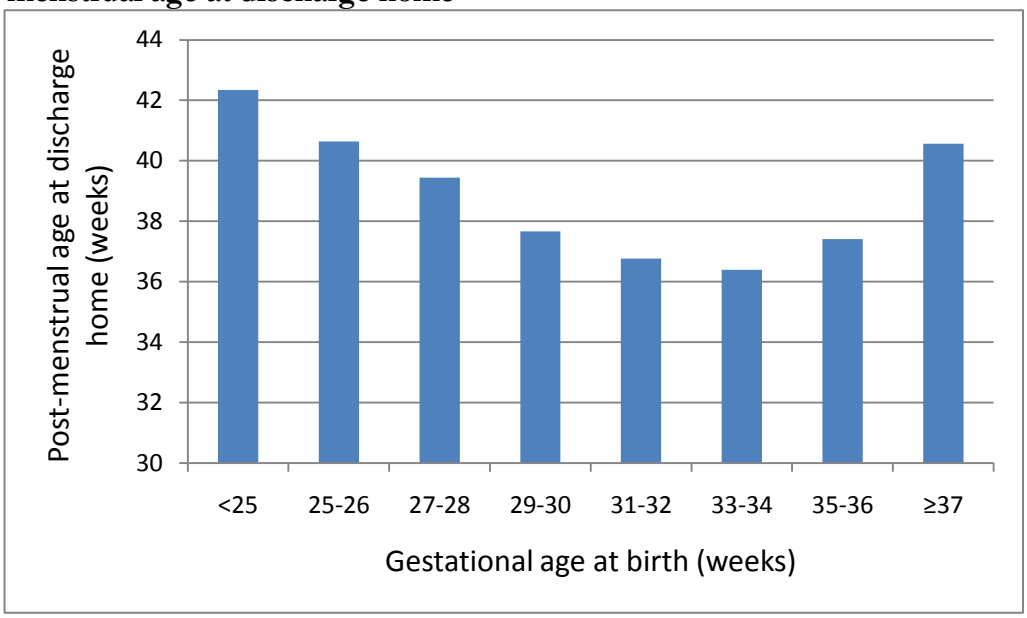


Gestational age at birth (completed weeks)	# of infants	Mean	SEM	Min	1st Quartile	Median	3rd Quartile	Max
<25	49	128.59	3.8971	73	111	129	141	203
25-26	165	106.79	2.1941	19	90	105	119	227
27-28	240	82.588	1.5523	30	68	79	93	232
29-30	341	56.161	0.995	13	44	53	64	141
31-32	541	35.909	0.7055	8	26	32	41	144
33-34	1 036	18.8	0.3	2	12.5	17	22	90
35-36	1 020	12.5	0.3	2	8	10	15	147
≥37	2 444	9.9	0.2	1	5	7	11	163
Total included	5 836	23.757	0.368	1	7	13	27.5	232
Missing (GA/error) + Admission after 48 hours for GA<33	60							
Total # of infants discharged home from network hospitals	**5 896**							
Total # of infants who died or were transferred to non-network hospitals prior to discharge home	**7 169**							
Total # of infants	**13 065**							

*Data shown apply to infants discharged home from network hospitals (data for infants transferred to other hospitals are presently unavailable)

Presentation #28

Post-menstrual age at discharge home*



Gestational age at birth	Post-menstrual age (weeks) at discharge home			
	# of infants	Mean	SEM	Median
<25	58	42.3	0.5	42.4
25-26	175	40.6	0.3	40.7
27-28	247	39.4	0.2	38.9
29-30	354	37.7	0.1	37.1
31-32	560	36.8	0.1	36.3
33-34	1 035	36.4	0.0	36.0
35-36	1 020	37.4	0.1	37.1
≥37	2 444	40.6	0.0	40.3
Total included	5 893	38.7	0.0	38.3
Missing (GA/error)	3			
Total # of infants discharged home from network hospitals	**5 896**			
Total # of infants who died or were transferred to non-network hospitals prior to discharge home	**7 169**			
Total # of infants	**13 065**			

*Data shown apply to infants discharged home from network NICUs (data for infants transferred to other hospitals are presently unavailable)

COMMENTS: For infants discharged home from a network hospital, the length of stay in hospital from the day of admission to the day when the patient went home from the hospital, in relation to gestational age at birth, is illustrated. It is unknown whether those transferred to another hospital have different lengths of stay.

Presentation #29

Use of oxygen at discharge for infants who were discharged home from participating network hospitals

Gestational age (weeks)	# of infants discharged to home	Oxygen	
		N	%
<25	58	15	25.9
25-26	175	35	20.0
27-28	247	18	7.3
29-30	354	6	1.7
31-32	560	7	1.3
33-34	1 035	3	0.3
35-36	1 020	2	0.2
≥37	2 444	6	0.3
Total included	5 893	92	1.6
Missing (GA)	3		
Total # of infants discharged home from network hospitals	**5 896**		
Total # of infants died or transferred to non-network hospitals prior to discharge home	**7 169**		
Total # of infants	**13 065**		

E. Site comparisons – Mortality

Presentation #30

Site-specific gestational age categories of infants

		Gestational age (completed weeks)								Total %	Criteria of data collection
		<25	25-26	27-28	29-30	31-32	33-34	35-36	≥37		
Infants per site (%)	1	2.1	7.4	13.3	18.9	22.8	4.4	4.8	26.3	100	Partial
	2	3.2	5.6	6.9	8.0	11.1	18.8	12.8	33.6	100	Complete
	3	0.9	1.1	3.7	5.3	5.9	21.4	19.2	42.6	100	Complete
	4	2.9	4.5	7.1	6.4	6.8	7.7	10.3	54.5	100	Complete
	5	0.5	1.0	1.4	5.3	8.2	17.8	23.1	42.8	100	Complete
	6	1.5	5.4	6.8	7.7	10.9	16.0	16.2	35.5	100	Complete
	7	1.0	2.6	2.5	4.8	7.5	16.0	15.5	50.3	100	Complete
	8	4.1	13.6	15.3	28.1	37.2	1.7	NA	NA	100	Partial
	9	0.0	2.2	0.9	8.7	10.9	14.4	15.3	47.6	100	Complete
	10	1.8	2.5	5.1	12.3	10.5	22.7	20.6	24.6	100	Complete
	11	1.4	4.5	5.6	8.7	14.0	17.0	10.7	38.1	100	Complete
	12	1.2	1.7	3.8	3.8	8.7	17.7	13.7	49.4	100	Complete
	13	8.2	24.7	50.7	5.5	4.1	6.9	NA	NA	100	Partial
	14	0.3	1.8	2.1	5.9	8.4	12.6	18.7	50.3	100	Complete
	15	1.2	0.6	3.5	4.6	10.3	11.5	18.4	50.0	100	Complete
	16	3.1	3.1	5.1	6.1	12.0	24.7	15.7	30.2	100	Complete
	17	25.0	15.0	5.0	NA	NA	5.0	20.0	30.0	100	Partial
	18	1.4	2.1	1.9	3.8	6.9	18.7	21.8	43.4	100	Complete
	19	NA	2.4	4.7	4.5	9.5	13.1	20.5	45.4	100	Complete
	20	3.2	4.9	7.7	8.4	16.7	14.8	11.8	32.5	100	Complete
	21	3.2	5.8	7.5	8.4	12.6	13.8	14.8	33.9	100	Complete
	22	2.9	4.4	3.7	6.8	14.3	20.8	19.3	27.9	100	Complete
	23	0.9	4.0	5.2	10.7	14.1	18.1	17.2	29.8	100	Complete
	24	4.9	10.7	13.3	16.0	13.1	18.2	9.8	14.1	100	Complete
	25	0.9	4.2	3.8	8.4	10.4	16.4	20.6	35.4	100	Complete
	26	0.1	1.9	2.4	4.0	6.9	13.7	19.1	51.9	100	Complete
Total		1.9	4.3	5.8	8.2	11.5	15.7	15.2	37.5	100	

NA = no data available

COMMENTS: Proportion of the gestational age categories of infants varied considerably among sites. Note some centers are only submitting a subset of the eligible population.

Presentation #31

Site-specific birth weight categories of infants

		Birth weight (g)							Total %	Criteria of data collecting
		<500	500-749	750-999	1000-1249	1250-1499	1500-2499	≥2500		
Infants per site (%)	1	0.2	2.5	10.2	13.6	13.6	31.9	28.0	100	Partial
	2	0.3	3.9	8.1	7.1	8.2	34.6	37.8	100	Complete
	3	0.2	1.3	1.7	2.8	5.1	33.9	55.1	100	Complete
	4	0.4	3.2	6.5	7.6	5.6	20.4	56.4	100	Complete
	5	0.0	1.5	1.9	2.4	4.8	31.4	58.0	100	Complete
	6	0.3	3.2	6.5	5.7	6.6	32.6	45.2	100	Complete
	7	0.1	2.0	2.5	3.4	4.1	32.6	55.3	100	Complete
	8	1.7	11.2	15.8	19.5	19.1	32.0	0.8	100	Partial
	9	0.0	0.9	3.9	5.2	5.7	30.1	54.2	100	Complete
	10	0.0	3.3	4.3	6.1	9.0	43.7	33.6	100	Complete
	11	0.0	3.0	7.3	5.9	6.5	33.6	43.8	100	Complete
	12	0.3	2.1	2.7	2.7	4.7	30.2	57.4	100	Complete
	13	2.7	12.3	30.1	30.1	15.1	9.6	0.0	100	Partial
	14	0.0	1.0	2.2	3.4	4.0	31.7	57.8	100	Complete
	15	0.0	1.2	2.3	2.9	5.2	42.0	46.6	100	Complete
	16	0.6	4.3	4.9	4.3	5.9	44.7	35.3	100	Complete
	17	0.0	20.0	20.0	5.0	0.0	20.0	35.0	100	Partial
	18	0.2	1.4	3.1	3.3	2.6	34.8	54.5	100	Complete
	19	0.0	0.3	1.9	6.1	4.0	34.0	53.8	100	Complete
	20	0.2	4.1	7.8	6.9	9.2	33.4	38.4	100	Complete
	21	0.5	4.3	6.3	7.5	7.5	35.6	38.3	100	Complete
	22	0.3	4.2	5.0	5.2	6.8	44.5	34.1	100	Complete
	23	0.5	1.8	3.1	7.4	10.1	38.0	39.2	100	Complete
	24	0.6	9.0	11.8	12.6	11.8	36.4	17.8	100	Complete
	25	0.2	2.5	4.8	5.9	6.3	38.2	42.2	100	Complete
	26	0.0	1.0	1.7	2.0	4.4	36.5	54.4	100	Complete
Total		0.3	3.1	5.6	6.2	6.9	34.5	43.5	100	

*Please note that some centers are only submitting a subset of the eligible admissions.

Presentation #32

Site-specific survival rates by gestational age

Site	Percentage survival for each gestational age (completed weeks)										
	<23	**23**	**24**	**25**	**26**	**27-28**	**29-30**	**31-32**	**33-34**	**≥35**	**Overall survival rate for sites***
A	NA	100.0	36.4	61.5	87.5	88.7	97.6	99.2	98.8	96.9	95.3
B	NA	NA	66.7	80.0	100.0	100.0	93.8	96.6	100.0	99.6	98.6
C	NA	NA	75.0	100.0	100.0	100.0	100.0	100.0	98.8	99.5	99.3
D	NA	NA	60.0	100.0	80.0	92.9	88.2	100.0	98.4	99.2	96.4
E	NA	100.0	76.9	83.3	61.5	92.5	100.0	100.0	88.4	95.3	93.8
Fϕ	NA	0.0	81.8	63.2	91.3	94.7	96.3	98.4	96.0	98.3	95.4
G	25.0	25.0	27.3	75.0	81.8	90.9	89.8	98.6	97.5	98.3	93.5
Hϕ	NA	NA	80.0	50.0	100.0	100.0	NA	NA	0.0	40.0	55.0
I	NA	NA	50.0	NA	0.0	50.0	100.0	94.4	100.0	100.0	96.6
J	NA	100.0	NA	75.0	80.0	88.2	100.0	100.0	99.0	99.0	98.4
K	NA	36.4	26.7	81.3	92.0	98.6	98.8	100.0	100.0	98.4	94.4
L	0.0	50.0	44.4	70.0	80.0	92.0	93.3	100.0	100.0	99.6	96.3
M	0.0	100.0	62.5	78.6	66.7	85.7	96.2	100.0	100.0	98.3	96.4
N	NA	NA	NA	100.0	50.0	100.0	90.0	100.0	100.0	99.3	97.8
O	NA	66.7	83.3	100.0	100.0	92.5	97.8	95.5	100.0	98.6	98.1
P	0.0	16.7	61.5	73.9	80.0	93.1	91.6	99.1	99.0	97.3	94.5
Q	NA	0.0	50.0	50.0	100.0	92.3	92.3	100.0	96.7	99.5	97.4
R	NA	66.7	100.0	90.9	80.0	90.0	97.4	95.1	98.5	99.6	98.3
S	NA	NA	NA	100.0	83.3	88.9	100.0	100.0	100.0	100.0	99.2
T	0.0	NA	NA	100.0	100.0	100.0	100.0	100.0	100.0	99.3	99.0
U	NA	100.0	61.5	76.9	86.7	97.7	100.0	95.8	98.8	97.2	96.0
Vϕ	NA	50.0	12.5	57.9	78.6	91.9	91.2	97.8	100.0	NA	87.6
Wϕ	NA	0.0	60.0	81.8	71.4	89.2	100.0	100.0	100.0	NA	84.9
X	NA	0.0	100.0	60.0	62.5	86.7	95.3	100.0	97.8	98.0	97.0
Y	NA	0.0	25.0	100.0	75.0	85.0	93.1	100.0	99.1	97.9	96.7
Z	NA	100.0	70.0	77.8	81.0	93.9	94.6	100.0	98.3	98.7	96.7
Overall survival rate for GA**	11.1	50.9	56.7	76.8	83.5	92.5	95.7	98.6	98.7	98.3	96.3

These analyses include 13 059 infants from 26 hospitals (6 infants had missing data for GA). **Twenty-two hospitals collected data on all eligible admissions whereas four hospitals (marked byϕ) collected data on selected eligible admissions only.**

ϕ Please note that the criteria for entering infants in the CNN dataset are not the same for these four hospitals and thus, the rates may not be comparable with other sites.
Overall* = (number of infants survived by site / total number of infants for that site)*100
Overall** = (number of infants survived for gestational age category / total number of infants in gestational age category)*100
NA = no data available, 0 = no infants survived

Presentation #33

Site-specific survival rates by birth weight

Site	Percentage survival for each birth weight (g) category								
	<500	**500-749**	**750-999**	**1000-1249**	**1250-1499**	**1500-2499**	**2500-4499**	**>4499**	**Overall survival rate for sites***
A	NA	57.1	85.3	94.5	98.4	98.7	96.8	100.0	95.4
B	0.0	66.7	100.0	92.9	100.0	99.3	99.5	100.0	98.6
C	100.0	100.0	100.0	97.0	100.0	98.8	100.0	100.0	99.3
D	NA	66.7	100.0	88.2	92.0	100.0	96.7	100.0	96.4
E	100.0	77.8	83.3	92.9	93.5	92.0	96.7	100.0	93.9
Fϕ	0.0	71.4	86.0	96.1	97.4	97.2	98.7	100.0	95.5
G	33.3	56.0	86.5	84.1	93.2	98.6	97.7	100.0	93.9
Hϕ	NA	75.0	75.0	100.0	NA	50.0	28.6	NA	55.0
I	NA	0.0	25.0	80.0	100.0	100.0	100.0	100.0	96.6
J	NA	71.4	100.0	78.6	100.0	99.2	98.9	100.0	98.4
K	0.0	62.5	92.1	98.5	100.0	99.0	98.9	100.0	94.4
L	0.0	61.9	87.5	100.0	89.7	99.5	100.0	100.0	96.3
M	0.0	87.5	68.4	95.0	96.2	100.0	97.7	100.0	96.4
N	NA	100.0	77.8	91.7	100.0	98.6	99.2	100.0	97.8
O	100.0	80.8	98.0	98.4	98.5	98.8	98.4	100.0	98.1
P	0.0	63.4	81.0	91.9	96.5	98.9	97.3	100.0	94.5
Q	0.0	71.4	88.9	77.8	93.8	100.0	98.9	100.0	97.3
R	100.0	81.3	95.0	89.3	100.0	98.1	99.5	100.0	98.3
S	NA	100.0	85.7	95.7	100.0	99.2	100.0	100.0	99.2
T	NA	66.7	100.0	100.0	100.0	98.5	100.0	100.0	99.0
U	0.0	78.3	90.9	97.4	98.1	97.9	96.7	100.0	95.9
Vϕ	0.0	59.3	84.2	95.7	93.5	94.8	100.0	NA	87.6
Wϕ	0.0	88.9	72.7	90.9	100.0	100.0	NA	NA	84.9
X	NA	57.1	68.8	100.0	93.1	98.7	97.7	100.0	97.0
Y	0.0	42.9	100.0	86.7	85.7	98.4	98.6	100.0	96.7
Z	50.0	82.6	85.1	92.7	100.0	98.3	98.4	100.0	96.7
Overall survival rate for BW**	27.3	69.1	86.6	93.8	96.8	98.5	98.3	100.0	96.3

These analyses include 13 012 infants from 26 hospitals (53 infants had missing data for birth weight). **Twenty-two hospitals collected data on all eligible admissions whereas four hospitals (marked by ϕ) collected data on selected eligible admissions only.**

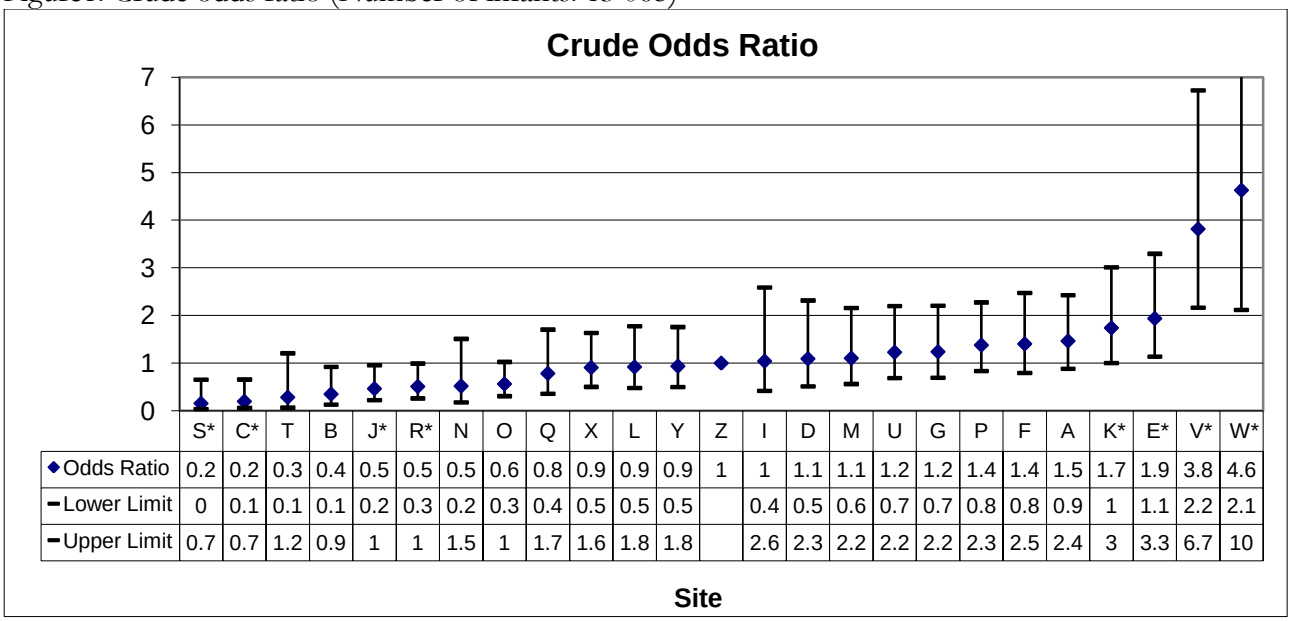
ϕ Please note that the criteria for entering infants in the CNN dataset are not the same for these four hospitals and thus, the rates may not be comparable with other sites.

Overall* = (number of infants survived for site / total number of infants for site)*100
Overall** = (number of infants for birth weight category / total number of infants in birth weight category)*100
NA = no data available, 0 = no infants survived

Presentation#34

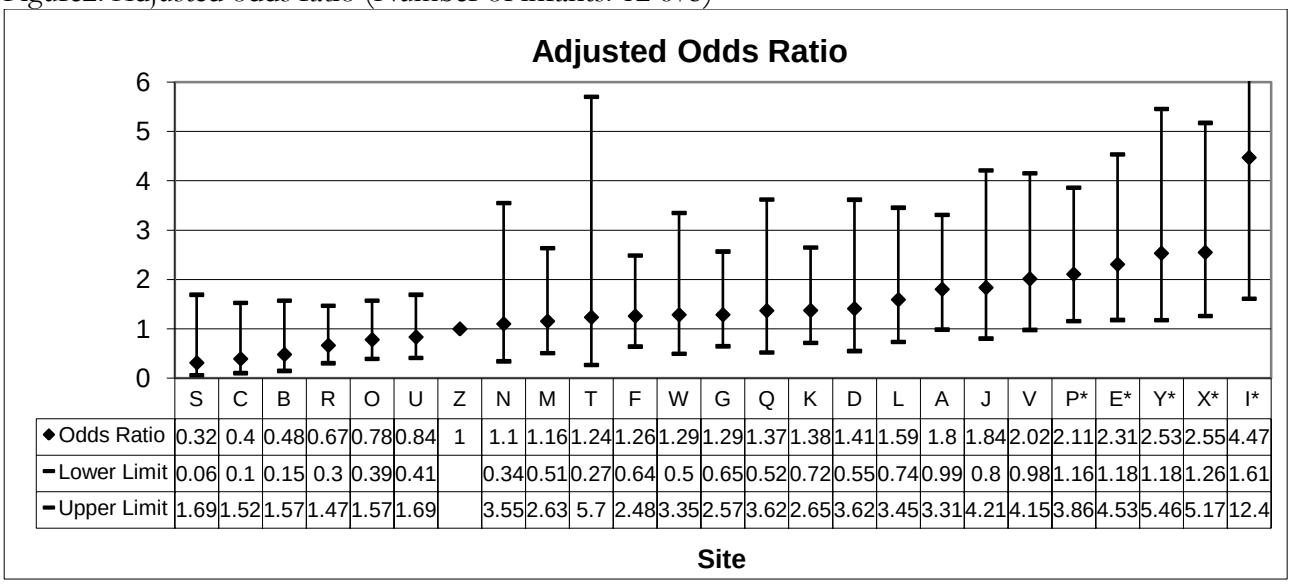
Site comparison of mortality

Figure1: Crude odds ratio (Number of infants: 13 065)



	S*	C*	T	B	J*	R*	N	O	Q	X	L	Y	Z	I	D	M	U	G	P	F	A	K*	E*	V*	W*
Odds Ratio	0.2	0.2	0.3	0.4	0.5	0.5	0.5	0.6	0.8	0.9	0.9	0.9	1	1	1.1	1.1	1.2	1.2	1.4	1.4	1.5	1.7	1.9	3.8	4.6
Lower Limit	0	0.1	0.1	0.1	0.2	0.3	0.2	0.3	0.4	0.5	0.5	0.5		0.4	0.5	0.6	0.7	0.7	0.8	0.8	0.9	1	1.1	2.2	2.1
Upper Limit	0.7	0.7	1.2	0.9	1	1	1.5	1	1.7	1.6	1.8	1.8		2.6	2.3	2.2	2.2	2.2	2.3	2.5	2.4	3	3.3	6.7	10

Figure2: Adjusted odds ratio (Number of infants: 12 675)



	S	C	B	R	O	U	Z	N	M	T	F	W	G	Q	K	D	L	A	J	V	P*	E*	Y*	X*	I*
Odds Ratio	0.32	0.4	0.48	0.67	0.78	0.84	1	1.1	1.16	1.24	1.26	1.29	1.29	1.37	1.38	1.41	1.59	1.8	1.84	2.02	2.11	2.31	2.53	2.55	4.47
Lower Limit	0.06	0.1	0.15	0.3	0.39	0.41		0.34	0.51	0.27	0.64	0.5	0.65	0.52	0.72	0.55	0.74	0.99	0.8	0.98	1.16	1.18	1.18	1.26	1.61
Upper Limit	1.69	1.52	1.57	1.47	1.57	1.69		3.55	2.63	5.7	2.48	3.35	2.57	3.62	2.65	3.62	3.45	3.31	4.21	4.15	3.86	4.53	5.46	5.17	12.4

Reference site: Z

***Sites significantly different from reference site (P<0.05)**

Inclusion criteria:
All infants included

Site H has different criteria for entering infants in the CNN dataset, and may not be comparable with other sites, thus not included in this analysis.

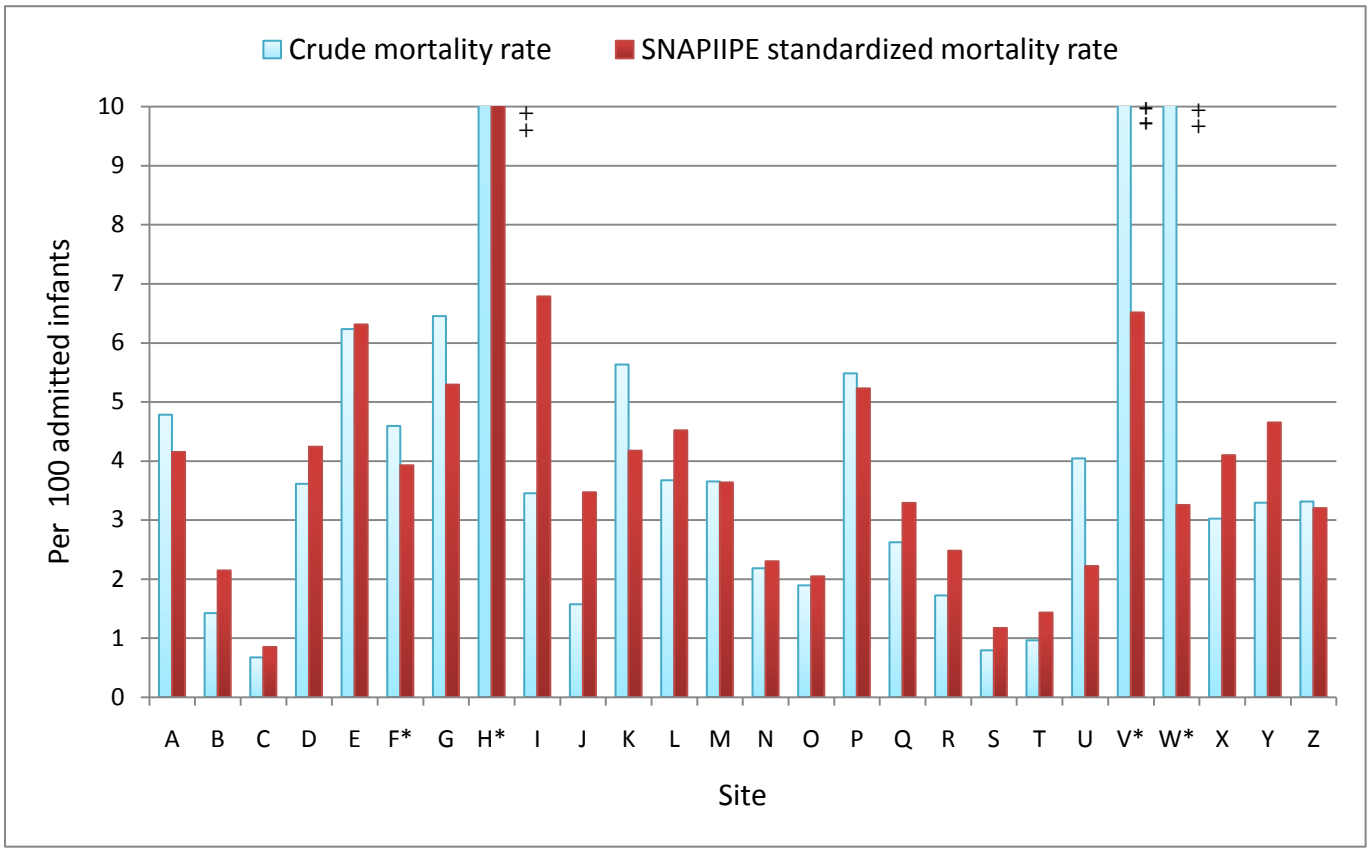
Significant predictors identified by multivariate analysis and adjusted for:

Congenital anomalies
Apgar at 5 min
Gestational age
Small for GA (BW <10th centile for GA)
SNAP-II
Outborn

Mortality is attributed to the network hospital of first admission.

Presentation #35

SNAP-II PE adjusted site mortality rates



‡ Site H has a crude mortality rate of 45% and an adjusted mortality rate of 27%, site V has a crude mortality rate of 12%, site W has a mortality rate of 15%, but they are not shown completely in the graph. Please refer to the table for the actual percentage for sites H, V, and W.

Presentation #35 (continued)

SNAP-II PE adjusted site mortality rates

Site	Mortality rate (%)	SNAP-II PE Standardized rate (%)
A	4.8	4.1
B	1.4	2.1
C	0.7	0.8
D	3.6	4.2
E	6.2	6.3
Fϕ	4.6	3.9
G	6.5	5.3
Hϕ	45.0	27.0
I	3.5	6.8
J	1.6	3.5
K	5.6	4.2
L	3.7	4.5
M	3.7	3.6
N	2.2	2.3
O	1.9	2.0
P	5.5	5.2
Q	2.6	3.3
R	1.7	2.5
S	0.8	1.2
T	1.0	1.4
U	4.0	2.2
Vϕ	12.4	6.5
Wϕ	15.1	3.3
X	3.0	4.1
Y	3.3	4.6
Z	3.3	3.2
Mean	3.7	3.7

COMMENTS: SNAP-II PE standardized mortality rates were calculated by adjusting mortality for illness severity. Mortality is attributed to the hospital of first admission. Adjusting for readmission and transfers, these represent 13 065 infants. **Twenty-two hospitals collected data on all eligible admissions whereas four hospitals (marked by ϕ) collected data on selected eligible admissions only.**

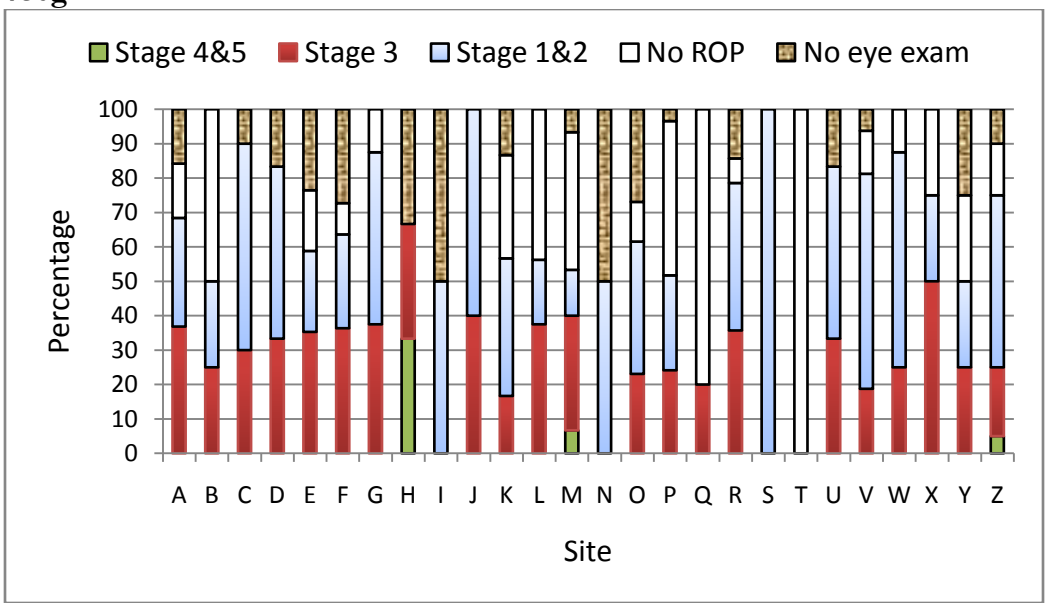
ϕ Please note that the criteria for entering infants in the CNN dataset are not the same for these four hospitals and thus, the rates may not be comparable with other sites.

F. Site comparisons – Morbidities

Presentation #36

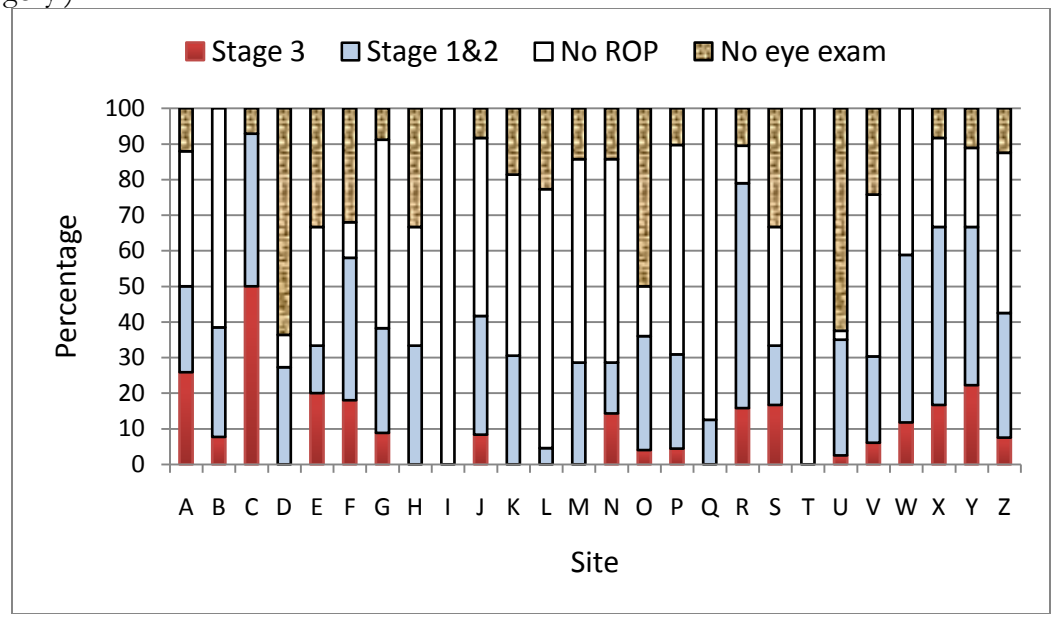
Retinopathy of prematurity among infants with birth weight <1500g who survived beyond 6 weeks

A. <750g



Note that for site T, among those infants with eye exams, none was diagnosed with ROP, so the incidence is zero.

B. 750-999g (Note that no sites had infants diagnosed with Stage 4/5 ROP in this BW category.)



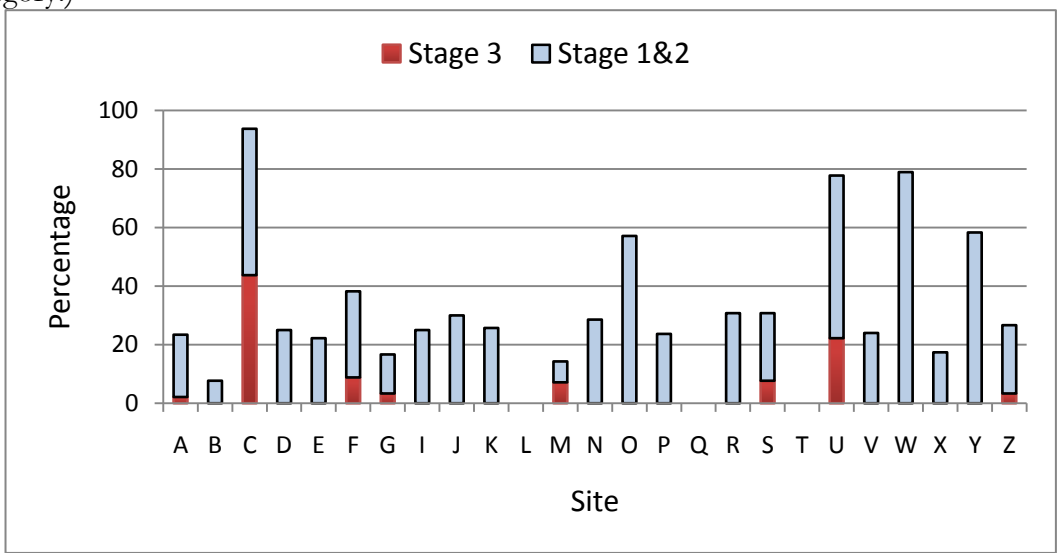
Note that for site I and T, among those infants with eye exams, none was diagnosed with ROP, so the incidence is zero.

*Infants who were transferred to non-participating CNN units are not captured here.

Presentation #36 (continued)

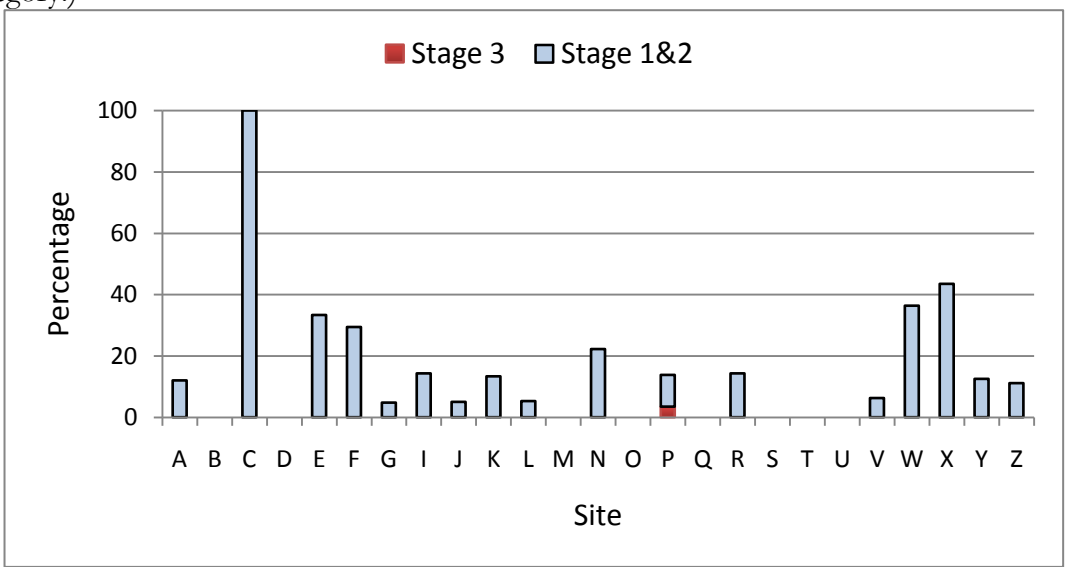
Incidence of retinopathy of prematurity among infants with birth weight <1500g and who had eye exams

C. 1000-1249g (Note that no sites had infants diagnosed with Stage 4/5 ROP in this BW category.)



Note that for site L, Q and T, among those infants with eye exams, none was diagnosed with ROP, so the incidence is zero. There were no infants in site H in this BW category.

D. 1250-1499g (Note that no sites had infants diagnosed with Stage 4/5 ROP in this BW category.)



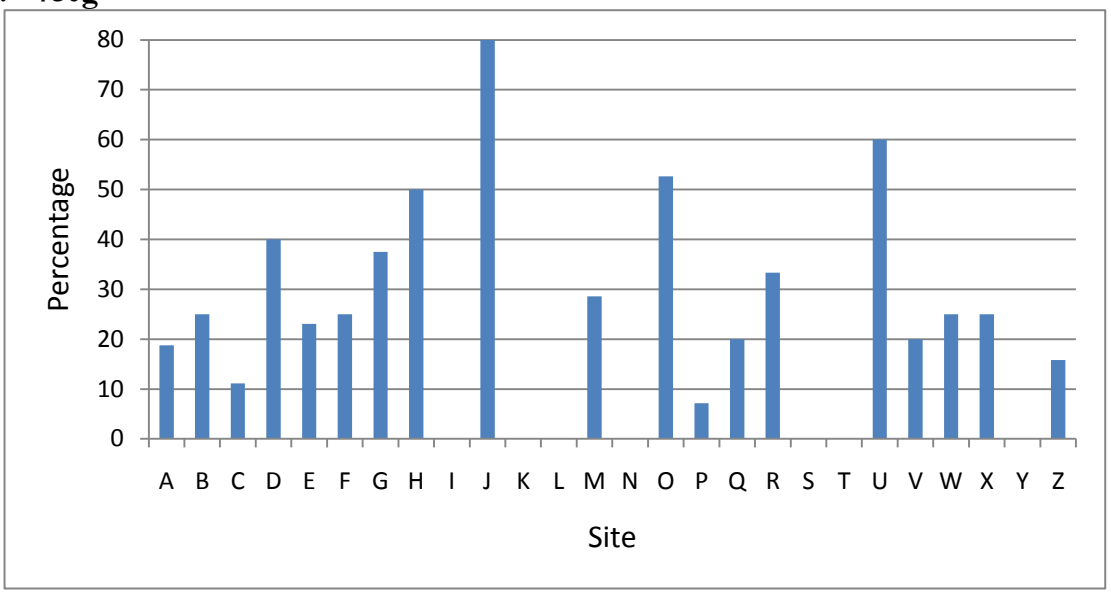
Note that for site B, D, M, O, Q S, T, and U, among those infants with eye exams, none were diagnosed with ROP, so the incidence is zero. There were no infants in site H in this BW category.

COMMENTS: Not all centers have data on infants in each birth weight category.

Presentation #37

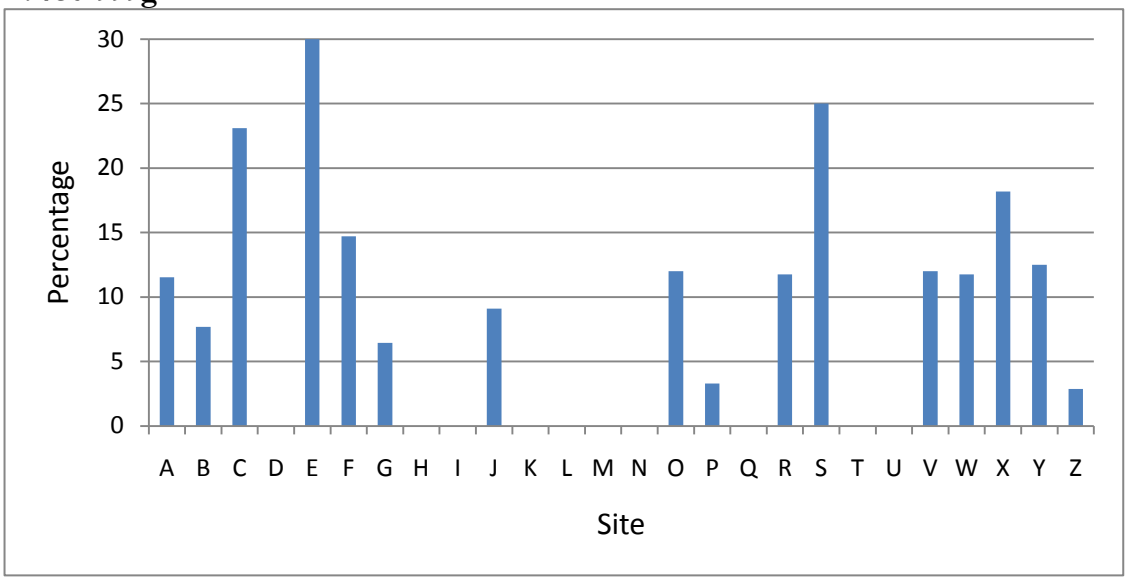
Treatment for retinopathy of prematurity among infants with birth weight <1500g and who had eye exams

A. <750g



For sites K, L, and Y, none of the infants received treatment. For sites I, N and S, no infants required treatment. For site T, no infants were diagnosed with ROP for this BW subgroup.

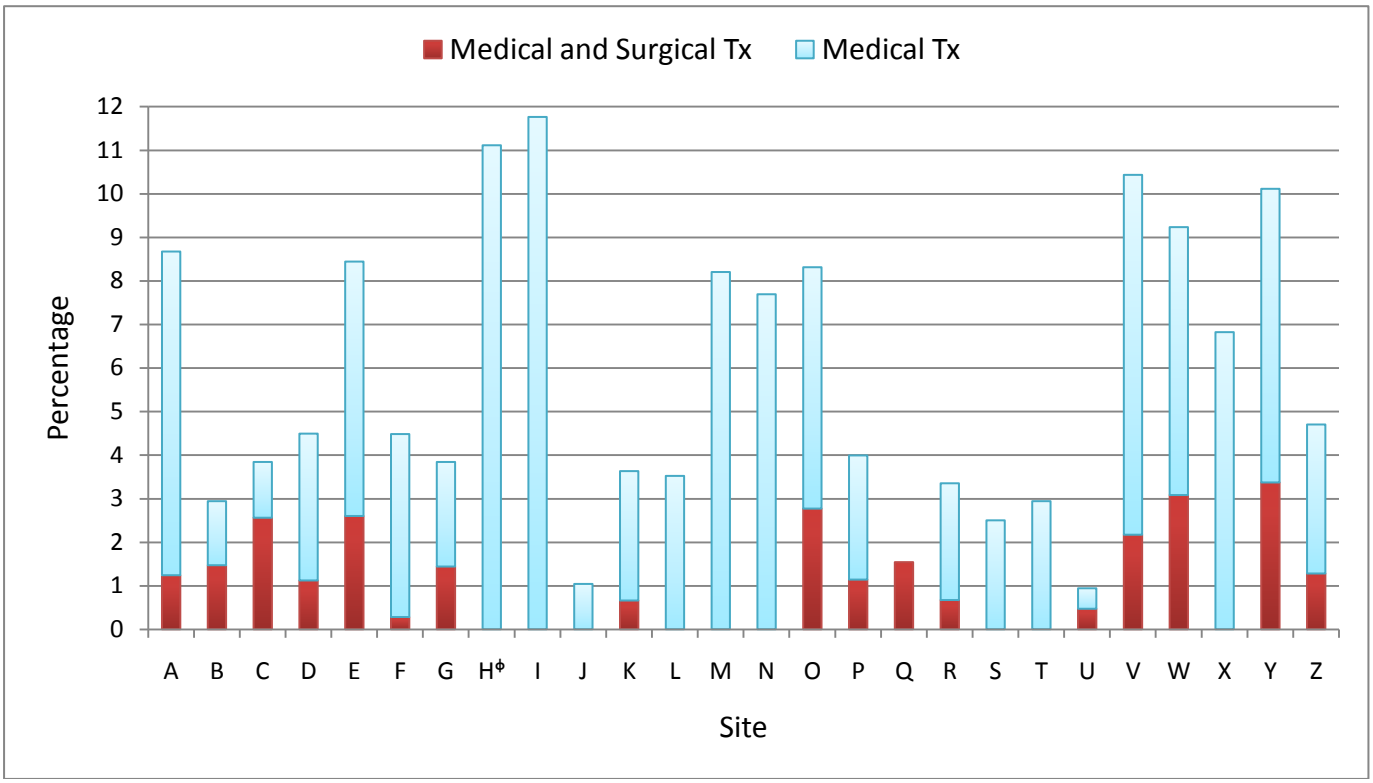
B. 750-999g



For sites N and U, none of the infants received treatment. For site I and T, no infants were diagnosed with ROP for this BW subgroup. For sites D, H, K, L, M and Q, no infants required treatment.

COMMENTS: Not all centers have data on infants in each birth weight category.

Presentation #38a
Necrotizing enterocolitis for infants with gestational age < 33 weeks



Presentation #38a (continued)

Necrotizing enterocolitis for infants with gestational age < 33 weeks

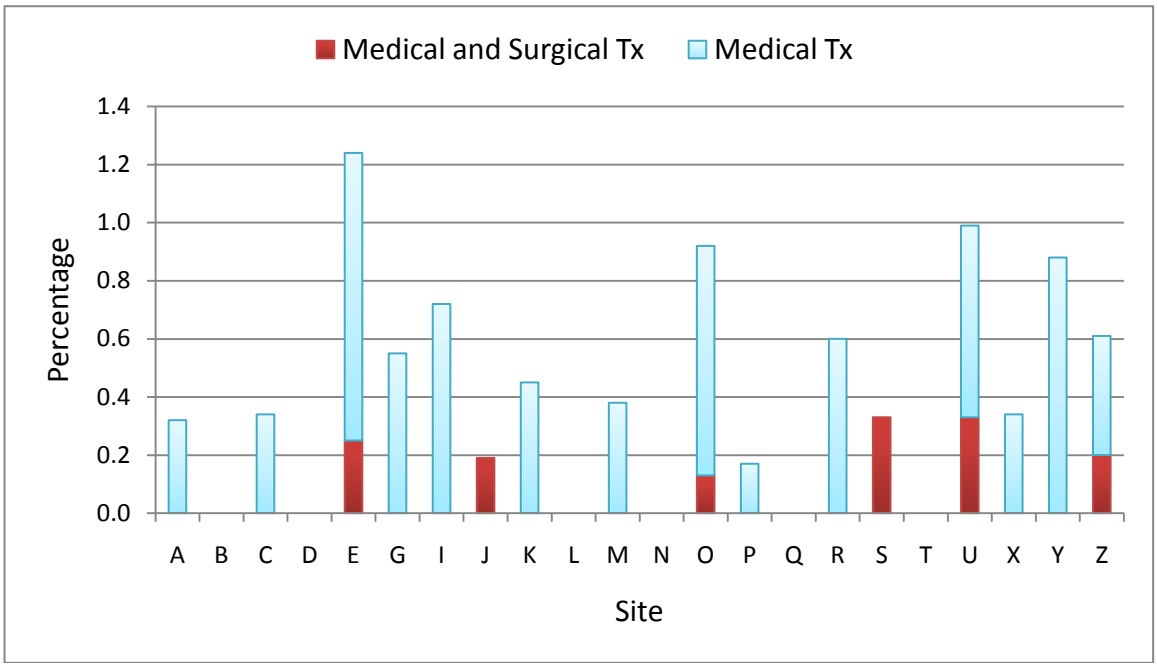
Site	Treatment (%)		
	Medical Treatment	Medical and surgical treatment	Any
A	7.4	1.2	8.7
B	1.5	1.5	2.9
C	1.3	2.6	3.9
D	3.4	1.1	4.5
E	5.8	2.6	8.4
F	4.2	0.3	4.5
G	2.4	1.4	3.9
Hϕ	11.1	0.0	11.1
I	11.8	0.0	11.8
J	1.0	0.0	1.0
K	3.0	0.7	3.6
L	3.5	0.0	3.5
M	8.2	0.0	8.2
N	7.7	0.0	7.7
O	5.5	2.8	8.3
P	2.9	1.1	4.0
Q	0.0	1.5	1.5
R	2.7	0.7	3.4
S	2.5	0.0	2.5
T	2.9	0.0	2.9
U	0.5	0.5	0.9
V	8.3	2.2	10.4
W	6.2	3.1	9.2
X	6.8	0.0	6.8
Y	6.7	3.4	10.1
Z	3.4	1.3	4.7
Total	4.3	1.2	5.5

COMMENTS: These analyses include 4 046 infants from 26 hospitals. Ninety five (95) infants were missing data on NEC. **Twenty-five hospitals collected data on all eligible admissions for infants with GA < 33 weeks whereas one hospital (marked by ϕ) collected data on selected eligible admissions only.**

ϕNote that the criteria for entering infants with GA **< 33** in the CNN dataset are not same for site H and thus, the rates may not be comparable with other sites.

Presentation #38b

Necrotizing enterocolitis for infants with gestational age >32 weeks from centers which contributed complete data



Site	Treatment (%)		
	Medical Tx	Medical and Surgical Tx	Any
A	0.3	0.0	0.3
B	0.0	0.0	0.0
C	0.3	0.0	0.3
D	0.0	0.0	0.0
E	1.0	0.3	1.2
G	0.6	0.0	0.6
I	0.7	0.0	0.7
J	0.0	0.2	0.2
K	0.5	0.0	0.5
L	0.0	0.0	0.0
M	0.4	0.0	0.4
Total	0.4	0.1	0.5

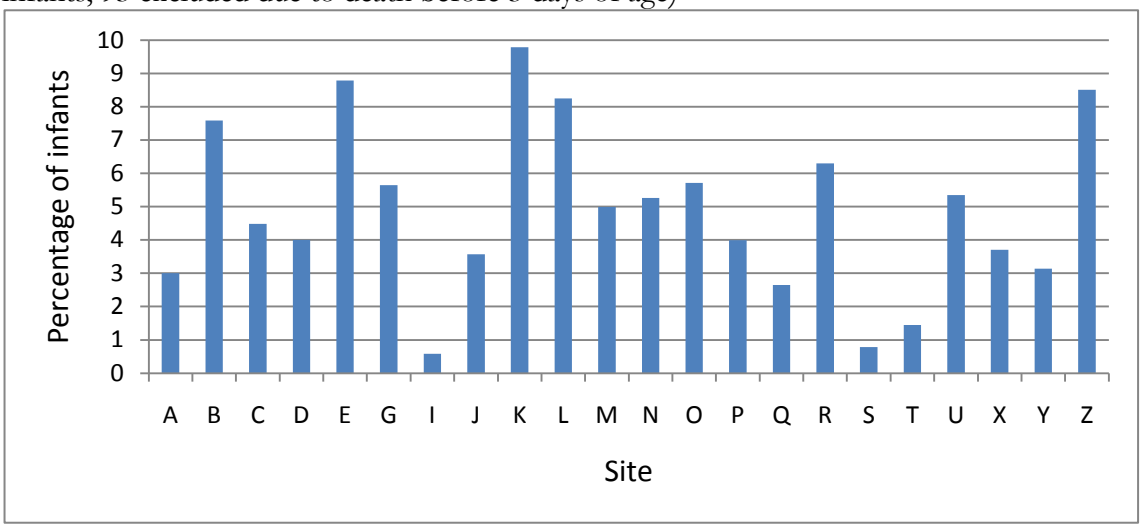
Site	Treatment (%)		
	Medical Tx	Medical and Surgical Tx	Any
N	0.0	0.0	0.0
O	0.8	0.1	0.9
P	0.2	0.0	0.2
Q	0.0	0.0	0.0
R	0.6	0.0	0.6
S	0.0	0.3	0.3
T	0.0	0.0	0.0
U	0.7	0.3	1.0
X	0.3	0.0	0.3
Y	0.9	0.0	0.9
Z	0.4	0.2	0.6

COMMENTS: These analyses include 8 516 infants from 22 hospitals. One hundred eighty seven (187) infants were missing data on NEC.

Presentation #39

Late onset sepsis

Part A: Hospitals that contributed data on all eligible admissions (n=22 hospitals, 12 071 infants, 93 excluded due to death before 3 days of age)



Site	A	B	C	D	E	G	I	J	K	L	M	N	O	P	Q	R	S	T	U	X	Y	Z	Mean
%	3.0	7.6	4.5	4.0	8.8	5.6	0.6	3.6	9.8	8.2	5.0	5.3	5.7	4.0	2.6	6.3	0.8	1.4	5.3	3.7	3.1	8.5	5.2

Part B: Hospitals that contributed data on selected eligible admissions (n=4 hospitals, 878 infants, 23 excluded due to death before 3 days of age)

Site	F	H	V	W
%	6.4	37.5	16.4	28.6

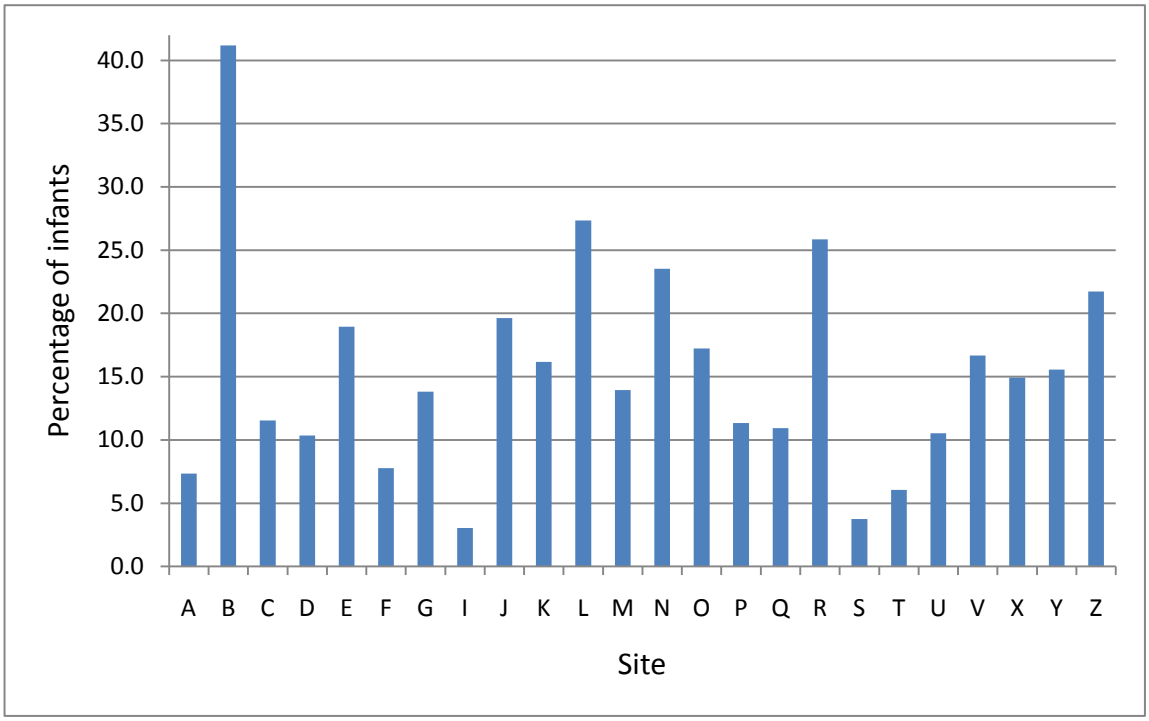
Note that the criteria for entering infants in the CNN dataset are not the same for these four hospitals and thus, the rates may not be comparable.

COMMENTS: Late onset sepsis is indicated by any positive blood and/or cerebrospinal fluid culture for bacteria or fungi after 2 days of age (analysis is infant-based and deaths after 2 days of age are excluded).

Presentation #39a

Late onset sepsis* for infants with gestational age < 33 weeks

a. Hospitals that contributed data on all eligible admissions for infants with GA **< 33** (n=24 hospitals, 3 980 infants, 78 excluded due to death before 3 days of age)



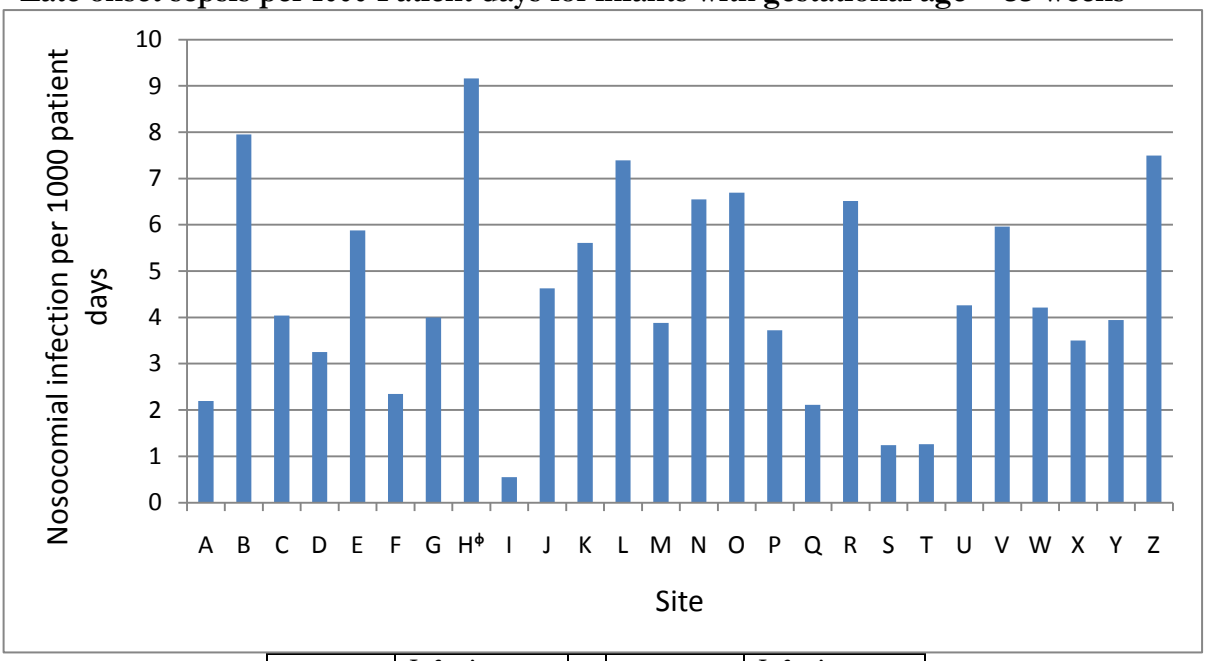
Site	A	B	C	D	E	F	G	I	J	K	L	M	
%	7.3	41.2	11.5	10.3	19.0	7.8	13.8	3.0	19.6	16.2	27.3	13.9	
Site	**N**	**O**	**P**	**Q**	**R**	**S**	**T**	**U**	**V**	**X**	**Y**	**Z**	**Mean**
%	23.5	17.2	11.3	10.9	25.9	3.8	6.1	10.5	16.7	14.9	15.6	21.7	14.8

**COMMENTS: ***Late onset sepsis is indicated by any positive blood and/or cerebrospinal fluid culture after 2 days of age (analysis is infant-based and deaths after 2 days of age are excluded).

Note: If an infant was admitted to two hospitals and had episodes of late onset sepsis at two sites, the infection is attributed to the first site; however, if such an infant had an episode of late onset sepsis only at the second site, the infection is attributed to the second site. In either case the infant is counted only once to have an infection.

Presentation #40a

Late onset sepsis per 1000 Patient days for infants with gestational age < 33 weeks



Site	Infections per 1000 patient days		Site	Infections per 1000 patient days
A	2.2		**N**	6.5
B	8.0		**O**	6.7
C	4.0		**P**	3.7
D	3.3		**Q**	2.1
E	5.9		**R**	6.5
F	2.3		**S**	1.2
G	4.0		**T**	1.3
Hϕ	9.2		**U**	4.3
I	0.5		**V**	6.0
J	4.6		**W**	4.2
K	5.6		**X**	3.5
L	7.4		**Y**	3.9
M	3.9		**Z**	7.5
Total	4.5			

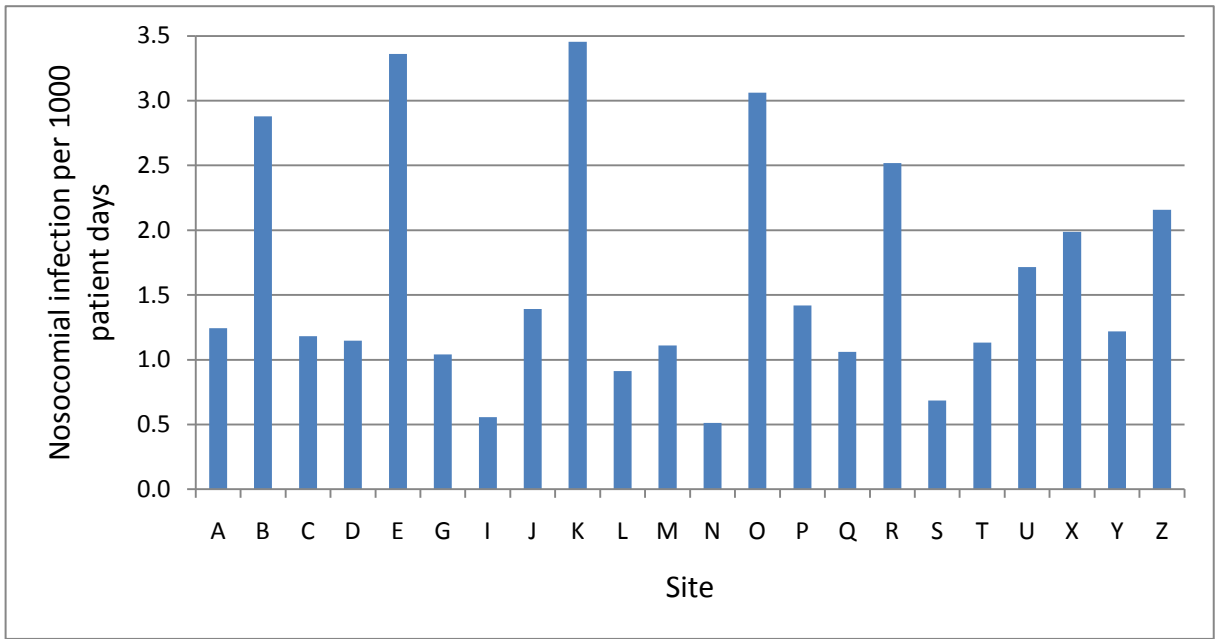
Total number of infants = 4 135

***Note that the criteria for entering infants with GA <33 in the CNN dataset are not the same for site H and thus, the rates may not be comparable with other sites.**

COMMENTS: Late onset sepsis is indicated by positive blood and/or cerebrospinal fluid culture after 2 days of age (includes all admissions). Considerable variation persists when late onset sepsis are 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 infants who are transferred are those with lower acuity. If an infant had >1 distinct episodes of infections, they will be counted as separate episodes of infections in the numerator.

Presentation #40b

Late onset sepsis per 1000 Patient days for infants with gestational age >32 weeks from centers which contributed complete data



Site	Infections per 1000 patient days		Site	Infections per 1000 patient days
A	1.2		**N**	0.5
B	2.9		**O**	3.1
C	1.2		**P**	1.4
D	1.1		**Q**	1.1
E	3.4		**R**	2.5
G	1.0		**S**	0.7
I	0.6		**T**	1.1
J	1.4		**U**	1.7
K	3.5		**X**	2.0
L	0.9		**Y**	1.2
M	1.1		**Z**	2.2
			Total	1.8

Total number of infants = 8 703

COMMENTS: Late onset sepsis is indicated by positive blood and/or cerebrospinal fluid culture after 2 days of age (includes all admissions). Considerable variation persists when late onset sepsis are 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 infants who are transferred are those with lower acuity. If an infant had >1 distinct episodes of infections, they will be counted as separate episodes of infections in the numerator.

Presentation #41

Oxygen dependency at 28 days in infants with gestational age <33 weeks at birth

Gestational age at birth						
Site	**<25**	**25-26**	**27-28**	**29-30**	**31-32**	**Overall rate for sites**
A	100.0	77.4	53.2	19.5	6.9	27.5
B	50.0	87.5	75.0	46.7	7.1	38.1
C	100.0	61.1	34.8	0.0	3.2	15.5
D	33.3	80.0	61.5	25.8	3.5	27.2
E	46.2	45.0	42.1	22.2	13.2	30.3
F	70.0	74.3	51.4	24.3	9.4	30.8
G	100.0	93.1	75.0	25.0	6.9	41.2
H[ϕ]	75.0	66.7	0.0	NA	NA	62.5
I	100.0	100.0	100.0	12.5	0.0	25.0
J	100.0	90.0	33.3	17.9	6.3	22.6
K	77.8	52.9	7.0	3.6	2.9	15.4
L	87.5	83.3	29.2	0.0	3.4	19.9
M	75.0	100.0	53.9	30.8	3.6	31.3
N	NA	66.7	0.0	11.1	12.0	14.6
O	100.0	79.6	63.2	33.7	17.1	40.6
P	100.0	64.4	27.9	9.0	8.7	25.9
Q	100.0	100.0	83.3	16.7	3.3	32.8
R	100.0	77.8	79.0	15.8	1.7	30.7
S	NA	75.0	25.0	0.0	0.0	13.0
T	NA	100.0	66.7	9.1	5.9	18.2
U	69.2	75.0	25.6	8.3	0.0	19.2
V	100.0	82.6	47.1	17.7	6.8	25.8
W	100.0	100.0	14.7	0.0	0.0	39.0
X	100.0	75.0	38.5	7.3	1.6	12.9
Y	100.0	80.0	33.3	3.7	0.0	15.5
Z	100.0	66.7	31.9	20.4	1.3	26.1
Overall rate for GA group	83.2	74.0	40.6	16.4	5.9	26.4

Total number of infants = 3 837

298 infants were excluded due to death prior to day 28 of age.

ϕNote that the criteria for entering infants with GA <33 weeks in the CNN dataset are not same for site H and thus, the rates may not be comparable with other sites.

Note that outcomes are attributed to the hospital of first admission.

NA = no data available

Comments: Infants were classified as having oxygen dependency at 28 days as follows: a) receiving supplemental oxygen on day 28 of age or b) discharged prior to day 28 of age and receiving supplemental oxygen at discharge. Infants were excluded from analysis if they died prior to day 28 after birth. There were no requirements for chest radiographs at the time of diagnosis.

Presentation #42
Oxygen dependency at 36 weeks in infants with gestational age <33 weeks at birth

Gestational age at birth						
Site	**<25**	**25-26**	**27-28**	**29-30**	**31-32**	**Overall rate for sites**
A	87.5	77.4	46.8	16.1	6.9	25.3
B	75.0	37.5	25.0	6.7	3.6	15.9
C	0.0	44.4	30.4	0.0	1.6	10.3
D	66.7	60.0	53.9	25.8	0.0	24.7
E	69.2	57.9	32.4	25.0	13.2	32.2
F	70.0	58.8	47.9	14.6	7.0	24.6
G	100.0	74.1	62.5	20.5	4.1	33.2
H$^{\phi}$	50.0	100.0	0.0	NA	NA	57.1
I	100.0	NA	60.0	0.0	0.0	12.9
J	100.0	30.0	6.7	0.0	0.0	4.9
K	62.5	18.4	12.7	4.8	2.9	10.3
L	75.0	75.0	25.0	7.1	3.4	19.1
M	85.7	69.2	58.3	23.1	3.6	26.6
N	NA	0.0	0.0	11.1	4.0	6.3
O	85.7	90.9	59.5	34.9	17.1	41.6
P	64.7	40.0	26.9	12.8	7.0	20.2
Q	100.0	60.0	33.3	8.3	6.7	18.3
R	57.1	66.7	52.6	21.1	0.0	24.3
S	NA	37.5	31.3	5.9	0.0	11.7
T	NA	0.0	33.3	0.0	5.9	6.1
U	53.9	34.8	9.3	8.3	0.0	10.6
V	50.0	54.6	44.1	17.7	3.4	20.2
W	33.3	71.4	11.8	0.0	0.0	25.9
X	0.0	12.5	15.4	4.9	0.0	4.0
Y	0.0	20.0	17.7	0.0	0.0	4.9
Z	50.0	35.5	23.9	16.7	1.3	16.5
Overall rate for GA group	66.2	52.6	33.0	14.1	4.6	20.4

Total number of infants = 3 808
327 infants were excluded due to death prior to week 36.

$^{\phi}$Note that the criteria for entering infants with GA <33 weeks in the CNN dataset are not same for site H and thus, the rates may not be comparable with other sites.
Note that outcomes are attributed to the hospital of first admission.

Comments: Infants were classified as having oxygen dependency at 36 weeks as follows: a) receiving supplemental oxygen at week 36 postmenstrual age (PMA) or b) discharged prior to week 36 PMA and receiving supplemental oxygen at discharge. There were no requirements for chest radiographs at the time of diagnosis.

Presentation #43

Oxygen dependency at 28 days or death in infants with gestational age <33 weeks at birth

Gestational age at birth						
Site	**<25**	**25-26**	**27-28**	**29-30**	**31-32**	**Overall rate for sites**
A	100.0	83.3	58.5	19.5	7.6	32.7
B	66.7	88.9	75.0	50.0	10.3	42.7
C	100.0	61.1	34.8	0.0	3.2	16.0
D	60.0	85.7	64.3	32.4	3.5	33.7
E	56.3	56.0	45.0	22.2	13.2	34.8
F	75.0	78.6	53.3	27.1	10.1	34.0
G	100.0	94.1	77.3	32.7	8.1	48.6
H$^{\phi}$	80.0	66.7	0.0	NA	NA	66.7
I	100.0	100.0	100.0	12.5	5.6	31.4
J	100.0	92.3	41.2	17.9	6.3	26.2
K	92.3	57.9	7.0	4.7	2.9	22.0
L	93.3	86.7	32.0	6.7	3.4	27.1
M	81.8	100.0	57.1	30.8	3.6	35.8
N	NA	80.0	0.0	20.0	12.0	21.2
O	100.0	79.6	65.0	36.0	20.9	42.8
P	100.0	72.4	31.9	14.5	9.5	33.4
Q	100.0	100.0	84.6	23.1	3.3	37.9
R	100.0	81.0	80.0	18.0	6.6	34.9
S	NA	77.8	33.3	0.0	0.0	16.3
T	100.0	100.0	66.7	9.1	5.9	20.6
U	77.8	78.6	27.3	8.3	4.2	24.0
V	100.0	87.9	51.4	25.0	8.9	34.9
W	100.0	100.0	21.6	0.0	0.0	47.1
X	100.0	84.6	46.7	11.6	1.6	19.4
Y	100.0	83.3	40.0	10.3	0.0	22.8
Z	100.0	71.8	34.7	23.2	1.3	29.9
Overall rate for GA group	90.1	78.4	44.0	19.6	7.1	31.7

Total number of infants = 4 135

$^{\phi}$Note that the criteria for entering infants with GA <33 weeks in the CNN dataset are not same for site H and thus, the rates may not be comparable with other sites.
Note that outcomes are attributed to the hospital of first admission.
NA = no data available

Comments: Infants were classified as having oxygen dependency at 28 days as follows: a) receiving supplemental oxygen on day 28 of age or b) discharged prior to day 28 of age and receiving supplemental oxygen at discharge. There were no requirements for chest radiographs at the time of diagnosis. Deaths prior to day 28 of age are also included.

Presentation #44

Oxygen dependency at 36 weeks or death in infants with gestational age <33 weeks at birth

Gestational age at birth						
Site	**<25**	**25-26**	**27-28**	**29-30**	**31-32**	**Overall rate for sites**
A	92.3	83.3	52.8	17.1	7.6	30.8
B	83.3	44.4	25.0	12.5	6.9	22.1
C	25.0	44.4	30.4	0.0	1.6	10.9
D	80.0	71.4	57.1	32.4	0.0	31.5
E	75.0	68.0	37.5	25.0	13.2	37.4
F	75.0	66.7	50.7	17.8	7.8	28.5
G	100.0	79.4	65.9	28.6	5.4	42.3
H$^{\phi}$	60.0	100.0	0.0	NA	NA	66.7
I	100.0	100.0	66.7	0.0	5.6	22.9
J	100.0	46.2	17.7	0.0	0.0	9.4
K	88.5	29.8	12.7	5.9	2.9	18.1
L	86.7	80.0	28.0	13.3	3.4	26.4
M	90.9	76.5	64.3	23.1	3.6	32.5
N	NA	40.0	0.0	20.0	4.0	13.5
O	88.9	90.9	62.5	37.1	20.9	44.2
P	81.8	53.5	31.9	18.1	7.8	29.0
Q	100.0	66.7	38.5	15.4	6.7	25.8
R	62.5	71.4	55.0	23.1	4.9	28.9
S	NA	44.4	38.9	5.9	0.0	15.0
T	100.0	0.0	33.3	0.0	5.9	8.8
U	66.7	46.4	11.4	8.3	4.2	16.3
V	90.0	69.7	48.7	25.0	5.6	30.3
W	66.7	77.8	18.9	0.0	0.0	36.8
X	50.0	46.2	26.7	9.3	0.0	11.2
Y	80.0	33.3	30.0	6.9	0.0	15.2
Z	63.6	48.7	28.6	19.6	1.3	22.2
Overall rate for GA group	81.0	61.8	37.5	17.4	5.9	26.7

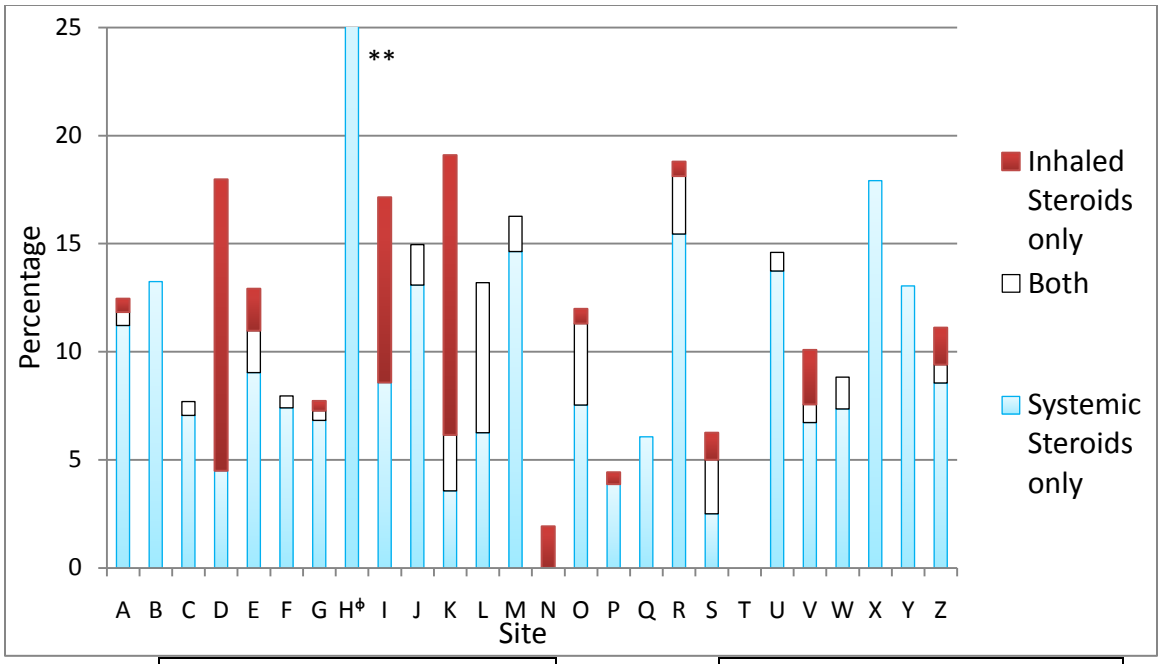
Total number of infants = 4 135

$^{\phi}$Note that the criteria for entering infants with GA <33 weeks in the CNN dataset are not same for site H and thus, the rates may not be comparable with other sites.
Note that outcomes are attributed to the hospital of first admission.
NA = no data available

Comments: Infants were classified as having oxygen dependency at 36 weeks as follows: a) receiving supplemental oxygen at week 36 postmenstrual age (PMA) or b) discharged prior to week 36 PMA and receiving supplemental oxygen at discharge. There were no requirements for chest radiographs at the time of diagnosis. Deaths prior to week 36 PMA are also included.

Presentation #45

Postnatal use of steroids for any indication among infants with gestational age <33 weeks at birth†



Site	Postnatal steroid use (%)		
	Systemic Steroids only	Both	Inhaled Steroids only
A	11.2	0.6	0.6
B	13.2	0.0	0.0
C	7.1	0.6	0.0
D	4.5	0.0	13.5
E	9.0	1.9	1.9
F	7.4	0.6	0.0
G	6.8	0.5	0.5
H$^{\phi}$	33.3	0.0	0.0
I	8.6	0.0	8.6
J	13.1	1.9	0.0
K	3.6	2.6	12.9
L	6.3	6.9	0.0
M	14.6	1.6	0.0

Site	Postnatal steroid use (%)		
	Systemic Steroids only	Both	Inhaled Steroids only
N	0.0	0.0	1.9
O	7.5	3.8	0.7
P	3.9	0.0	0.6
Q	6.1	0.0	0.0
R	15.4	2.7	0.7
S	2.5	2.5	1.3
T	0.0	0.0	0.0
U	13.7	0.9	0.0
V	6.7	0.8	2.5
W	7.4	1.5	0.0
X	17.9	0.0	0.0
Y	13.0	0.0	0.0
Z	8.6	0.9	1.7
Total	8.4	1.3	1.9

Total number of infants = 4 135

† Percentage of infants to each network NICU and results are attributed to the original hospital.

**Note that the bar representing site H's steroids use in the graph goes over the upper limit of this graph and is not completely shown. Refer to the table for the actual percentage.

$^{\phi}$Note that the criteria for entering infants with GA <33 in the CNN dataset are not the same for site N and thus, the rates may not be comparable with other sites.

COMMENTS: Specific criteria for these treatments in each hospital are not documented here.

Presentation #46

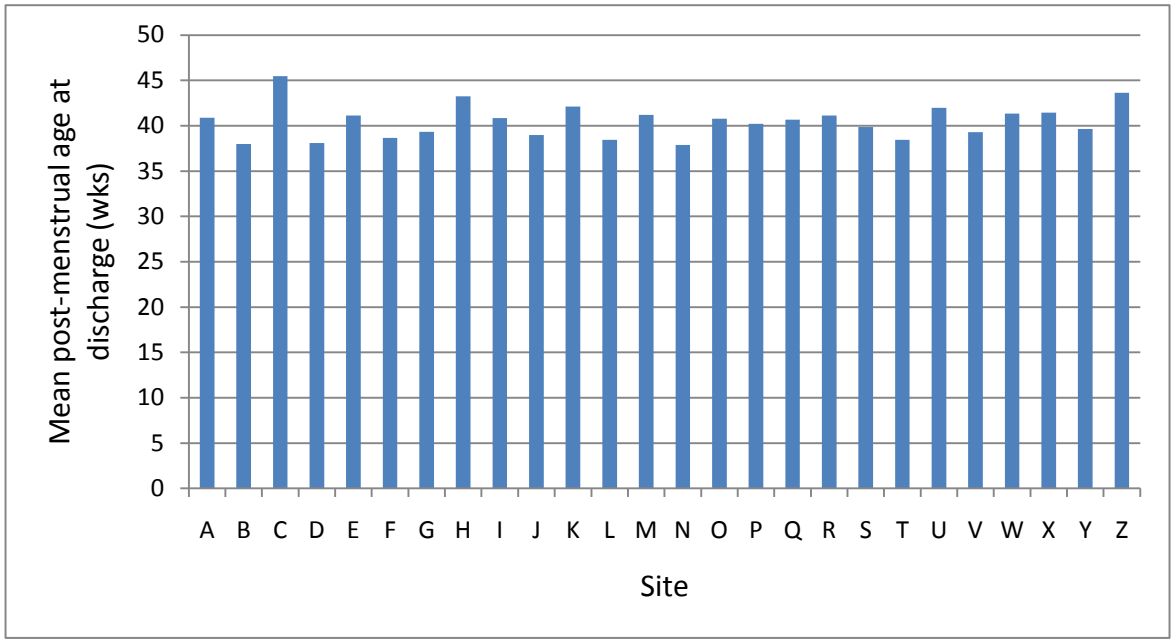
Discharge destination of infants <33 weeks (n=3 787, Data for 348 infants were excluded due to death)

	Home %	Level 1 %	Level 2 %	Level 3 %	Other/unknown %
A	32.8	3.4	55.6	6.1	2.1
B	82.5	14.3	3.2	0.0	0.0
C	14.2	21.3	61.3	3.2	0.0
D	53.1	0.0	39.5	7.4	0.0
E	4.9	0.0	82.4	12.7	0.0
F	37.3	4.7	52.5	5.5	0.0
G	49.2	2.1	48.2	0.5	0.0
H	85.7	0.0	0.0	14.3	0.0
I	96.6	0.0	0.0	3.5	0.0
J	91.2	5.9	1.0	2.0	0.0
K	8.5	0.0	88.3	3.2	0.0
L	83.5	1.6	8.7	4.7	1.6
M	51.8	33.0	0.0	13.4	1.8
N	81.3	6.3	12.5	0.0	0.0
O	12.1	0.7	84.3	2.9	0.0
P	15.6	0.0	80.0	4.4	0.0
Q	86.7	3.3	1.7	3.3	5.0
R	69.8	0.0	18.7	9.4	2.2
S	46.8	13.0	37.7	2.6	0.0
T	93.9	3.0	3.0	0.0	0.0
U	11.5	3.2	80.7	3.7	0.9
V	32.2	1.4	60.1	1.4	4.8
W	47.4	36.8	14.0	1.8	0.0
X	79.0	11.3	8.9	0.8	0.0
Y	75.6	17.1	3.7	3.7	0.0
Z	8.3	0.0	88.9	2.8	0.0
Total	36.8	5.1	53.1	4.3	0.7

COMMENTS: Discharge destinations varied considerably, possibly affected by the availability of the health care resources, geography and practice variations at different hospitals. Destinations to Level 1 and 2 nurseries may include nursery within own hospital. "Other/unknown" is the pediatric ward(s).

Presentation #47

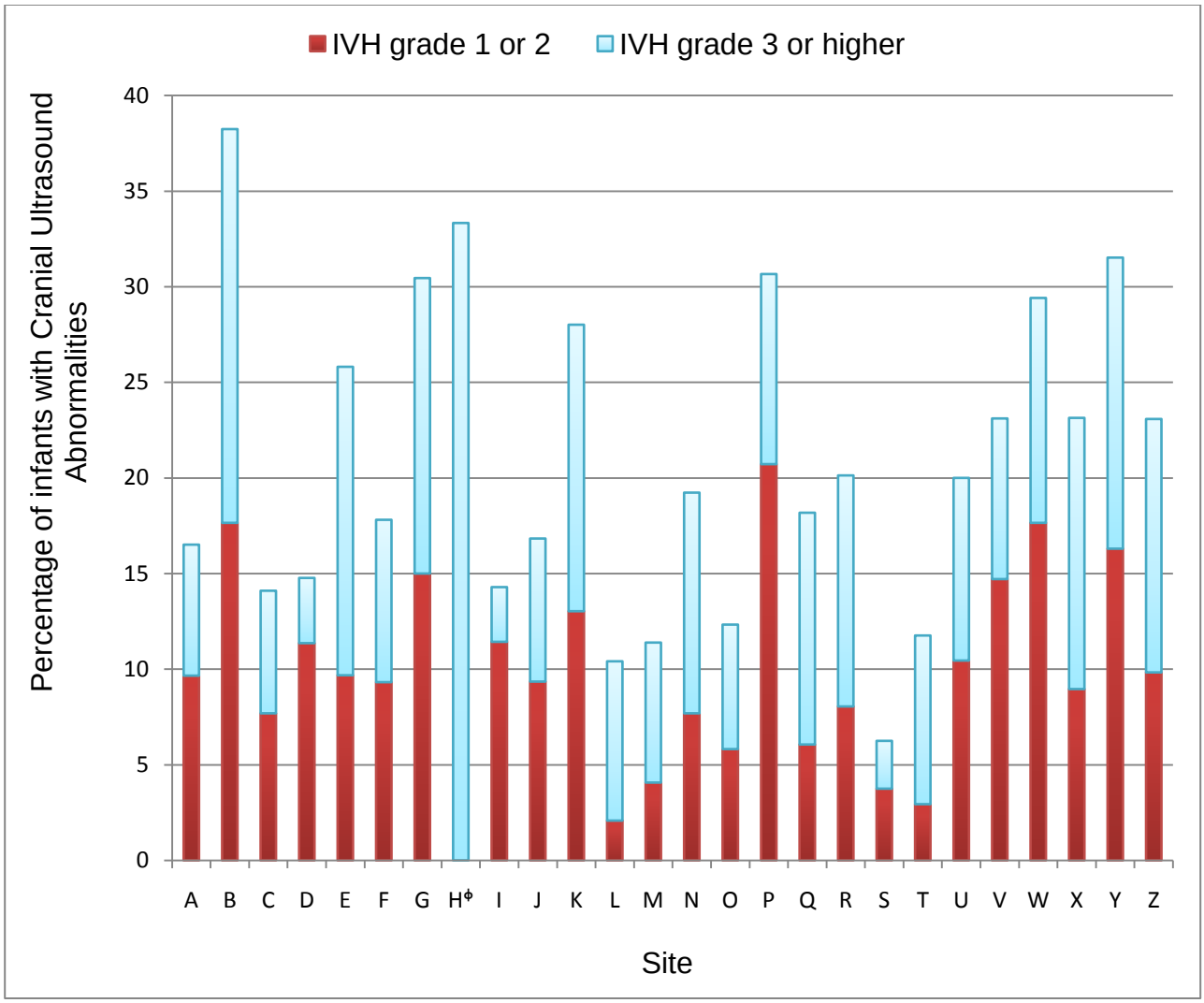
Post-menstrual age at discharge for infants <29 weeks GA who were discharged home from participating network sites (n=480)



Site	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Mean
Mean	40.9	38.0	45.5	38.1	41.1	38.7	39.3	43.2	40.9	39.0	42.1	38.4	41.2	37.9	40.8	40.2	40.7	41.1	39.9	38.4	42.0	39.3	41.3	41.4	39.7	43.6	40.2
Std. Error of Mean	0.5	0.5	2.9	0.3	2.8	0.6	0.5	2.0	1.1	0.7	0.8	0.4	1.1	1.1	0.5	0.4	0.9	1.2	1.6	0.6	1.1	0.6	0.6	0.8	0.7	2.0	0.2
Median	40.9	38.4	44.1	37.7	40.1	38.7	38.9	42.2	41.4	39.0	41.7	38.1	41.0	37.3	40.6	40.1	39.9	40.3	38.1	38.7	41.6	38.9	41.1	41.6	39.7	41.9	40.0

COMMENT: This analysis is only for infants whose gestational age at birth is less than 29 weeks and went home from participating centers.

Presentation #48
Cranial ultrasound abnormalities among infants <33 weeks of gestational age



IVH grade 1 or 2 = Germinal matrix hemorrhage or IVH without VE
Based on ultrasounds within the first 2 weeks of age

IVH grade 3 or 4 = IVH with VE or persistent PE
Based on ultrasounds after 21 days of age

Presentation #48 (continued)

IVH with VE or persistent PE (IVH grade 3 or 4) among infants <33 weeks of gestational age

Site	<25	25-26	27-28	29-30	31-32	Overall rate* per sites %
A	0.0	21.4	9.4	2.4	4.6	6.9
B	50.0	22.2	25.0	31.3	6.9	20.6
C	50.0	5.6	8.7	4.2	4.8	6.4
D	20.0	0.0	0.0	5.9	0.0	3.4
E	25.0	32.0	17.5	13.9	2.6	16.1
F	41.7	14.3	12.0	4.7	4.7	8.5
G	36.8	32.4	20.5	8.2	4.1	15.5
Hϕ	40.0	33.3	0.0	NA	NA	33.3
I	50.0	0.0	0.0	0.0	0.0	2.9
J	100.0	15.4	11.8	0.0	6.3	7.5
K	42.3	24.6	15.9	9.4	2.9	15.0
L	20.0	13.3	16.0	6.7	1.7	8.3
M	36.4	11.8	7.1	7.7	0.0	7.3
N	NA	40.0	50.0	0.0	12.0	11.5
O	33.3	9.1	7.5	6.7	2.7	6.5
P	24.2	12.1	12.5	10.8	2.6	9.9
Q	50.0	0.0	23.1	0.0	10.0	12.1
R	50.0	28.6	20.0	5.1	3.3	12.1
S	NA	22.2	0.0	0.0	0.0	2.5
T	0.0	0.0	33.3	9.1	5.9	8.8
U	44.4	25.9	2.3	4.4	3.5	9.6
V	40.0	15.2	13.5	7.4	1.1	8.4
W	16.7	11.1	13.5	0.0	0.0	11.8
X	100.0	53.9	26.7	11.6	1.6	14.2
Y	40.0	66.7	25.0	6.9	3.1	15.2
Z	36.4	38.5	12.2	5.4	3.8	13.3
Overall rate per GA group %**	33.9	21.1	13.1	6.8	3.4	10.3

Total number of infants = 4 119
2 infants were missing data on cranial ultrasound abnormalities.

ϕ Note that the criteria for entering infants with GA **<**33 in the CNN dataset are not same for site H and thus, the rates may not be comparable with other sites.

Overall %* = (number of infants with cranial ultrasound abnormalities for site / total number of infants for site)*100
Overall %** = (number of infants with cranial ultrasound abnormalities for gestational age category / total number of infants in gestational category)*100
NA = no data available

G. Site comparisons – Risks adjusted analyses

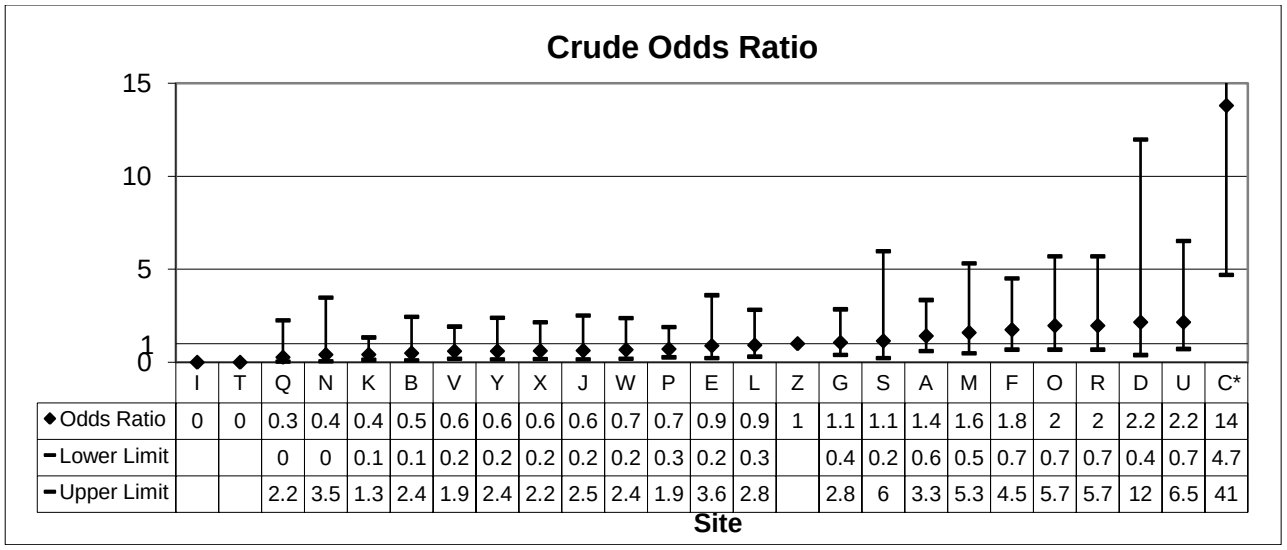
Comments: Logistic regression is used for this section – Risk Adjusted Analysis. This technique is used to analyze interactions in which there are one or more independent variables that determine an outcome. The outcome is measured using a dichotomous variable.

The goal of logistic regression is to find the best fitting (yet biologically reasonable) model to describe the relationship between the dichotomous characteristic of interest (dependent variable = response or outcome variable) and a set of independent (predictor or explanatory) variables. Logistic regression generates the coefficients (and its standard errors and significance levels) of a formula to predict a logic transformation of the probability of presence of the characteristic of interest:

$$\text{logit}(p) = b_0 + b_1 X_1 + b_2 X_2 + b_3 X_3 + \ldots + b_k X_k$$

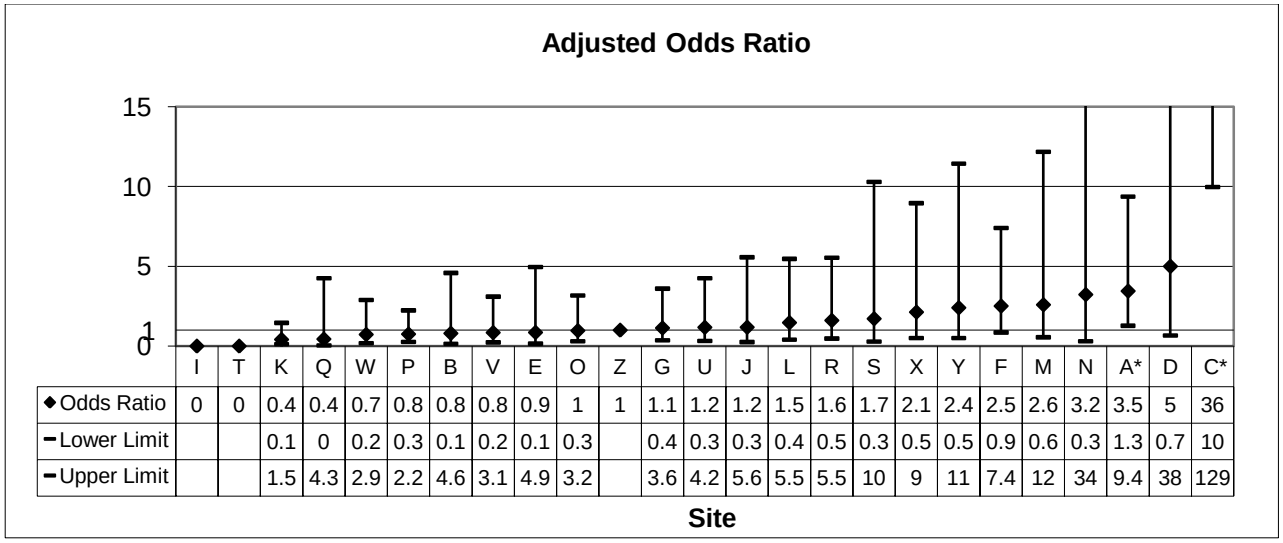
where p is the probability of presence of the characteristic of interest

Presentation #49
Retinopathy of prematurity stage 3 and higher



	I	T	Q	N	K	B	V	Y	X	J	W	P	E	L	Z	G	S	A	M	F	O	R	D	U	C*
◆Odds Ratio	0	0	0.3	0.4	0.4	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.9	0.9	1	1.1	1.1	1.4	1.6	1.8	2	2	2.2	2.2	14
━Lower Limit			0	0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3		0.4	0.2	0.6	0.5	0.7	0.7	0.7	0.4	0.7	4.7
━Upper Limit			2.2	3.5	1.3	2.4	1.9	2.4	2.2	2.5	2.4	1.9	3.6	2.8		2.8	6	3.3	5.3	4.5	5.7	5.7	12	6.5	41

Number of infants: 1 316



	I	T	K	Q	W	P	B	V	E	O	Z	G	U	J	L	R	S	X	Y	F	M	N	A*	D	C*
◆Odds Ratio	0	0	0.4	0.4	0.7	0.8	0.8	0.8	0.9	1	1	1.1	1.2	1.2	1.5	1.6	1.7	2.1	2.4	2.5	2.6	3.2	3.5	5	36
━Lower Limit			0.1	0	0.2	0.3	0.1	0.2	0.1	0.3		0.4	0.3	0.3	0.4	0.5	0.3	0.5	0.5	0.9	0.6	0.3	1.3	0.7	10
━Upper Limit			1.5	4.3	2.9	2.2	4.6	3.1	4.9	3.2		3.6	4.2	5.6	5.5	5.5	10	9	11	7.4	12	34	9.4	38	129

Number of infants: 1 313

Reference site: Z
Inclusion criteria:
Birth weight <1500g Screened for ROP
Age at admission less than 4 days

Outcome is attributed to the network hospital of first admission.

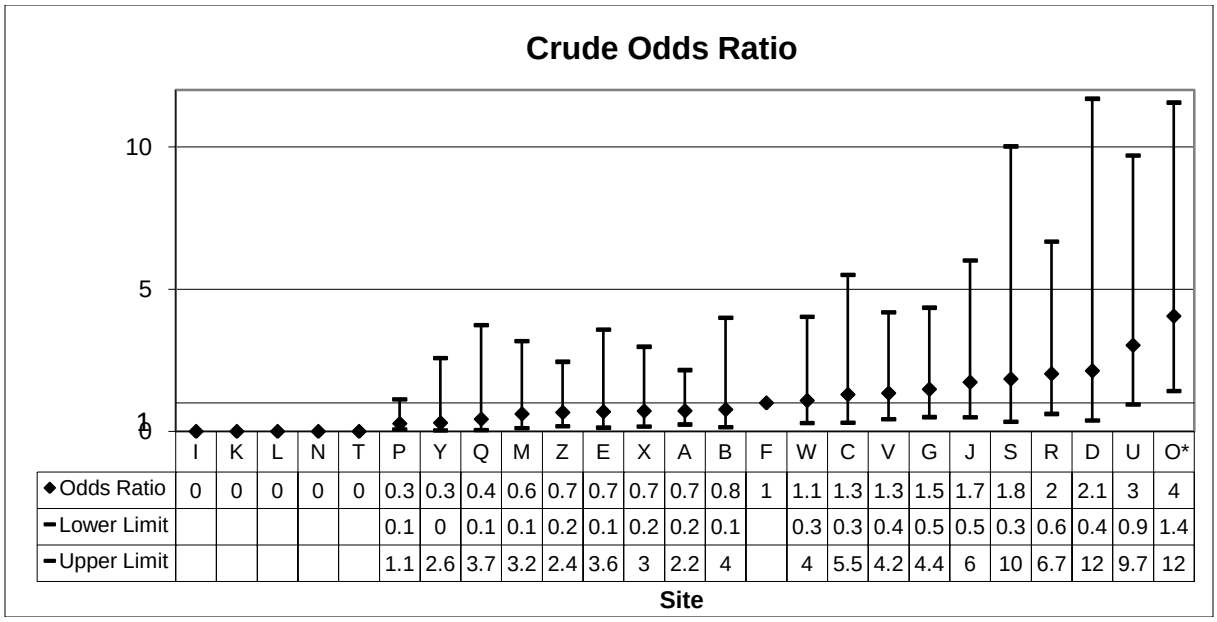
All the infants who meet the criteria in site I and T did not have retinopathy of prematurity stage 3 and higher (Odds Ratio: 0)

Significant predictors identified by multivariate analysis and adjusted for:
Gestational age Male
SGA (BW <10th centile for GA)

***Sites significantly different from reference site (P<0.05)**

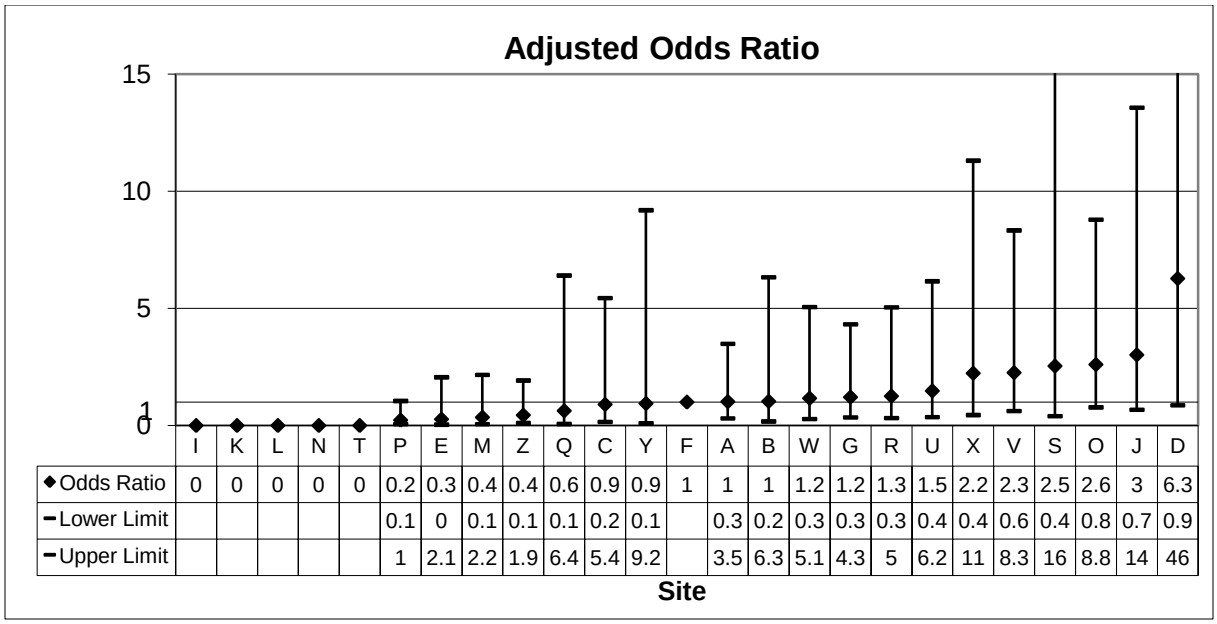
Site H has different criteria for entering infants in the CNN dataset, and may not be comparable with other sites, thus it is not included in this analysis.

Presentation #50
Cryo/laser therapy for retinopathy of prematurity



	I	K	L	N	T	P	Y	Q	M	Z	E	X	A	B	F	W	C	V	G	J	S	R	D	U	O*
◆Odds Ratio	0	0	0	0	0	0.3	0.3	0.4	0.6	0.7	0.7	0.7	0.7	0.8	1	1.1	1.3	1.3	1.5	1.7	1.8	2	2.1	3	4
━Lower Limit						0.1	0	0.1	0.1	0.2	0.1	0.2	0.2	0.1		0.3	0.3	0.4	0.5	0.5	0.3	0.6	0.4	0.9	1.4
━Upper Limit						1.1	2.6	3.7	3.2	2.4	3.6	3	2.2	4		4	5.5	4.2	4.4	6	10	6.7	12	9.7	12

Number of infants: 1 239



	I	K	L	N	T	P	E	M	Z	Q	C	Y	F	A	B	W	G	R	U	X	V	S	O	J	D
◆Odds Ratio	0	0	0	0	0	0.2	0.3	0.4	0.4	0.6	0.9	0.9	1	1	1	1.2	1.2	1.3	1.5	2.2	2.3	2.5	2.6	3	6.3
━Lower Limit						0.1	0	0.1	0.1	0.1	0.2	0.1		0.3	0.2	0.3	0.3	0.3	0.4	0.4	0.6	0.4	0.8	0.7	0.9
━Upper Limit						1	2.1	2.2	1.9	6.4	5.4	9.2		3.5	6.3	5.1	4.3	5	6.2	11	8.3	16	8.8	14	46

Number of infants: 1 199

Reference site: F

Inclusion criteria:
Birth weight <1500g Screened for ROP
Age at admission less than 4 days

Outcome is attributed to the network hospital of first admission.

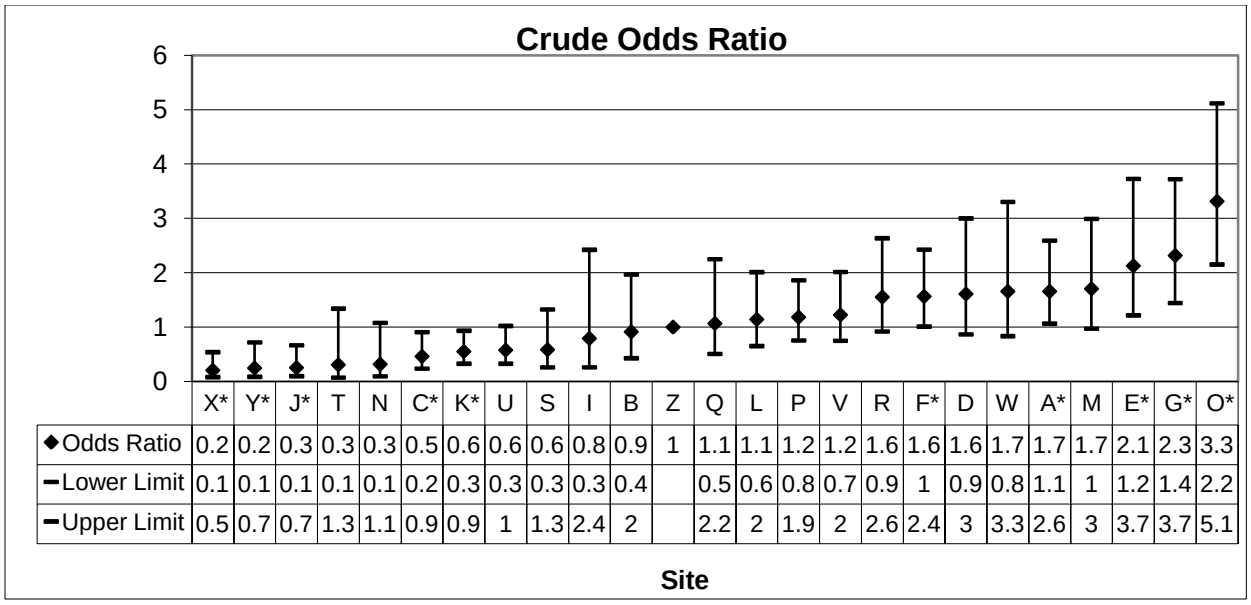
All the infants who meet the criteria in site I, K, L, N and T were not treated (Odds Ratio: 0)

Significant predictors identified by multivariate analysis and adjusted for:
Gestational age Male
Antenatal corticosteroid
SGA (BW <10th centile for GA)

***Sites significantly different from reference site (P<0.05)**

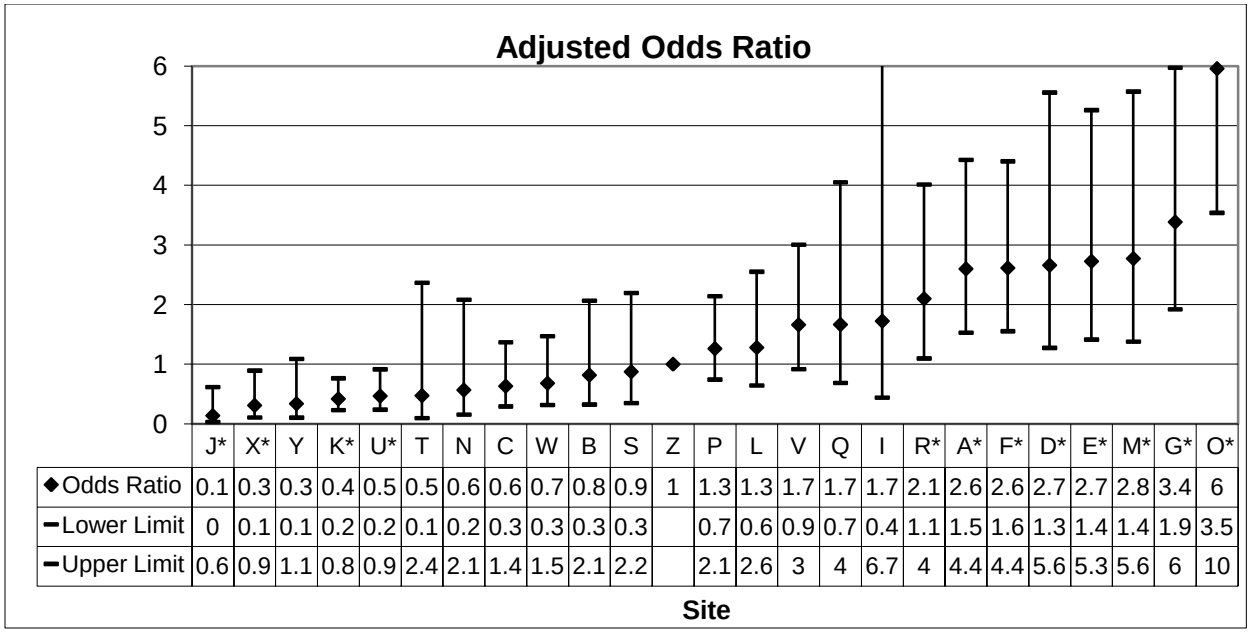
Site H has different criteria for entering infants in the CNN dataset, and may not be comparable with other sites, thus it is not included in this analysis.

Presentation #51a
Oxygen dependency at 36 weeks post-menstrual age



	X*	Y*	J*	T	N	C*	K*	U	S	I	B	Z	Q	L	P	V	R	F*	D	W	A*	M	E*	G*	O*
◆Odds Ratio	0.2	0.2	0.3	0.3	0.3	0.5	0.6	0.6	0.6	0.8	0.9	1	1.1	1.1	1.2	1.2	1.6	1.6	1.6	1.7	1.7	1.7	2.1	2.3	3.3
━Lower Limit	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.3	0.4		0.5	0.6	0.8	0.7	0.9	1	0.9	0.8	1.1	1	1.2	1.4	2.2
━Upper Limit	0.5	0.7	0.7	1.3	1.1	0.9	0.9	1	1.3	2.4	2		2.2	2	1.9	2	2.6	2.4	3	3.3	2.6	3	3.7	3.7	5.1

Number of infants: 3 637



	J*	X*	Y	K*	U*	T	N	C	W	B	S	Z	P	L	V	Q	I	R*	A*	F*	D*	E*	M*	G*	O*
◆Odds Ratio	0.1	0.3	0.3	0.4	0.5	0.5	0.6	0.6	0.7	0.8	0.9	1	1.3	1.3	1.7	1.7	1.7	2.1	2.6	2.6	2.7	2.7	2.8	3.4	6
━Lower Limit	0	0.1	0.1	0.2	0.2	0.1	0.2	0.3	0.3	0.3	0.3		0.7	0.6	0.9	0.7	0.4	1.1	1.5	1.6	1.3	1.4	1.4	1.9	3.5
━Upper Limit	0.6	0.9	1.1	0.8	0.9	2.4	2.1	1.4	1.5	2.1	2.2		2.1	2.6	3	4	6.7	4	4.4	4.4	5.6	5.3	5.6	6	10

Number of infants: 3 580

Reference site: Z

Inclusion criteria:
Gestational age <33 weeks
Age at admission less than 4 days
Survival to 36 weeks post-menstrual age

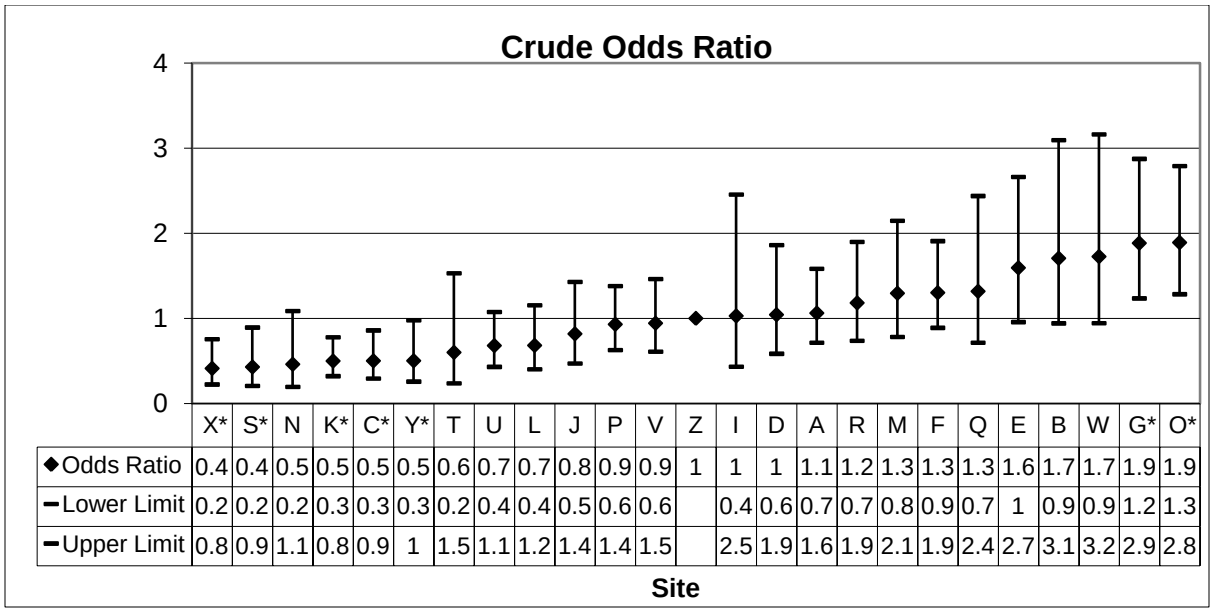
Outcome is attributed to the network hospital of first admission.

Significant predictors identified by multivariate analysis and adjusted for:
Gestational age Male
Apgar at 5 minutes SNAP-II Score
SGA (BW <10th centile for GA)

***Sites significantly different from reference site (P<0.05)**

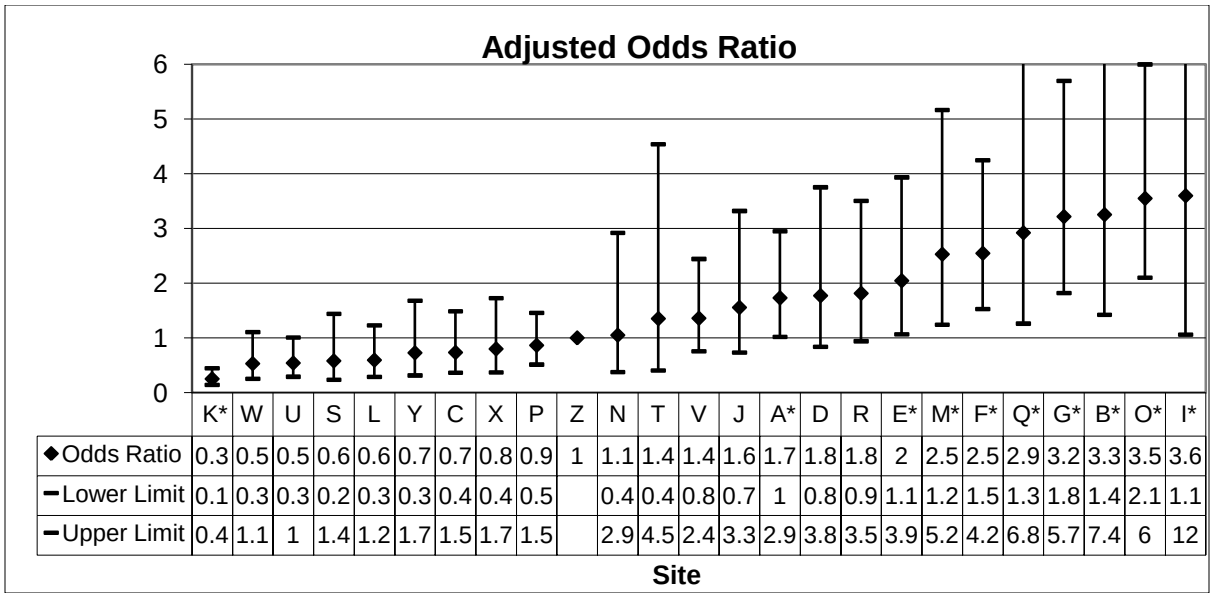
Site H has different criteria for entering infants in the CNN dataset, and may not be comparable with other sites, thus it is not included in this analysis.

Presentation #51b
Oxygen dependency at 28 days after birth



	X*	S*	N	K*	C*	Y*	T	U	L	J	P	V	Z	I	D	A	R	M	F	Q	E	B	W	G*	O*
◆Odds Ratio	0.4	0.4	0.5	0.5	0.5	0.5	0.6	0.7	0.7	0.8	0.9	0.9	1	1	1	1.1	1.2	1.3	1.3	1.3	1.6	1.7	1.7	1.9	1.9
━Lower Limit	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.4	0.4	0.5	0.6	0.6		0.4	0.6	0.7	0.7	0.8	0.9	0.7	1	0.9	0.9	1.2	1.3
━Upper Limit	0.8	0.9	1.1	0.8	0.9	1	1.5	1.1	1.2	1.4	1.4	1.5		2.5	1.9	1.6	1.9	2.1	1.9	2.4	2.7	3.1	3.2	2.9	2.8

Number of infants: 3 663



	K*	W	U	S	L	Y	C	X	P	Z	N	T	V	J	A*	D	R	E*	M*	F*	Q*	G*	B*	O*	I*
◆Odds Ratio	0.3	0.5	0.5	0.6	0.6	0.7	0.7	0.8	0.9	1	1.1	1.4	1.4	1.6	1.7	1.8	1.8	2	2.5	2.5	2.9	3.2	3.3	3.5	3.6
━Lower Limit	0.1	0.3	0.3	0.2	0.3	0.3	0.4	0.4	0.5		0.4	0.4	0.8	0.7	1	0.8	0.9	1.1	1.2	1.5	1.3	1.8	1.4	2.1	1.1
━Upper Limit	0.4	1.1	1	1.4	1.2	1.7	1.5	1.7	1.5		2.9	4.5	2.4	3.3	2.9	3.8	3.5	3.9	5.2	4.2	6.8	5.7	7.4	6	12

Number of infants: 3 606

Reference site: Z

Inclusion criteria:
Gestational age <33 weeks
Age at admission less than 4 days
Survival to 28 days after birth

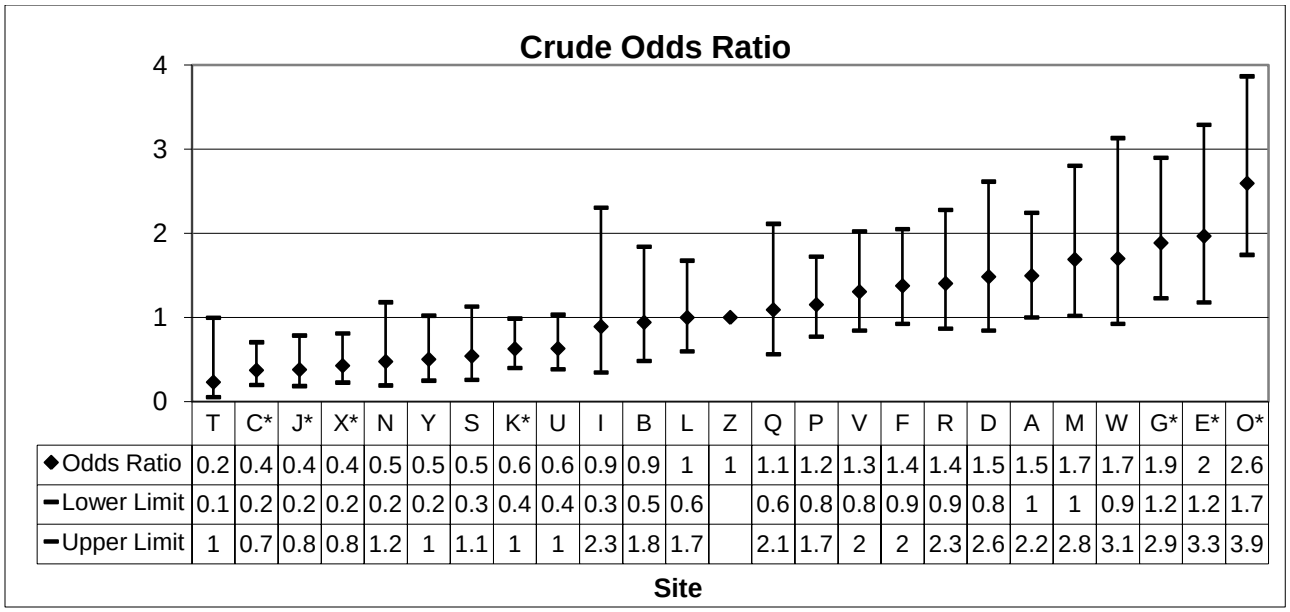
***Sites significantly different from reference site (P<0.05)**

Outcome is attributed to the network hospital of first admission.

Significant predictors identified by multivariate analysis and adjusted for:
Gestational age SNAP-II Score
Apgar at 5 minutes
SGA (BW <10th centile for GA)

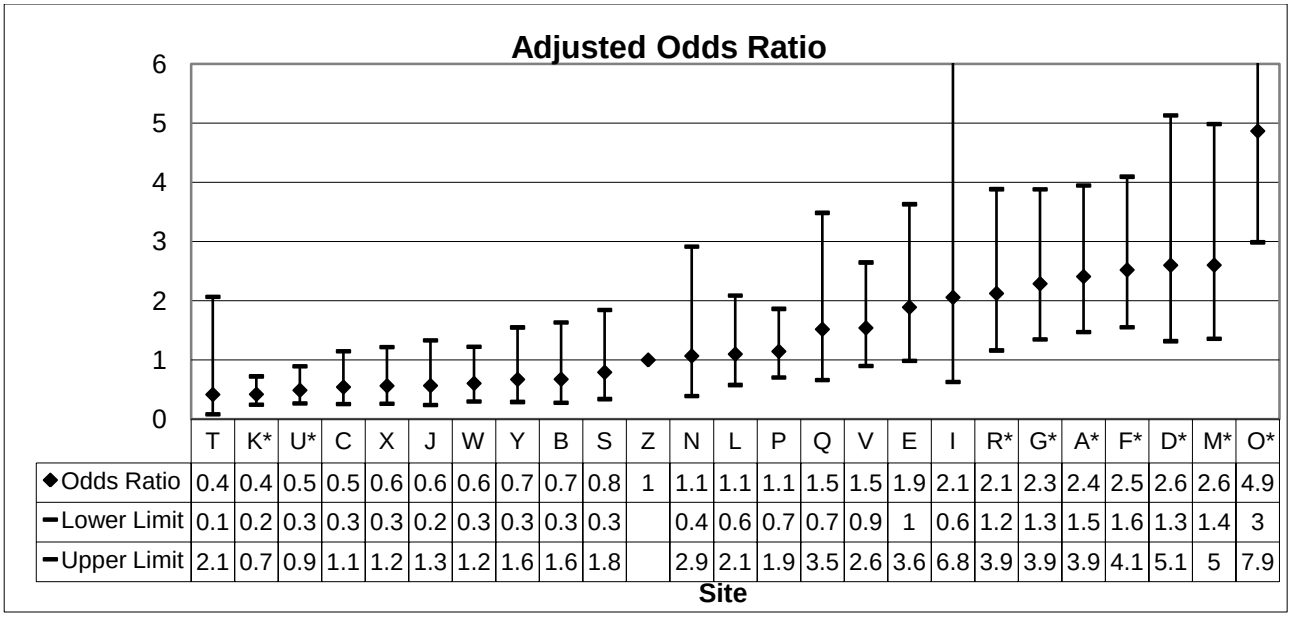
Site H has different criteria for entering infants in the CNN dataset, and may not be comparable with other sites, thus it is not included in this analysis.

Presentation #52a
Oxygen dependency at 36 weeks post-menstrual age or death



	T	C*	J*	X*	N	Y	S	K*	U	I	B	L	Z	Q	P	V	F	R	D	A	M	W	G*	E*	O*
◆Odds Ratio	0.2	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.9	0.9	1	1	1.1	1.2	1.3	1.4	1.4	1.5	1.5	1.7	1.7	1.9	2	2.6
━Lower Limit	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.3	0.5	0.6		0.6	0.8	0.8	0.9	0.9	0.8	1	1	0.9	1.2	1.2	1.7
━Upper Limit	1	0.7	0.8	0.8	1.2	1	1.1	1	1	2.3	1.8	1.7		2.1	1.7	2	2	2.3	2.6	2.2	2.8	3.1	2.9	3.3	3.9

Number of infants: 3 875



	T	K*	U*	C	X	J	W	Y	B	S	Z	N	L	P	Q	V	E	I	R*	G*	A*	F*	D*	M*	O*
◆Odds Ratio	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8	1	1.1	1.1	1.1	1.5	1.5	1.9	2.1	2.1	2.3	2.4	2.5	2.6	2.6	4.9
━Lower Limit	0.1	0.2	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3		0.4	0.6	0.7	0.7	0.9	1	0.6	1.2	1.3	1.5	1.6	1.3	1.4	3
━Upper Limit	2.1	0.7	0.9	1.1	1.2	1.3	1.2	1.6	1.6	1.8		2.9	2.1	1.9	3.5	2.6	3.6	6.8	3.9	3.9	3.9	4.1	5.1	5	7.9

Number of infants: 3 837

Reference site: Z

Inclusion criteria:
Gestational age <33 weeks
Age at admission less than 4 days

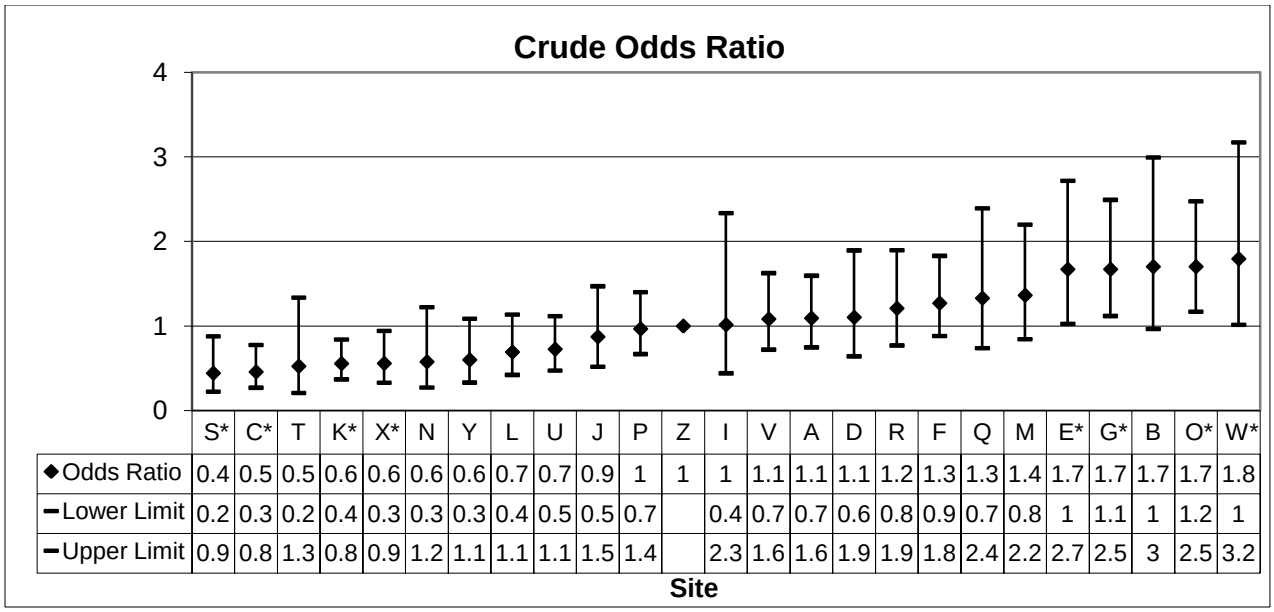
Site H has different criteria for entering infants in the CNN dataset, and may not be comparable with other sites, thus it is not included in this analysis.

Significant predictors identified by multivariate analysis and adjusted for:
Gestational age
Outborn SNAP-II Score
SGA (BW <10th centile for GA)

***Sites significantly different from reference site (P<0.05)**

Outcome is attributed to the network hospital of first admission.

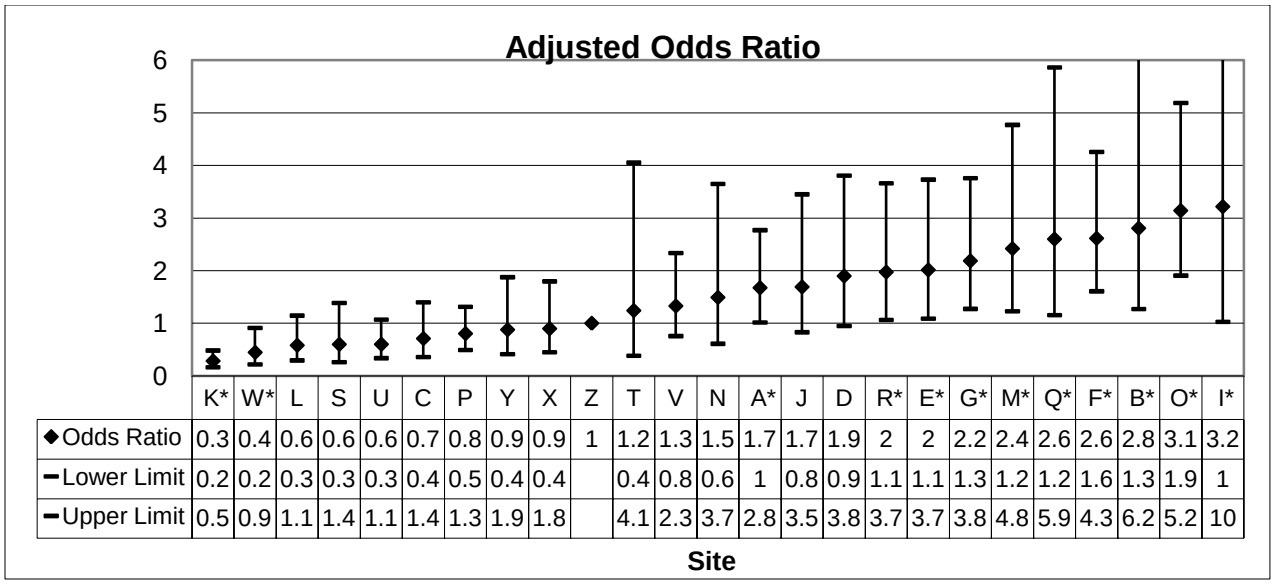
Presentation #52b
Oxygen dependency at 28 days after birth or death



	S*	C*	T	K*	X*	N	Y	L	U	J	P	Z	I	V	A	D	R	F	Q	M	E*	G*	B	O*	W*
◆Odds Ratio	0.4	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.9	1	1	1	1.1	1.1	1.1	1.2	1.3	1.3	1.4	1.7	1.7	1.7	1.7	1.8
━Lower Limit	0.2	0.3	0.2	0.4	0.3	0.3	0.3	0.4	0.5	0.5	0.7		0.4	0.7	0.7	0.6	0.8	0.9	0.7	0.8	1	1.1	1	1.2	1
━Upper Limit	0.9	0.8	1.3	0.8	0.9	1.2	1.1	1.1	1.1	1.5	1.4		2.3	1.6	1.6	1.9	1.9	1.8	2.4	2.2	2.7	2.5	3	2.5	3.2

Site

Number of infants: 3 875



	K*	W*	L	S	U	C	P	Y	X	Z	T	V	N	A*	J	D	R*	E*	G*	M*	Q*	F*	B*	O*	I*
◆Odds Ratio	0.3	0.4	0.6	0.6	0.6	0.7	0.8	0.9	0.9	1	1.2	1.3	1.5	1.7	1.7	1.9	2	2	2.2	2.4	2.6	2.6	2.8	3.1	3.2
━Lower Limit	0.2	0.2	0.3	0.3	0.3	0.4	0.5	0.4	0.4		0.4	0.8	0.6	1	0.8	0.9	1.1	1.1	1.3	1.2	1.2	1.6	1.3	1.9	1
━Upper Limit	0.5	0.9	1.1	1.4	1.1	1.4	1.3	1.9	1.8		4.1	2.3	3.7	2.8	3.5	3.8	3.7	3.7	3.8	4.8	5.9	4.3	6.2	5.2	10

Site

Number of infants: 3 812

Reference site: Z

Inclusion criteria:
Gestational age <33 weeks
Age at admission less than 4 days

Outcome is attributed to the network hospital of first admission.

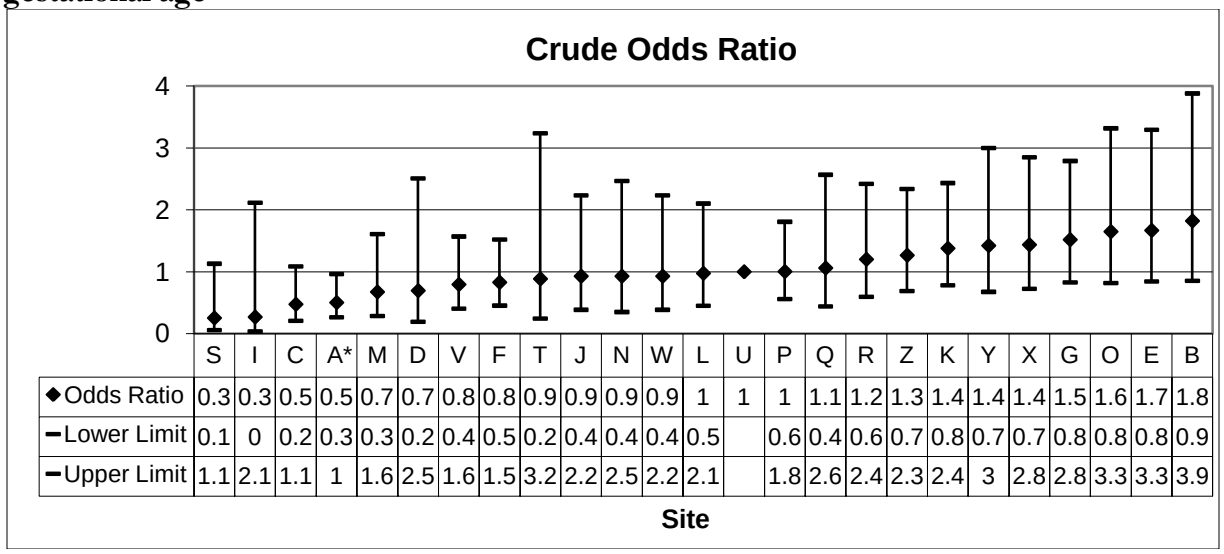
***Sites significantly different from reference site (P<0.05)**

Significant predictors identified by multivariate analysis and adjusted for:
Gestational age
SNAP-II Score Cesarean section
SGA (BW <10th centile for GA)

Site H has different criteria for entering infants in the CNN dataset, and may not be comparable with other sites, thus it is not included in this analysis.

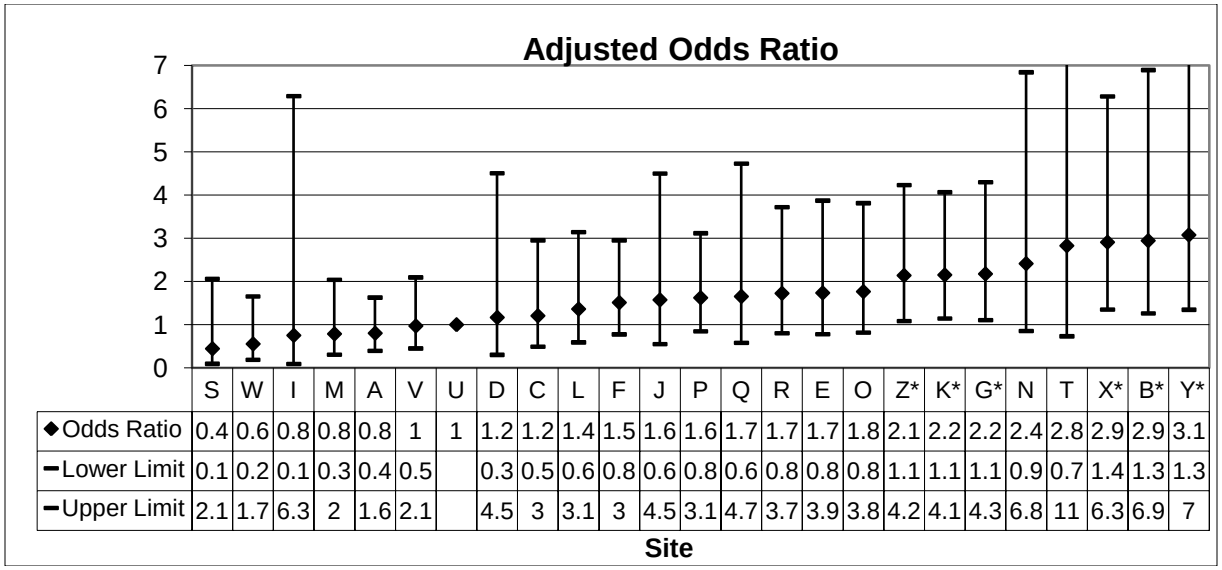
Presentation #53

Significant cranial ultrasound abnormality (VE or PEC) among infants <33 weeks gestational age



	S	I	C	A*	M	D	V	F	T	J	N	W	L	U	P	Q	R	Z	K	Y	X	G	O	E	B
◆Odds Ratio	0.3	0.3	0.5	0.5	0.7	0.7	0.8	0.8	0.9	0.9	0.9	0.9	1	1	1	1.1	1.2	1.3	1.4	1.4	1.4	1.5	1.6	1.7	1.8
━Lower Limit	0.1	0	0.2	0.3	0.3	0.2	0.4	0.5	0.2	0.4	0.4	0.4	0.5		0.6	0.4	0.6	0.7	0.8	0.7	0.7	0.8	0.8	0.8	0.9
━Upper Limit	1.1	2.1	1.1	1	1.6	2.5	1.6	1.5	3.2	2.2	2.5	2.2	2.1		1.8	2.6	2.4	2.3	2.4	3	2.8	2.8	3.3	3.3	3.9

Number of infants: 2 979



	S	W	I	M	A	V	U	D	C	L	F	J	P	Q	R	E	O	Z*	K*	G*	N	T	X*	B*	Y*
◆Odds Ratio	0.4	0.6	0.8	0.8	0.8	1	1	1.2	1.2	1.4	1.5	1.6	1.6	1.7	1.7	1.7	1.8	2.1	2.2	2.2	2.4	2.8	2.9	2.9	3.1
━Lower Limit	0.1	0.2	0.1	0.3	0.4	0.5		0.3	0.5	0.6	0.8	0.6	0.8	0.6	0.8	0.8	0.8	1.1	1.1	1.1	0.9	0.7	1.4	1.3	1.3
━Upper Limit	2.1	1.7	6.3	2	1.6	2.1		4.5	3	3.1	3	4.5	3.1	4.7	3.7	3.9	3.8	4.2	4.1	4.3	6.8	11	6.3	6.9	7

Number of infants: 2 906

Reference site: U

Inclusion criteria:
Gestational age <33 weeks
Age at admission less than 4 days
Ultrasound reports in the first two weeks of life

***Sites significantly different from reference site (P<0.05)**

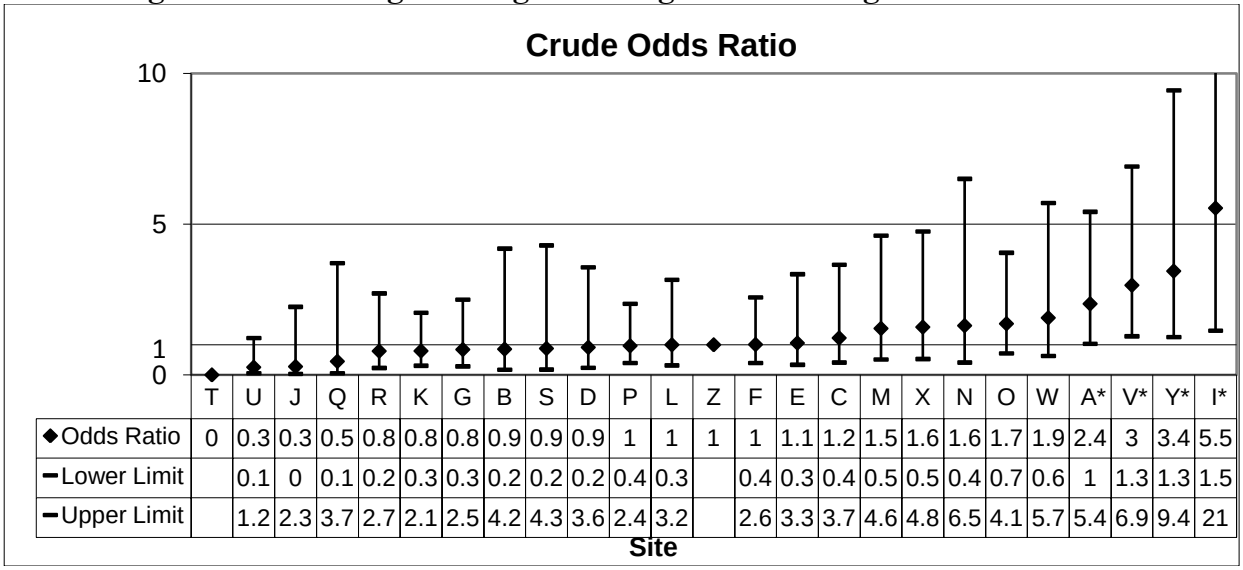
Significant predictors identified by multivariate analysis and adjusted for:
Gestational age
Apgar at 5 minutes
Outborn
Cesarean section
SNAP-II Score

Site H has different criteria for entering infants in the CNN dataset, and may not be comparable with other sites, thus it is not included in this analysis.

Outcome is attributed to the network hospital of first admission.

Presentation #54

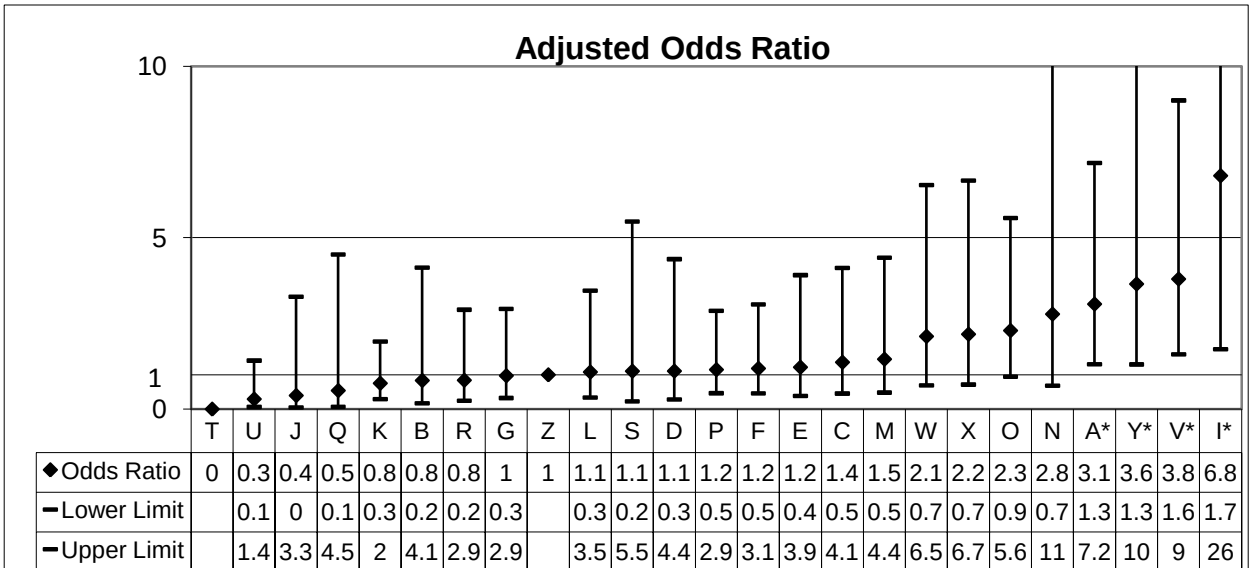
Necrotizing enterocolitis stage 2 or higher among infants <1500g at birth



	T	U	J	Q	R	K	G	B	S	D	P	L	Z	F	E	C	M	X	N	O	W	A*	V*	Y*	I*
◆Odds Ratio	0	0.3	0.3	0.5	0.8	0.8	0.8	0.9	0.9	0.9	1	1	1	1	1.1	1.2	1.5	1.6	1.6	1.7	1.9	2.4	3	3.4	5.5
━Lower Limit		0.1	0	0.1	0.2	0.3	0.3	0.2	0.2	0.2	0.4	0.3		0.4	0.3	0.4	0.5	0.5	0.4	0.7	0.6	1	1.3	1.3	1.5
━Upper Limit		1.2	2.3	3.7	2.7	2.1	2.5	4.2	4.3	3.6	2.4	3.2		2.6	3.3	3.7	4.6	4.8	6.5	4.1	5.7	5.4	6.9	9.4	21

Site

Number of infants: 2 658



	T	U	J	Q	K	B	R	G	Z	L	S	D	P	F	E	C	M	W	X	O	N	A*	Y*	V*	I*
◆Odds Ratio	0	0.3	0.4	0.5	0.8	0.8	0.8	1	1	1.1	1.1	1.1	1.2	1.2	1.2	1.4	1.5	2.1	2.2	2.3	2.8	3.1	3.6	3.8	6.8
━Lower Limit		0.1	0	0.1	0.3	0.2	0.2	0.3		0.3	0.2	0.3	0.5	0.5	0.4	0.5	0.5	0.7	0.7	0.9	0.7	1.3	1.3	1.6	1.7
━Upper Limit		1.4	3.3	4.5	2	4.1	2.9	2.9		3.5	5.5	4.4	2.9	3.1	3.9	4.1	4.4	6.5	6.7	5.6	11	7.2	10	9	26

Site

Number of infants: 2 653

Reference site: Z

Inclusion criteria:
Birth weight <1500g
Age at admission less than 4 days

Outcome is attributed to the network hospital of first admission.

All the infants who meet the criteria in site T did not have NEC stage 2 or higher (Odds Ratio: 0)

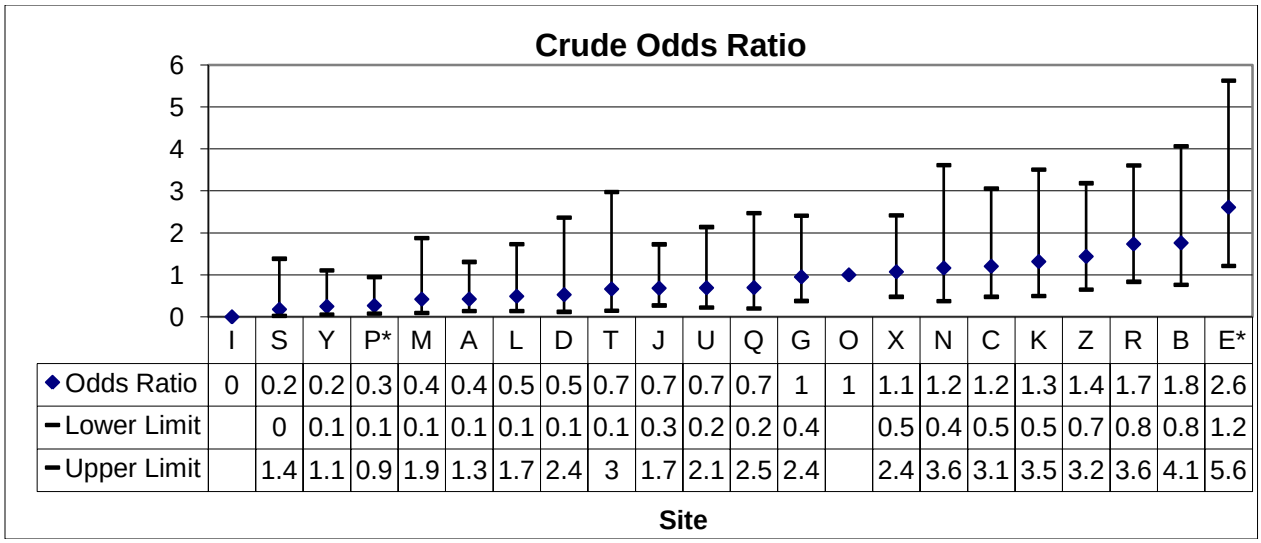
Significant predictors identified by multivariate analysis and adjusted for:
Gestational age Chorioamnionitis

***Sites significantly different from reference site (P<0.05)**

Site H has different criteria for entering infants in the CNN dataset, and may not be comparable with other sites, thus it is not included in this analysis.

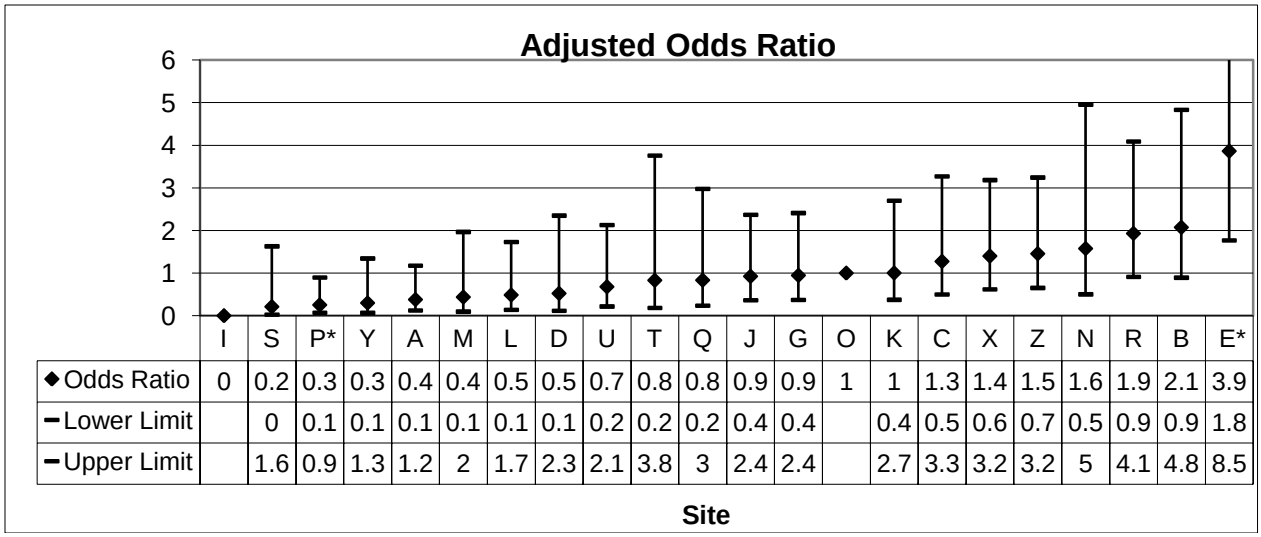
Presentation #55

Late onset sepsis among infants ≥1500g at birth



	I	S	Y	P*	M	A	L	D	T	J	U	Q	G	O	X	N	C	K	Z	R	B	E*
◆Odds Ratio	0	0.2	0.2	0.3	0.4	0.4	0.5	0.5	0.7	0.7	0.7	0.7	1	1	1.1	1.2	1.2	1.3	1.4	1.7	1.8	2.6
–Lower Limit		0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.2	0.4		0.5	0.4	0.5	0.5	0.7	0.8	0.8	1.2
–Upper Limit		1.4	1.1	0.9	1.9	1.3	1.7	2.4	3	1.7	2.1	2.5	2.4		2.4	3.6	3.1	3.5	3.2	3.6	4.1	5.6

Number of infants: 8 551



	I	S	P*	Y	A	M	L	D	U	T	Q	J	G	O	K	C	X	Z	N	R	B	E*
◆Odds Ratio	0	0.2	0.3	0.3	0.4	0.4	0.5	0.5	0.7	0.8	0.8	0.9	0.9	1	1	1.3	1.4	1.5	1.6	1.9	2.1	3.9
–Lower Limit		0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.4	0.4		0.4	0.5	0.6	0.7	0.5	0.9	0.9	1.8
–Upper Limit		1.6	0.9	1.3	1.2	2	1.7	2.3	2.1	3.8	3	2.4	2.4		2.7	3.3	3.2	3.2	5	4.1	4.8	8.5

Number of infants: 8 501

Reference site: O

Inclusion criteria:
Birth weight ≥1500g
Age at admission less than 4 days
Remained hospitalized beyond 2 days after birth

***Sites significantly different from reference site (P<0.05)**

Outcome is attributed to the hospital in which the infection occurred first (adjusted for transfer).

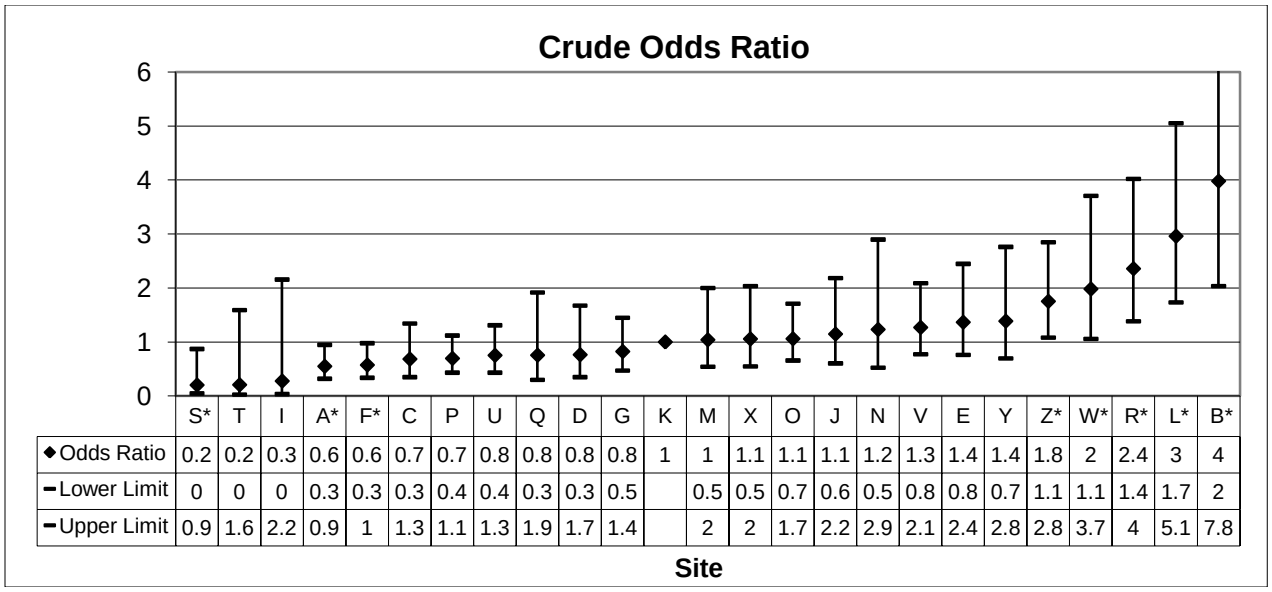
Significant predictors identified by multivariate analysis and adjusted for:
Gestational age
SNAP_II score Male
SGA (BW <10th centile for GA)

All the infants who meet the criteria in site I and W did not have late onset sepsis (Odds Ratio: 0)

Site F, H, V, and W has different criteria for entering infants in the CNN dataset, and may not be comparable with other sites, thus they are not included in this analysis.

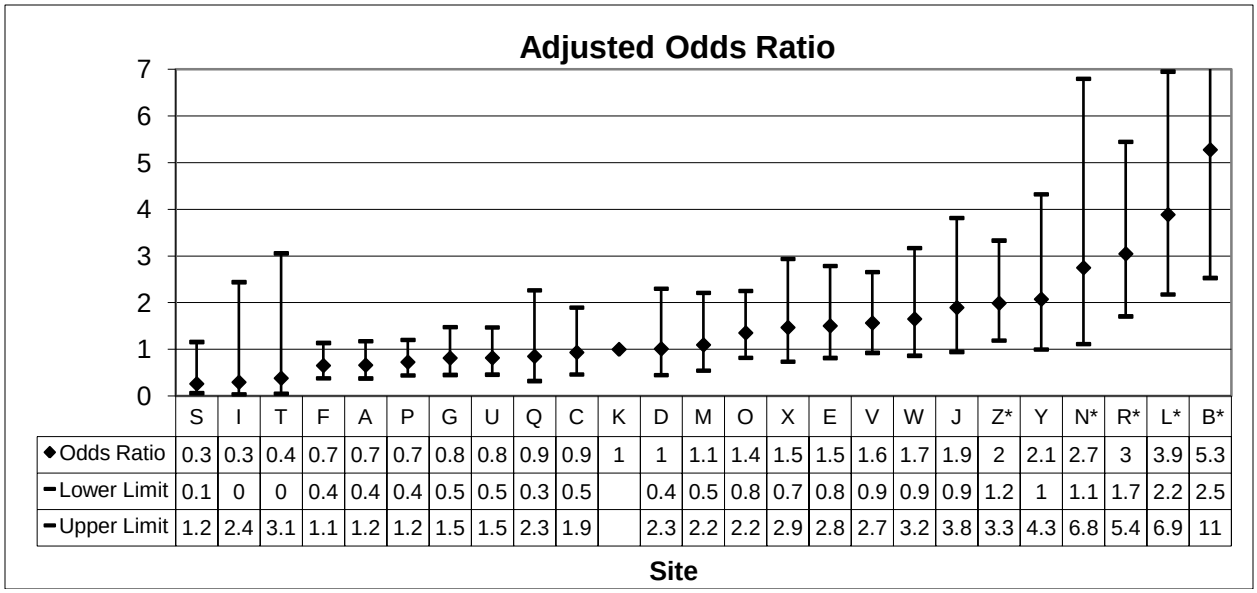
Presentation #56

Late onset sepsis among infants <1500g at birth



	S*	T	I	A*	F*	C	P	U	Q	D	G	K	M	X	O	J	N	V	E	Y	Z*	W*	R*	L*	B*
◆Odds Ratio	0.2	0.2	0.3	0.6	0.6	0.7	0.7	0.8	0.8	0.8	0.8	1	1	1.1	1.1	1.1	1.2	1.3	1.4	1.4	1.8	2	2.4	3	4
━Lower Limit	0	0	0	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.5		0.5	0.5	0.7	0.6	0.5	0.8	0.8	0.7	1.1	1.1	1.4	1.7	2
━Upper Limit	0.9	1.6	2.2	0.9	1	1.3	1.1	1.3	1.9	1.7	1.4		2	2	1.7	2.2	2.9	2.1	2.4	2.8	2.8	3.7	4	5.1	7.8

Number of infants: 2 641



	S	I	T	F	A	P	G	U	Q	C	K	D	M	O	X	E	V	W	J	Z*	Y	N*	R*	L*	B*
◆Odds Ratio	0.3	0.3	0.4	0.7	0.7	0.7	0.8	0.8	0.9	0.9	1	1	1.1	1.4	1.5	1.5	1.6	1.7	1.9	2	2.1	2.7	3	3.9	5.3
━Lower Limit	0.1	0	0	0.4	0.4	0.4	0.5	0.5	0.3	0.5		0.4	0.5	0.8	0.7	0.8	0.9	0.9	0.9	1.2	1	1.1	1.7	2.2	2.5
━Upper Limit	1.2	2.4	3.1	1.1	1.2	1.2	1.5	1.5	2.3	1.9		2.3	2.2	2.2	2.9	2.8	2.7	3.2	3.8	3.3	4.3	6.8	5.4	6.9	11

Number of infants: 2 640

Reference site: K

Inclusion criteria:
Birth weight <1500g
Age at admission less than 4 days
Remained hospitalized beyond 2 days after birth

Outcome is attributed to the hospital in which the infection occurred first (adjusted for transfer).

Significant predictors identified by multivariate analysis and adjusted for:
Gestational age

Site H has different criteria for entering infants in the CNN dataset, and may not be comparable with other sites, thus it is not included in this analysis.

***Sites significantly different from reference site (P<0.05)**

Presentation 57a

Benchmarking for sites which contributed all eligible admissions for infants with GA < 33 weeks

Parameter / Site rank	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	Lowest											Median													Highest
According to total number of infants																									
SNAPII-PE adjusted mortality rates (%)	C	S	T	O	B	U	N	R	Z	W	Q	J	M	F	X	A	K	D	L	Y	P	G	E	V	I
Early onset sepsis rate (%)	E	Z	Y	V	A	N	T	I	J	L	G	D	R	M	S	X	O	Q	F	C	U	P	B	W	K
Late onset sepsis rate (SNAPII-PE adjusted) (%)	S	I	T	A	Q	Y	P	D	U	X	G	M	C	O	J	F	N	E	R	V	B	Z	K	L	W
Late onset sepsis /1000 patient days	I	S	T	Q	A	D	F	Y	X	J	M	P	G	C	U	N	W	R	E	L	K	O	Z	B	V
Death or at least one of major morbidities (%)	S	I	T	J	Y	N	X	Q	R	C	B	D	L	M	A	U	P	O	Z	G	E	K	F	V	W
Among infants <33 weeks																									
Non-receipt of AN steroid (%)	W	C	D	U	R	O	V	P	K	M	Y	G	Z	F	L	T	S	B	X	N	Q	I	A	E	J
Surgical ligation of PDA (%)	I†	N†	T†	B	G	Q	W	Z	M	L	P	R	X	U	D	O	F	S	Y	C	A	J	K	E	V
Stage 2 or 3 NEC (adjusted odds ratio)	U	J	Q	K	B	S	R	L	T	G	P	E	Z	C	F	D	W	M	O	X	A	Y	N	V	I
Stage 3-5 ROP (adjusted odds ratio)	I	T	K	Q	W	P	B	V	E	O	Z	J	G	U	L	S	R	Y	F	M	X	N	A	D	C
BPD at 36 weeks (adjusted odds ratio)	J	X	Y	K	U	T	N	C	W	B	S	Z	P	L	V	Q	I	R	A	F	D	E	M	G	O
VE or PEC (adjusted odds ratio)	S	W	I	M	A	V	U	D	C	L	F	J	P	Q	R	E	O	Z	K	G	N	T	X	B	Y
Use of systemic steroids (%)	N	T	P	D	S	Q	K	G	V	C	F	I	W	Z	E	O	A	Y	L	B	U	J	M	X	R
SNAPII-PE adjusted mortality for < 33 weeks GA (%)	C	T	S	O	U	R	W	N	B	J	Z	A	F	M	X	K	E	Q	V	D	L	G	P	Y	I
Death or at least one of major morbidities (%)	S	I	T	J	U	X	C	Y	A	D	K	Q	N	F	V	M	P	L	Z	R	G	O	E	B	W
Among infants < 1500g																									
Non-receipt of AN steroid (%)	W	C	D	U	S	R	K	V	P	O	T	F	Z	M	Y	L	G	I	X	B	N	A	E	Q	J
Surgical ligation of PDA (%)	I†	N†	T†	B	G	Q	W	Z	M	L	R	U	P	X	D	O	S	Y	F	C	J	K	A	E	V
Stage 2 or 3 NEC (adjusted odds ratio)	T	U	J	Q	K	B	R	G	Z	L	S	D	P	F	E	C	M	W	X	O	N	A	Y	V	I
Stage 3-5 ROP (adjusted odds ratio)	I	T	K	Q	W	P	B	V	E	O	Z	G	U	J	L	R	S	X	Y	F	M	N	A	D	C
Oxygen dependency at 36 weeks (adjusted odds ratio)	J	X	Y	K	U	T	N	W	C	B	S	Z	P	L	Q	V	E	I	F	D	R	A	M	G	O
VE or PEC (adjusted odds ratio)	W	S	A	M	I	V	U	L	J	C	T	D	F	O	P	R	G	K	Q	Z	E	N	B	X	Y
Use of systemic steroids (%)	N	T	D	P	Q	K	S	W	G	V	C	F	E	Z	O	I	B	A	U	L	Y	M	J	R	X
SNAPII-PE adjusted mortality for <1500g (%)	C	T	S	N	O	U	B	R	W	J	Z	F	A	M	K	V	X	D	Q	E	L	G	P	Y	I
Death or at least one of major morbidities (%)	T	S	J	U	I	C	N	K	X	Q	P	D	Y	A	V	F	Z	G	O	L	M	E	R	B	W

†sites I, N, and T do not have any PDA occurrences, so surgical ligation of PDA is not applicable to these sites.

Presentation 57b

Benchmarking for sites which contributed all eligible admissions for infants with GA <29 weeks

Parameter / Site rank	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
	Lowest												Median													Highest
According to number of infants																										
Non-receipt of AN steroid (%)	C	D	H#	W	S	U	K	P	O	I	F	R	Z	T	X	M	Y	B	L	V	A	G	Q	N	E	J
Surgical ligation of PDA (%)	I†	N†	T†	B	D	G	Q	W	X	Z	M	P	L	U	R	O	S	Y	F	J	C	K	E	A	H#	V
Stage 2 or 3 NEC (adjusted odds ratio)	B	D	T	H#	U	E	J	Z	S	Q	G	K	P	L	F	R	M	W	C	X	N	O	Y	A	V	I
Stage 3-5 ROP (adjusted odds ratio)	I	N	T	K	Q	P	W	O	B	E	V	Z	U	J	G	H#	L	R	S	F	D	X	Y	M	A	C
Oxygen dependency at 36 weeks (adjusted odds ratio)	N	J	X	T	K	Y	U	H#	W	Z	C	B	P	S	Q	L	E	V	R	F	D	A	I	M	G	O
VE or PEC (adjusted odds ratio)	D	W	S	M	A	V	U	I	C	L	P	O	J	F	E	Q	B	R	K	H#	T	G	Z	Y	X	N
Use of systemic steroids (%)	N	T	P	D	W	K	Q	S	V	G	F	E	B	Z	C	A	O	U	L	H#	I	Y	R	M	X	J
SNAPII-PE adjusted mortality (%)	C	H#	T	O	S	N	B	U	R	W	Z	F	J	D	V	K	A	M	X	G	L	Y	P	E	Q	I
Death or at least one of major morbidities (%)	S	T	U	K	P	J	Q	D	Z	Y	F	B	W	C	X	V	G	L	E	A	H#	I	R	N	O	M

† Sites I, N, and T do not have any PDA occurrences, so surgical ligation of PDA is not applicable to these sites.

The criteria for entering infants in the CNN dataset for Site H is not the same and thus, may not be comparable with other sites.

H. Trend Analyses

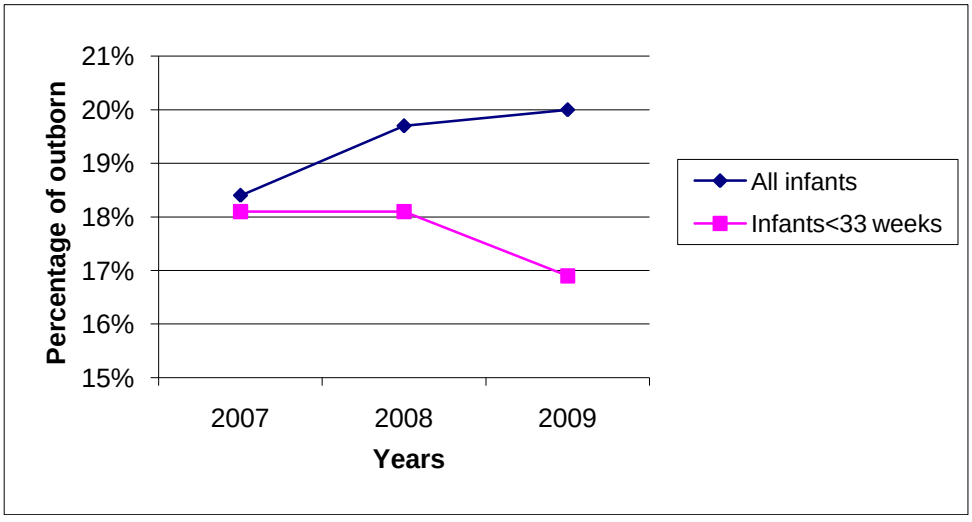
This section includes trend analyses in the last 3 years for specific outcomes for infants <33 weeks GA admitted to network hospitals. The number of infants included in these analyses is described in the following table for reference.

Number of infants by admission year and GA

	GA									
Year	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**
2007	58	153	234	271	286	348	342	453	446	608
2008	63	170	248	272	351	421	495	611	683	862
2009	62	180	280	285	351	410	484	585	667	831

1. Infants in the participating hospitals: Admission status:

Year	Number of Hospitals	Total Number of Infants*	Inborn	% (row)	Outborn	% (row)	Readmissions**	% (row)
2007	**25**	11 061	9012	81.5%	2 040	18.4%	9	0.1%
2008	**26**	13 340	10697	80.2%	2 623	19.7%	20	0.2%
2009	**26**	13 057	10334	79.2%	2 616	20.0%	107	0.8%

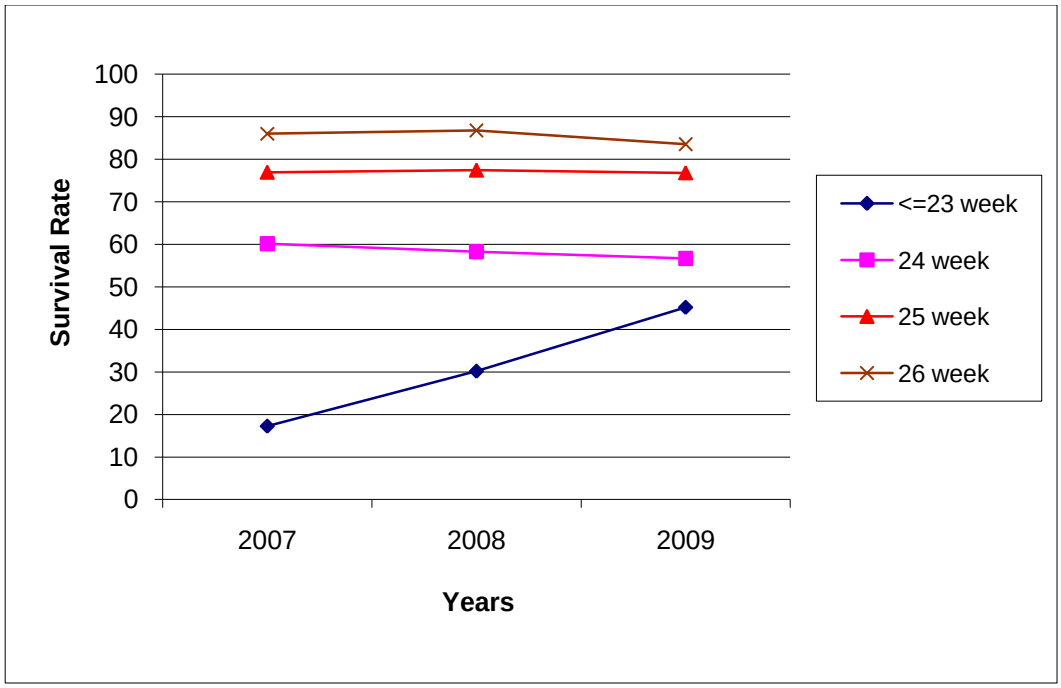


*total number of infants excluding those who are missing admission status

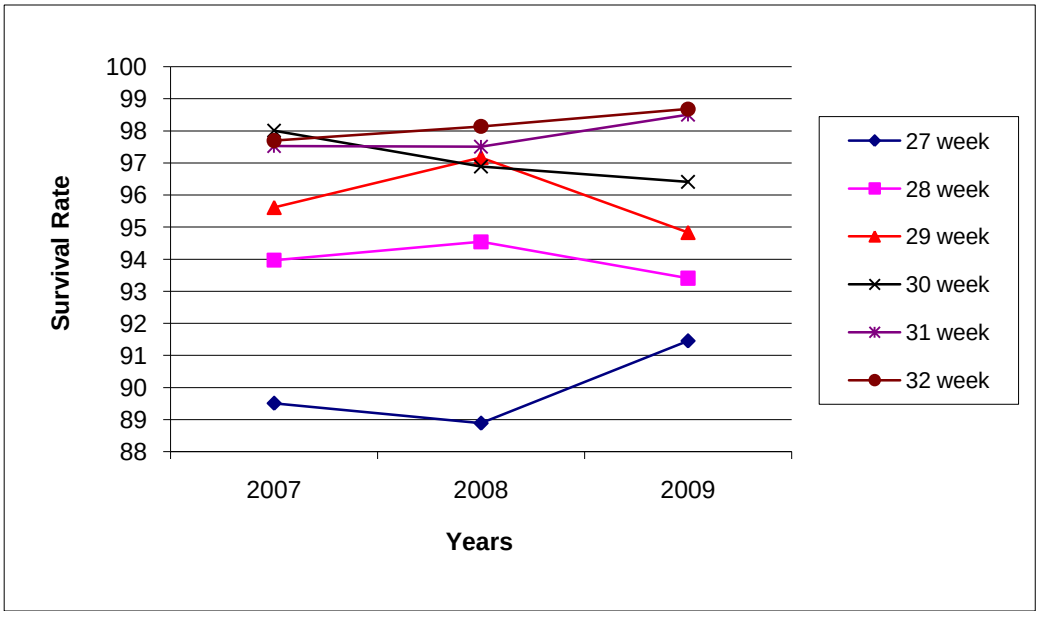
**readmissions are not classified as inborn or outborn

2. Survival rate:

a. 23-26 weeks:

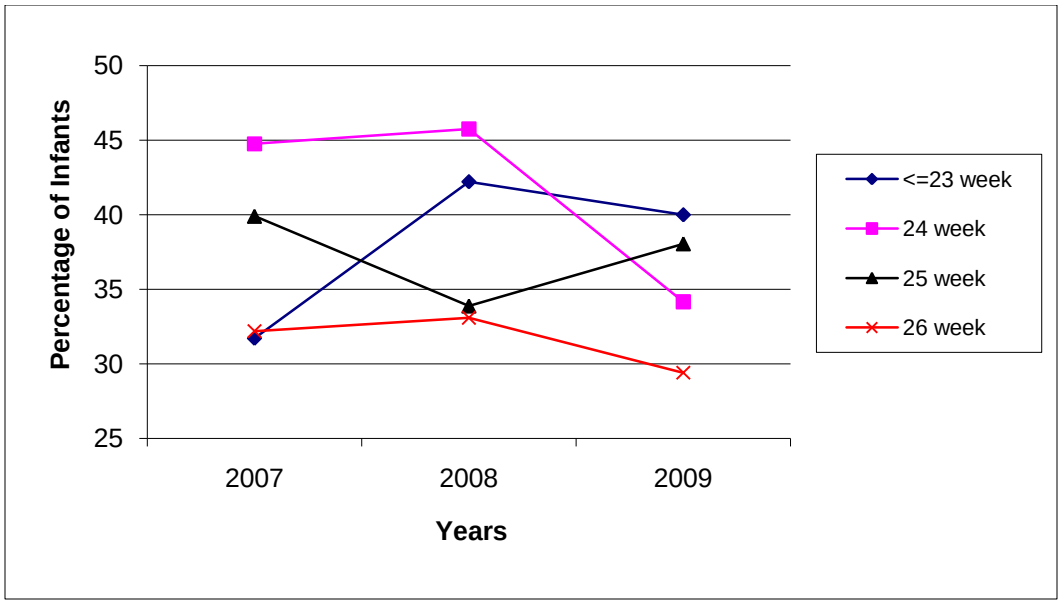


b. 27-32 weeks:

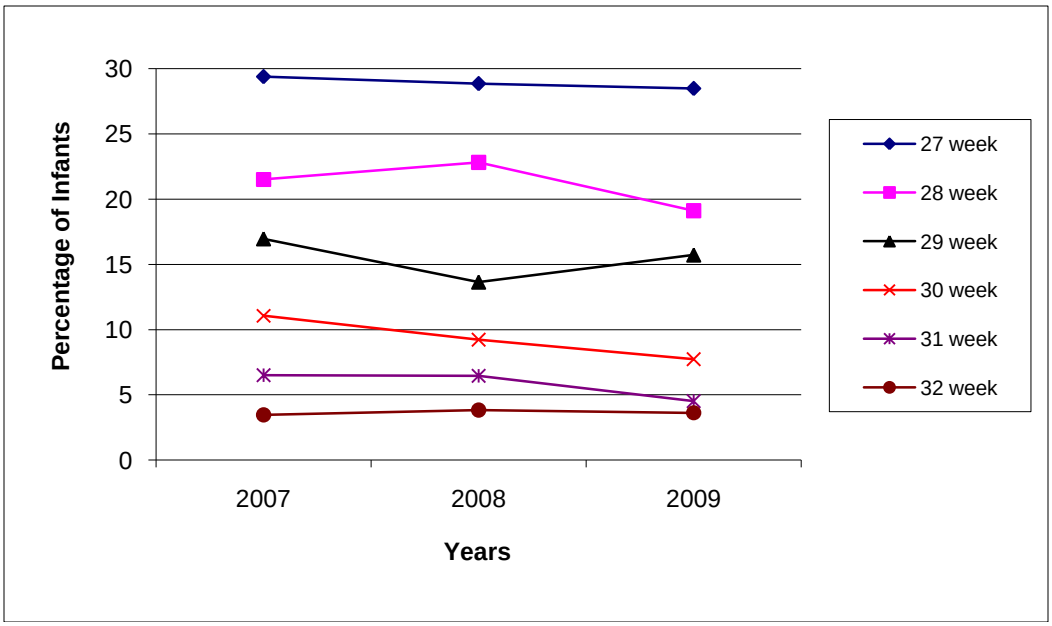


3. Late onset sepsis (with at least one infection) among infants who survived beyond 2 days after birth

a. 23-26 weeks:

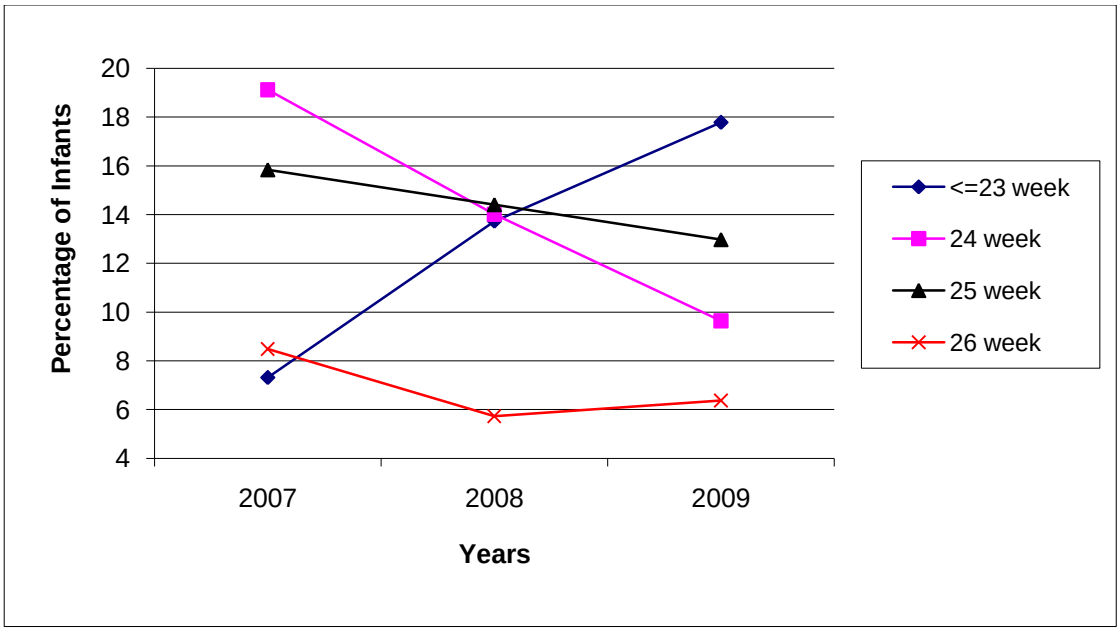


b. 27-32 weeks:

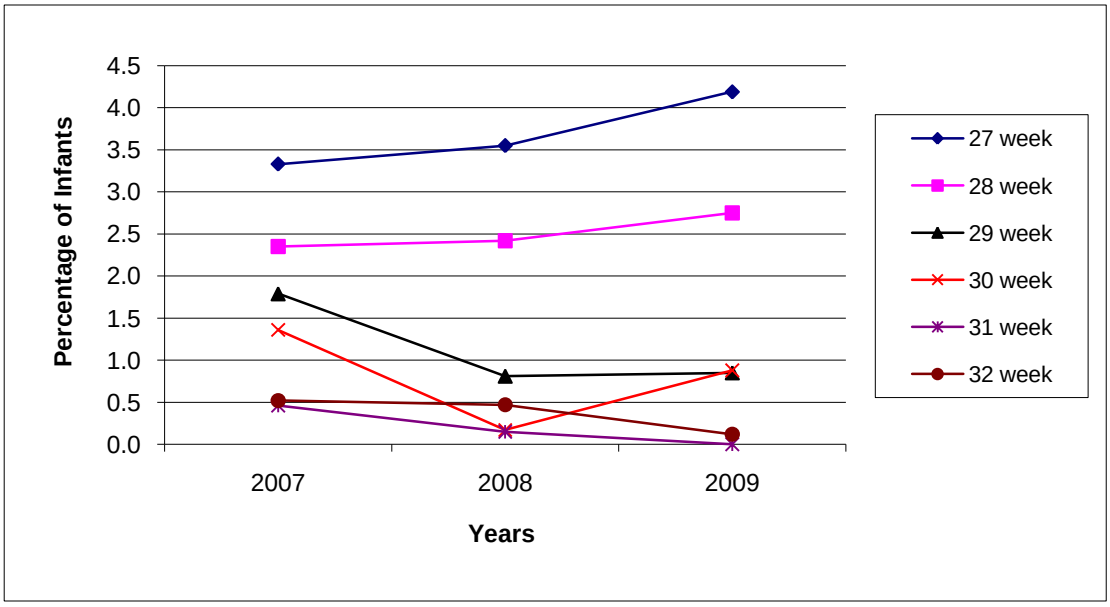


4. Surgical duct ligation for PDA

a. 23-26 weeks:

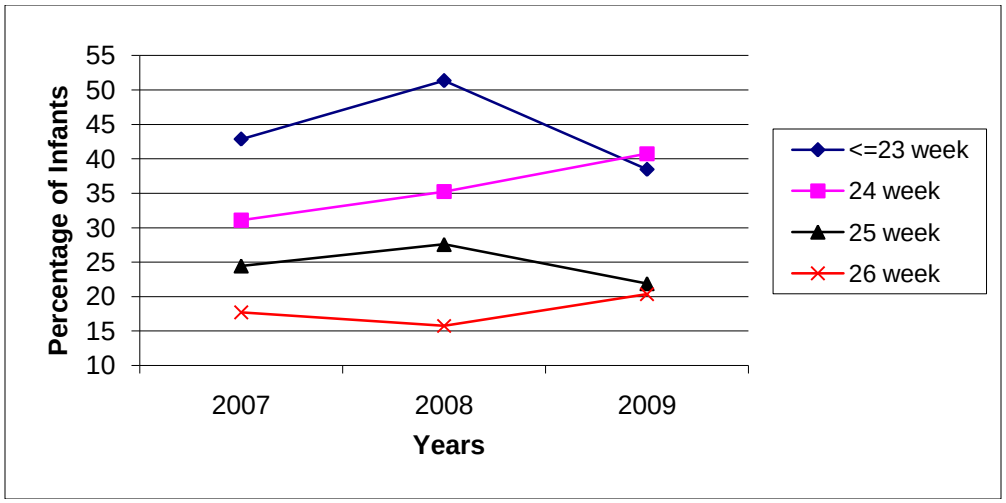


b. 27-32 weeks:

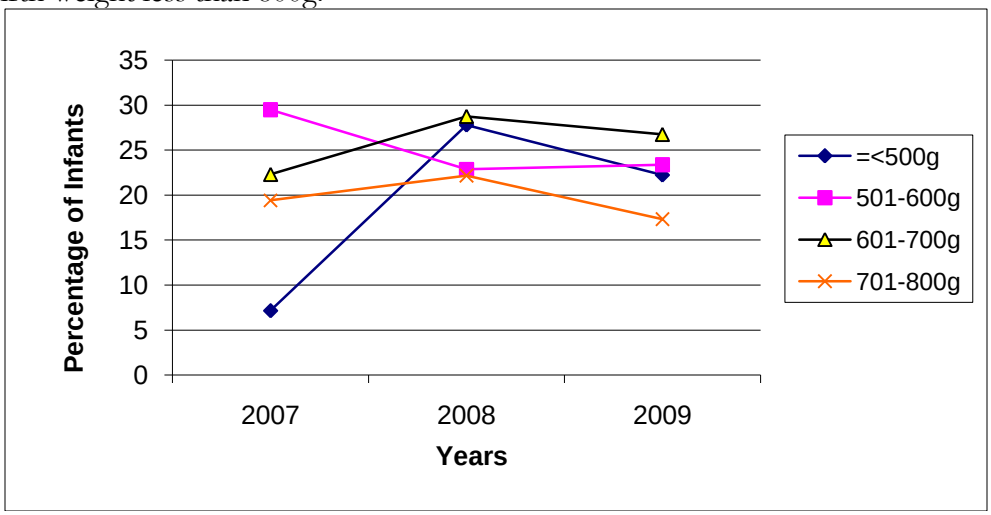


5. Ventricular enlargement: (among infants who received ultrasound exams)

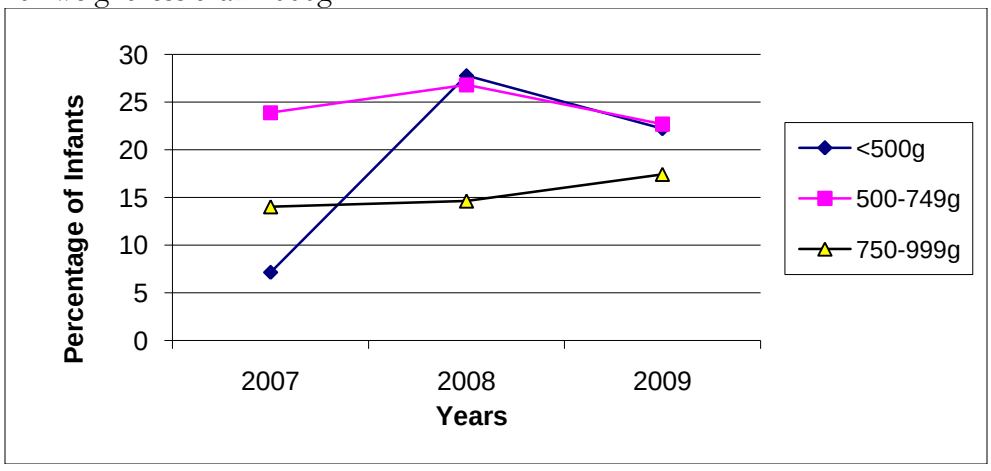
a. 23-26 weeks:



b_1. Birth weight less than 800g:

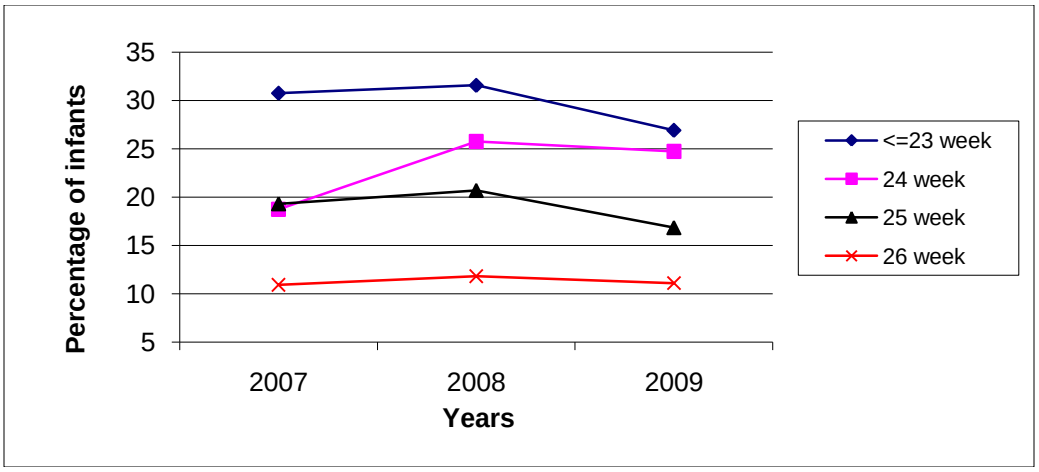


b_2. Birth weight less than 1000g

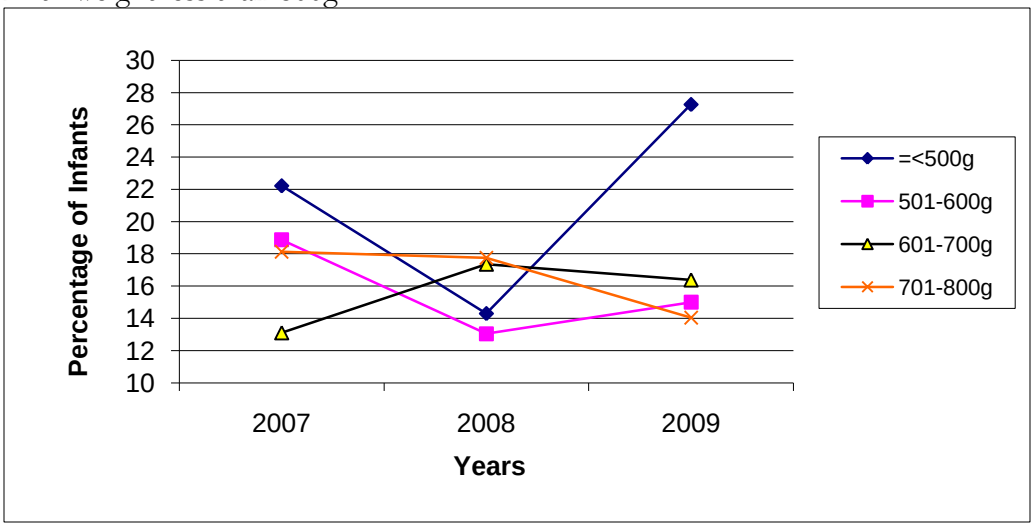


6. Parenchymal echogenicity: (among infants who received ultrasound exams)

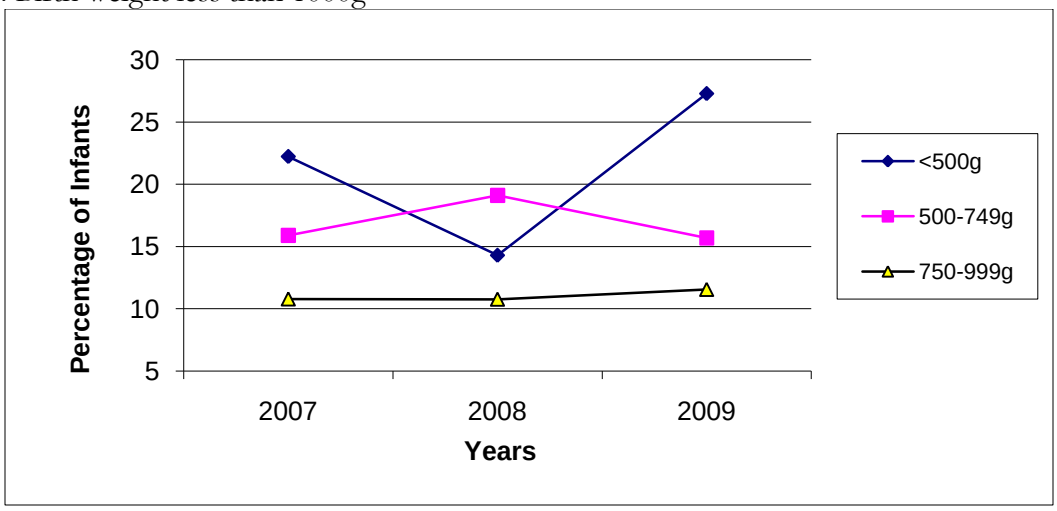
a. 23-26 weeks:



b_1. Birth weight less than 800g:

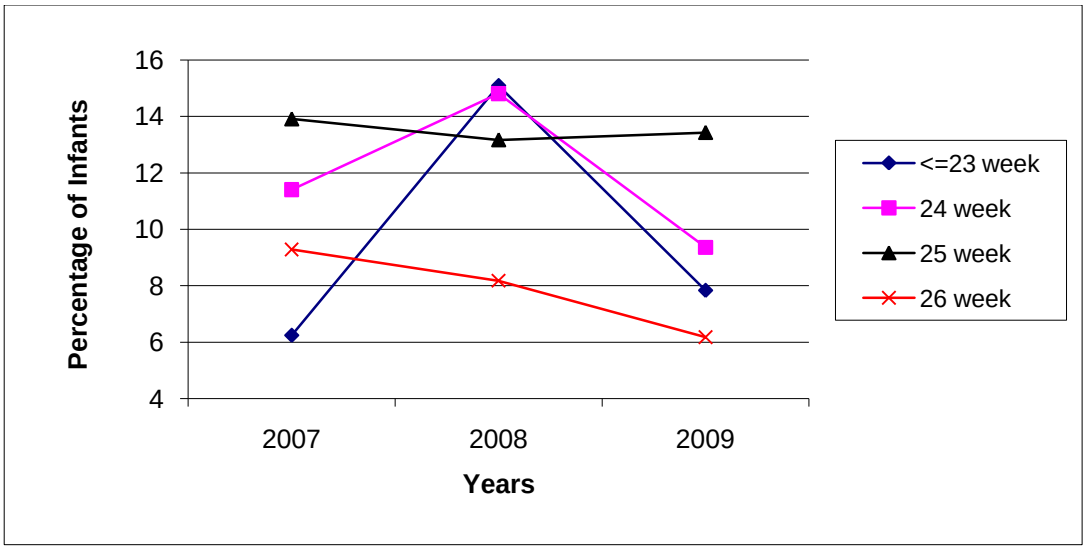


b_2. Birth weight less than 1000g

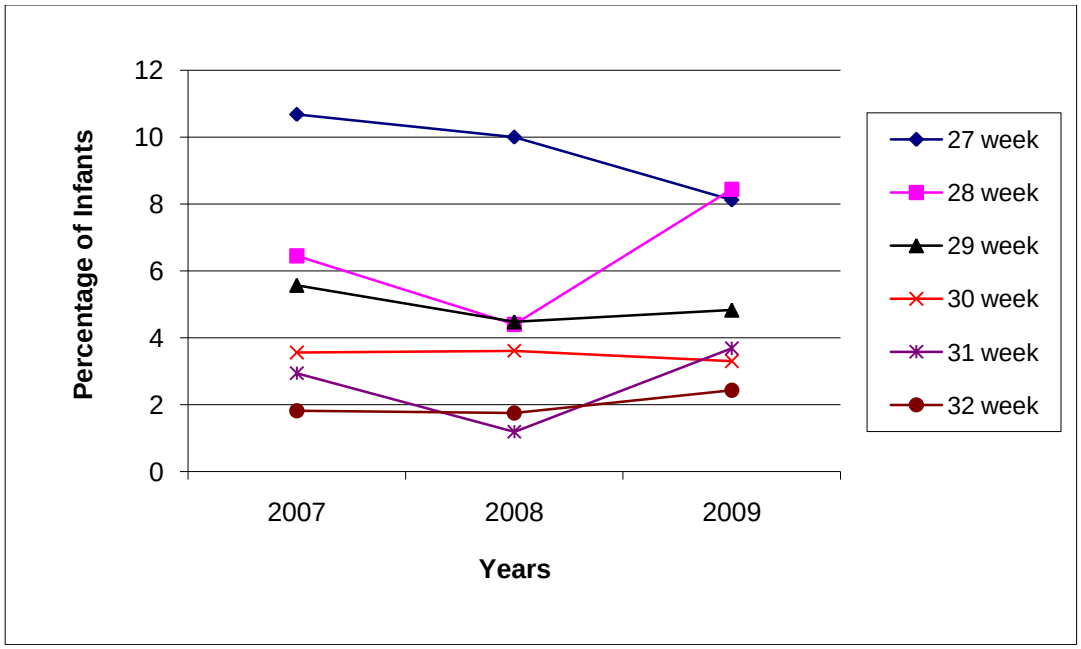


7. NEC:

a. 23-26 weeks:

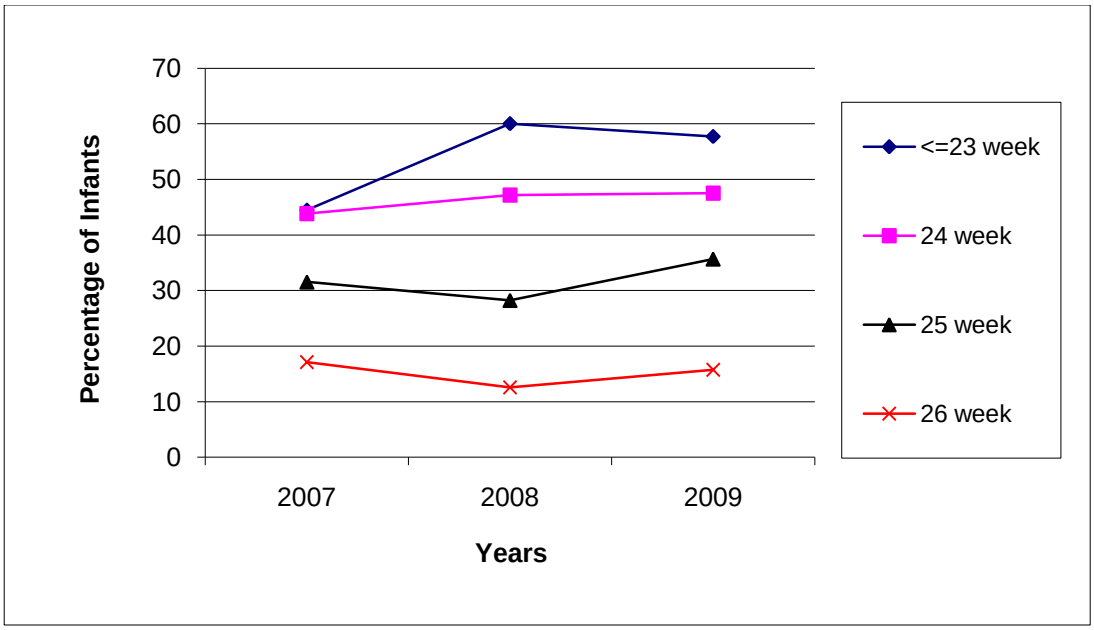


b. 27-32 weeks:

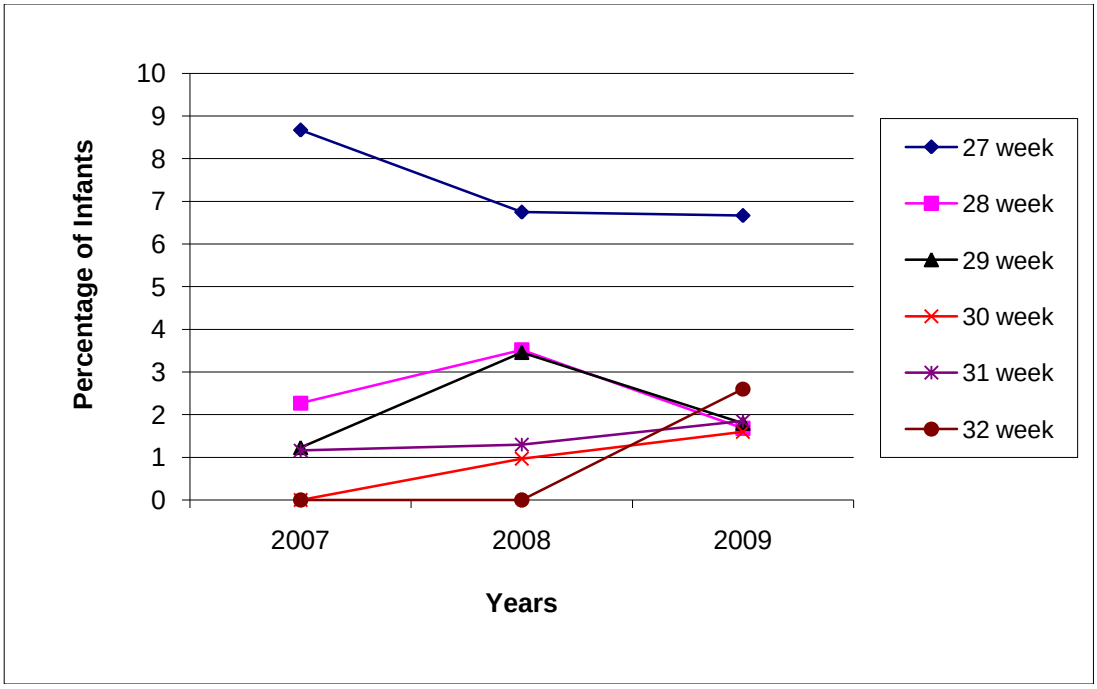


8. Stage 3, 4 and 5 ROP: (among infants who received eye exams)

a. 23-26 weeks:

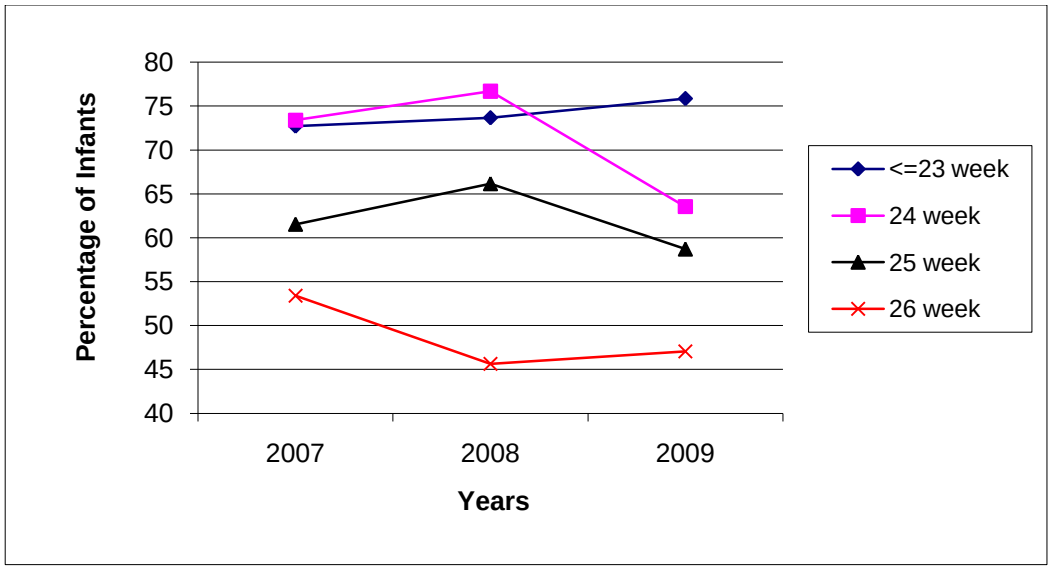


b. 27-32 weeks:

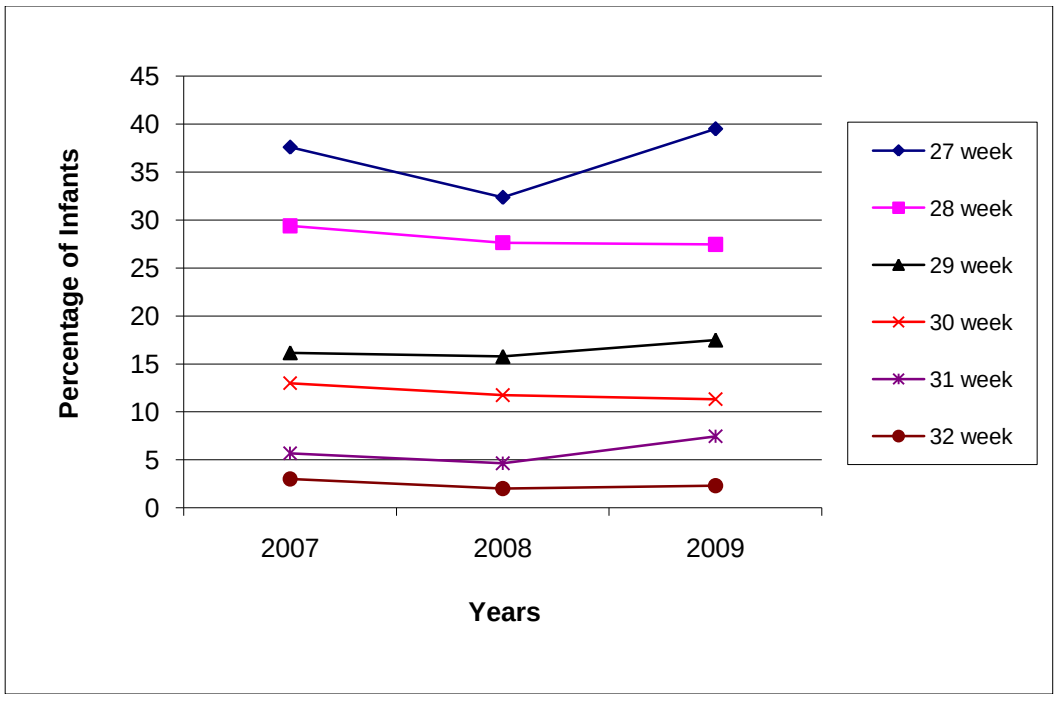


9. Oxygen dependency at 36 weeks (among infants who survived beyond 36 weeks PMA):

a. 23-26 weeks:

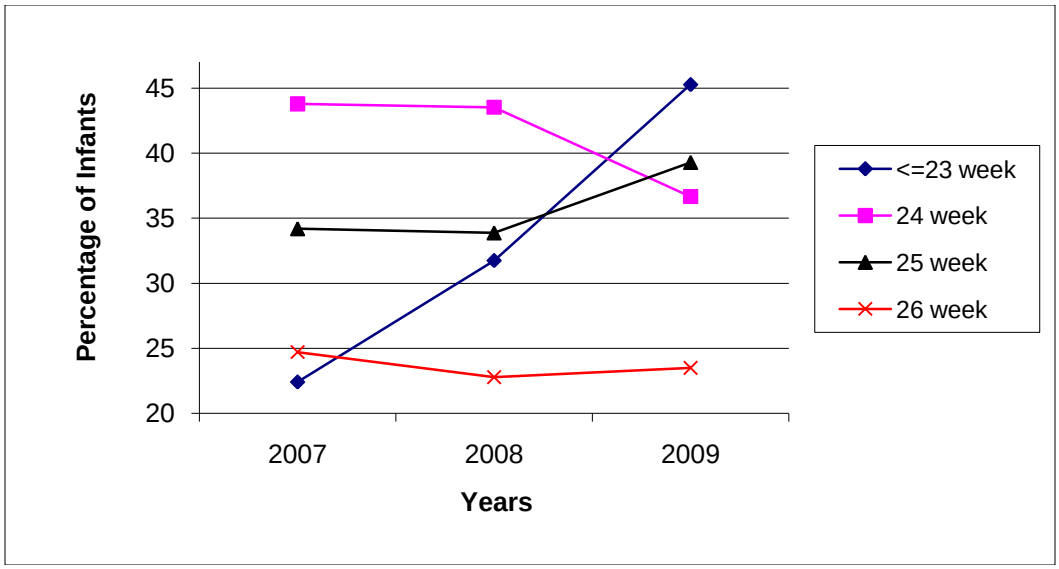


b. 27-32 weeks:

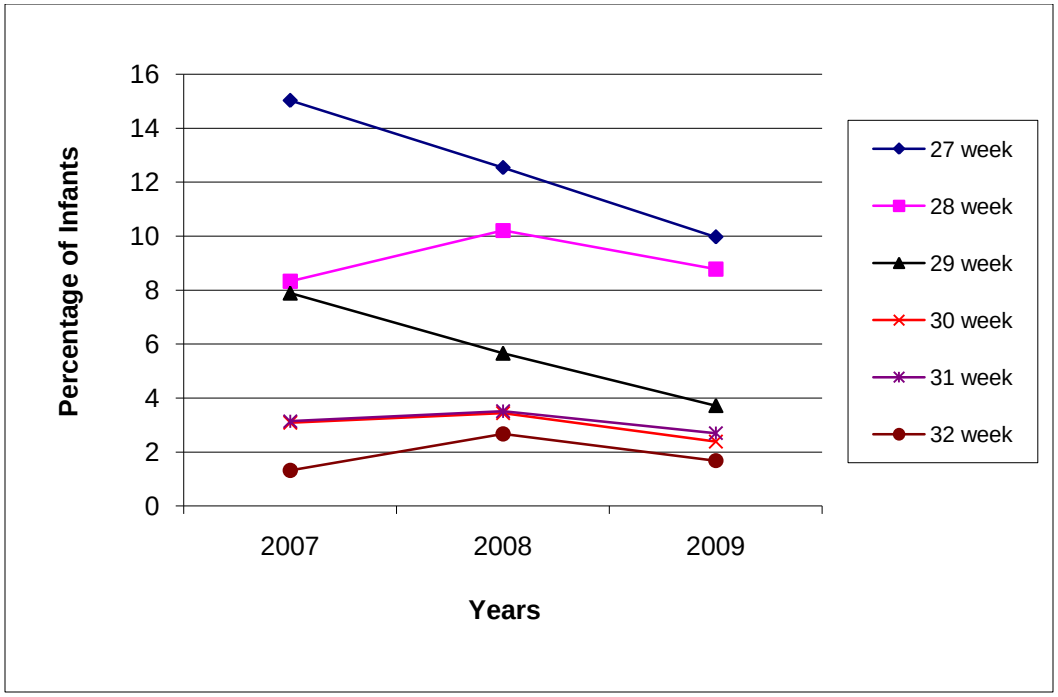


10. Systemic steroids use

a. 23-26 weeks:



b. 27-32 weeks:



I. Conclusions

The Canadian Neonatal Network™ was established in 1995. The number of NICUs participating in the national database has continued to increase, now with 26 sites participating in data collection for this report. Currently (as of September 2010) there are 30 centers participating across the country.

The data demonstrate continuing variations in risk-adjusted outcomes and practices, and provide benchmarking information for Canadian NICUs. Individual hospitals have the opportunity to review their outcomes and launch strategies to make improvements to the care provided.

CNN researchers continue to utilize the database and produce many publications that will have significant impact on neonatal care and policy in Canada and internationally. With the participation of additional NICUs for 2010, we anticipate that the CNN will strive to produce NICU population-based data on outcomes and practices, and apply quality improvement strategies.

J. Future Plans

❖ **Database Improvements**: Major changes have taken place to improve data collection for the CNN database.

> After taking into consideration the input from abstractors and the database review committee, certain variables have been improved, deleted, or added to the database to incorporate changing needs from health care providers, policy makers, researchers and other potential users.

Future objectives include:

- To report on population-based information and follow-up of all infants in a standardized manner by capturing information from hospitals to which infants are transferred.
- To enhance the data management capabilities on both the data server and client applications to facilitate individual hospital analyses of their own data.
- To streamline the data collection process for data integration for the Annual Report.
- To provide multiple options in data capture and management to meet the unique needs of individual sites.

❖ **Expansion of Collaborative Efforts:** The CNN is in the process of establishing collaborative ties with other Neonatal Networks around the world. Results from our network will be compared to those from international networks and potential areas for change/improvement will be sought.

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