

Supplemental Online Content

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This supplemental material has been provided by the authors to give readers additional information about their work.

eTable 1. Characteristics of Surviving Children Born at 22-26 Weeks' Gestational Age Who Were Lost to Follow-up Versus Seen at 22-26 Months' Corrected Age Follow-up

Characteristics	Lost to follow-up	Seen at follow-up ^a	P-value ^b
N	238	2692	
Mother			
Age, y, median (IQR)	28 (23-32)	29 (24-33)	0.04
Education, ^c n/N (%)			0.003
Less than high school	26/199 (13.1)	409/2187 (18.7)	
High school degree	79/199 (39.7)	637/2187 (29.1)	
Trade or technical school or some college	58/199 (29.1)	593/2187 (27.1)	
College degree or more	36/199 (18.1)	548/2187 (25.1)	
Public medical insurance, ^d n/N (%)	142/238 (59.7)	1545/2683 (57.6)	0.58
Ethnicity, n/N (%)			0.17
Hispanic or Latino	30/238 (12.6)	432/2667 (16.2)	
Not Hispanic or Latino	208/238 (87.4)	2235/2667 (83.8)	
Race, n/N (%)			0.04
American Indian or Alaska native	1/234 (0.4)	21/2618 (0.8)	
Asian	14/234 (6.0)	80/2618 (3.1)	
Black	94/234 (40.2)	1113/2618 (42.5)	
More than one race	4/234 (1.7)	35/2618 (1.3)	
Native Hawaiian or other Pacific islander	3/234 (1.3)	8/2618 (0.3)	
White	118/234 (50.4)	1361/2618 (52.0)	
Multiple gestation, n (%)	59 (24.8)	706 (26.2)	0.70
Infant			
Sex, n (%)			1.00
Female	119 (50.0)	1342 (49.9)	
Male	119 (50.0)	1350 (50.1)	
Gestational age, weeks, n/N (%)			0.03
22	0 (0.0)	33 (1.2)	
23	28 (11.8)	307 (11.4)	
24	40 (16.8)	595 (22.1)	
25	65 (27.3)	770 (28.6)	
26	105 (44.1)	987 (36.7)	
Birth weight, g, median (IQR)	780 (645-910)	750 (638-867)	0.01
Small for gestational age, ^e n (%)	10 (4.2)	169 (6.3)	0.26
Major birth defect, ^f n/N (%)	6/238 (2.5)	113/2691 (4.2)	0.30

^a Children seen at the 22-26 months' corrected age follow-up assessment includes those with a visit, regardless of timing or whether all items were completed. A total of 2692 children were seen: 2458 with all information needed to evaluate for neurodevelopmental impairment, 108 children whose visit included a neurologic exam and Bayley developmental exam but some information needed to determine neurodevelopmental impairment was missing, 22 children with an incomplete visit that did not include a neurologic or Bayley exam, and 104 children whose visit was outside the timeframe for inclusion in analysis.

^b P-value by Kruskal-Wallis test (maternal age, birth weight), chi-square test, or Fisher's exact test.

^c Maternal education was assessed at the time of delivery.

^d Public medical insurance may include Medicaid, a state or federally funded program, or insurance obtained through the Affordable Care Act.

^e Small for gestational age was defined as less than the 10th percentile for sex and age based on Alexander percentiles.¹⁷

^f Major birth defect refers to any syndrome and/or major malformation including chromosomal abnormalities, central nervous system defects, congenital heart defects, gastrointestinal defects, genitourinary defects, skeletal dysplasia, cystic adenomatoid malformation, inborn error of metabolism, and other serious or life-threatening birth defects as included in a list in the Manual of Operations.

eTable 2. Death and Neurodevelopmental Impairment at 22-26 Months' Corrected Age in Children Born at 22-26 Weeks' GA, 2013-2016

Variable ^a	22 weeks	23 weeks	24 weeks	25 weeks	26 weeks	22-26 wk, 2013-16
Infants potentially eligible for follow-up at 22-26 months' corrected age, ^b N	357	716	930	1066	1275	4344
Status at follow-up, n (%)						
Died before discharge	323 (90.5)	373 (52.1)	282 (30.3)	224 (21.0)	167 (13.1)	1369 (31.5)
Died after discharge	1 (0.3)	8 (1.1)	13 (1.4)	7 (0.7)	16 (1.3)	45 (1.0)
Lost to follow-up	0 (0.0)	28 (3.9)	40 (4.3)	65 (6.1)	105 (8.2)	238 (5.5)
Seen but visit incomplete or not when expected ^c	2 (0.6)	15 (2.1)	28 (3.0)	37 (3.5)	44 (3.5)	126 (2.9)
Seen and have key form but missing neurodevelopmental impairment	2 (0.6)	8 (1.1)	16 (1.7)	31 (2.9)	51 (4.0)	108 (2.5)
Seen and evaluated for neurodevelopmental impairment	29 (8.1)	284 (39.7)	551 (59.2)	702 (65.9)	892 (70.0)	2458 (56.6)
Surviving children evaluated at follow-up, n/N (%)	31/33 (93.9)	292/335 (87.2)	567/635 (89.3)	733/835 (87.8)	943/1092 (86.4)	2566/2930 (87.6)
Surviving children evaluated for neurodevelopmental impairment, n/N (%)	29/33 (87.9)	284/335 (84.8)	551/635 (86.8)	702/835 (84.1)	892/1092 (81.7)	2458/2930 (83.9)
Infants evaluated for neurodevelopmental impairment ^d , n/N (%)						
No/mild neurodevelopmental impairment	13/29 (44.8)	88/284 (31.0)	219/551 (39.7)	360/702 (51.3)	518/892 (58.1)	1198/2458 (48.7)
Moderate or severe neurodevelopmental impairment	16/29 (55.2)	196/284 (69.0)	332/551 (60.3)	342/702 (48.7)	374/892 (41.9)	1260/2458 (51.3)
Moderate neurodevelopmental impairment	7/29 (24.1)	96/278 (34.5)	163/539 (30.2)	210/695 (30.2)	233/878 (26.5)	709/2419 (29.3)
Severe neurodevelopmental impairment	9/29 (31.0)	94/278 (33.8)	157/539 (29.1)	125/695 (18.0)	127/878 (14.5)	512/2419 (21.2)
Infants who died or were evaluated for neurodevelopmental impairment ^d , n/N (%)						
Died before follow-up	324/353 (91.8)	381/665 (57.3)	295/846 (34.9)	231/933 (24.8)	183/1075 (17.0)	1414/3872 (36.5)
Died before discharge	323/353 (91.5)	373/665 (56.1)	282/846 (33.3)	224/933 (24.0)	167/1075 (15.5)	1369/3872 (35.4)

Variable ^a	22 weeks	23 weeks	24 weeks	25 weeks	26 weeks	22-26 wk, 2013-16
Died after discharge	1/353 (0.3)	8/665 (1.2)	13/846 (1.5)	7/933 (0.8)	16/1075 (1.5)	45/3872 (1.2)
Survived with no or mild neurodevelopmental impairment	13/353 (3.7)	88/665 (13.2)	219/846 (25.9)	360/933 (38.6)	518/1075 (48.2)	1198/3872 (30.9)
Survived with moderate or severe neurodevelopmental impairment	16/353 (4.5)	196/665 (29.5)	332/846 (39.2)	342/933 (36.7)	374/1075 (34.8)	1260/3872 (32.5)
Survived with moderate neurodevelopmental impairment	7/353 (2.0)	96/659 (14.6)	163/834 (19.5)	210/926 (22.7)	233/1061 (22.0)	709/3833 (18.5)
Survived with severe neurodevelopmental impairment	9/353 (2.5)	94/659 (14.3)	157/834 (18.8)	125/926 (13.5)	127/1061 (12.0)	512/3833 (13.4)
Infants actively treated at birth who died or were evaluated for neurodevelopmental impairment ^d , n/N (%)						
Died before follow-up	83/112 (74.1)	287/571 (50.3)	277/828 (33.5)	219/921 (23.8)	176/1068 (16.5)	1042/3500 (29.8)
Died before discharge	82/112 (73.2)	279/571 (48.9)	264/828 (31.9)	212/921 (23.0)	160/1068 (15.0)	997/3500 (28.5)
Died after discharge	1/112 (0.9)	8/571 (1.4)	13/828 (1.6)	7/921 (0.8)	16/1068 (1.5)	45/3500 (1.3)
Survived with no or mild neurodevelopmental impairment	13/112 (11.6)	88/571 (15.4)	219/828 (26.4)	360/921 (39.1)	518/1068 (48.5)	1198/3500 (34.2)
Survived with moderate or severe neurodevelopmental impairment	16/112 (14.3)	196/571 (34.3)	332/828 (40.1)	342/921 (37.1)	374/1068 (35.0)	1260/3500 (36.0)
Survived with moderate neurodevelopmental impairment	7/112 (6.3)	96/565 (17.0)	163/816 (20.0)	210/914 (23.0)	233/1054 (22.1)	709/3461 (20.5)
Survived with severe neurodevelopmental impairment	9/112 (8.0)	94/565 (16.6)	157/816 (19.2)	125/914 (13.7)	127/1054 (12.0)	512/3461 (14.8)

^a Differences in neurodevelopmental impairment by gestational age were significant, adjusted $p < 0.001$, adjusting for study center, SGA, male sex, multiple gestation, maternal race/ethnicity (Black, White, Hispanic, other), and maternal education assessed at the time of delivery (< high school degree, high school degree, > high school degree, unknown).

^b Corrected age represents the age of the child from the expected date of delivery. It is calculated by subtracting the number of weeks born before 40 weeks of gestation from the chronological age.¹⁵

^c 22 children had some follow-up information but lacked key information (child examination, Bayley assessment). The remaining 104 children were seen outside of the expected time for inclusion in analysis, namely, one child was seen at <18 months' corrected age and 103 were seen at >30 months' corrected age.

^d Mild or no neurodevelopmental impairment (NDI) was defined as Bayley-III cognitive composite score ≥ 85 , Bayley-III motor composite score ≥ 85 , and Gross Motor Function Classification System (GMFCS, Palisano²⁵) level 0 or 1. Moderate NDI was defined by any of: Bayley-III cognitive composite score or motor composite score 70-84, GMFCS level 2 or 3. Severe NDI was defined by any of: Bayley-III cognitive composite score or motor composite score <70, GMFCS level 4 or 5, bilateral blindness, or severe hearing impairment. Moderate-to-severe NDI was defined by any of the following: Bayley-III cognitive composite score or motor composite score <85, GMFCS level ≥ 2 with or without CP, bilateral blindness, or severe hearing impairment. For 39 children with moderate-to-severe NDI, specific level of severity could not be determined due to missing data. Thus, the denominator for moderate and severe levels is smaller than the denominator for combined moderate or severe NDI. The Bayley-III is a standardized developmental exam that was performed at the in-person study visit by experienced examiners who were certified annually.

eTable 3. Primary Causes for Hospitalizations Since Discharge in Children Born at 22-26 Weeks' GA, 2013-2016

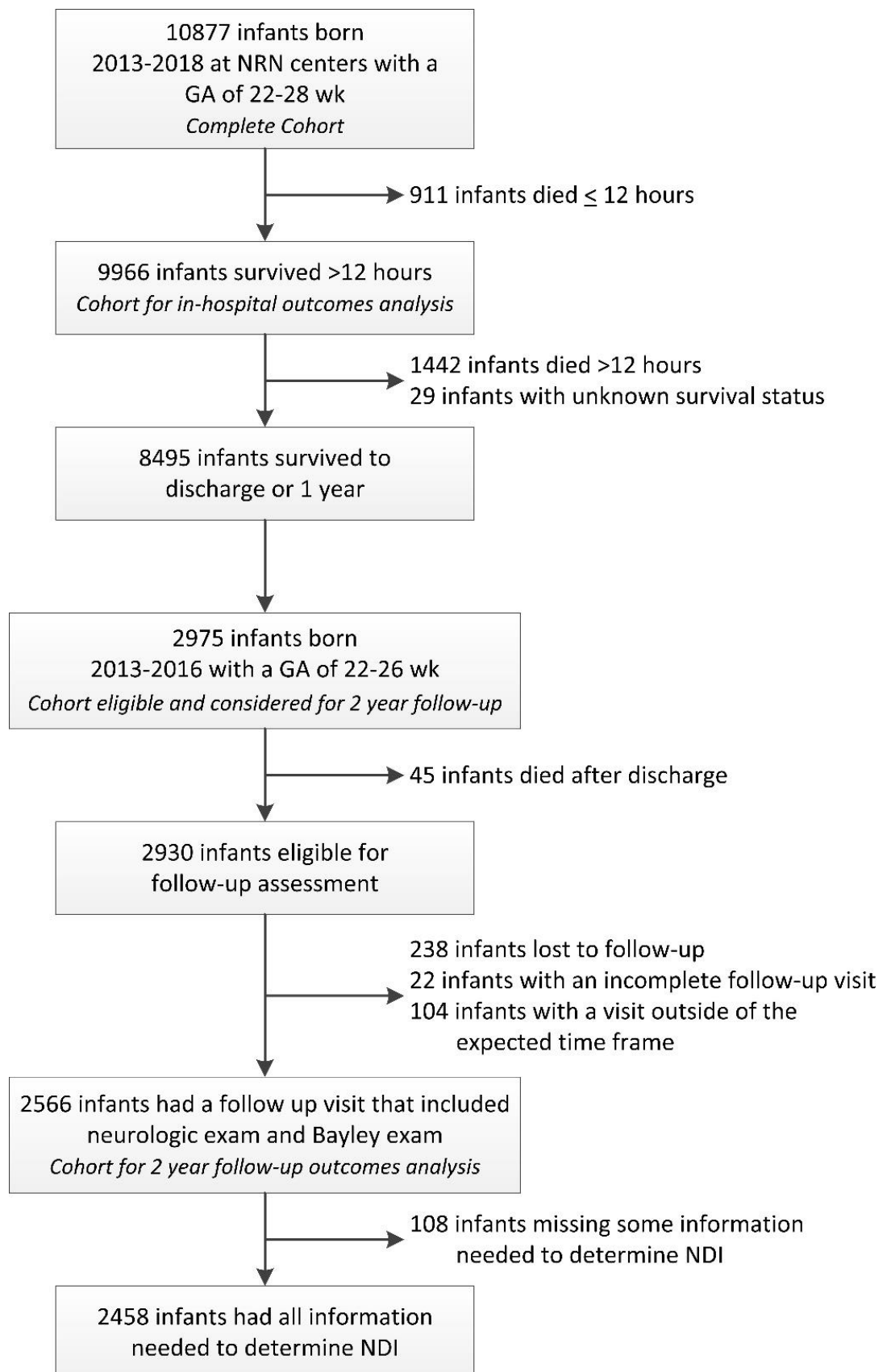
Variable	22 weeks	23 weeks	24 weeks	25 weeks	26 weeks	22-26 weeks
N infants hospitalized since discharge	20	171	311	360	415	1277
N infants hospitalized with non-missing causes	19	171	306	359	413	1268
Total no. of hospitalizations	60	405	745	864	906	2980
Total no. of hospitalizations with non-missing cause	57	405	739	861	902	2964
Primary cause, n (% of total hospitalizations with non-missing cause)						
Respiratory	37 (64.9)	205 (50.6)	418 (56.6)	467 (54.2)	474 (52.5)	1601 (54.0)
Surgery ^a	7 (12.3)	67 (16.5)	99 (13.4)	137 (15.9)	146 (16.2)	456 (15.4)
Infection ^b	7 (12.3)	41 (10.1)	80 (10.8)	59 (6.9)	88 (9.8)	275 (9.3)
Growth and nutrition ^c	2 (3.5)	20 (4.9)	45 (6.1)	48 (5.6)	39 (4.3)	154 (5.2)
Vomiting/diarrhea/dehydration	2 (3.5)	21 (5.2)	21 (2.8)	33 (3.8)	34 (3.8)	111 (3.7)
Reflux ^d	0 (0.0)	1 (0.2)	5 (0.7)	13 (1.5)	5 (0.6)	24 (0.8)
CNS ^e	1 (1.8)	23 (5.7)	25 (3.4)	27 (3.1)	28 (3.1)	104 (3.5)
Apnea/BRUE	0 (0.0)	3 (0.7)	7 (0.9)	12 (1.4)	15 (1.7)	37 (1.2)
Sleep study	0 (0.0)	3 (0.7)	6 (0.8)	11 (1.3)	11 (1.2)	31 (1.0)
Trauma (accidental) ^f	1 (1.8)	4 (1.0)	6 (0.8)	9 (1.0)	15 (1.7)	35 (1.2)
Trauma (non-accidental) ^g	0 (0.0)	0 (0.0)	1 (0.1)	1 (0.1)	4 (0.4)	6 (0.2)
Environmental ^h	0 (0.0)	0 (0.0)	0 (0.0)	2 (0.2)	1 (0.1)	3 (0.1)
Chemotherapy	0 (0.0)	5 (1.2)	0 (0.0)	9 (1.0)	1 (0.1)	15 (0.5)
Other	0 (0.0)	12 (3.0)	26 (3.5)	33 (3.8)	41 (4.5)	112 (3.8)
Any admission due to cause shown, n (% of infants hospitalized with non-missing causes) ⁱ						
Respiratory	15 (78.9)	107 (62.6)	194 (63.4)	216 (60.2)	262 (63.4)	794 (62.6)
Surgery ^a	6 (31.6)	52 (30.4)	87 (28.4)	114 (31.8)	108 (26.2)	367 (28.9)
Infection ^b	5 (26.3)	31 (18.1)	53 (17.3)	50 (13.9)	56 (13.6)	195 (15.4)
Growth and nutrition ^c	2 (10.5)	14 (8.2)	35 (11.4)	32 (8.9)	33 (8.0)	116 (9.1)
Vomiting/diarrhea/dehydration	2 (10.5)	12 (7.0)	18 (5.9)	25 (7.0)	22 (5.3)	79 (6.2)
Reflux ^d	0 (0.0)	1 (0.6)	5 (1.6)	12 (3.3)	5 (1.2)	23 (1.8)
CNS ^e	1 (5.3)	18 (10.5)	17 (5.6)	19 (5.3)	17 (4.1)	72 (5.7)
Apnea/BRUE	0 (0.0)	3 (1.8)	7 (2.3)	12 (3.3)	15 (3.6)	37 (2.9)
Sleep study	0 (0.0)	2 (1.2)	6 (2.0)	11 (3.1)	9 (2.2)	28 (2.2)
Trauma (accidental) ^f	1 (5.3)	4 (2.3)	6 (2.0)	8 (2.2)	12 (2.9)	31 (2.4)
Trauma (non-accidental) ^g	0 (0.0)	0 (0.0)	1 (0.3)	1 (0.3)	2 (0.5)	4 (0.3)
Environmental ^h	0 (0.0)	0 (0.0)	0 (0.0)	2 (0.6)	1 (0.2)	3 (0.2)

Variable	22 weeks	23 weeks	24 weeks	25 weeks	26 weeks	22-26 weeks
Chemotherapy	0 (0.0)	1 (0.6)	0 (0.0)	1 (0.3)	1 (0.2)	3 (0.2)
Other	0 (0.0)	12 (7.0)	25 (8.2)	26 (7.2)	31 (7.5)	94 (7.4)

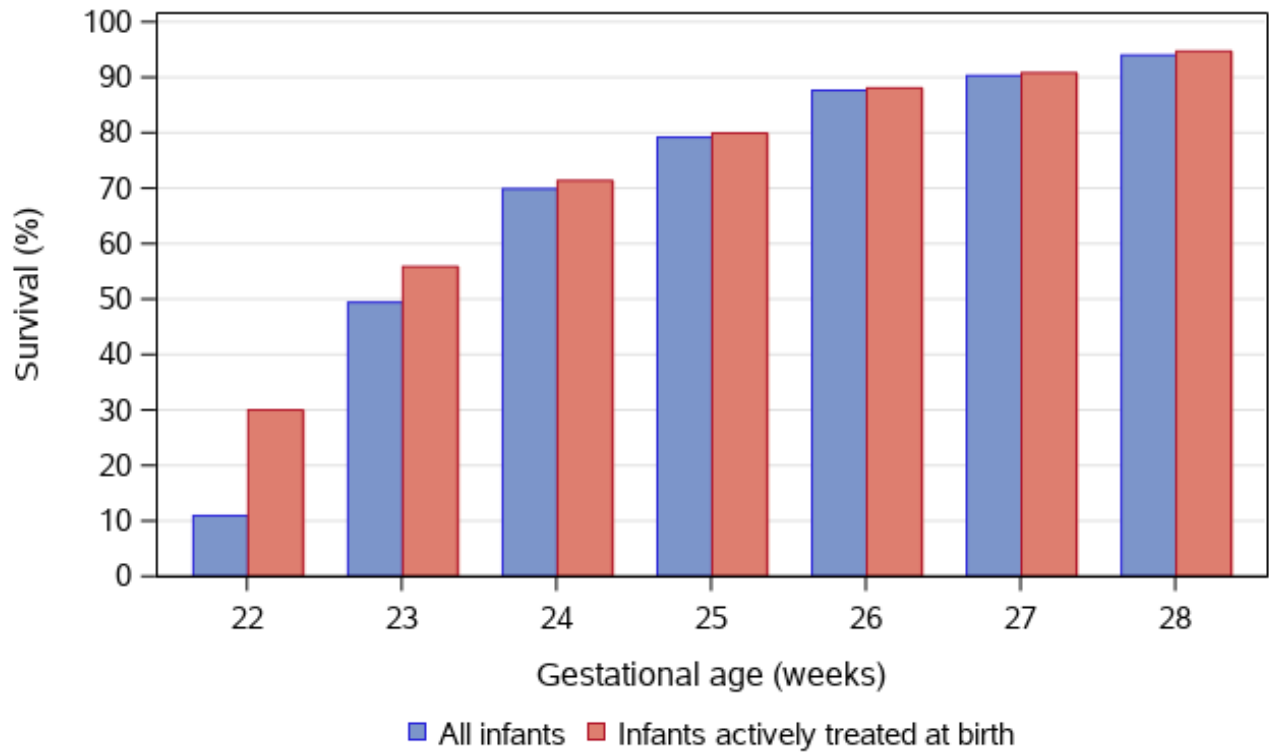
CNS, central nervous system; BRUE, brief resolved unexplained event.

- ^a Includes tracheostomy, gastrostomy, tympanostomy, interventions for retinopathy of prematurity, and other surgical procedures.
- ^b Includes sepsis, meningitis, pneumonia, fever, shunt infection, ear infection, upper respiratory infection (URI), respiratory syncytial virus (RSV).
- ^c Includes poor growth, failure to thrive.
- ^d Admissions associated with gastroesophageal reflux disease (GERD).
- ^e Includes seizures, shunt malfunction.
- ^f Includes fractures, head injury, burns and lacerations requiring suturing.
- ^g Includes trauma resulting from abuse, neglect.
- ^h Includes accidental ingestion of toxic or potentially toxic substances, abuse, neglect.
- ⁱ Children may have been hospitalized for the same or different reasons across multiple admissions. Therefore, numerator counts of any cause do not add to the number of children

eFigure 1. Participant Flow Diagram

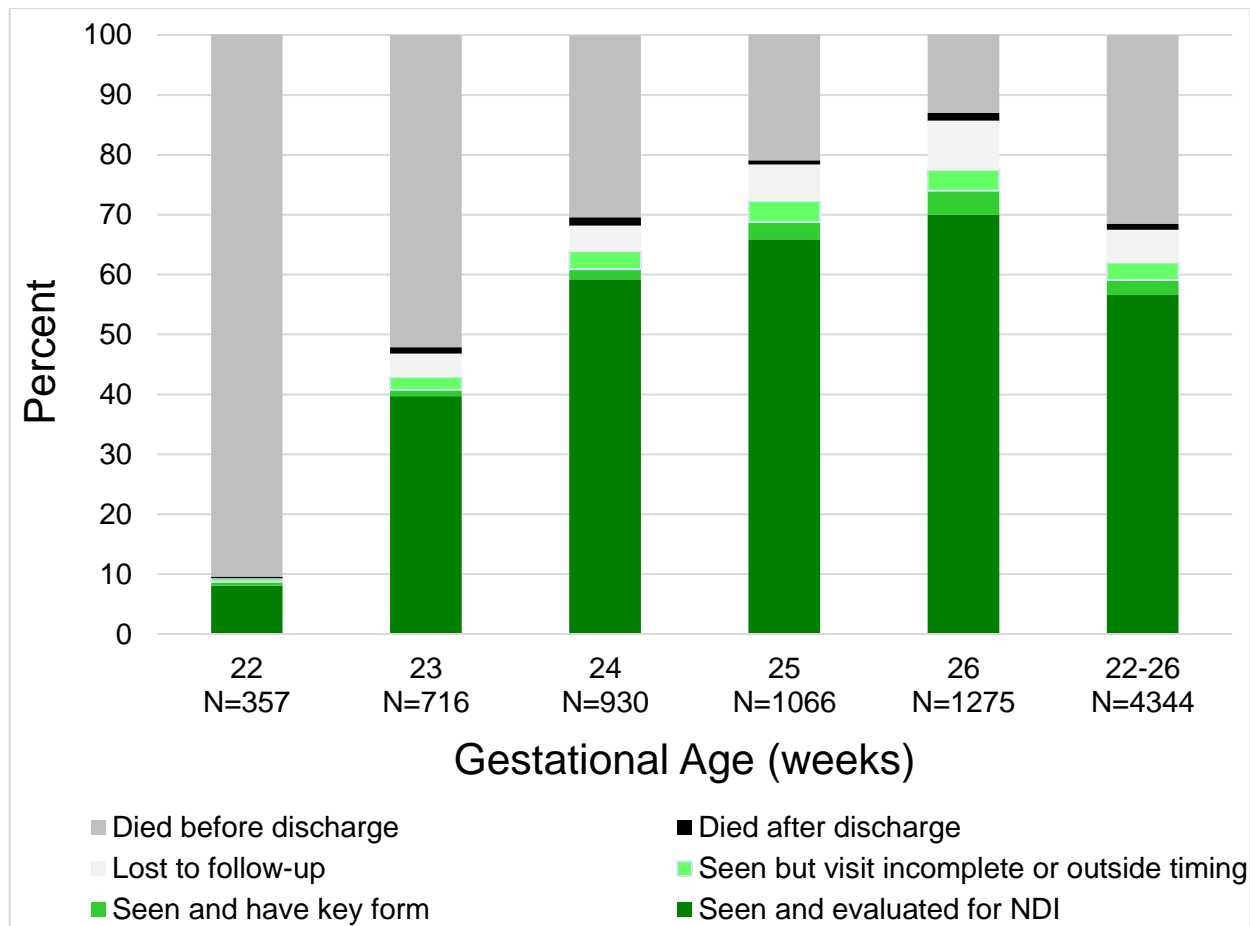


eFigure 2. Proportion of Infants Who Survived to Discharge or 1 Year by Gestational Age at Birth



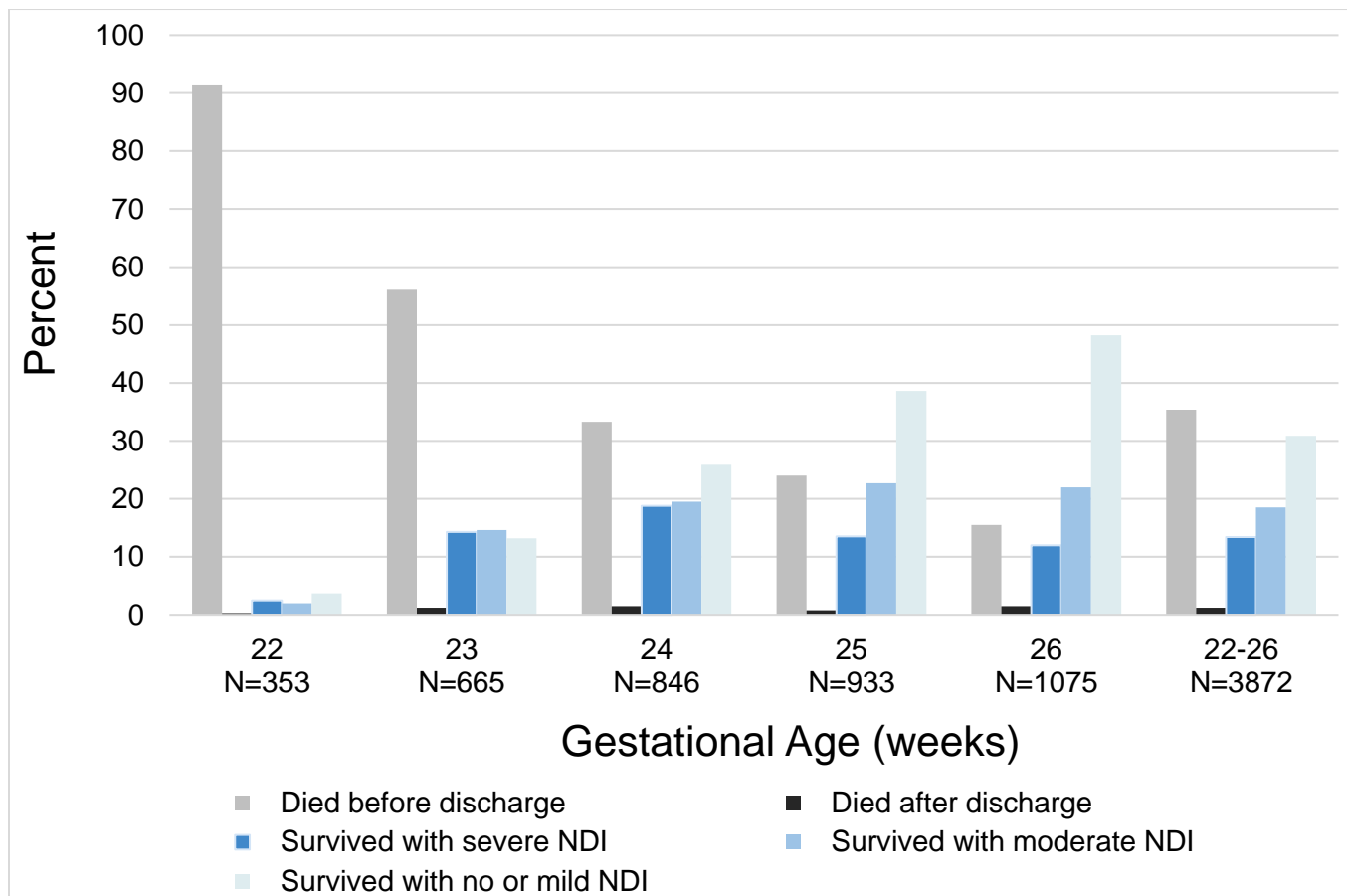
eFigure 3. Status at 22-26 Months' Corrected Age for 4344 Children Born at 22-26 Weeks' Gestational Age Who Were Eligible for a Follow-up Assessment

NDI=neurodevelopmental impairment. Areas in green represent all children who were seen at follow-up. Overall, 2458 children had all information necessary to evaluate for NDI. An additional 108 children had key forms (child exam and Bayley assessment) but lacked some information to evaluate for NDI. "Seen but visit incomplete or outside timing" includes 22 children who were seen at follow-up but lacked key forms and 104 children who were seen outside of the window allowed for inclusion in analysis, namely one child who was seen at <18 months' corrected age and 103 who were seen at >30 months' corrected age.



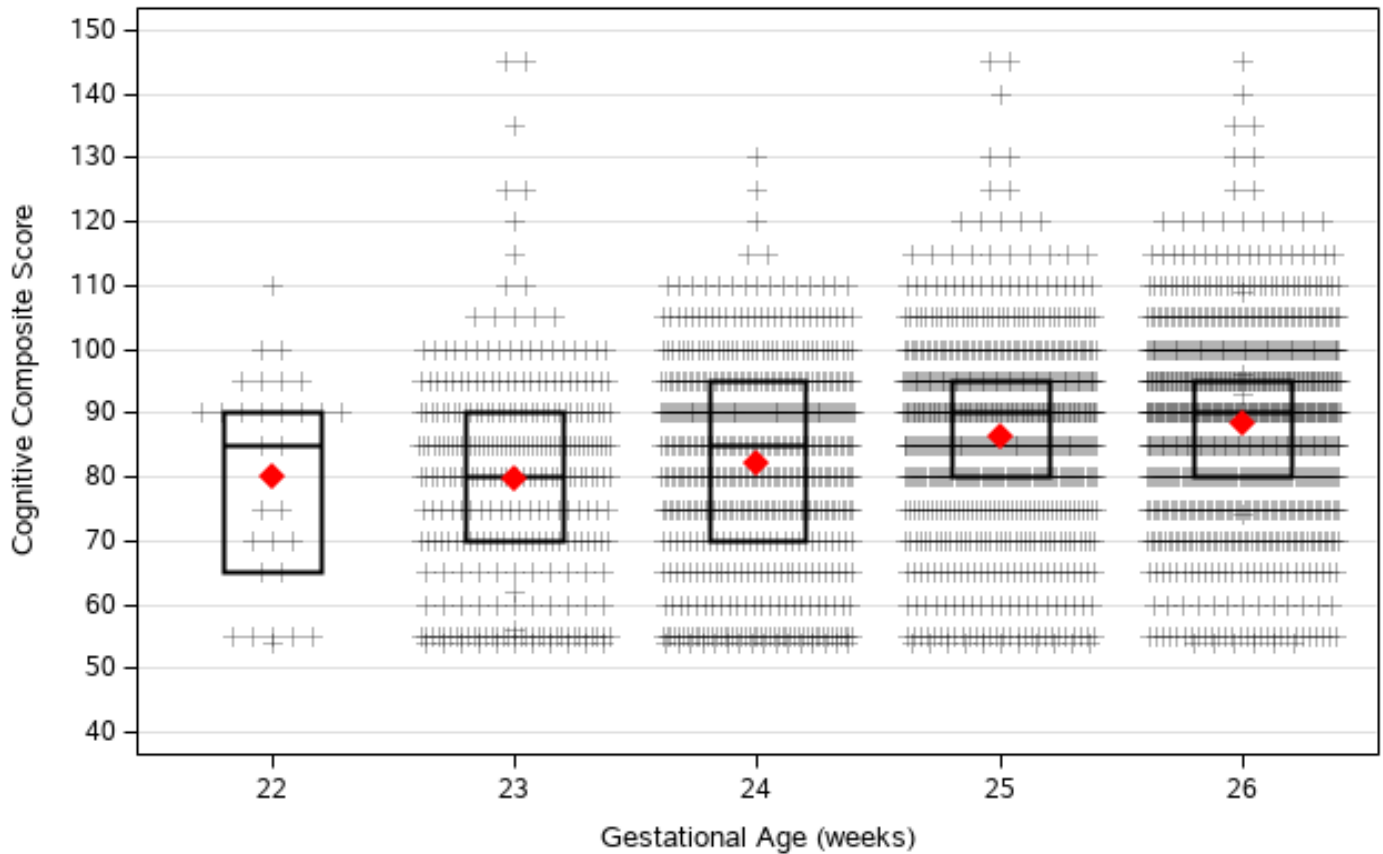
eFigure 4. Death and Neurodevelopmental Impairment at 22-26 Months' Corrected Age in Children Born at 22-26 Weeks' Gestational Age

NDI=neurodevelopmental impairment. Children born at 22-26 weeks' gestational age were eligible for a follow-up assessment at 22-26 months' corrected age. Proportions are shown for the 3872 children who had died by 22-26 months' corrected age or were seen at follow-up and evaluated for neurodevelopmental impairment. Children who were actively treated at birth and those who were not actively treated at birth are included.



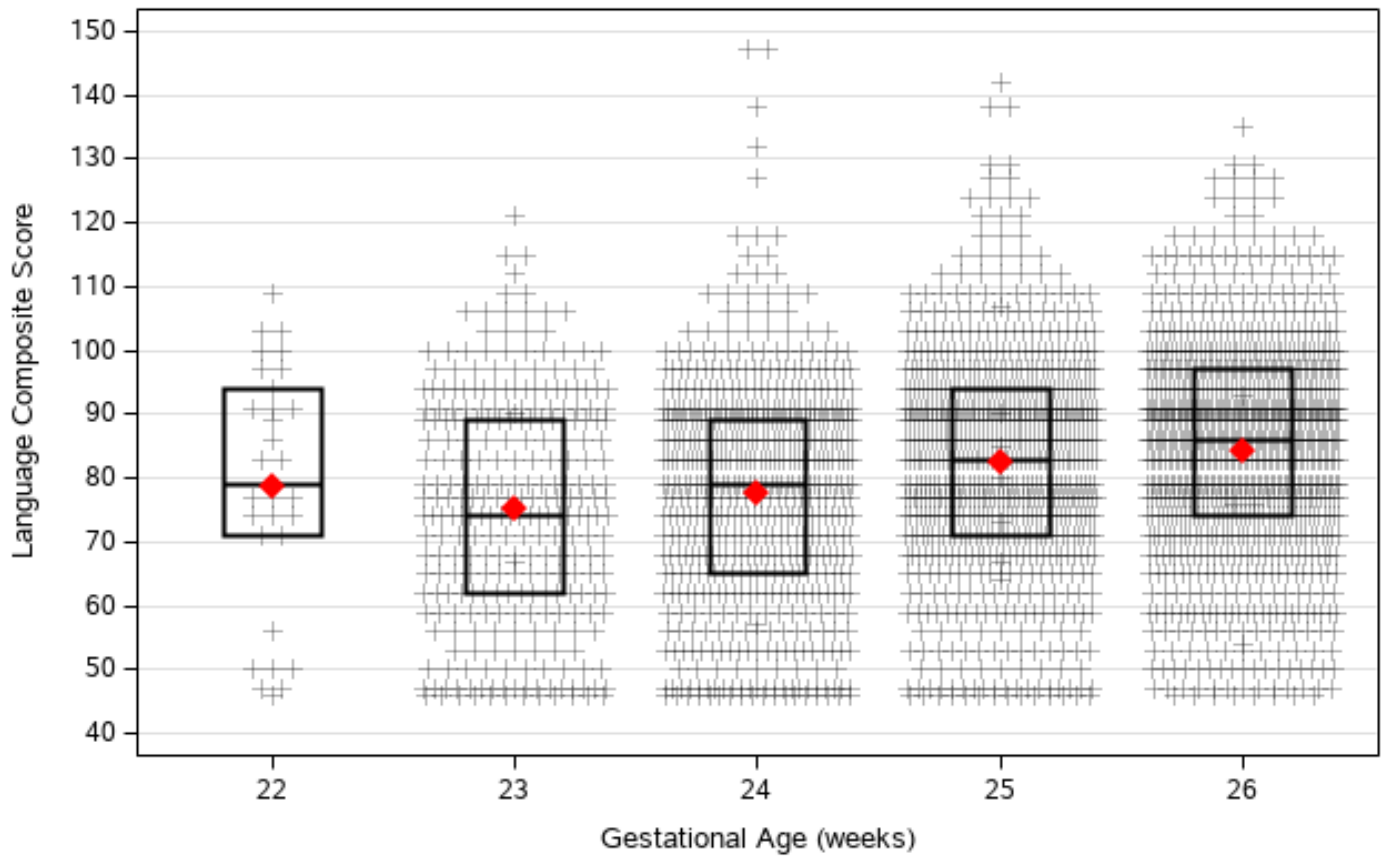
eFigure 5. Bayley-III Cognitive Composite Scores by Gestational Age at Birth

The red diamond shows the mean. The bottom line of the box shows the 25th percentile, the middle line shows the median, and the top line shows the 75th percentile. The crosses indicate individual scores.



eFigure 6. Bayley-III Language Composite Scores by Gestational Age at Birth

The red diamond shows the mean. The bottom line of the box shows the 25th percentile, the middle line shows the median, and the top line shows the 75th percentile. The crosses indicate individual scores.



eFigure 7. Bayley-III Motor Composite Scores by Gestational Age at Birth

The red diamond shows the mean. The bottom line of the box shows the 25th percentile, the middle line shows the median, and the top line shows the 75th percentile. The crosses indicate individual scores.

