Supplementary Table S1. Sample characteristics of the full cohort (N = 98)

	n (%) or median (25%, 75%)
Sex	
Female	42 (42.9)
Male	56 (57.1)
Race	
Asian	6 (6.3)
Black or African American	11 (11.6)
More than one race	4 (4.2)
White	74 (77.9)
(Unknown)	3
Hispanic ethnicity	
Yes	8 (8.2)
No	90 (91.8)
Insurance type	
Private	55 (58.5)
Public	39 (41.5)
(Unknown)	4
Prenatal diagnosis	
Yes	69 (70.4)
No	29 (29.6)
Preterm (32–37 weeks)	
Yes	20 (20.4)
No	78 (79.6)
Gestational age (weeks)	38 (37, 39)
Major genetic diagnosis[a]	
Yes	21 (21.4)
No	77 (78.6)
Birth weight z-score	-0.11 (-0.91, 0.54)
Birth height z-score	-0.23 (-0.99, 0.99)
Birth OFC z-score	-0.18 (-1.11, 0.36)
Cardiac diagnosis	
SV with arch obstruction	4 (4.2)
SV without arch obstruction	7 (7.4)
BiV with arch obstruction	30 (31.6)
BiV without arch obstruction	54 (56.8)
(Unknown)	3
Higher-risk cardiac diagnosis[b]	
Yes	34 (34.7)
No	64 (65.3)
PGE dependent	
Yes	56 (57.7)
No	41 (42.3)
(Unknown)	1
Number of surgeries	2 (1, 3)
Age at first surgery/intervention (days)	13 (6, 87)
(Unknown)	1
ECMO use	

Yes	6 (6.2)
No	91 (93.8)
(Unknown)	1
Mechanical ventilation postop (days)	2 (1, 4)
(Unknown)	1
Initial surgical hospital length of stay (days)	28 (15, 50)
Weight z-score at discharge	-1.13 (-1.97, -0.22)
Height z-score at discharge	-0.80 (-1.60, 0.26)
(Unknown)	3
OFC z-score at discharge	-0.85 (-1.84, -0.10)
(Unknown)	4
Exclusive human milk feeding while inpatient (first 6 months of life)	
Yes	22 (22.4)
No	76 (77.6)
Any direct breastfeeding while inpatient	
Yes	32 (32.7)
No	66 (67.3)

Abbreviations: BiV = biventricular; ECMO = extracorporeal membrane oxygenation; OFC = Occipital frontal circumference; PGE = Prostaglandin E1; SV = single ventricle

[a]Major genetic diagnoses with potential to impact neurodevelopment included Trisomy 21, 22q11.2 deletion syndrome, Turner syndrome, 15q13.3 microdeletion syndrome, Alagille Syndrome, VACTERL association, and PRR12-related malformation syndrome.

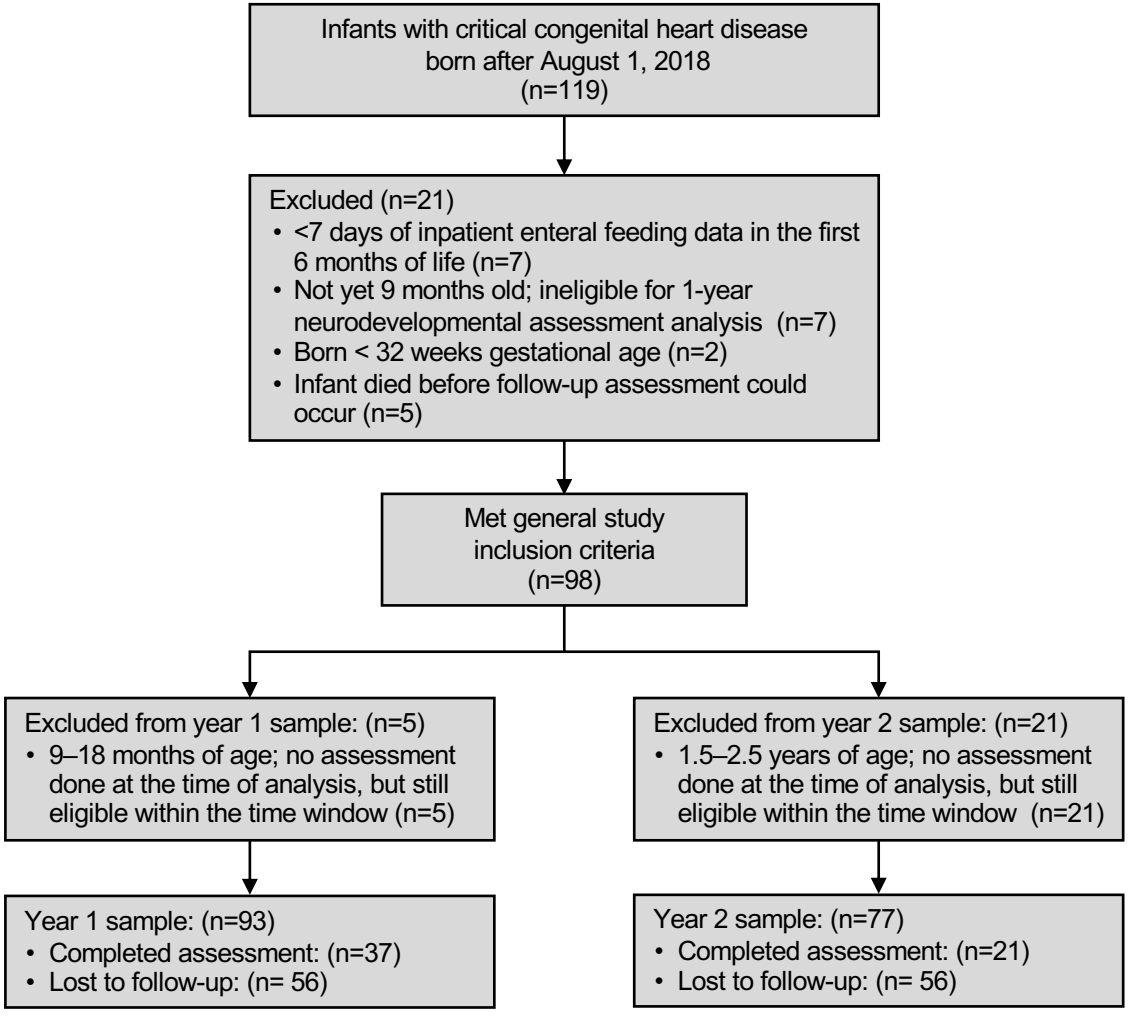
[b]Diagnoses with potential higher risk for poor neurodevelopmental outcomes included single ventricle physiology, Tetralogy of Fallot, and Transposition of the Great Arteries.

Supplementary Table S2. Differences in covariates between feeding groups at the 1-year follow up-time point (N=37)

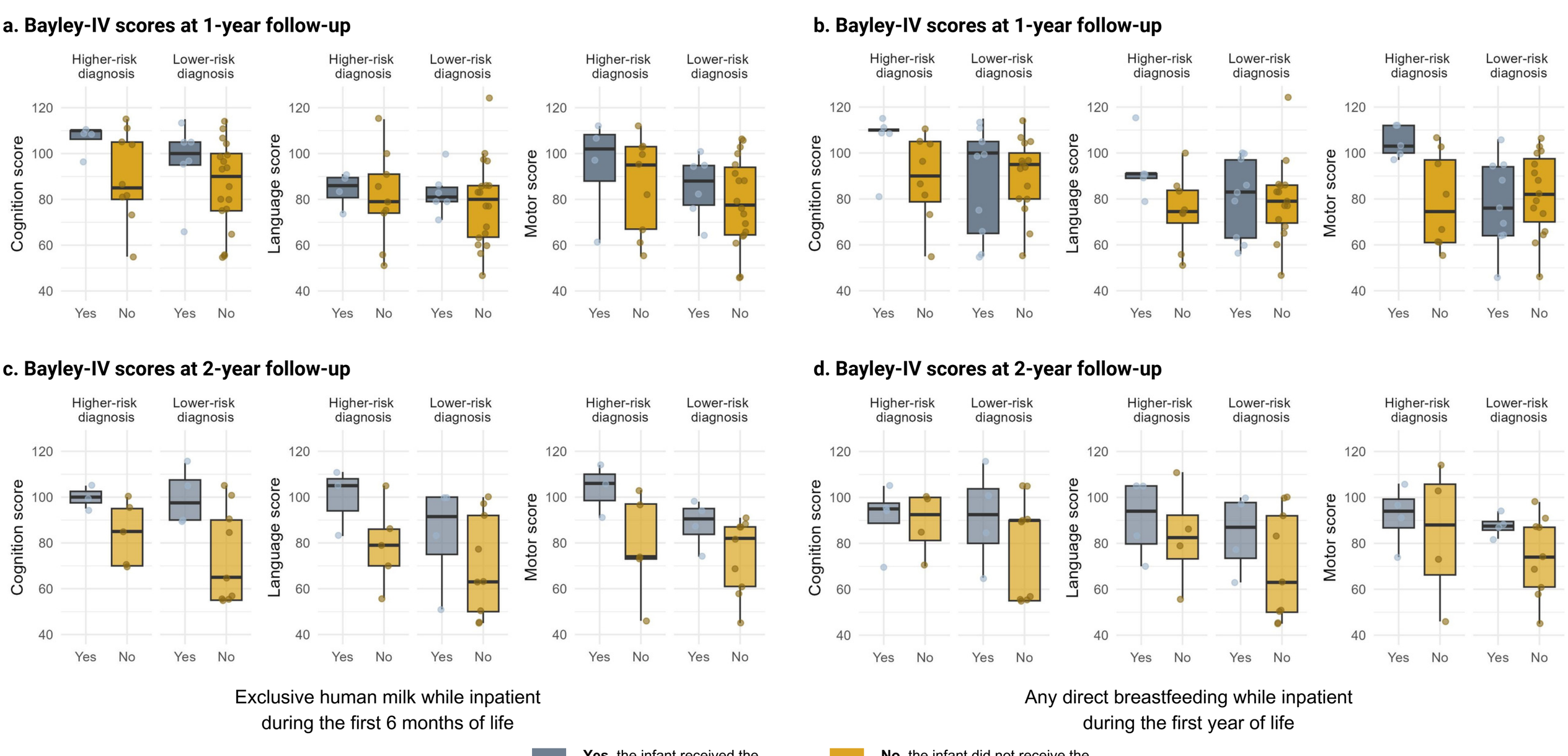
	Exclusive HM while inpatient during the first 6 months of life			Any BF while inpatient during the first year of life		
	Yes n = 10	**No** n = 27	**SMD**	**Yes** n = 14	**No** n = 23	**SMD**
	n (%) or mean (SD)			**n (%) or mean (SD)**		
Race			0.45			0.25
BIPOC	1 (13)	7 (88)		4 (50)	4 (50)	
White	9 (32)	19 (68)		10 (36)	18 (64)	
Insurance type			0.25			0.58
Private	6 (26)	17 (74)		8 (35)	15 (65)	
Public	3 (25)	9 (75)		4 (33)	8 (67)	
None or Unknown	1 (50)	1 (50)		2 (100)	0 (0.0)	
Preterm (32–37 weeks)			0.60			0.46
Yes	5 (46)	6 (55)		6 (55)	5 (46)	
No	5 (19)	21 (81)		8 (31)	18 (69)	
Major genetic diagnosis[a]			0.42			0.55
Yes	1 (13)	7 (88)		5 (63)	3 (38)	
No	9 (31)	20 (69)		9 (31)	20 (69)	
Higher-risk cardiac diagnosis[b]			0.14			0.02
Yes	4 (31)	9 (69)		5 (39)	8 (62)	
No	6 (25)	18 (75)		9 (38)	15 (63)	
Number of surgeries	1.60 (0.84)	3.37 (2.31)	-0.90	2.93 (1.44)	2.87 (2.53)	0.03
Initial surgical hospital length of stay (days)	27 (16)	55 (74)	-0.54	35 (18)	55 (81)	-0.36

Abbreviations: BIPOC = Black, Indigenous, or person of color; SMD = standardized mean difference; SV = single ventricle
[a]Major genetic syndromes with the potential to impact neurodevelopment included Trisomy 21, 22q11.2 deletion syndrome, Turner syndrome, 15q13.3 microdeletion syndrome, Alagille Syndrome, VACTERL association, or PRR12-related malformation syndrome.
[b]Diagnoses with potential higher risk for poor neurodevelopmental outcomes included single ventricle physiology, Tetralogy of Fallot, and Transposition of the Great Arteries.

Supplementary Figure S1. Flow diagram for study inclusion and exclusion



Supplementary Figure S2. Bayley Scales of Infant and Toddler Development-IV scores at 1-year and 2-year follow-up, compared by exclusive human milk feeding while inpatient during the first 6 months of life and by any direct breastfeeding while inpatient during the first year of life, and stratified by higher-risk cardiac diagnosis



Supplementary Figure S3. Each panel visualizes an individual infant's enteral nutrition during hospitalization(s) in the first year of life, arranged by Bayley-IV domain scores (low to high) at 1 year of age (n=37)