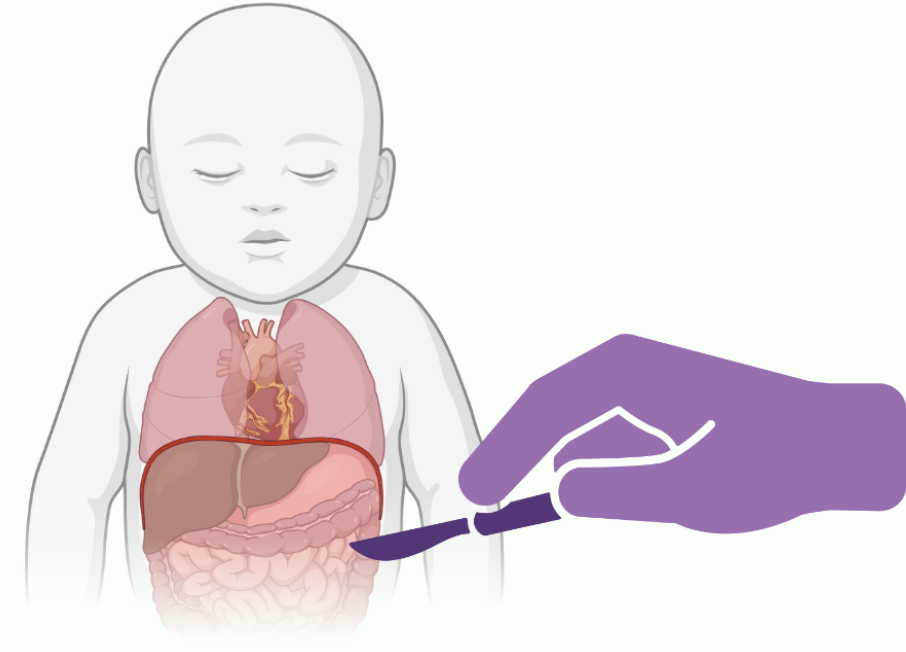


BACKGROUND

- Necrotizing enterocolitis (NEC) is a common cause of mortality for premature neonates.^{1,2}
- Management of NEC ranges from antibiotics and bowel rest to surgical drainage/resection.³⁻⁵
- A NEC diagnosis increases the child's risk of neurodevelopmental delay.⁶
- The association between the length of hospital stay (LOS) and surgically managed NEC patients' neurodevelopmental outcomes is unclear.



METHODS

- A retrospective chart review was performed of 30 premature neonates with surgically managed necrotizing enterocolitis.
- Neurodevelopmental outcomes were assessed by utilizing scores from the Bayley-III Scales of Infant and Toddler Development.
- Lower Bayley-III scores predict poorer neurodevelopmental outcomes.

COHORT DATA AND RESULTS

Demographics	Percentage	Cohort Data	Mean	Range
N=30		Gestational Age in Weeks	26.10	23-33
Sex (%)		Gestational Age in Days	1.65	0-6
Males (%)	63.3%	1 Minute APGAR	2.83	1.0-7.0
Females (%)	36.7%	5 Minute APGAR	5.17	1.0-9.0
Race (%)		Weight at NEC Diagnosis	937.17	440-1600
Black/African-American	66.7%	Age at NEC Diagnosis	17.53	1.0-44.0
White	26.7%	Length of Hospital Stay (Days)	103	8-238
Asian	0.0%	Bayley-III Score	79.42	46-107
Native American	0.0%			
Pacific Islander	0.0%			
Other	6.7%			
Ethnicity				
Hispanic	6.7%			
Non-Hispanic	90.0%			
Death During Initial Hospitalization				
Yes	40.0%			
No	60.0%			
Death Beyond Initial Hospitalization				
Yes	3.3%			
No	96.7%			

- Bayley-III scores were obtained from 12 infants (40%) with an average score of 79.4 (range: 46-107).
- 13 infants (43.3%) pre-deceased Bayley-III testing, and 5 infants (16.6%) were lost to follow-up.
- Bayley-III scores were correlated with the following variables: gestational age, 1-minute and 5-minute APGAR scores, LOS, weight/age at diagnosis, and length of small bowel resection. Only Bayley-III scores and LOS had a significant correlation.
- Bayley-III composite scores and LOS were negatively correlated. (Spearman Rho values of $-.808$ ($p=0.01$) and Pearson Correlation = $-.756$ ($p=0.01$).

CONCLUSION

Greater neurodevelopmental impairment as measured by the Bayley-III Scales of Infant and Toddler Development was associated with longer hospitalizations in surgically managed NEC patients at ECU Medical Center from 2010-2021.

Length of Initial Hospitalization Is Associated with Poorer Childhood Neurodevelopmental Outcomes in Premature Neonates with Surgically Managed Necrotizing Enterocolitis

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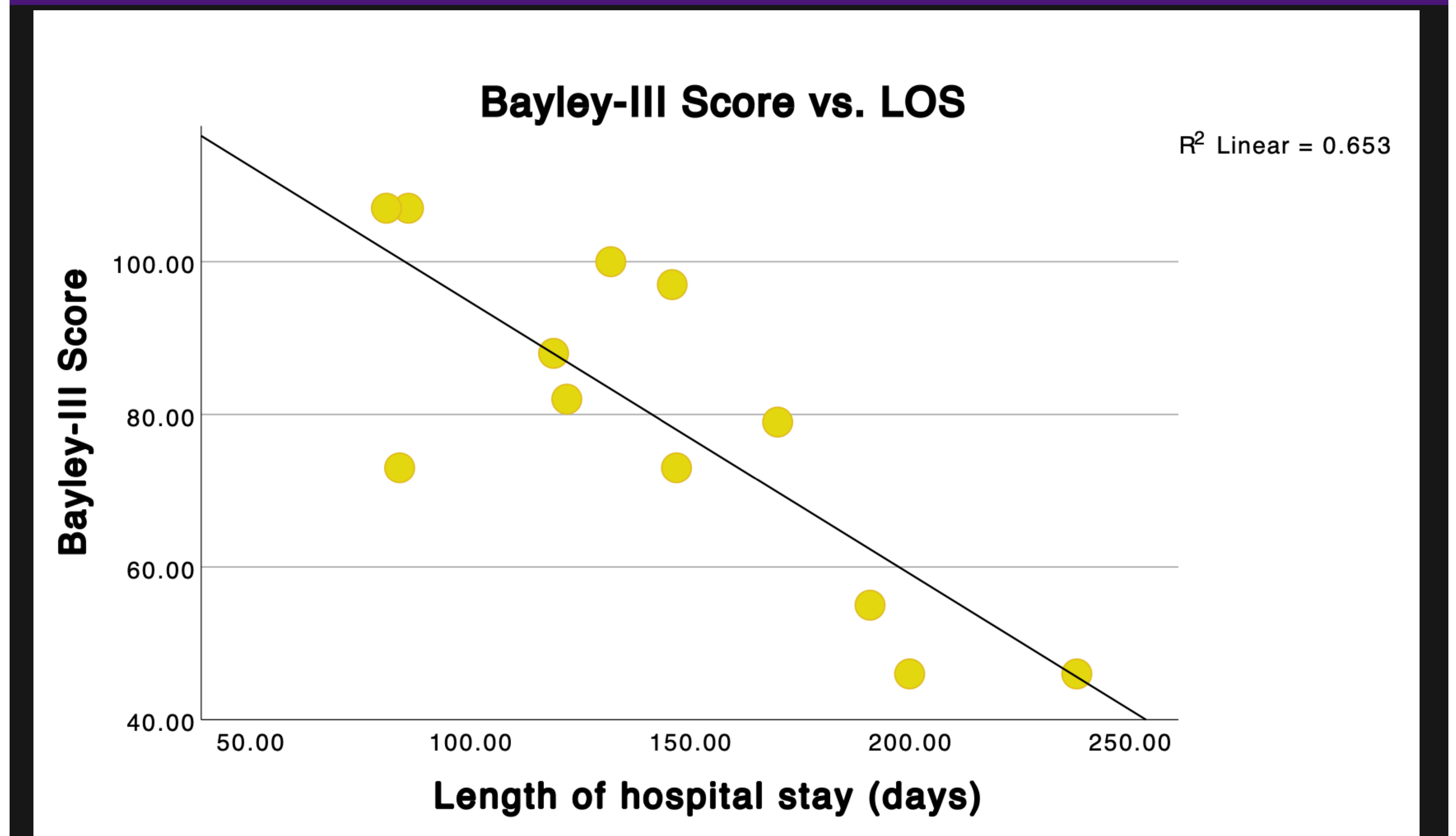


Table 1: The Length of Hospital Stay (LOS) and Bayley-III Scales of Infant and Toddler Development were found to be negatively correlated. The only significant correlation was between Bayley-III composite scores and LOS. These variables were negatively correlated as evidenced by Pearson Correlation and Spearman Rho values of $-.808$ ($p=0.01$) and $-.756$ ($p=0.01$), respectively.

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