# Is the Baby Actually 22 Weeks? Gestational Age Dating Method, Management, and Outcome of Extremely Preterm Infants, 2018-2020

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## Introduction

Gestational age (GA)-specific data from research networks are used to benchmark management and outcomes, provide prognostic estimates, and study intervention safety and efficacy. Little is known about methods of GA determination used for these purposes.

## **Objectives**

- Describe methods used for GA determination in the NICHD Neonatal Research Network
- 2. Determine whether these methods are associated with management and survival

### **Methods**

Retrospective cohort study of data collected prospectively at 15 U.S. NRN centers 2018-2020

#### Inclusion criteria:

Inborn infants born alive without major congenital anomalies at 22 0/7 - 28 6/7 weeks' gestation

#### Exposure:

- *Optimal dating*: first obstetric ultrasound performed <14 weeks (per American College of Obstetrics and Gynecology)
- Suboptimal dating: no ultrasound <14 weeks

#### **Outcomes:**

- Active postnatal treatment
- Predicted survival to discharge using NICHD Extremely Preterm Birth Outcome Tool (for 22-25 weeks, based on data 2006-2011)
- Survival to discharge



investigational use of a drug.

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73% (95% CI: 71-74%) of extremely preterm infants had optimal gestational age dating.

Suboptimal gestational age estimation was not associated with active treatment but may bias survival rates at 22-23 weeks.



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## NICHD NEONATAL RESEARCH NETWORK

#### **Results**

#### Patient inclusion flowchart



#### Survival, active treatment, and predicted survival by dating and gestational age

		<b>Optimal Dating</b>	Suboptimal Dating	p-value	Overall
22 V	<b>Veeks</b> Survival Active treatment	46/194 (24%) 114/194 (59%)	9/72 (13%) 45/72 (63%)	0.04 0.58	55/266 (21%) 159/266 (60%)
	Survival among actively treated	46/114 (40%)	9/45 (20%)	0.01	55/159 (35%)
	Predicted survival of actively treated	29%	28%	0.59	29%
23 V	Veeks Survival Active treatment Survival among actively treated Predicted survival of actively treated	182/399 (46%) 371/399 (93%) 182/371 (49%) 42%	70/123 (57%) 113/123 (92%) 70/113 (63%) 41%	0.03 0.68 0.02 0.35	252/522 (49%) 484/522 (93%) 252/484 (52%) 41%
24 V	Veeks	72 /0	- T 70	0.00	-170
	Survival Active treatment	342/489 (70%) 487/489 (99%)	113/172 (66%) 169/172 (98%)	0.36 0.11	455/661 (69%) 656/661 (99%)
	Survival among actively treated	342/487 (70%)	113/169 (67%)	0.49	455/656 (69%)
	Predicted survival of actively treated	64%	65%	0.45	65%
25 V	<b>Veeks</b> Survival Active treatment Predicted survival of actively treated	410/497 (82%) 497 (100%) 79%	172/219 (79%) 219 (100%) 79%	0.11  0.72	582/716 (81%) 716 (100%) 79%
26 V	Veeks			0=	, .
	Survival Active treatment	488/539 (91%) 545 (100%)	195/219 (89%) 219 (100%)	0.53 	683/758 (90%) 764 (100%)
27 V 28 V	Veeks Survival Active treatment Veeks Survival Active treatment	557/601 (93%) 607 (100%) 715/743 (96%) 745 (100%)	214/229 (93%) 234 (100%) 260/270 (96%) 275 (100%)	0.70  0.96 	771/830 (93%) 841 (100%) 975/1013 (96%) 1020 (100%)

p-values for optimal vs suboptimal dating. "Overall" reflects rates without taking dating accuracy into account.



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