

# Eat Sleep Console (ESC): A Retrospective Chart Review of Neonatal Abstinence Syndrome Patients After Implementation of ESC Protocol

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## Background

- Neonatal Abstinence Syndrome (NAS) is a set of withdrawal symptoms in a newborn when they have been exposed to substances such as opioids prior to birth.
- Finnegan Neonatal Abstinence Scoring System (FNASS) is a clinical tool used to assess NAS withdrawal severity and inform treatment with scores  $\geq 8$  indicating pharmacological treatment.
- ESC is a novel and noninvasive approach to NAS that focuses on the neonate's ability to function regardless of withdrawal symptoms.

## Objectives

Comparison of ESC approach to FNASS:

### Primary Outcome:

- To determine the difference in hospital/NICU length of stay

Secondary Outcomes:

To determine the difference in:

- Percentage of neonates that required maintenance dosing
- Percentage of neonates that started treatment with PRN dosing
- Number of weaning doses of morphine required
- Length of morphine wean
- Total dose of morphine

To describe:

- The adherence to protocol
- Adverse effects from morphine

## Methods

### Design

- Retrospective chart review, 2:1 matching by gestational age

### Inclusion Criteria

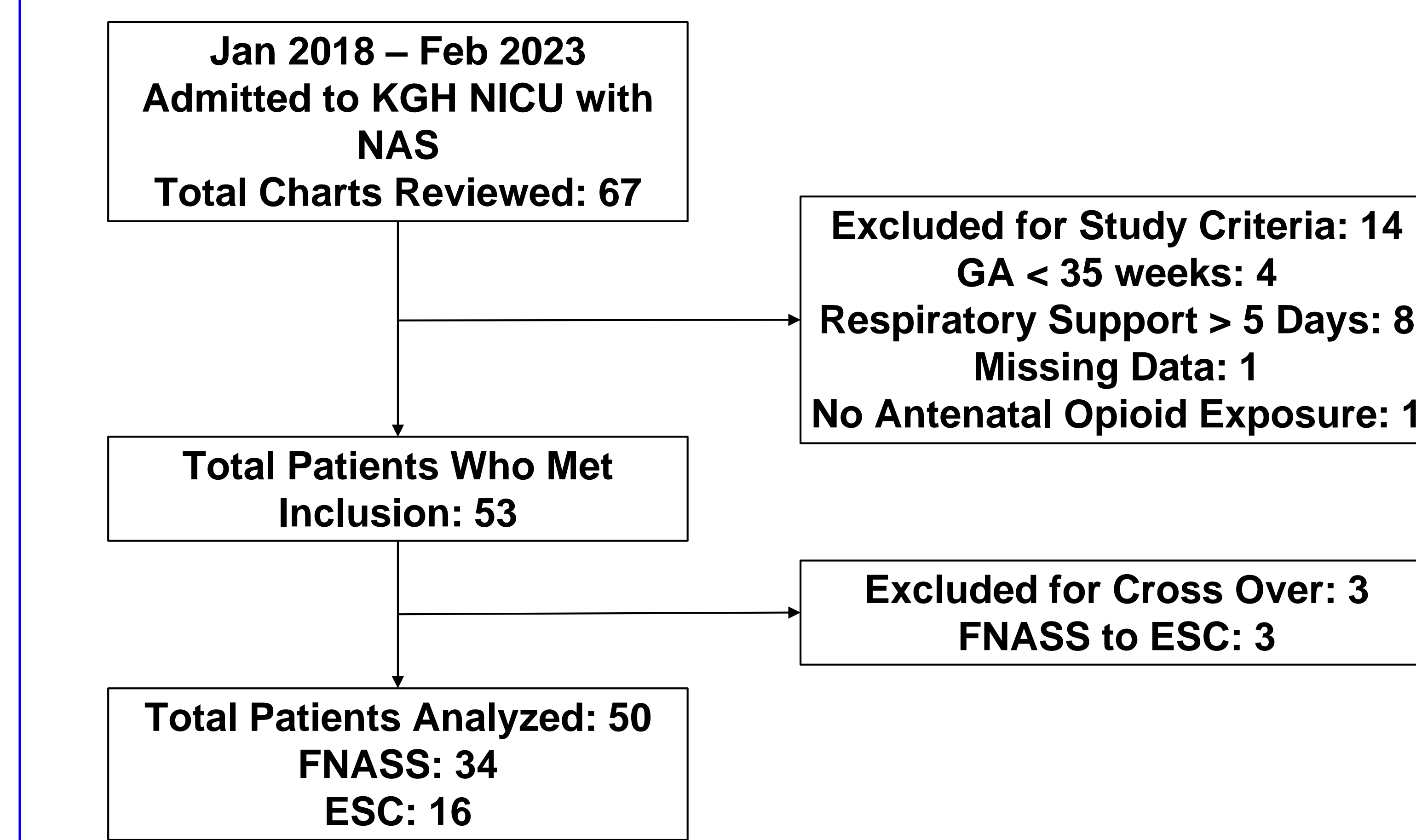
- Patients born at  $\geq 35$  weeks gestation and  $\leq 28$  days of life
- Prenatal exposure to opioids
- Admitted to KGH NICU between Jan 2018 and Feb 2023
- Diagnosis of NAS

### Exclusion Criteria

- Patients with significant comorbidities including sepsis and need for either surgery or respiratory support (supplemental oxygen, ventilation, and/or intubation  $> 5$  days)

**Statistical Analysis:** Descriptive Statistics using Microsoft Excel

## Study Flow Diagram

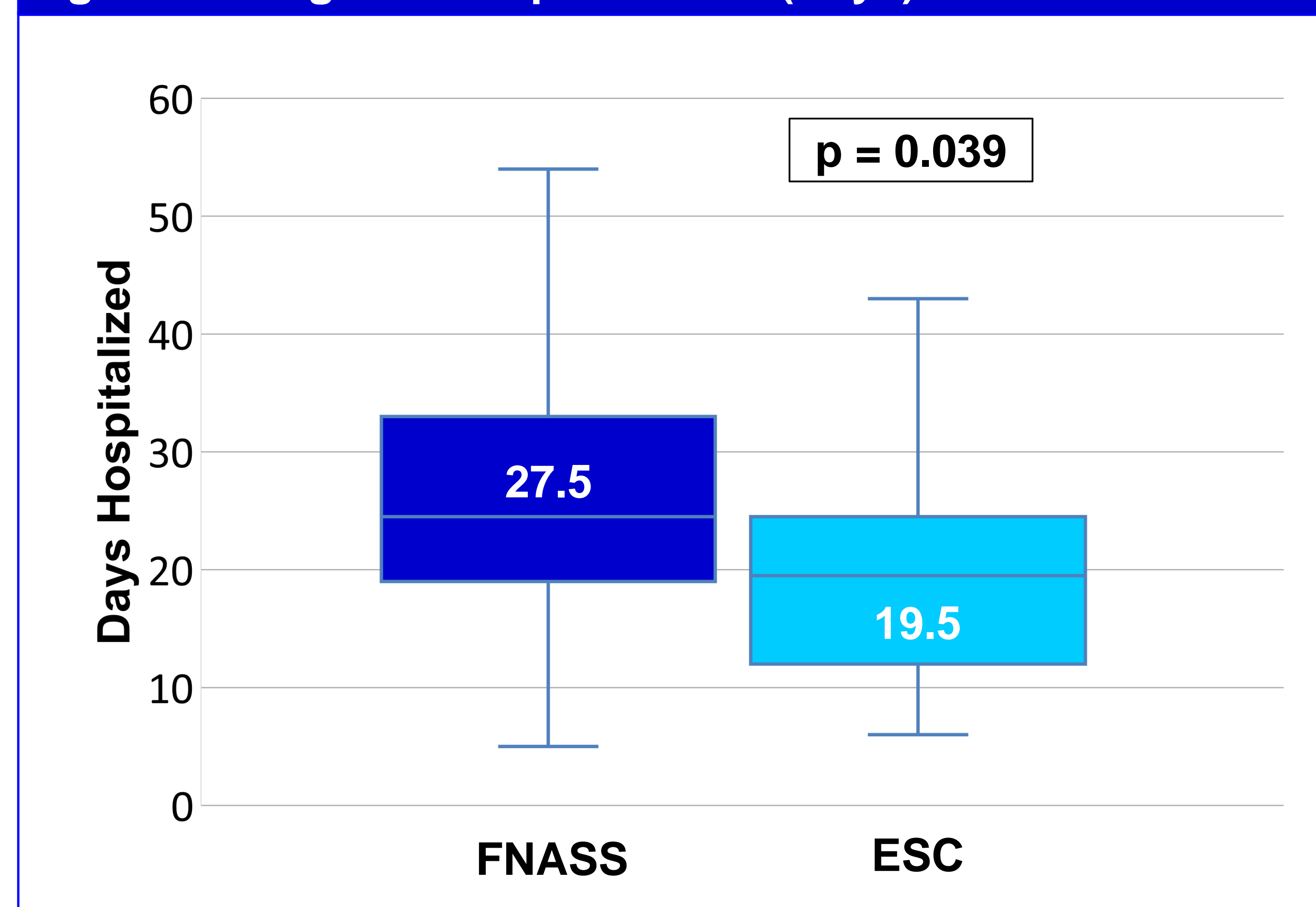


## Results

**Table 1. Patient Characteristics**

	FNASS (N=34)	ESC (N=16)
Gestational Age (weeks + days)	38+2	38+1
Gender (% Male)	67%	50%

**Figure 1. Length of Hospitalization (Days)**

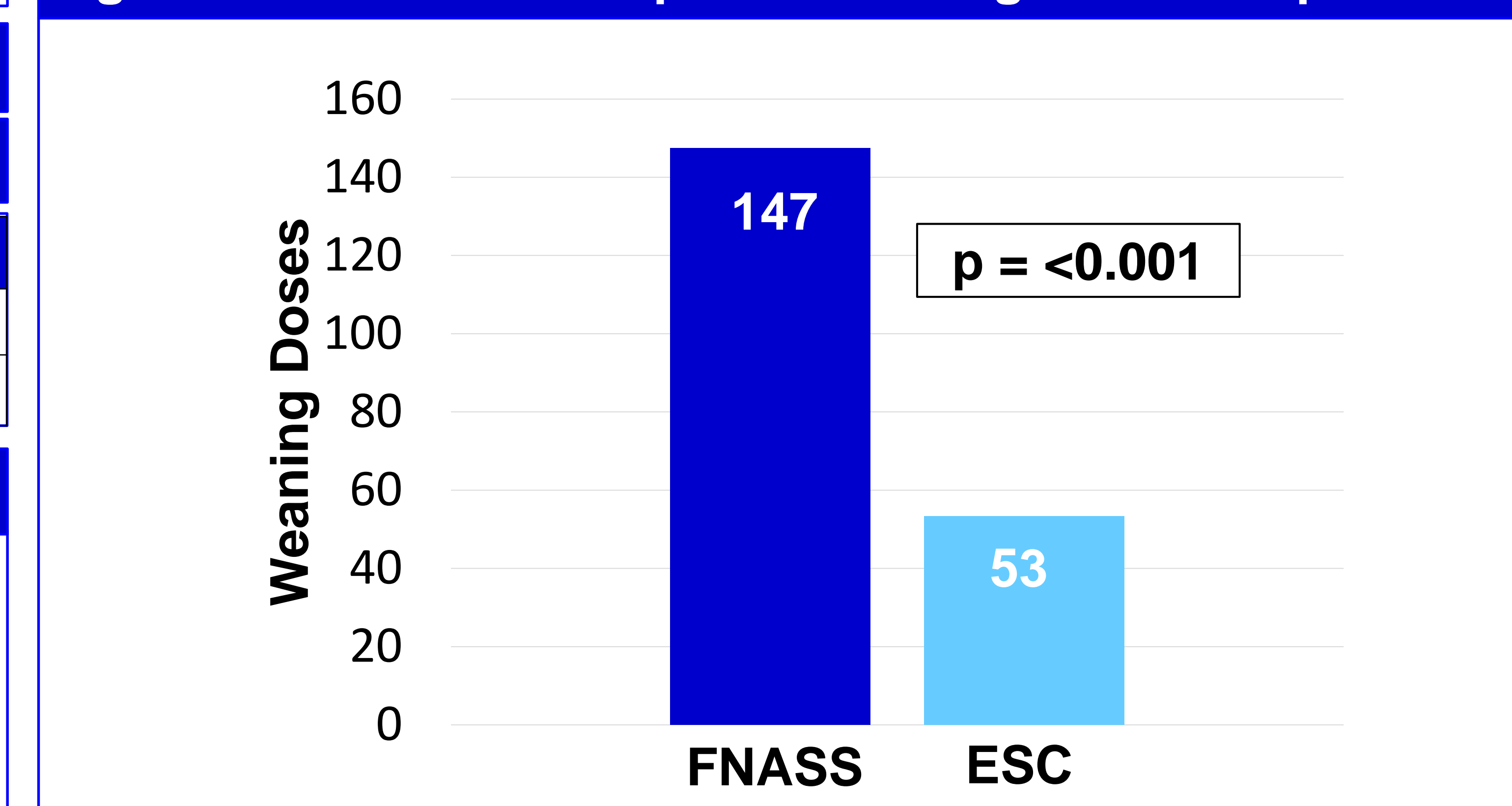


## Results

**Table 2. Secondary Outcomes**

Outcome	FNASS N=34	ESC N=16	p value
Required Maintenance dosing, n (%)	34 (100)	7 (43.8)	<0.001
Started on PRN dosing, n (%)	0 (0)	7 (43.8)	<0.001
Length of Wean (days)	18.1	8.2	0.003
Total Morphine Dose (mg)	22.5	11.2	0.09
Adverse Events, n (%)	4 (11.7)	1 (6)	0.54

**Figure 2. Number of Morphine Weaning Doses Required**



## Conclusions

- Length of hospitalization for NAS patients was 8 days shorter in ESC group vs FNASS group
- The number of morphine weaning doses required in the ESC group was approximately 64% lower in ESC vs FNASS
- Total morphine dose and adverse events were not statistically significantly different between the groups
- This research adds to existing evidence that ESC protocol shortens the length of hospitalization for NAS patients
- Future studies should be conducted to investigate if ESC protocol benefits extend to NAS patients with antenatal exposure to non-opioid substances