



# Enteral Nutrition Initiation during Periods of Vasopressor Requirements and Elevated Lactate Levels

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## Introduction

- When should enteral nutrition (EN) be initiated?
- Current recommendations:
  - Within 4-6 hours of injury for burn patients (Society for Critical Care Medicine/ American Society for Parenteral and Enteral Nutrition)
  - Postpone EN initiation during times of high or escalating doses of vasopressors until hemodynamic stability is achieved
  - Start EN at a low rate and advance gradually during times of low to moderate doses of vasopressors, while monitoring for intolerance
- These results are contradictory in many cases
- We have a variation in practice at our burn center

## Objectives

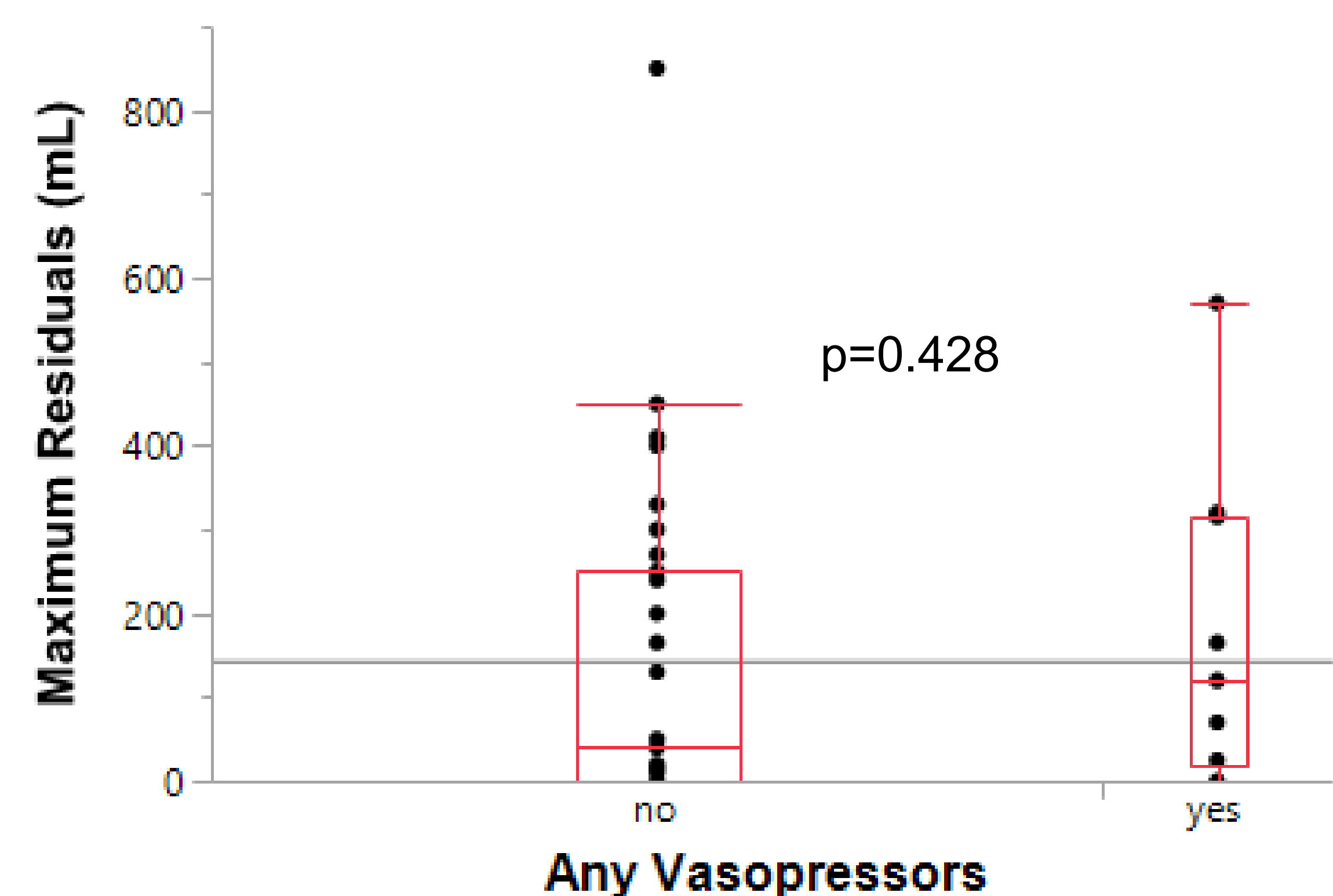
The primary objective of this performance improvement project was to evaluate tolerance of EN initiation by our patients during periods of different vasopressor requirements and lactate levels, in order to maximize the nutrition provided and support the healing process

## Methods

- Retrospective evaluation on all
- Inclusion criteria:
  - Burn patients
  - Admitted to our burn intensive care unit
  - 2018 and 2019
  - Received EN within the first 24 hours after admission
- Exclusion criteria:
  - Admission > 1 calendar day after injury
- Approved performance improvement project
- Statistics:
  - Means  $\pm$  standard deviations (SD) or medians [interquartile ranges (IQR)]
  - Linear regression
  - Mann-Whitney U and Kruskal-Wallis tests
  - Significance was established at  $p < 0.05$

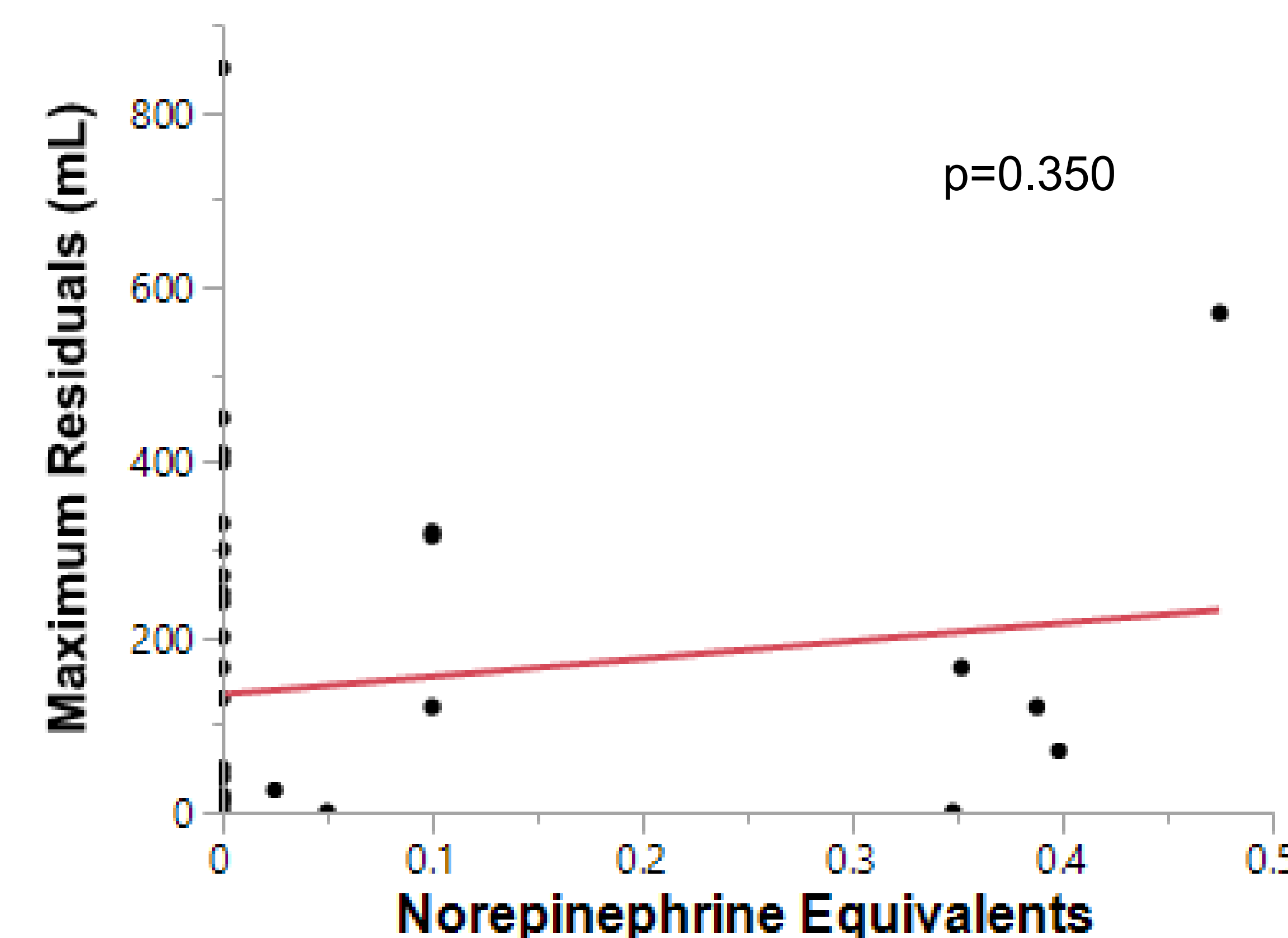
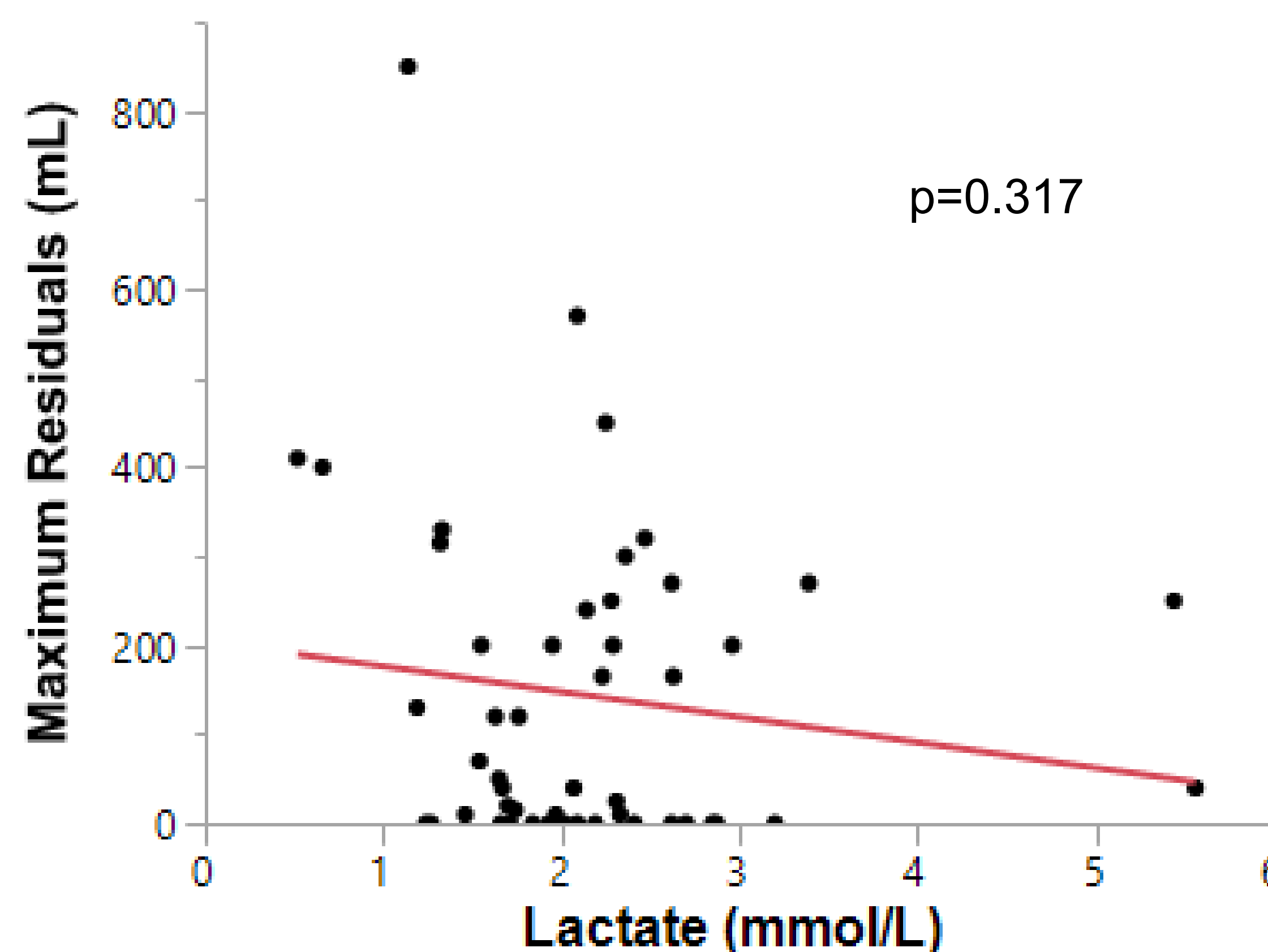
## Results

	N=49
Age (years)	48 $\pm$ 20
% TBSA Burn	20 $\pm$ 16
Mechanical Ventilator Days	8 (IQR: 4-19)
Mortality	3 (6%)



## Results

	N=49
EN initiation (hours from admission)	15 $\pm$ 6
Maximum EN rate during the 24 hours after initiation (mL/hr)	96 $\pm$ 46
Lactate level at time of EN initiation (mmol/L)	2.1 $\pm$ 0.9



	N=49	Vasopressin Dose (units/min)	Norepinephrine Dose (mcg/min)	Maximum Residuals (mL)
Vasopressin only	5 (10%)	0.04 $\pm$ 0.01	N/A	120 (IQR: 13-318)
Both vasopressin and norepinephrine	5 (10%)	0.04 $\pm$ 0	3.6 $\pm$ 0.9	120 (IQR: 35-368)
None	39 (80%)	N/A	N/A	40 (IQR: 0-250)

- 1 case of aspiration- lactate WNL, no vasopressors
- No cases of ischemic bowel

## Conclusions

As a result of this performance improvement project, we found that delaying enteral nutrition in critically ill burn patients on vasopressors up to 0.4 mcg/kg/min norepinephrine equivalents or with lactate levels up to 4 mmol/L may not be necessary.

## Significance Statement

Based on the results of this performance improvement project, we plan to utilize the following guidelines for initiating enteral nutrition:

Vasopressors	Lactate	TF
Norepinephrine equivalents $\geq$ 0.4 mcg/kg/min	Any	Hold
Norepinephrine equivalents < 0.4 mcg/kg/min	$\geq$ 4	Hold
Norepinephrine equivalents < 0.4 mcg/kg/min	< 4	Start at trophic rate, advance as tolerated

## Acknowledgements

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## References

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