INTRODUCTION

- Lactate is used to identify inadequate tissue perfusion and is associated with outcomes in various critically ill populations
- Early lactate clearance is associated with improved survival in sepsis and cardiac arrest
- Whether secondary elevation in lactate is associated with worse outcomes in critical illness is unknown

OBJECTIVE

- To assess the relationship between secondary lactic acidosis and mortality in critically ill patients

METHODS

- **Design**: Secondary retrospective observational analysis of a large clinical database (MIMIC-II)
- **Setting**: Intensive care units at a single academic teaching hospital in Boston, MA
- **Inclusion**: Adult patients with primary clearance of lactic acidosis
- **Exclusion**:
  - Lactate not measured
  - Lactate not elevated
  - No primary lactate clearance

RESULTS (cont.)

**Principal Findings**

- 3390 subjects who had initial elevation in lactate with subsequent clearance were included in the study
- 341 (10%) demonstrated lactate rebound following initial clearance
- 28 day mortality in lactate rebound group was 42% compared to 12% mortality in lactate clearance group (p < 0.001)
- After multivariable adjustment there was a strong association between lactate rebound and 28-day mortality (OR 4.9, 95% CI 3.7 – 6.4)

CONCLUSION

- There is a strong association between secondary elevations in lactate and mortality in adult critically ill patients
- This study highlights the importance of detecting secondary lactate elevations
- Additional prospective investigations are necessary to assess this relationship in critically ill patients