

# Balanced fluid resuscitation in Sepsis, a Quality Improvement project

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## BACKGROUND

The Surviving Sepsis Campaign's most recent 2016 guideline recommendations are a **4-element bundle** which includes:

- **Measuring serum lactate**,
- obtaining **blood cultures**
- followed by **antibiotic administration**, and
- starting **fluid resuscitation** for a recommended 30cc/kg for a systolic blood pressure <90mmHg or a lactate level >4.0mmol<sup>1</sup>.

Frequently, in the USA the initial fluid choice for the 30cc/kg fluid bolus is normal saline 0.9% (NS).

Two 2018 landmark trials demonstrate that balanced crystalloids such as lactated ringer's (LR) or Plasma-Lyte are safe and may even be preferable to normal saline

- **Isotonic Solutions and Major Adverse Renal Events Trial [SMART]<sup>2</sup>**
- **Saline against Lactated Ringer's or Plasma-Lyte in the Emergency Department [SALT-ED]<sup>3</sup>**

We set out to **understand the current practice at our institution** regarding fluid choice for resuscitation among patients with severe sepsis and septic shock.

## OBJECTIVES & QUALITY GAP

**91%** of the time providers were choosing **NS** for initial fluid bolus

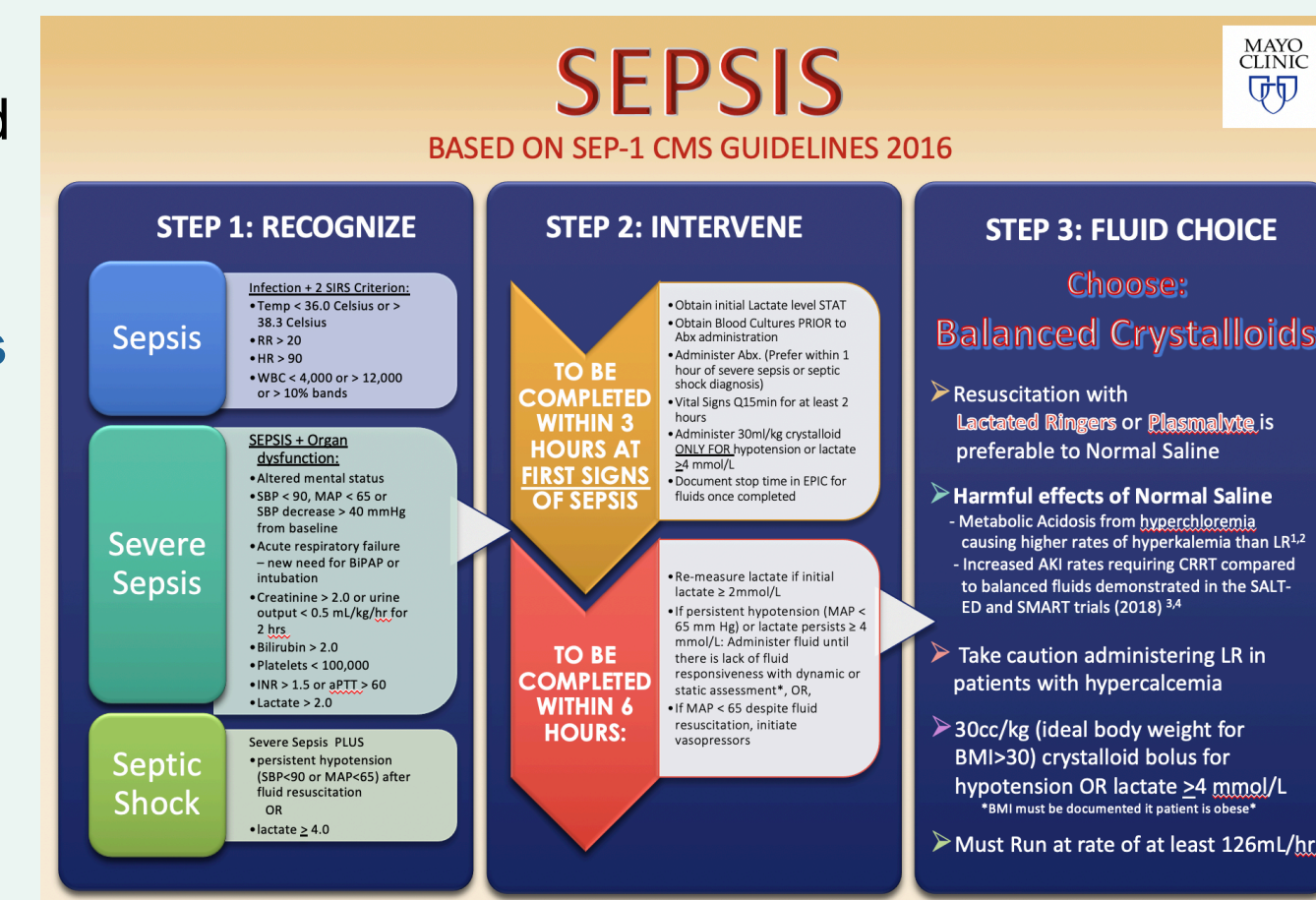
We initiated a **Quality improvement Project** to **change the practice** pattern of sepsis resuscitation fluid from NS to balanced crystalloids

### Aim Statement:

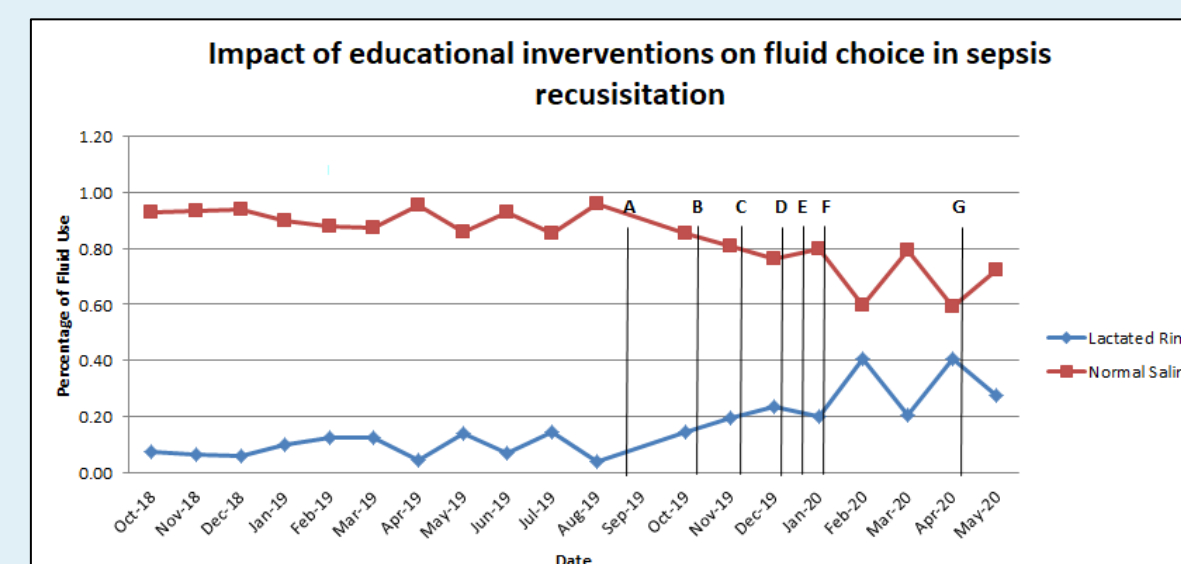
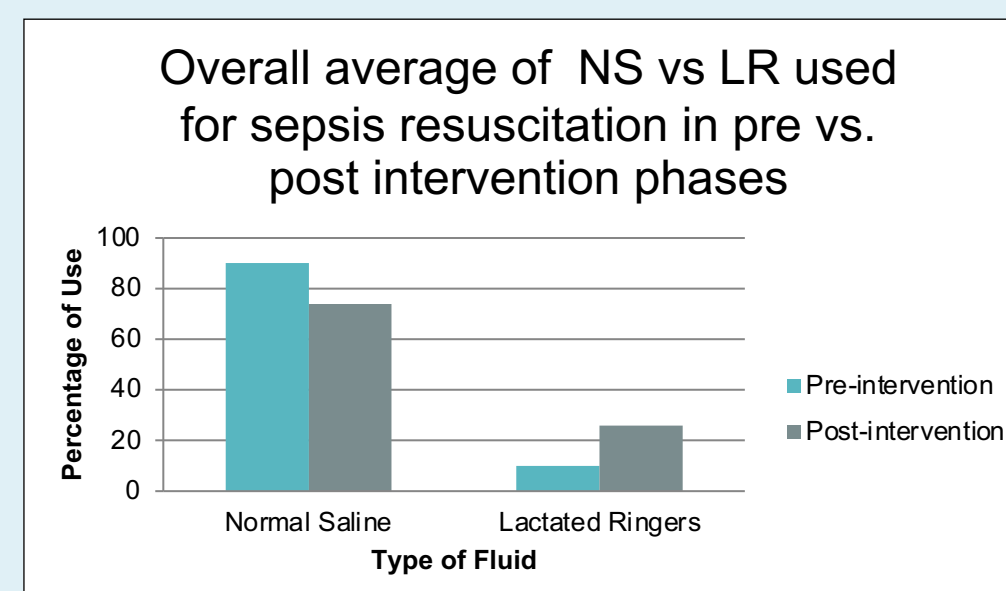
To **increase the use of balanced crystalloids by 30%** by September 2020 without negatively impacting mortality

## METHODS

- **Baseline surveys polled providers** preferences and rationale for choosing NS vs LR, followed by **post-survey explanations why LR is superior**
- **Hung educational posters** around the hospital (pictured right)
- **Power-point presentations** given at other departments monthly **staff meetings**
- **Increasing the amount of Lactated Ringers stocked in the Emergency room**



## RESULTS



A-E: interventions from methods section implemented

Post-intervention data (October 2019 – May 2020) showed **increased use of Lactated ringers from 9% to 26%**, with a corresponding **decrease in Normal Saline from 91% to 74%**, without adversely affecting mortality.

## CONCLUSION

- **Successful practice change** to utilize more balanced crystalloids as part of sepsis resuscitation
- This is an **ongoing project**, with **additional PDSA cycles currently underway** to reach goal 30% improvement

## REFERENCES

1. Rhodes, A., et al., Surviving Sepsis Campaign: International Guidelines for Management of Sepsis and Septic Shock: 2016. Intensive Care Med, 2017. 43(3): p. 304-377.
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3. Semler, M.W., et al., Balanced Crystalloids versus Saline in Critically Ill Adults. N Engl J Med, 2018. 378(9): p. 829-839.