AN EVALUATION OF AN EXISTING PROGRAM - THE FLUID RESUSCITATION INITIATIVE

Sinclair School of Nursing
University of Missouri Health

Brooklyn R. Kolbe, BSN, RN, CCRN, DNP Student
University of Missouri-Sinclair School of Nursing

Sinclair School of Nursing
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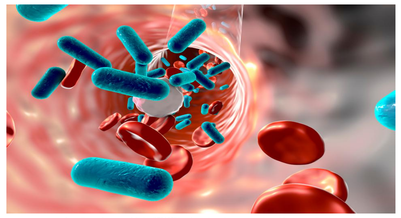
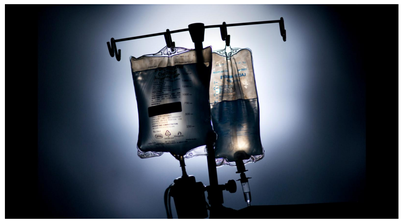
INTRODUCTION

Background

- Sepsis is a global disease with high mortality rates, even in the face of improved infectious treatments (Kleinpell et al., 2013).
- Critically ill septic patients commonly require aggressive fluid resuscitation therapy to reverse tissue hypoxia, prevent progression to organ failure, and improve patient outcomes (Marik & Cavallazzi, 2013).
- The Surviving Sepsis Campaign provides bundled recommendations for sepsis management, and adherence to the guidelines has been shown to improve outcomes in sepsis (Gurnani et al., 2010; Levy et al., 2010).
- Extensive review of the literature found emerging themes including resuscitate quickly, choose the type of fluid carefully, and resuscitate cautiously.



https://www.thesun.co.uk/living/1781682/sepsis-septicaemia-symptoms-signs-risk-treatment/#



http://centralvalleymedical.blogspot.com/2013/09/crystalloids-versus-colloids.html

PICOT Question

- In adult hospitalized patients with sepsis who require fluid resuscitation (P), how has implementation of the new Fluid Resuscitation Initiative (I) affected protocol adherence (O) over a six-month period following implementation (T)?

Objectives

1. 25% of septic patients will have had a sepsis protocol with the FRI initiated.
2. There will be a 5% decrease in the use of NS for fluid resuscitation in sepsis after the FRI.
3. There will be a 5% increase in meeting the 30mL/kg requirement for fluid resuscitation in septic shock after the FRI.

ACKNOWLEDGEMENTS

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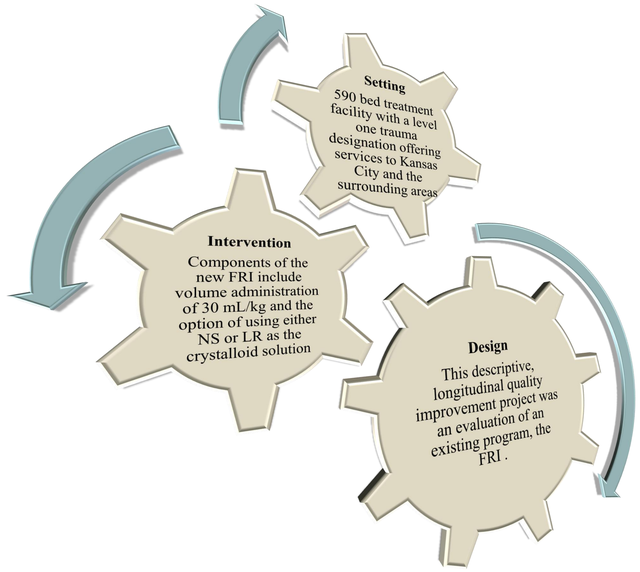
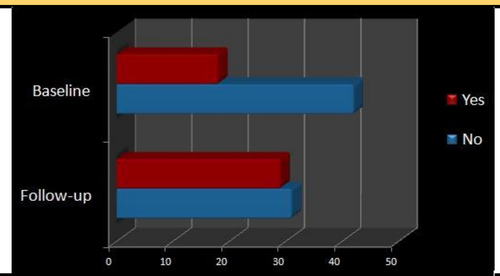
MATERIALS AND METHODS



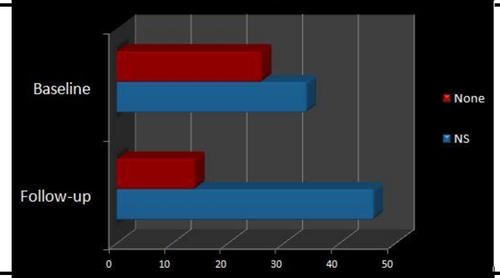
Measures:

- Using a confidence level of 95%, a maximum of 5% margin of error, a population size of 70, with a 50% response distribution, a minimum of 120 charts were required at baseline and follow-up (Raosoft, 2004).
- There were not 120 charts at each time frame, as such all available charts were used for review.
- The Chi-square Test of Independence was used to compare the changes in outcomes between baseline and follow-up chart reviews, and to analyze the nominal level data.
- The *phi* coefficient (ϕ) was used as an index to describe the magnitude of the effect from the intervention with values .10, .30, and .50 corresponding to small, medium, and large respectively.
- Ratio level data was analyzed with the Independent t-test and the Cohen's *d* coefficient was used as an index to describe the magnitude of the effect from the intervention with values .20, .50 .80 corresponding with small, medium, and large respectively.
- IBM SPSS Statistics version 24 (Chicago, IL) was used for statistical analysis. The level of significance was set at $p \leq .05$.

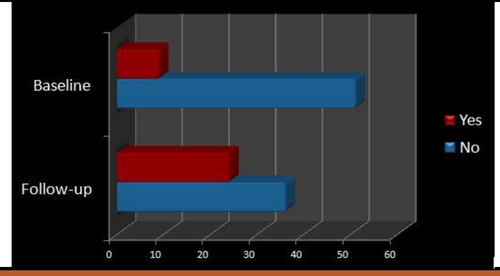
RESULTS



- **Protocol initiation** occurred in 30% (*n* = 18) of the baseline and 48% (*n* = 29) of the follow-up.
- This was both statistically and clinically significant, **χ^2 (1) = 4.23, *p* = .04, Φ = .2.**
- Subjects in the follow-up group were almost two times as likely to have a sepsis protocol initiated, **OR = 1.5, 95% CI [1.03, 2.06].**



- **Type of fluid given -** In the baseline group, 43% (*n* = 26) were given no fluid while 57% (*n* = 34) were given NS.
- In the follow-up group 23% (*n* = 14) were given no fluid and 77% (*n* = 46) were given NS.
- This was statistically and clinically significant, **χ^2 (1) = 5.40, *p* = .02, Φ = .2.**
- There was no LR administered as the type of fluid bolus for any subject of either group.



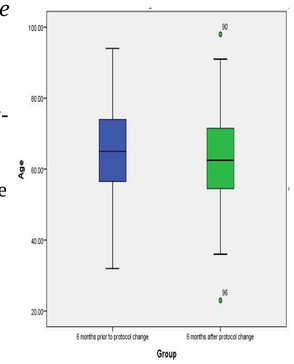
- **Receiving 30 mL/Kg in the three hour window -** 15% (*n* = 9) met the requirement in the baseline group, 40% (*n* = 24) met the requirement in the follow-up group.
- This increase was statistically and clinically significant, **χ^2 (1) = 9.40, *p* = .002, Φ = .3.**
- Subjects in the follow-up group were almost two times more likely to receive the recommended amount of fluid, **OR = 1.8, 95% CI [1.27, 2.44].**

RESULTS

Demographics

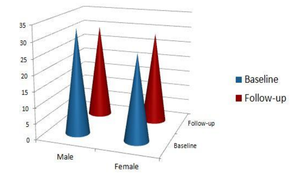
Age

- Mean age was 64 years old (*SD* = 13.22) for the baseline group and 63 years old (*SD* = 13.73) for the follow-up group.
- No statistically significant difference between the baseline and follow-up groups for age, t(118) = .54 , *p* = .65, 95% CI [-3.76, 5.99].



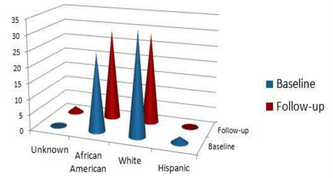
Gender

- Baseline group predominately male (55%, n = 33), 45% were female (n = 27).
- Gender was evenly distributed within the follow-up group, 50% male (n = 30), and 50% female (n = 30).
- No statistically significant difference found between the two groups, χ^2 (1) = .30, *p* = .58.



Race

- Overall sample race was predominantly White (52%, *n* = 62) with the remaining participants Black (45%, *n* = 54), Hispanic (2%, *n* = 2), and Unknown (2%, *n* = 2).
- No statistically significant difference in race in the baseline and follow-up groups, χ^2 (3) = 4.55, *p* = .21.



CONCLUSIONS

- **Objective 1 -** 25% of septic patients will have had a sepsis protocol with the FRI initiated **- MET.** 48% of septic patients had the sepsis protocol with the FRI initiated.
- **Objective 2 -** 5% decrease in the use of NS for fluid resuscitation in sepsis after the FRI **- NOT MET.** No septic patients received LR as the fluid of choice for resuscitation.
- **Objective 3 -** 5% increase in meeting the 30mL/kg requirement for fluid resuscitation in septic shock after the FRI **- MET.** Number of patients who received the recommended amount of fluid resuscitation increased by 25%
- Initiation of a protocol outlining parameters for efficient fluid resuscitation can help septic patients meet the 30 mL/Kg fluid

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For questions, please contact: brkzqd@mail.missouri.edu
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