Fluid Resuscitation: Enhancing Burn Nurse Competency

Keith A. Thompson, BSN, RN; Victor M. Salinas, BSN, RN; Mark A. Castillo, BSN, RN; Colleen M. Reid, MSN, CNS; Alexandra J. Helms, MSN, RN; Monica Abbott, MSN, RN; Julie A. Rizzo, MD

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Introduction

- Nursing competencies vital for initial management of a burn patient include:
- Assisting with formal fluid resuscitation plan for patients with burns ≥20% total body surface area (TBSA)
- Use of adjunctive resuscitation tools (Fig. 2)
- Achieving end-organ perfusion through management of fluids, vasoactive medications, physical assessment and laboratory data
- Perform collaborative care in accordance with ABA guidelines and Fluid Resuscitation Clinical Practice Guidelines (CPG)
- Diverse levels of experience, unusually low census, frequent staff turnover, and changes in resuscitation strategies prompted concern
- It was important to develop an educational strategy which incorporated a variety of adult learning activities (Fig. 4)



Figure 1: Escharotomy

Purpose

The goal of this project was to enhance staff knowledge in fluid resuscitation protocols, adjunctive tools, and critical indicators of end-organ perfusion

PICO Question

Will a formal resuscitation course increase staff nurse knowledge and confidence of fluid resuscitation concepts?

Burn Resuscitation Course Objectives

Goal - Enhance Burn Nurse Competency in Initial Fluid Resuscitation

- Review principles of burn resuscitation (first 24 hours)
- Identify critical indicators & benchmarks of a formal resuscitation plan
- Discuss strategies for and barriers against optimal management of endorgan perfusion



Figure 2: Burn resuscitation device (Courtesy of Arcos Medical, INC.)

Methods

- A 1-hour course during two Staff Development Days (SDD) in January 2019
- Lecture
 - Current literature
 - Fluid Resuscitation CPG

- Practice

- o Nursing staff were separated into groups of 6, each with an experienced burn nurse
- o Teams were introduced to an actual patient case to create 24-hour fluid resuscitation plan
- o After 20 minutes, each team presented their plan
- o Resuscitation plans were compared to actual care that the patient received (Fig. 5) Collaborative discussion followed by survey on confidence & knowledge Assessment (10-item)
- Knowledge retention assessment
- Occurred April, 2019
- Knowledge questionnaire (same 10-items)
- A 1-hour course during two Staff Development Days in August, 2019
- ABG interpretation related to Burn Resuscitation
- Checklist (Fig. 4)
- Satisfaction survey & comments
- Staff was given 3 in-service teachings in February, June, and December 2019 (Fig. 1,3-5)

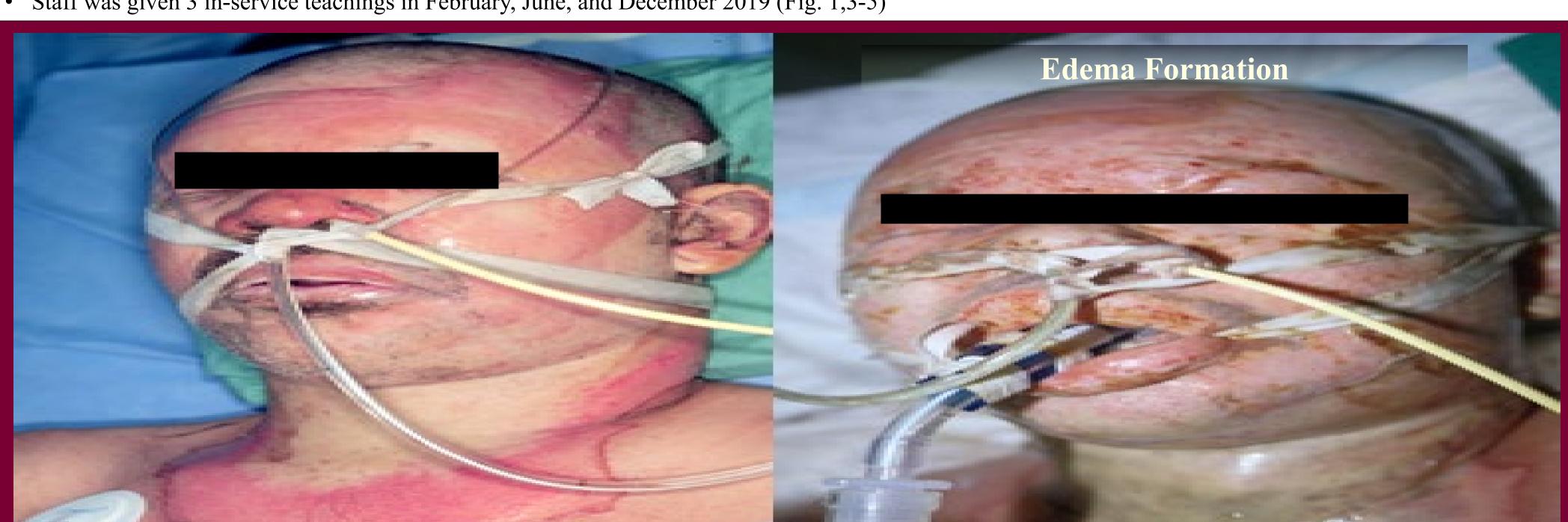


Figure 3: Edema formation

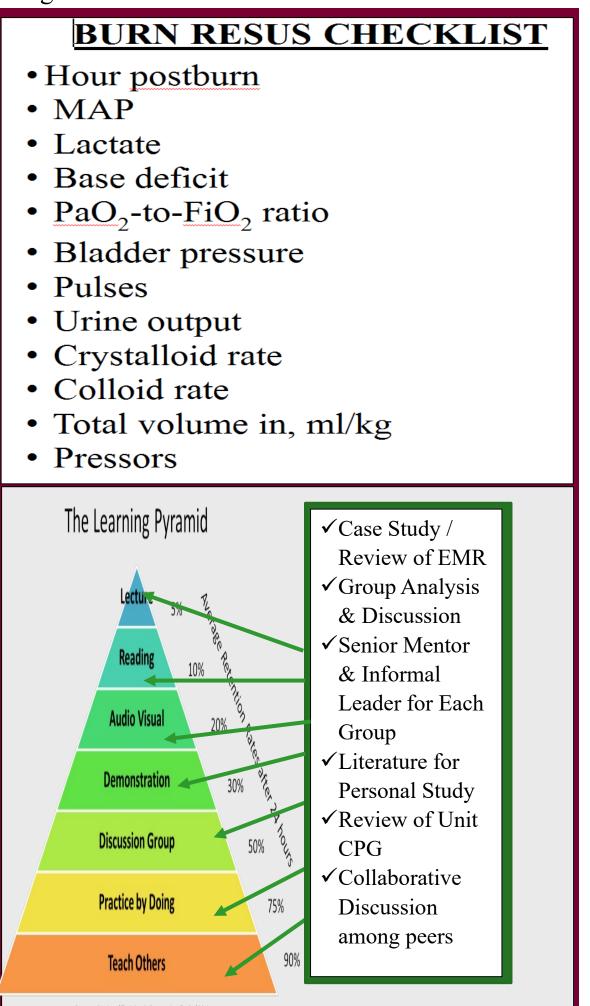


Figure 4: Burn resuscitation checklist and Learning strategies

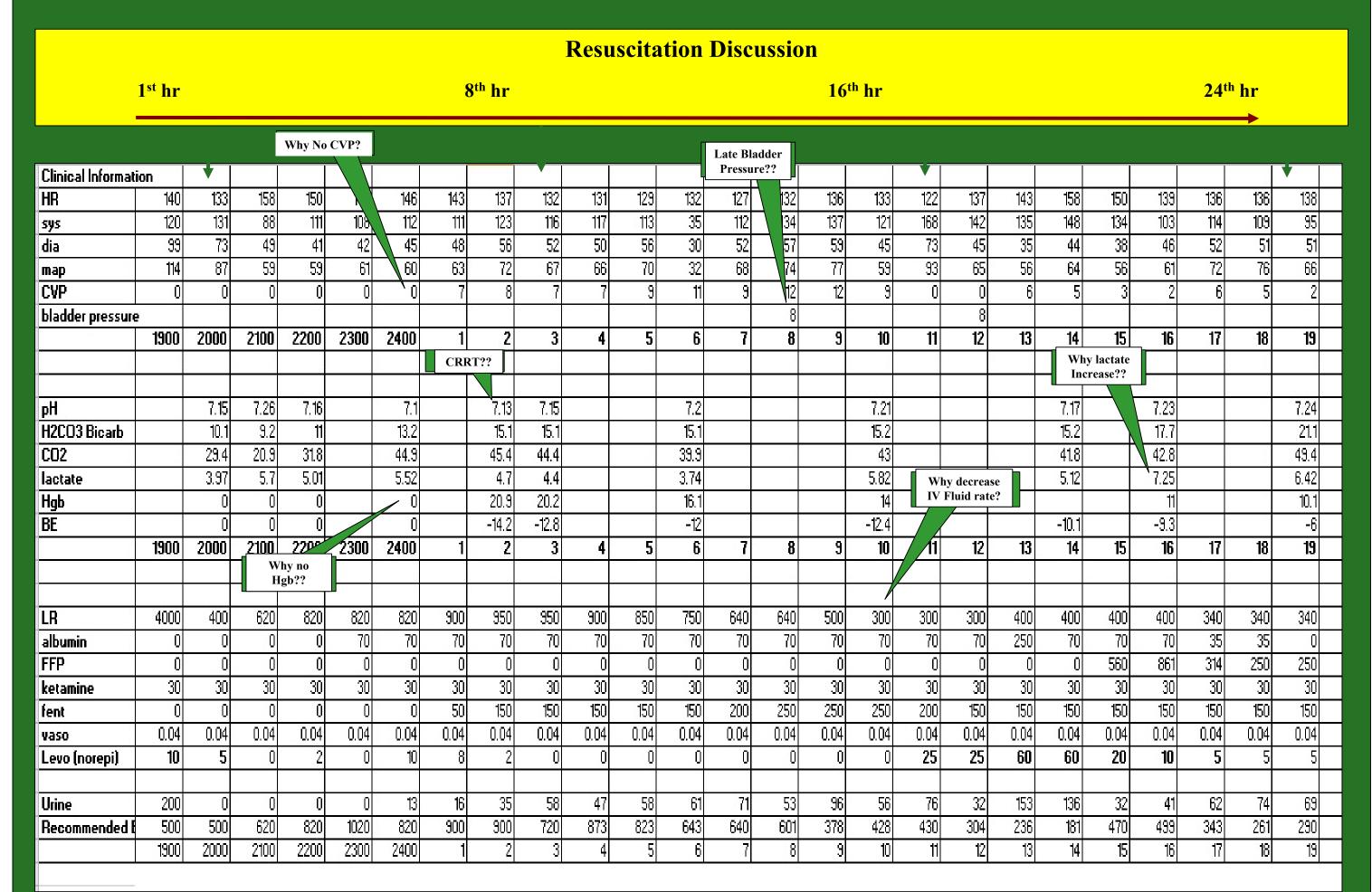


Figure 6: Discussion patient's pertinent clinical findings

Results

Knowledge Assessment and Confidence Survey (n=64)

- The overall unit average score for the pre-test was 80%.
- The post test score overall unit average was 94%.
- There were 3 questions that had a decline in score. This was acknowledged as an area for improvement, and the lesson plan was changed to attempt to communicate with learners more effectively.
- Staff received a follow-up in-service addressing these questions
- The results from the confidence survey showed a significant increase among those with less than 2 years of experience.

Knowledge Retention (n=48)

• The overall unit average score on the knowledge retention test four months post teaching was 90%.

Learner Satisfaction Survey (n=60)

- Staff was asked a series of questions regarding their satisfaction with the training received throughout the year regarding burn resuscitation.
- The overall unit average score was 94%.

Conclusion

- A sustained resuscitation education course may improve nursing knowledge of basic fluid resuscitation concepts
- A brief lecture combined with collaborative discussion, mentorship, and a case study review may be an effective tool for attaining and maintaining basic burn nurse competencies
- Nurses with less than two years of burn experience should seek a mentor when developing and managing a formal fluid resuscitation plan
- Since this was a single-center EBP project, more information is needed on how burn nurses attain and sustain essential competences.

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Figure 7: Burn Flight Team