Pharmacist Role in Fluid Stewardship in a Medical ICU

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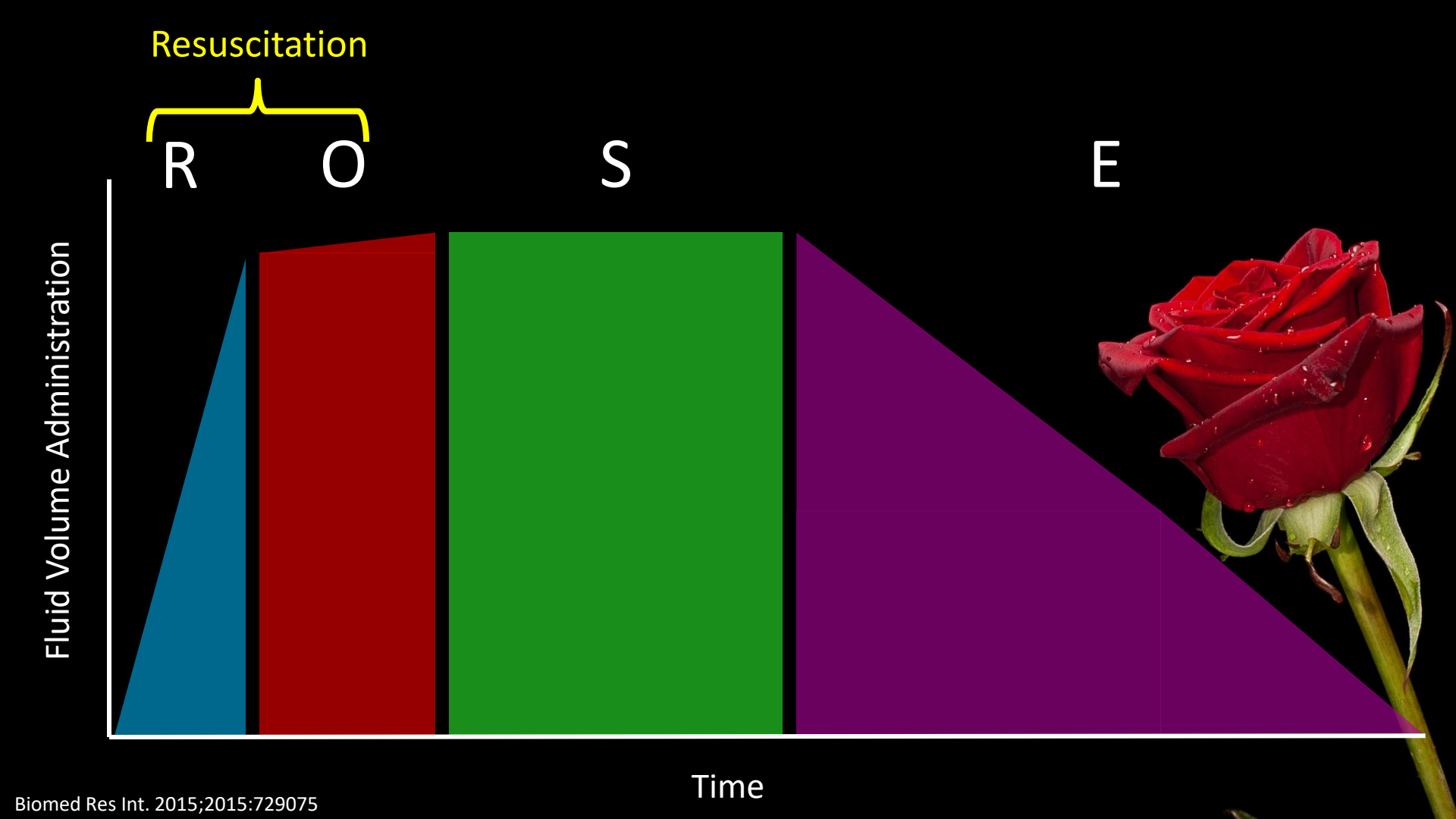
Abstract: 1445

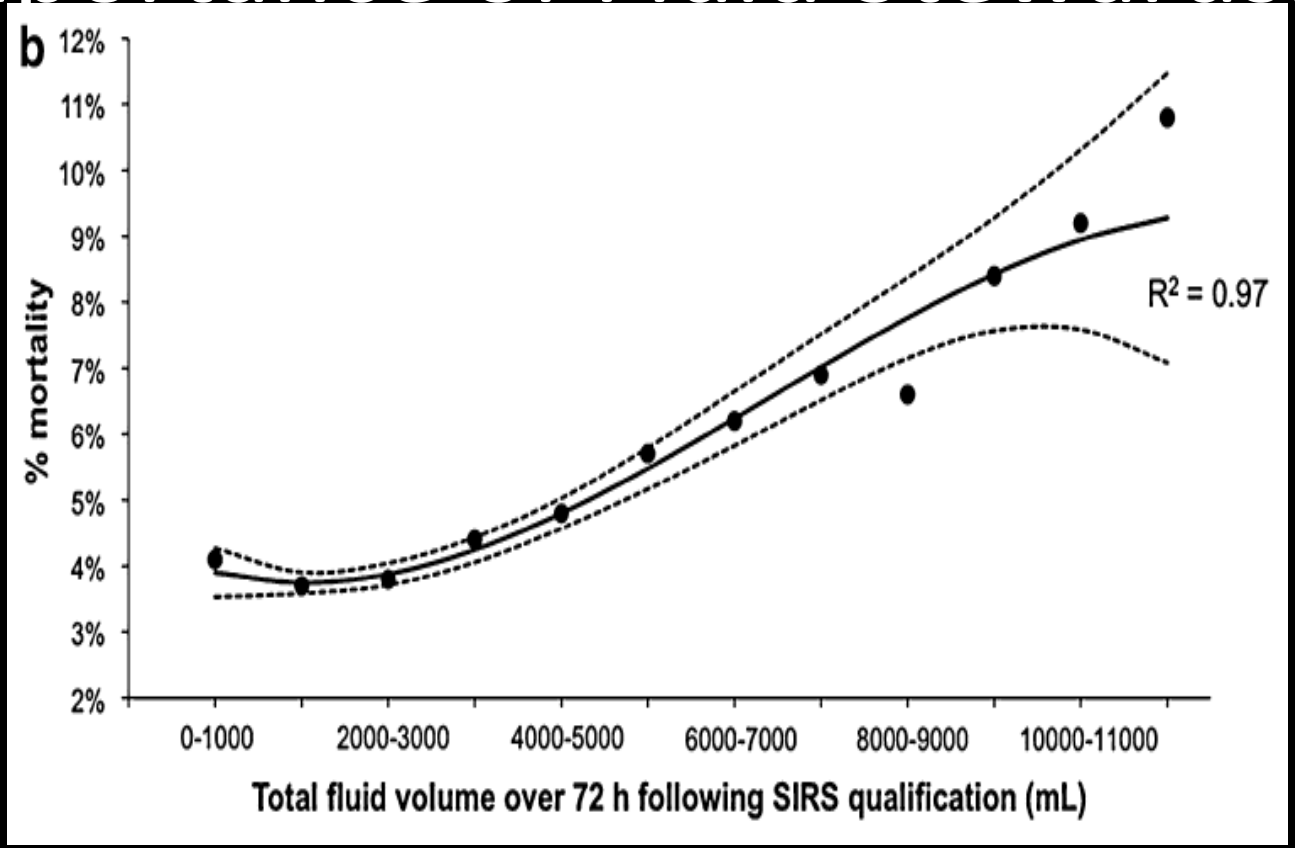


Biomed Res Int. 2015;2015:729075

Importance of Fluid Stewardship

Intensive Care Med 2014;40:1897–1905; Crit Care Med 2016;44:1891–1900; Critical Care 2012, 16:R197
Crit Care Med 2011;39:259–65; Am J Emerg Med 2016;34(11):2122-26; Ann Am Thorac Soc 2015;12(12):1837-44; Intensive Care Med 2016;42(11):1695-1705; N Engl J Med 2006;354:2564-75

Importance of Fluid Stewardship



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Importance of Fluid Stewardship

Fluid resuscitation in septic shock: A positive fluid balance and elevated central venous pressure are associated with increased mortality*

Fluid overload is associated with an increased risk for 90-day mortality in critically ill patients with renal replacement therapy: data from the prospective FINNAKI study

Comparison of Two Fluid-Management Strategies in Acute Lung Injury

Restricting volumes of resuscitation fluid in adults with septic shock after initial management: the CLASSIC randomised, parallel-group, multicentre feasibility trial

Cumulative Fluid Balance and Mortality in Septic Patients With or Without Acute Kidney Injury and Chronic Kidney Disease*

Positive fluid balance as a major predictor of clinical outcome of patients with sepsis/septic shock after discharge from intensive care unit

Intensive Care Med 2014;40:1897–1905; Crit Care Med 2016;44:1891–1900; Critical Care 2012, 16:R197
Crit Care Med 2011;39:259–65; Am J Emerg Med 2016;34(11):2122-26; Ann Am Thorac Soc 2015;12(12):1837-44; Intensive Care Med 2016;42(11):1695-1705; N Engl J Med 2006;354:2564-75

Volume Overload

More

- Time on the ventilator
- Time in the ICU
- Likely to develop AKI and need RRT
- Likely to be discharged to healthcare facility instead of home

Less

- Likely to ambulate at discharge
- Likely to survive

Intensive Care Med 2014;40:1897–1905; Crit Care Med 2016;44:1891–1900; Critical Care 2012, 16:R197
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Scope of the problem

At ICU discharge…

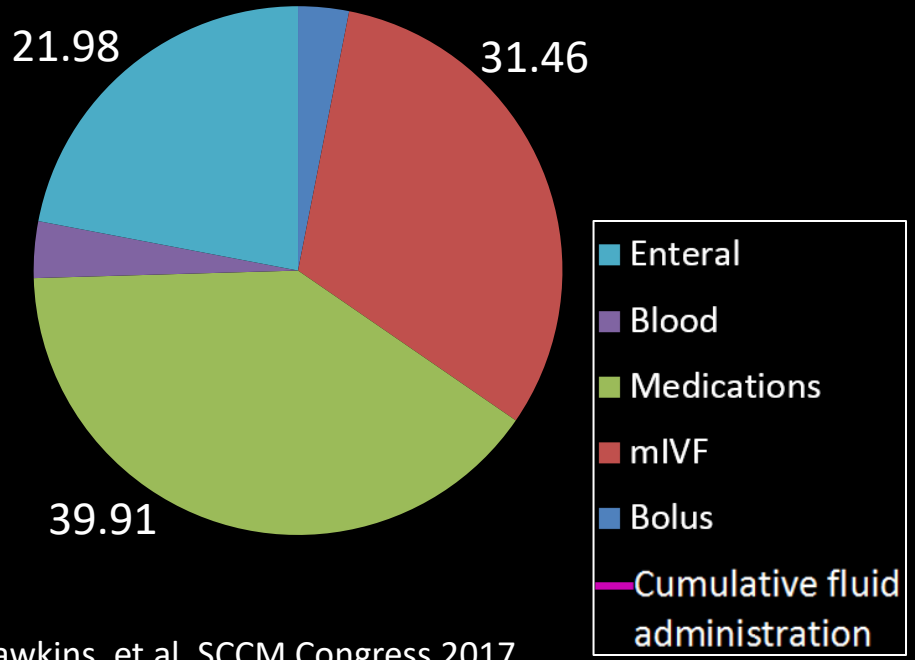
86% have positive fluid balance

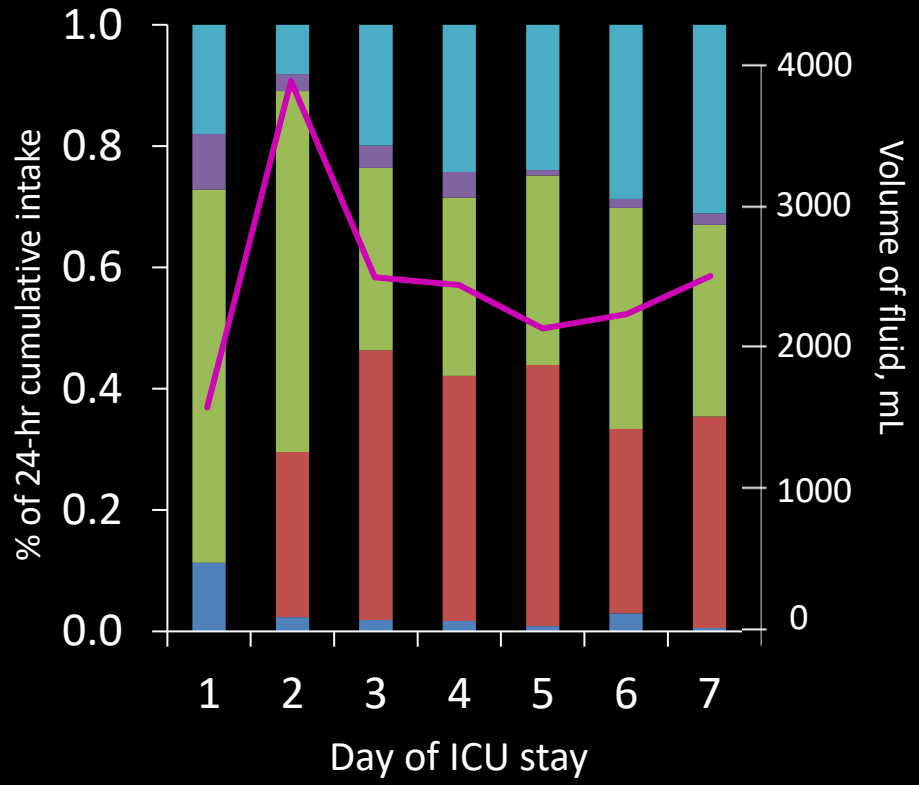
35% have volume overload

Ann Am Thorac Soc. 2015 Dec;12(12):1837-44

Daily Volume and Source

Percent contribution over 7 days





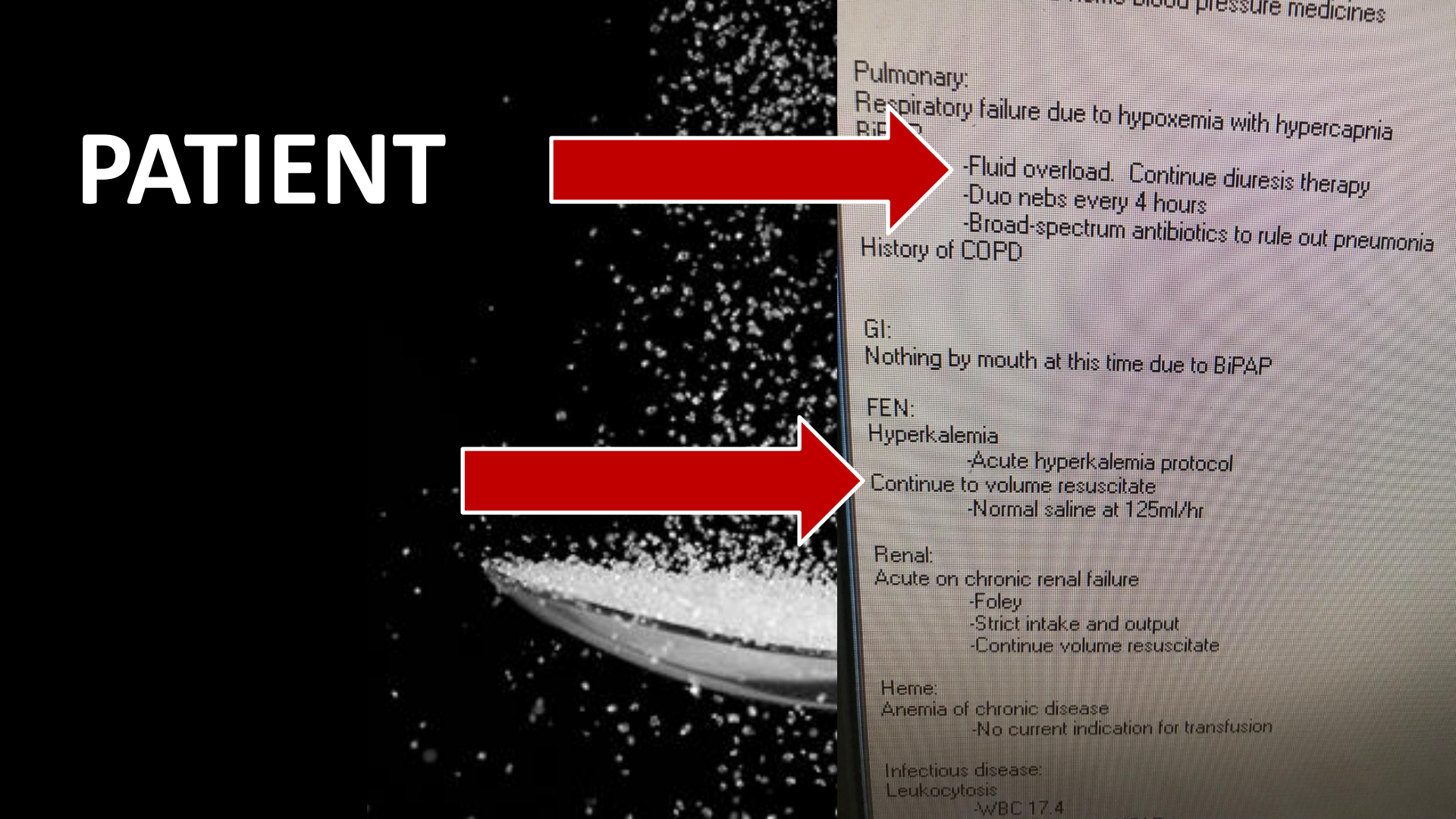
Hawkins, et al. SCCM Congress 2017

Fluid Stewardship During Critical Illness: A Call to Action

Four Rights

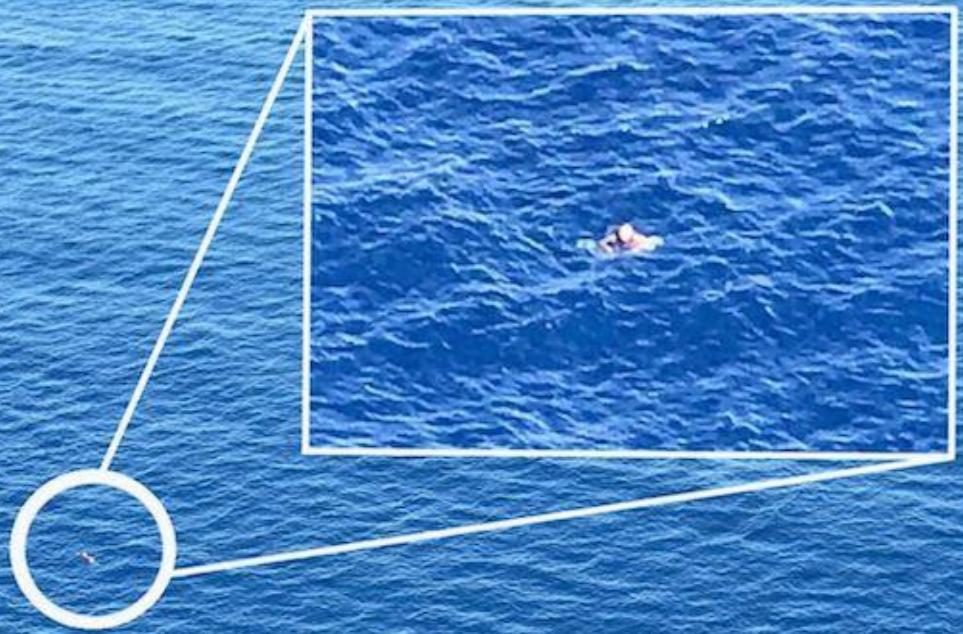
J Pharm Pract. 2019 Jun 30:897190019853979

PATIENT


PATIENT
blood pressure medicines
Pulmonary:
Respiratory failure due to hypoxemia with hypercapnia
-Fluid overload. Continue diuresis therapy
-Duo nebs every 4 hours
-Broad-spectrum antibiotics to rule out pneumonia
History of COPD
GI:
Nothing by mouth at this time due to BiPAP
FEN:
Hyperkalemia
-Acute hyperkalemia protocol
Continue to volume resuscitate
-Normal saline at 125ml/hr
Renal:
Acute on chronic renal failure
-Foley
-Strict intake and output
-Continue volume resuscitate
Heme:
Anemia of chronic disease
-No current indication for transfusion
Infectious disease:
Leukocytosis
-WBC 17.4

DRUG

DOSE



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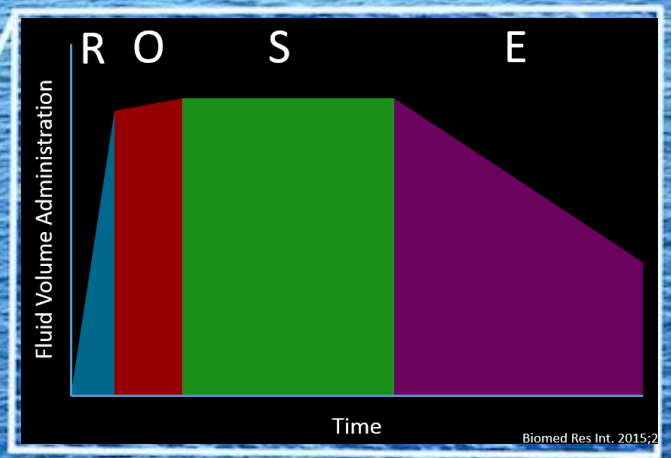

R O S E
Fluid Volume Administration
Time
Biomed Res Int. 2015;2

ROUTE

Our sample

12 bed Medical ICU at a single, 450-bed community teaching hospital

Inclusion:

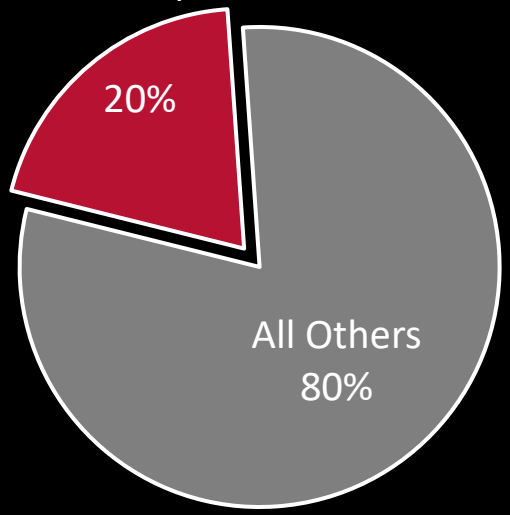
- All patients ≥18 years of age
- Admitted to the medical ICU for ≥72 hrs
- June 2016 to June 2019
- Followed by the academic team

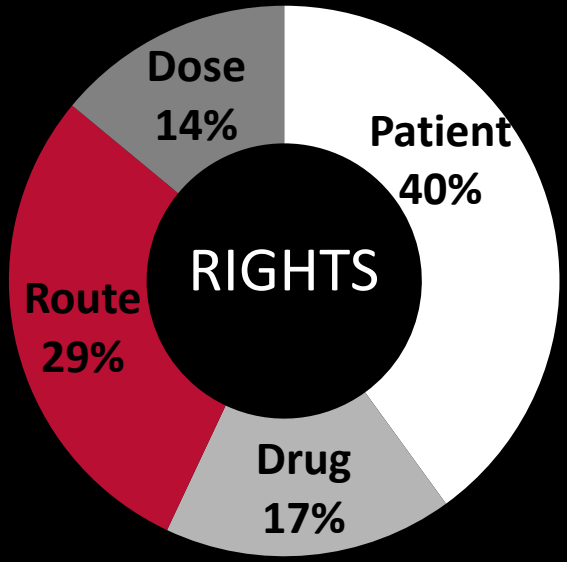
Exclusion:

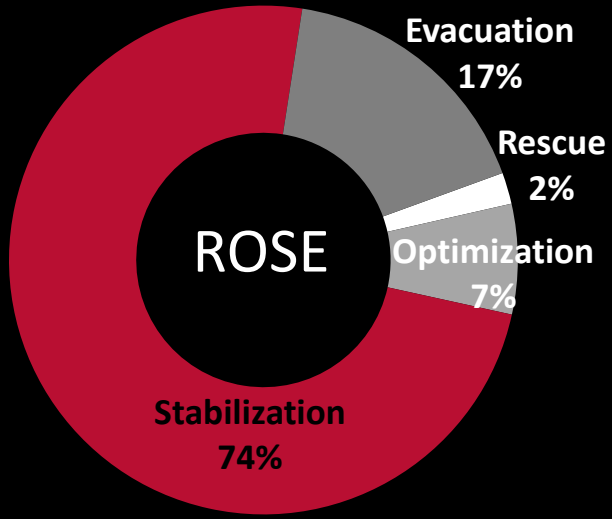
- Patients without documentation of pharmacy services

- 122 patients
- 307 patient days
- 939 interventions

Fluid Stewardship

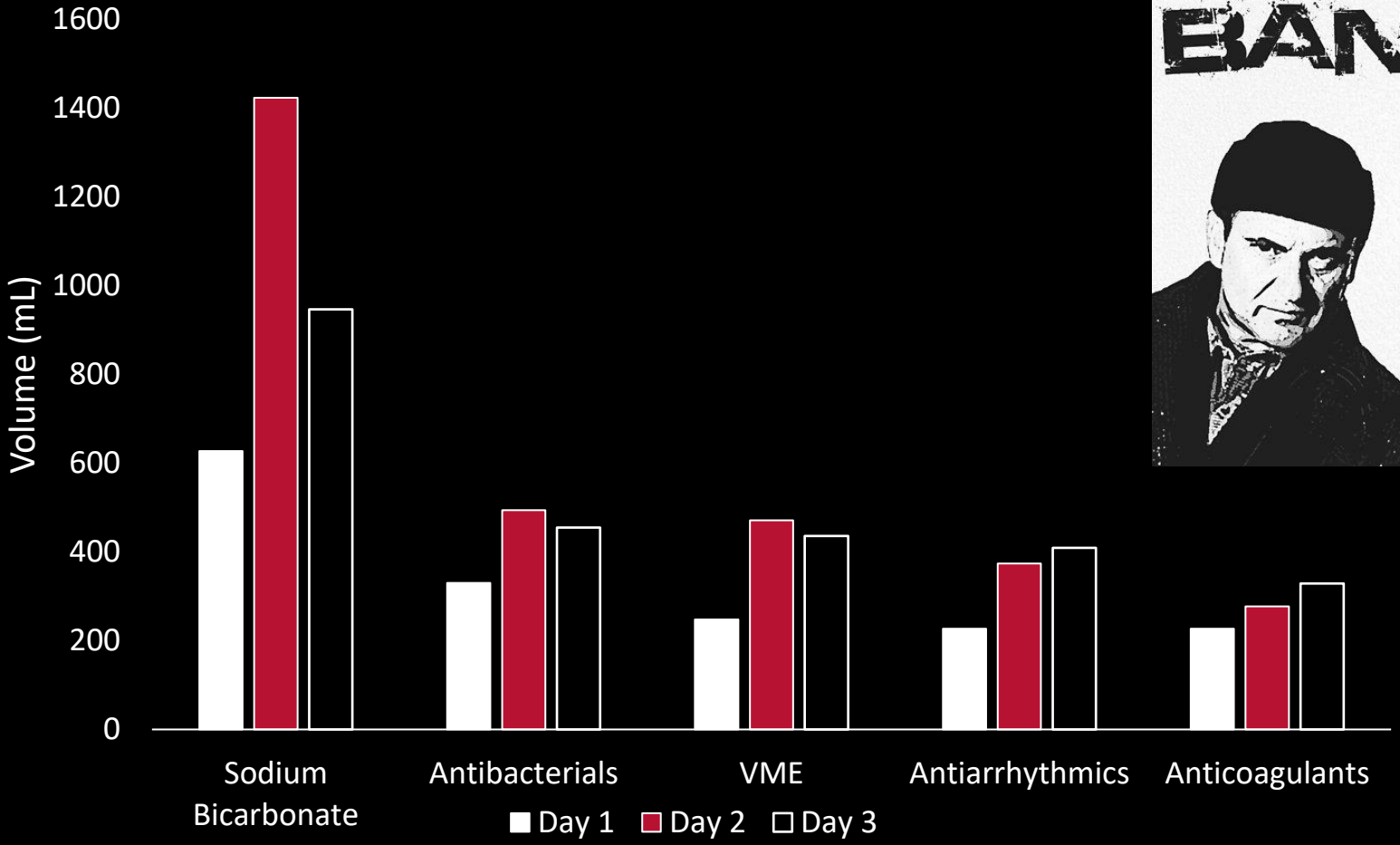






Fluid Overload 18%

Dossett, et al. ACCP Annual meeting 2019



Gamble, et al. ACCP Annual meeting 2019

Conclusion

- Fluids are often given
  - intentionally and unintentionally
  - with and without indication
- Fluid overload is common
- Pharmacist-driven fluid stewardship is a ripe area for improving patient care and professional advancement
- Limitations/Future direction: Rescue, non-MICU, recommendations vs. interventions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POLICE
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