



The Four Rights of Fluid Stewardship in Critical Illness: Comparing Pharmacy Recommendations in COVID-19 and Non-COVID-19 Patients

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BACKGROUND

- Intravenous fluids (IVFs) are essential medications in the intensive care unit (ICU) to avoid dehydration.
- Volume overload leads to adverse outcomes, including increased mortality, in critically ill patients.¹⁻³
- Fluid stewardship (FS) can be used by pharmacists to balance the risks of volume overload and dehydration.⁴
- Pharmacist recommendations regarding IVFs can be categorized into one of the Four Rights of FS.⁴



- The extent to which the coronavirus disease 2019 (COVID-19) pandemic has affected recommendations related to the Four Rights of FS has yet to be studied.

Study Purpose: To determine whether the rate of pharmacist-driven FS recommendations differs between COVID-19 and non-COVID-19 patients in the ICU

METHODS

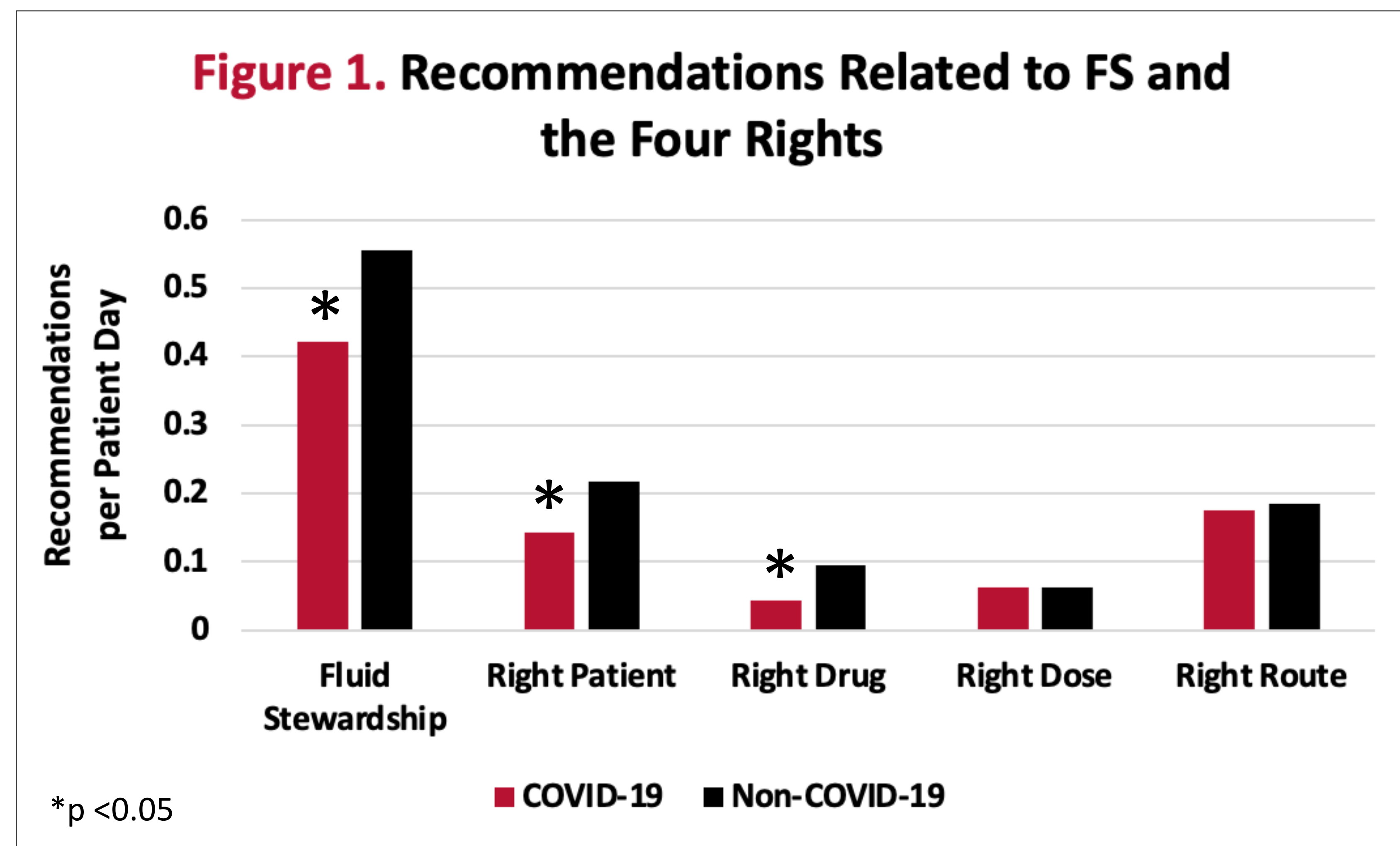
- **Design:** IRB-approved, retrospective, single-center cohort study
- **Time Frame:** June 2016-June 2019 and May 2020-September 2020
- **Setting:** Community teaching hospital
- **Inclusion Criteria:**
 - Adult (≥18 years old)
 - Critically ill
 - Followed by academic rounding team
- **Groups:**
 - Patients with COVID-19
 - Patients without COVID-19
- Recommendations for each patient day were extracted from pharmacy notes in TheraDoc.
- Recommendations were reviewed for relevance to fluid stewardship and classified based on the Four Rights.

OUTCOMES

- **Primary Outcome:** Number of FS recommendations per patient day
- **Secondary Outcome:** Number of FS recommendations related to each Right per patient day

- **Statistics:** Outcomes were analyzed in SPSS using two-sided, independent t-tests with an alpha level of 0.05.

RESULTS



Pharmacists made fluid stewardship recommendations more often in critically ill patients without COVID-19 than with COVID-19.

This difference was due largely to recommendations related to the Right Patient and Right Drug.

DISCUSSION

- Risk of acute respiratory distress syndrome in COVID-19 highlights the need to avoid volume overload in infected patients.
- Given the importance of FS in COVID-19 pathophysiology, the lower recommendation rate in COVID-19 patients is surprising.
- One possible explanation for the difference between the groups is that pharmacists had limited direct contact with COVID-19 patients.
- **Limitations:**
 - Results from one institution have limited generalizability.
 - Retrospective design depended upon pharmacists to document recommendations and upon reviewers to interpret this documentation.
 - Recommendation acceptance and patient outcomes were not considered.
- **Research Needs:**
 - Determine whether a relationship exists between FS recommendation rate and patient outcomes that could justify standardization of FS at bedside in ICU pharmacy practice.

REFERENCES

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For complete results, check here:

