

Impact Of the “July Effect” On Inpatient Outcomes In Patients With Congestive Heart Failure And Concurrent Sepsis

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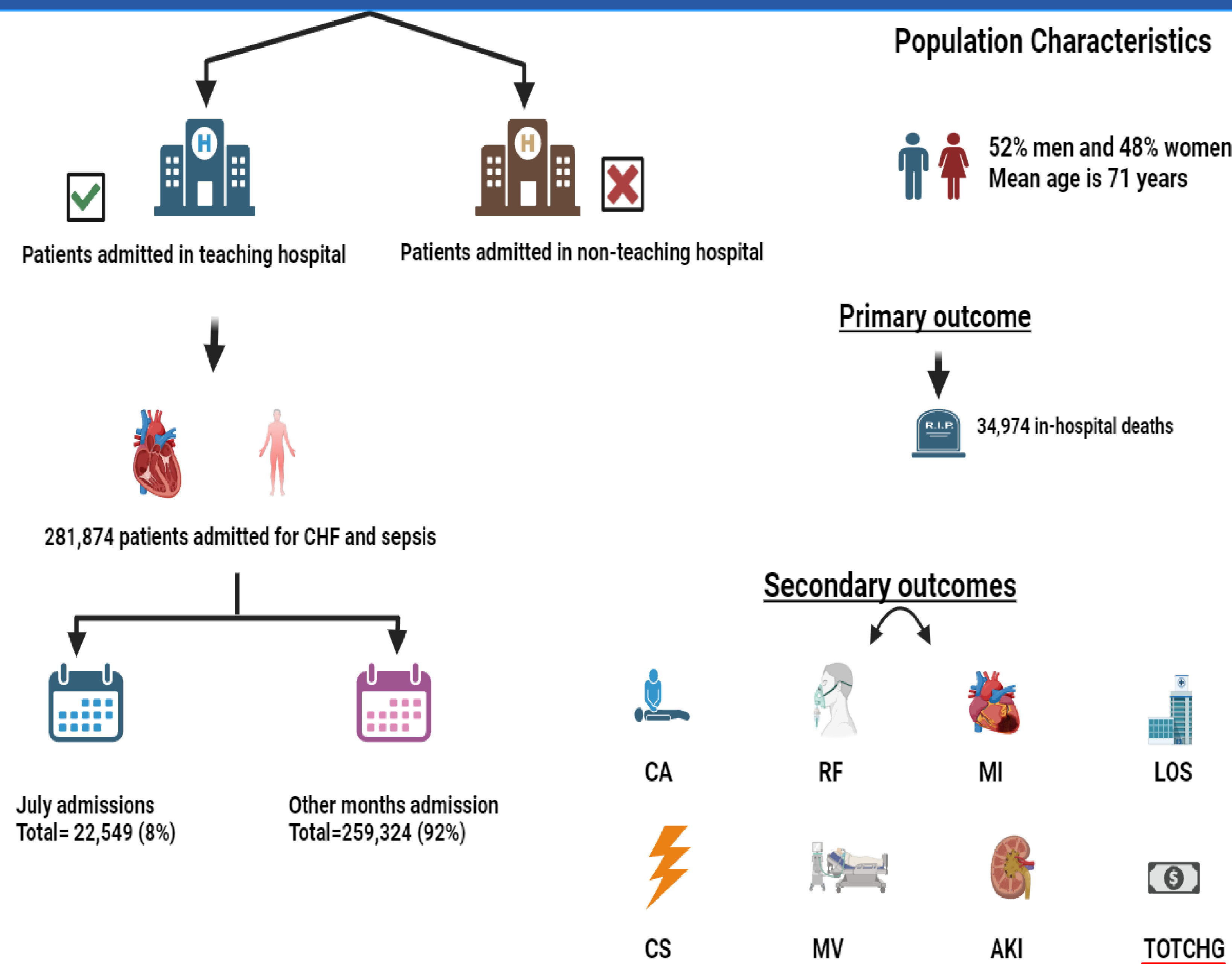
Introduction

- The “July effect,” a phenomenon associated with the arrival of new medical residents, remains a subject of debate. This transition, occurring each July, is believed to potentially influence patient care and outcomes.
- Our study aims to clarify this discourse by examining its impact on patients admitted for Congestive heart failure (CHF) and concomitant sepsis.

Methodology

- Retrospective analysis of the 2016-2020 National Inpatient Sample.
- We utilized chi-square and student T-tests to compare categorical and continuous variables
- Multivariate logistic regression was used to adjust for confounders and predict outcome probabilities.
- A $p < 0.05$ was deemed significant

National Inpatient Sample (2016-2020)



Abbreviations: CHF-congestive heart failure; CA-cardiac arrest; CS-cardiogenic shock; MV-mechanical ventilation; AKI-acute kidney injury RF-respiratory failure; MI-myocardial infarction; LOS-length of stay; TOTCHG-total hospital charge

Variable	July (%)	Other Months (%)	Multivariate regression analysis, OR (95% CI) P-value	
			Non-Propensity Matched	Propensity matched
Mortality	11.24	12.49	0.88 (0.81-0.97) 0.013	0.95 (0.85-1.06) 0.329
Cardiac Arrest	2.43	2.98	0.81 (0.67-0.98) 0.029	0.88 (0.70-1.11) 0.282
Cardiogenic shock	3.36	3.46	0.97 (0.82-1.14) 0.722	1.03 (0.84-1.28) 0.762
Respiratory failure	29.83	31.75	0.91 (0.86-0.98) 0.008	0.98 (0.90-1.06) 0.597
Mechanical ventilation	1.98	2.16	0.92 (0.74-1.13) 0.411	1.25 (0.77-1.25) 0.879
NSTEMI	5.85	6.49	0.89 (0.79-1.02) 0.091	0.91 (0.78-1.06) 0.220
Acute kidney injury	57.26	59.48	0.91 (0.86-0.97) 0.003	0.90 (0.84-0.98) 0.011
Cardiac devices	0.19	0.28	0.69 (0.35-1.36) 0.281	0.74 (0.34-1.61) 0.446

Table 1: Complications comparison in patients with CHF and sepsis admitted in the month of July vs other months

Results

- Out of 281,874 patients analyzed, 22,549 (8%) were in the JU group, while 259,324 (92%) were in the OM group.
- The mean age was 71 ± 13 years, with 52% males and 70% of white ethnicity.
- There were 34,974 deaths, with no significant differences in in-hospital mortality between the JU and OM groups (OR 0.95; 95% CI, 0.85-1.06, $p = 0.329$).
- There were no significant differences in healthcare resource utilization, including LOS (11.3 vs. 11.3) and TOTCHG (\$136,181 vs. \$136,377).
- There were no significant differences in CA (OR 0.88; 95% CI, 0.70-1.11, $p = 0.282$), RF (OR 0.98; 95% CI, 0.90-1.06, $p = 0.597$), ventilator use (OR 1.25; 95% CI, 0.77-1.25, $p = 0.879$).
- The JU group had lower AKI rates than OM (OR 0.90; 95% CI, 0.84-0.98, $p = 0.011$).

Conclusion

- Contrary to widespread concerns, no significant differences emerged between JU and OM in mortality rates, critical events, or conventional healthcare utilization metrics.
- Our study contributes granularity to the discourse surrounding the "July effect." It showed how our healthcare system effectively adapts during resident transitions, providing consistent care.