

The echocardiogram effect on length of stay

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Background

- Length of stay (LOS) is an important quality metric with consequential outcomes
- We noted that heart failure patients' LOS might be prolonged by the need for echocardiograms prior to discharge
- We hypothesized that patients with echocardiograms placed on the weekend might require a longer LOS
- We explored the impact of day of echocardiogram order upon LOS

Objective

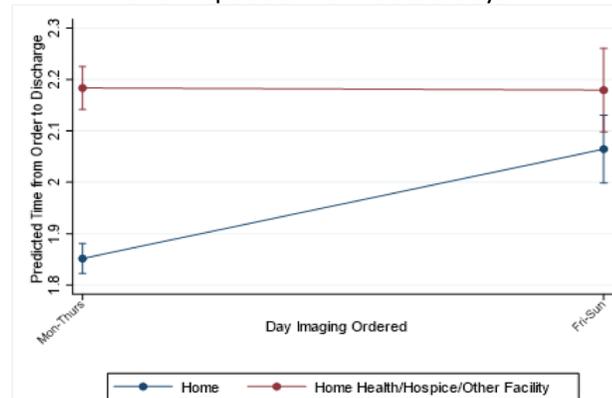
- To assess if echocardiogram orders placed Friday through Sunday were associated with longer LOS and order-to-discharge times than echocardiogram orders placed between Monday through Thursday

Methods

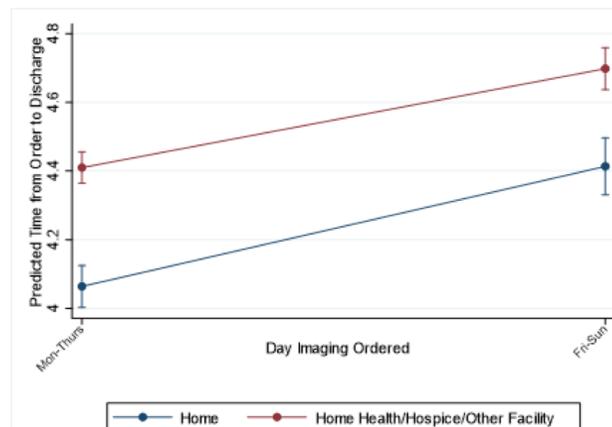
- All inpatients with a diagnosis of congestive heart failure (CHF) and echocardiograms completed while admitted were included
- Day that echocardiograms were ordered was split into two groups, Monday to Thursday (echo M-T) and Friday to Sunday (echo F-S)
- Wilcoxon rank-sum or two-sample t-test and chi-square test for independence were used to compare continuous and categorical data, respectively
- Unadjusted and adjusted linear regression models were built to assess the relationship between (1) day that echocardiogram order was placed and LOS and (2) day that echocardiogram order was placed and time to discharge

Figures

Time from Order to Discharge by Day of Imaging Ordered and Disposition for LOS 0-3 days



Time from Order to Discharge by Day of Imaging Ordered and Disposition for LOS >3 to 7 days



Results

- In total, 22,456 echocardiograms were completed on CHF inpatients between March 2018 and March 2022: 15,748 (70%) were in echo M-T and 6,708 (30%) were in echo F-S
- Difference in LOS between the two ordering groups was significant: echo M-T had median LOS of 5.4 days (IQR 3-9.8) and echo F-S had median LOS of 6 days (IQR 4-10.1) ($p = 0.0009$)
- Additionally, echo F-S had a higher mean LOS of 0.43 days (95% CI 0.18, 0.7) compared to echo M-T
- Time from imaging to discharge also differed significantly between groups: echo M-T had median 4.6 days (IQR 2.6-7.8) between order and discharge and echo F-S had median 5.6 days (IQR 3.7-8.7) ($p < .0001$)

Conclusion

- Based on our results, LOS is significantly longer when echocardiogram orders are placed Friday – Sunday versus Monday – Thursday
- We postulate that this likely relates to differences in staffing on weekends, making echocardiograms less accessible
- We plan to expand our study to other populations such as patients with diagnoses of stroke and see if their day of admission and day of relevant imaging impacted LOS

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