

Impact of Order Set Use on Stroke Care

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Introduction

A case control study of 118 patients from Oak Hill Hospital between the months of August 2019 and January 2020 was recently completed for a hospital research quality improvement study. The objective was to determine if the use of either Hemorrhagic or Ischemic Stroke Order Set had an effect on the length of stay (LOS) or adherence to current stroke guideline recommendations when compared to its disuse. Results indicate use of either the Hemorrhagic or Ischemic Stroke Order Set led to a decreased length of stay and an increased adherence to current stroke guideline recommendations. Limitations of the study included non-adherence to the current 2019 stroke guidelines defined by The American Stroke Association .

Background

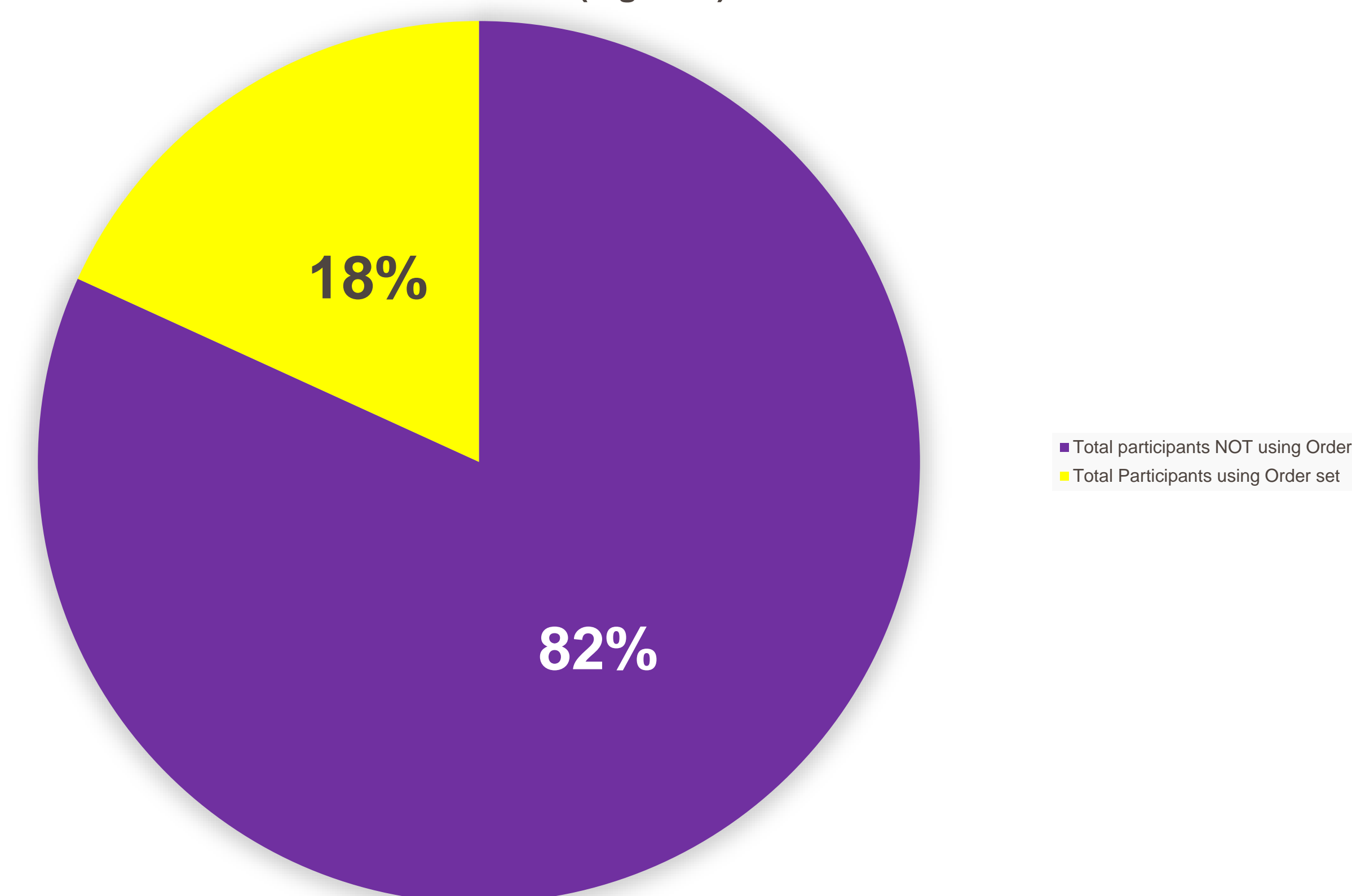
Stroke is the fifth leading cause of death in the United States costing Americans billions of dollars each year¹. Quality improvement (QI) projects are essential to identify gaps in the management of stroke intervention as well as to increase adherence to guideline directed therapy². A 5-year study of patients under the GWTG-stroke program indicated that emphasis on guideline based therapy led to an increase in anti-thrombotic use, an increase in statin initiation as well as an increase in smoking cessation³. A QI project conducted at an Atlanta VA Medical Center showed that the use of guideline based order sets led to an increase of adherence to stroke guideline recommendations³.

For this study, the most recent stroke guidelines from 2019 were utilized which encouraged: use of a stroke protocol, Telestroke for rapid imaging interpretation, timely antithrombotic administration, importance of imaging immediately upon arrival, rehab and speech therapy evaluations, carotid imaging within 24 hours of admission, a MRI brain scan, an echocardiogram and initiation of a statin⁴.

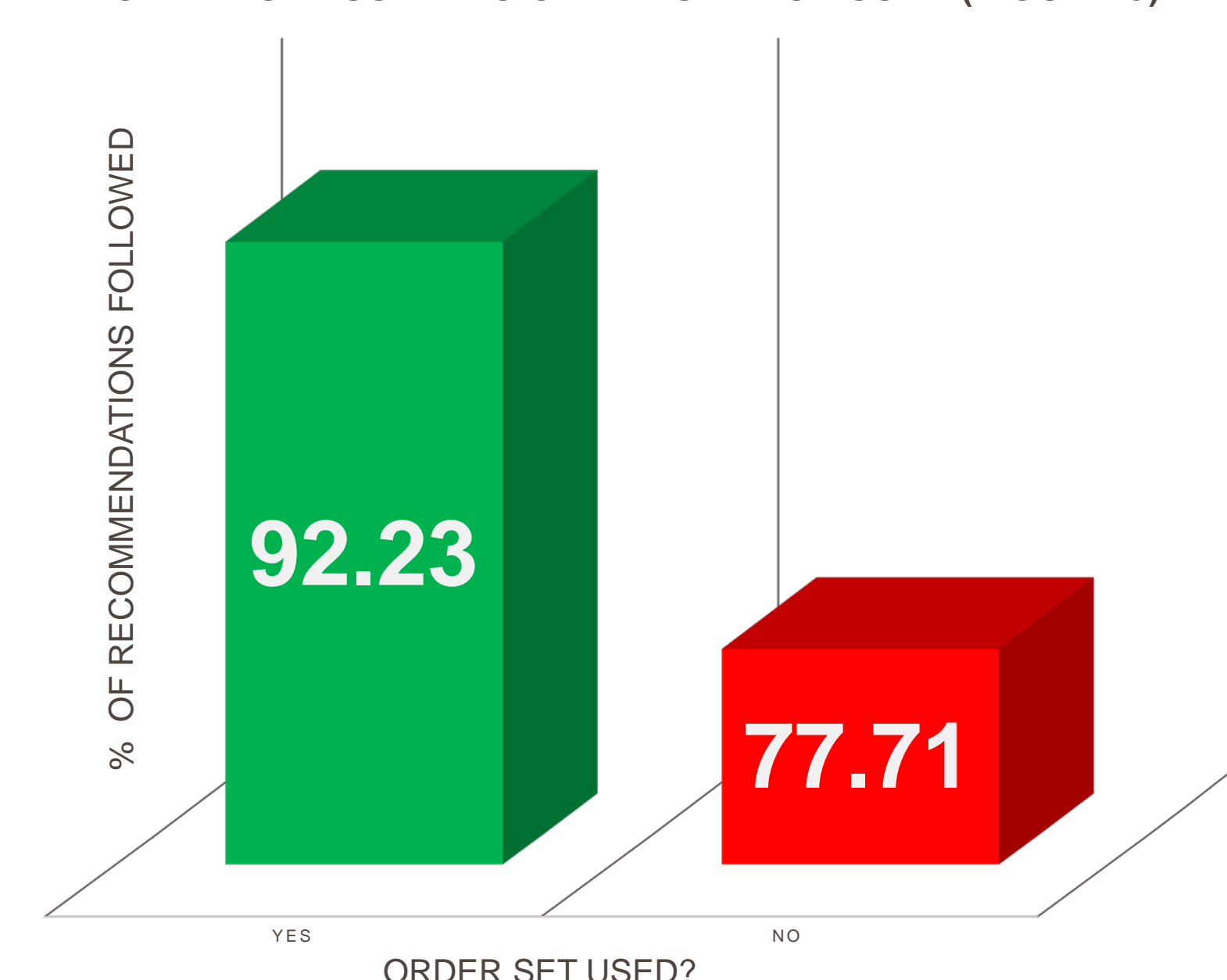
Methods

One-hundred and eighteen records were reviewed from HCA's Oak Hill Hospital database between the dates of August 27th 2019 through January 30th, 2020. The records were split into two groups. One group consisted of records in which either the Ischemic or Hemorrhagic Order Set was used while the other group contained the records without either order set used (figure 1). A comparison was made using the following recommendations taken from the 2019 American Stroke Association guidelines: Brain CT, Brain MRI, Echocardiogram, B/L Carotid Ultrasound, Lipid panel, Antithrombotic, Statin, ST/PT/OT and Neurological Consultation⁴. LOS was calculated by the difference between admission order time and patient departure time and the mean LOS was compared between both groups. Statistical analysis was completed by a modified Welsh's T-test.

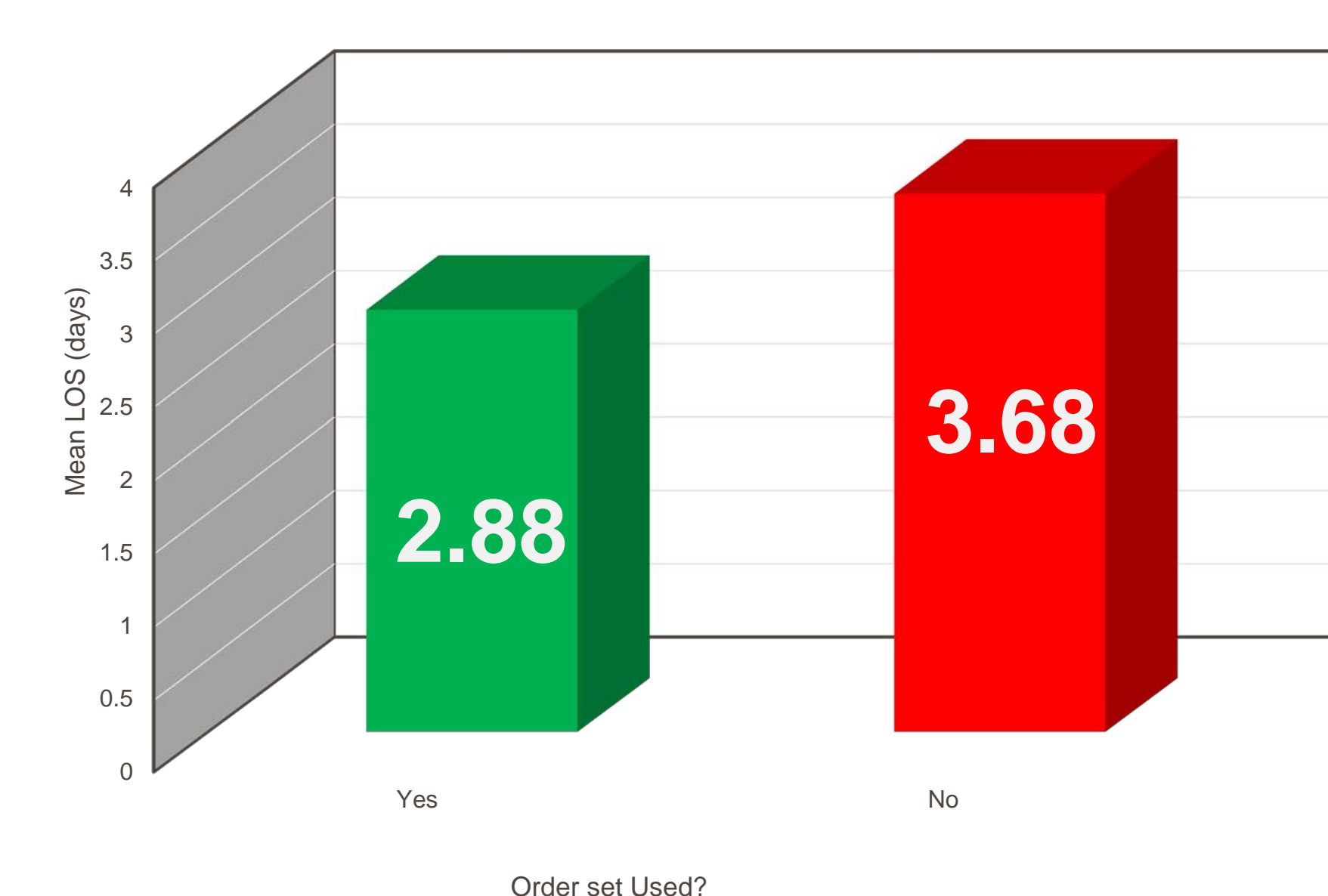
Ischemia or Hemorrhagic Order Set: Used vs Unused (Figure 1)



COMPARISON OF MEAN ADHERENCE TO 2019 AMERICAN STROKE ASSOCIATION GUIDELINES: ORDER SET USED VS ORDER SET NOT USED (FIGURE 3)



Comparison of Mean LOS: Order Set Use vs Disuse (FIGURE 2)



Results

Results computed from the modified Welsh's T-test indicated a significant reduction of the mean length of stay when either order set was used when compared to order set disuse ($p = .04$; $n = 118$; Figure 2). Furthermore, a significant increase in the mean adherence to current stroke guidelines⁴ was also observed when either order set is used when compared to order set disuse ($p < .001$; $n = 118$; Figure 3).

Conclusion

Results indicate use of either the Hemorrhagic or Ischemic Stroke Order Set led to increased adherence to current stroke guidelines⁴ and decreased length of stay. Further studies should incorporate a greater sample size to investigate the effectiveness of order sets currently offered for hemorrhagic or ischemic stroke intervention. Finally, there is a need for additional studies to investigate the effectiveness of order set utilization for other common pathologies such as COPD, CHF, and Asthma.

References

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2. Akwe, J., & Wallace, J. M. (2018, July). Using Stroke Order Sets to Improve Compliance With Quality Measures for Ischemic Stroke Admissions. Retrieved May 1, 2020, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6368016/>
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