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Collin Duff

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Joseph J. Stirparo MD

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Correlation of Relative Value Unit Reimbursement in Trauma Surgery with Hospital Length of Stay

Collin Duff, Jade Vanderpool, Joseph Stirparo, MD

Lehigh Valley Health Network, Allentown, Pennsylvania

Background

- Work relative value units (wRVUs) are a metric used by Medicare to assign value to individual medical treatments based on physician work and productivity.
 - There is concern that wRVU levels may not accurately reflect a surgeon's work, productivity, or "value."¹
- Beginning in 2013, Lehigh Valley Hospital (LVH) introduced several procedural modifications in order to decrease hospital length of stay (LOS).
 - These initiatives included early evaluation by PT, case management review of estimated LOS, avoidance of unnecessary inpatient test, and increased mobility.
- For non-trauma physicians, decreasing LOS generally increases volume of patients, so the wRVU system rewards faster physician work and lower LOS averages.²

Objectives: To determine (1) if wRVU generation is correlated with hospital length of stay among all LVHN-Cedar Crest trauma patients and (2) if wRVU generation per trauma patient has decreased since LOS reduction initiatives were introduced in 2013.

Methods

Data Collection

Retrospective chart review of 2011-2015 yearly corridor reports to calculate total wRVU reimbursement throughout the Dept. of Trauma Surgery for each month

Retrospective database review of monthly hospital LOS for trauma patients

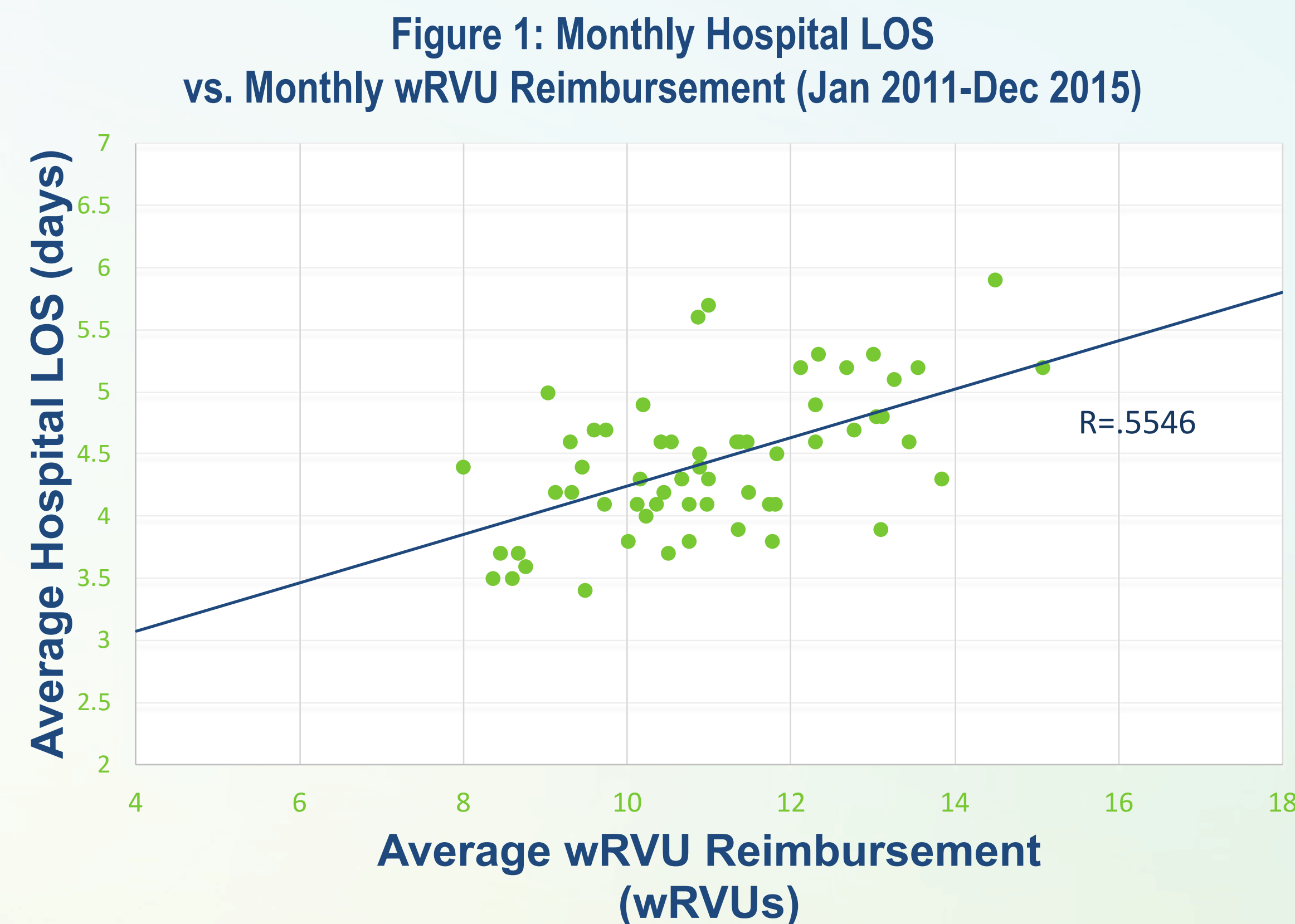
Statistical Analysis

Test for correlation between variables using the Pearson correlation test and scatter plot analysis

Test variables for differences in means before and after LOS reduction initiatives were introduced in 2013

STATA

Results



- Approx. 25,000 trauma patients from 2011-2015
- Pearson correlation coefficient (R) between monthly wRVU generation and monthly LOS: .5546 (moderate positive correlation)

Figure 2: Monthly Hospital LOS Before and After 2013 LOS Reduction Initiatives

	2011-2012	2013-2015
Average LOS	4.6125 days	4.3286 days
		6.2% decrease

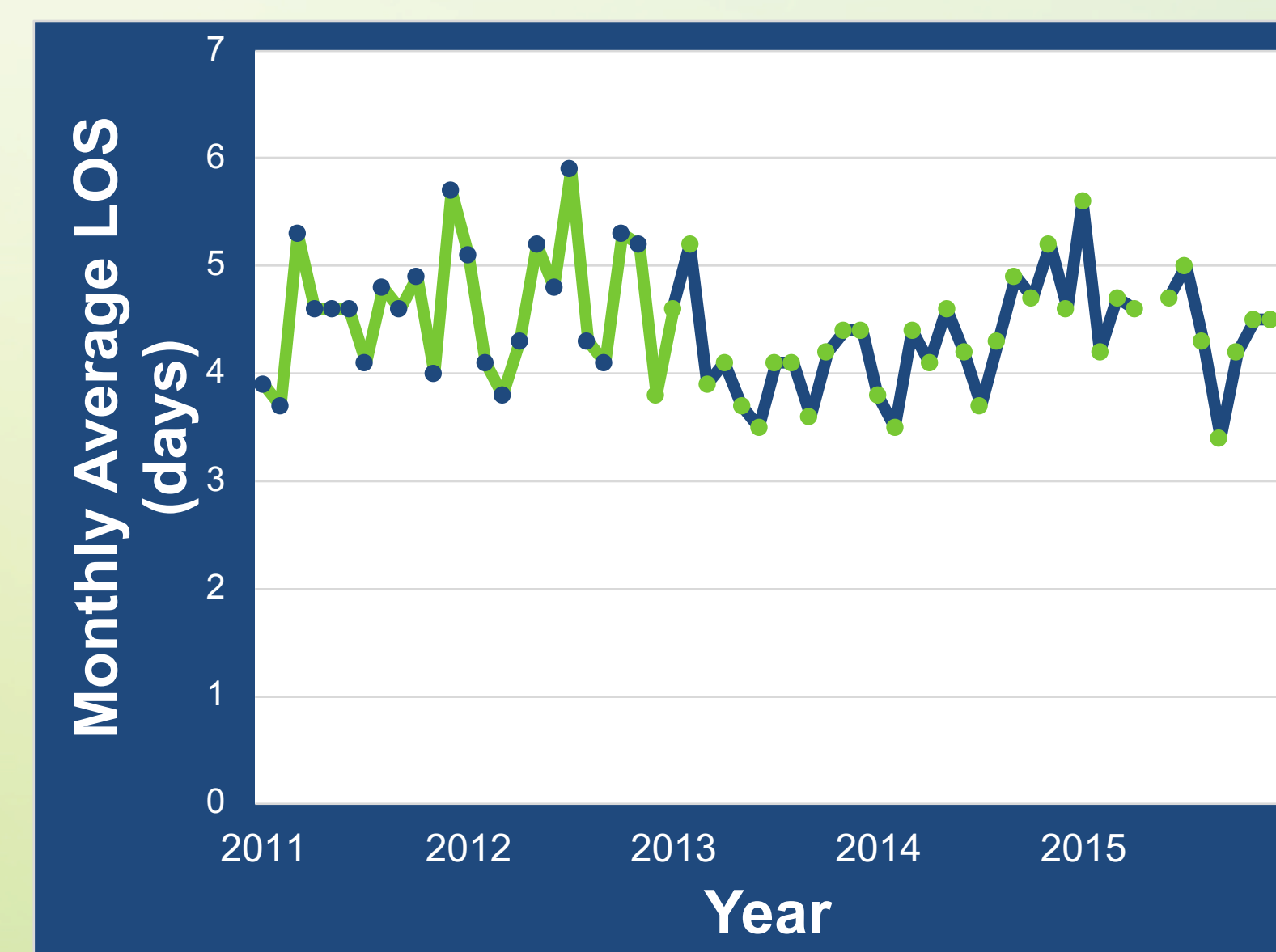
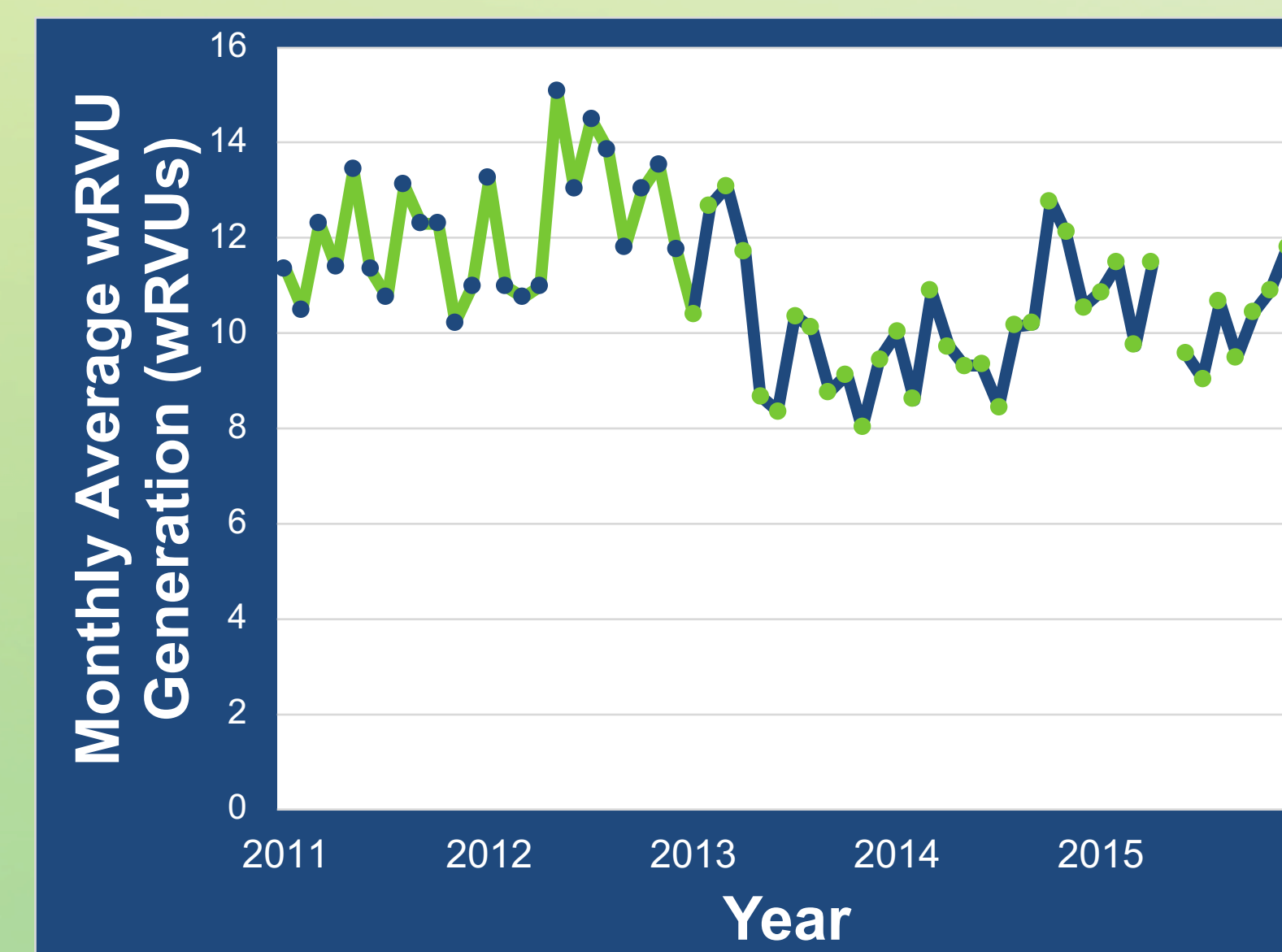


Figure 3: Monthly wRVU Generation Before and After 2013 LOS Reduction Initiatives

	2011-2012	2013-2015
Average wRVUs	12.1956	10.2413
		16.0% decrease



Conclusions

Correlation:

- The correlation coefficient between monthly wRVUs and monthly LOS (.5546) signifies a moderate positive correlation between the two variables.
- Further testing would be needed in order to confirm causation, but if the 2013 LVH LOS reduction initiatives were successful in decreasing average hospital LOS, it is possible that wRVUs would decrease as a result.

Pre-2013 vs. Post-2013:

- The average hospital LOS per trauma patient between Jan 2013 and Dec 2015 was 6.2% lower than it was between Jan 2011 and Dec 2012. This confirms the effectiveness of the 2013 LVH LOS reduction initiatives.
- The average wRVU generation per trauma patient between Jan 2013 and Dec 2015 was 16.0% lower than it was between Jan 2011 and Dec 2012.
- Together, the overall decreases in both of these variables further support the finding that wRVU generation and hospital LOS are correlated and the hypothesis that 2013 LOS reduction initiatives may have contributed to decreased wRVU generation for trauma surgeons.

Future Directions

Proposal: The results of this study suggest that Medicare should alter its criteria for assigning wRVU reimbursement to trauma care in order to incentivize increased productivity.

Future Research: In order to conclude that decreasing LOS directly causes reduced wRVU generation, both variables must be tested for correlation against all possible confounding variables.

References:

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- Katz S, Melmed G. How Relative Value Units Undervalue the Cognitive Physician Visit: A Focus on Inflammatory Bowel Disease. *Gastroenterol Hepatol (N Y)* 2016;12(4):240-4.