

BACKGROUND

Broadening the scope of an anesthesiologist has come into vogue as an American Society of Anesthesiologists' initiative highlighting the impact of anesthesiologist-led care on value and patient satisfaction. Anesthesiologist-led pain services provide longitudinal anesthesiologist-led care and have great potential to impact satisfaction and provide value through cost reduction. One area of particular interest in pediatrics concerns Sickle Cell Anemia. Sickle Cell Anemia occurs in 1 in 500 African Americans.¹ The disease costs patients an average of \$500,000 per patient in healthcare, with over 80% being related to inpatient care.² Our organization implemented an Acute Pain Management Service (APMS) protocol across all pediatric sickle cell crisis admissions >5yrs starting in September of 2016 as a Quality Improvement Initiative.

AIM

Our intent was to assess the impact our quality initiative based on length of stay (LOS) as a surrogate for cost, while assessing re-admission rates at 1, 7, and 30 days as a metric for quality.

METHODS

Patients were identified by ICD codes through the University's Billing Department and supplemented with the medical record. A baseline period of 2 years was analyzed from 2014-2015. LOS and re-admission dates that occurred within 1 day, 1 week, and 30 days were recorded. The post-interventional period (1 year) was assessed from 9/2016-9/2017 utilizing the same data and supplemented with the pain service database and EMR to determine strict (<2 medication deviation) vs loose(≥ 2 medication deviation) protocol compliance. A student's t-test was utilized for comparison.

RESULTS

The baseline 2014-2016 population consisted of 307 patients. The mean LOS was 4.0 days (STD 4) . In the interventional time period of 2016 to 2017, there were 77 patients with an average sickle crisis LOS of 2.8 days (STD 2) (p<.04) (figure 1). Compliant patients had an average LOS of 2.3 (STD 1.4) days and Non-compliant patients had a LOS of 3.5 (STD 1.6) days (p<.03).

Annual re-admission rates for the baseline group were 1.6%, 6.2%, and 22% at 1, 7, and 30 days respectively. Re-admission rates for the intervention group were 1.3%, 5.0%, and 23% annually for 1, 7, and 30 days respectively (figure 2). This did not meet a significant difference threshold of 10% and demonstrates non-inferiority.

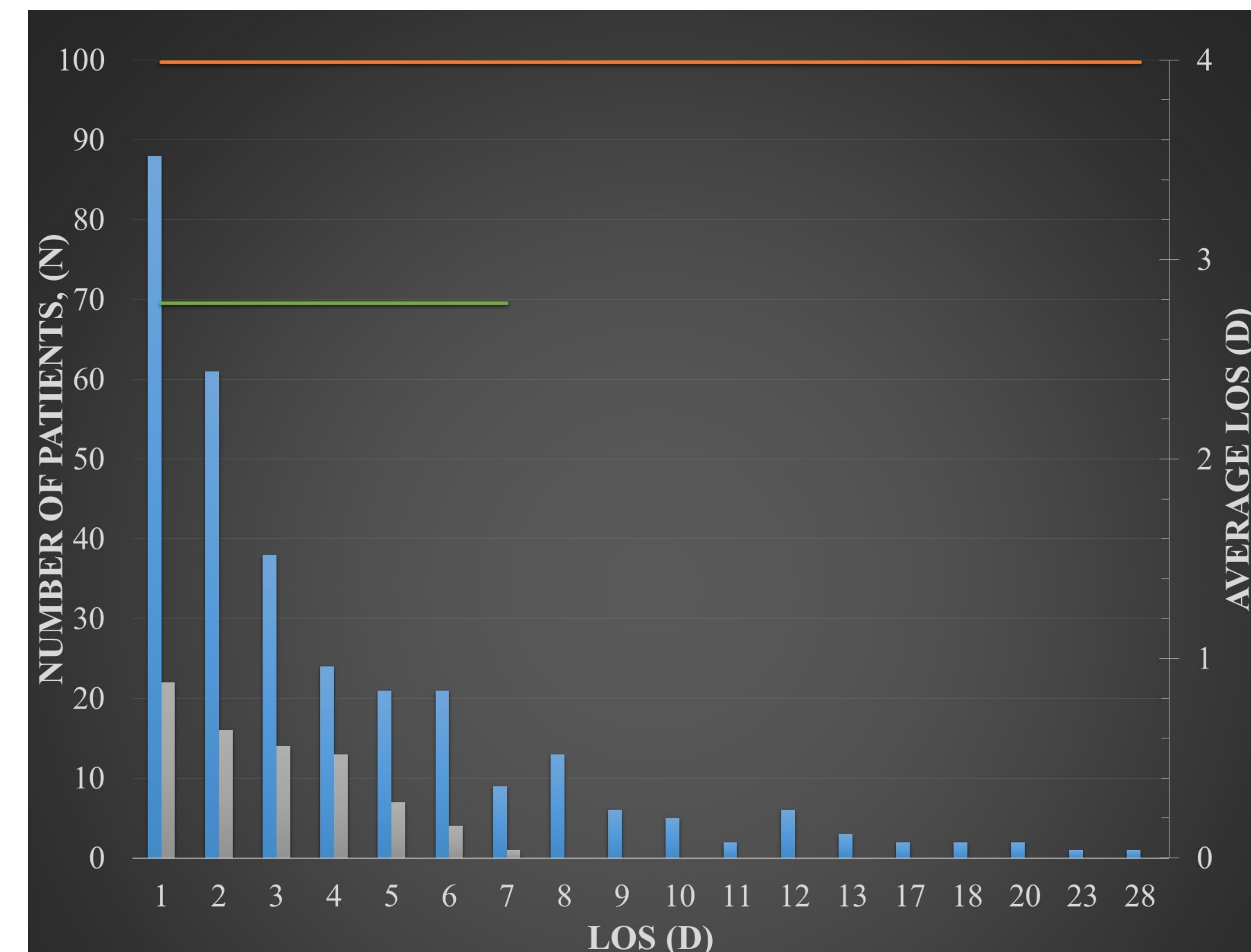


figure 1. LOS 2014-15 vs 2016-2017
orange line: average 2014-2015 (3.99)
green line: average 2016-2017(2.78)
 ■ n, 2014-2015 ■ n, 2016-2017

CONCLUSION

While we saw a significant drop in the number of sickle cell admissions after the interventional period, we also saw a significant decrease in the length of stay during this time as well. This can be explained by a milder winter in 2017, which also has the potential to influence both length of stay and re-admission.

Our results demonstrate a significant decrease in length of stay for the treatment group reducing utilization of healthcare resources in the hospital and likely cost. This occurred while at the same time not impacting quality as assessed by re-admission rates.

This demonstrates that anesthesiologists working in concert with allied providers can create value outside the operating room.

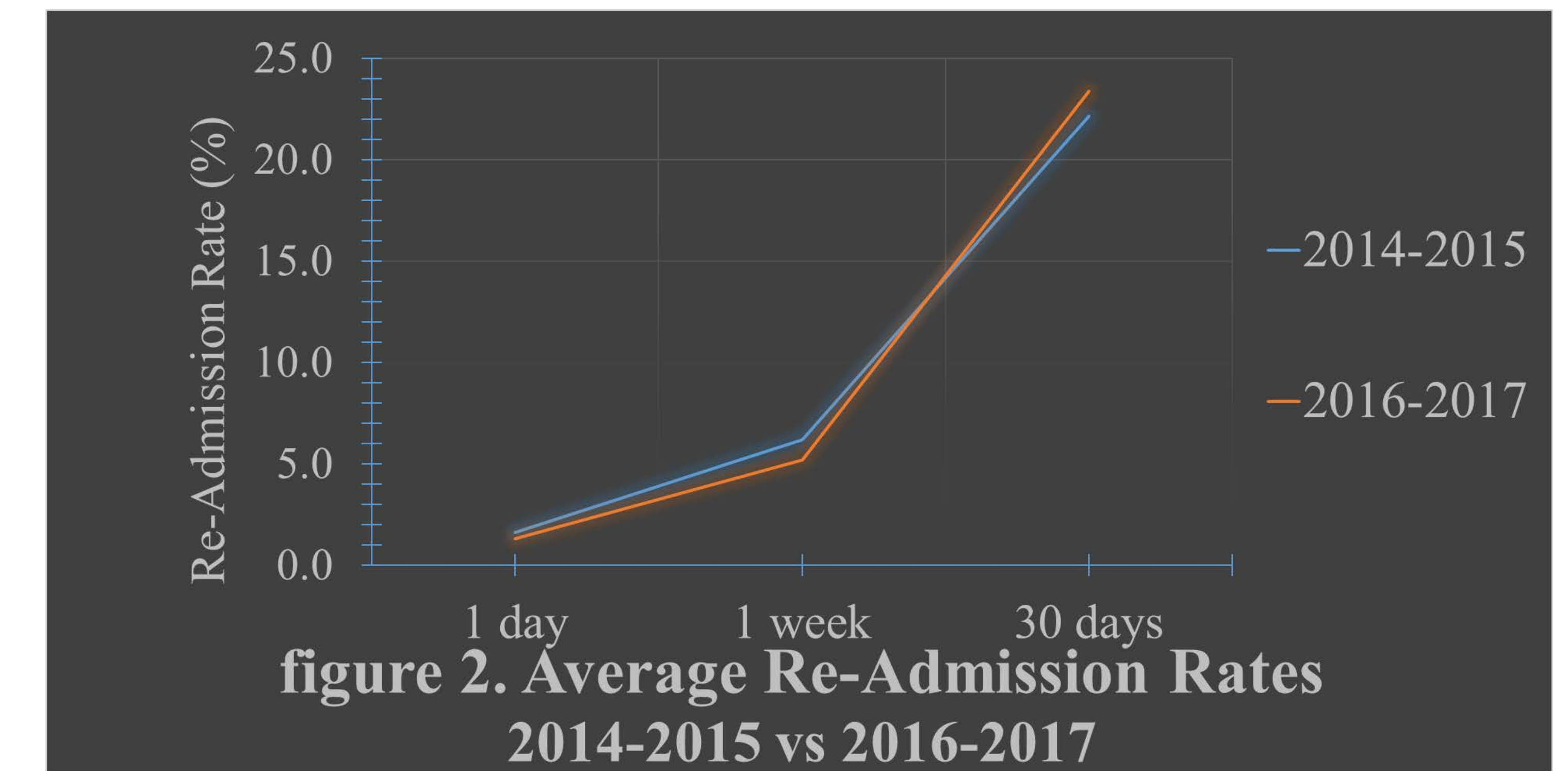


figure 2. Average Re-Admission Rates 2014-2015 vs 2016-2017

REFERENCES

1. Mvundura M, Amendah, D, Kavanah, P et al. Health Care Expenditures for Privately and Publicly Insured Children with SSD. *Pediatric Blood & Cancer* 2009 Oct;63(4):642-646
2. Kauf TL, Coates TD, Hauzhi L, Mody-Patel N, Hartzema AG. The cost of health care for children and adults with sickle cell disease. *Am J Hematol.* 2009 Jun;84(6):323-7.