



**CALIFORNIA STATE SCIENCE FAIR  
2009 PROJECT SUMMARY**

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**Project Title**  
**Effects of CMS Change of Lowering Hgb Threshold for ESAs in Cancer Treatment on Blood Transfusions in OC Cancer Centers**

**Abstract**

**Objectives/Goals**

To measure the effects of the Centers for Medicare and Medicaid Services, CMS, policy change that lowered the erythropoiesis stimulating agent, ESA, utilization threshold from a hemoglobin of 12 g/dl to 10 g/dl on the utilization of red blood cell transfusions in Orange County community cancer centers.

**Methods/Materials**

Monthly red cell transfusion records from 2005, 2006, 2007, and 2008 were obtained from Orange County's two largest cancer care providers, St. Joseph Hospital and Hoag Memorial Hospital: City of Hope (National Cancer center control); and three Kindred Hospitals (chronic care facility controls).

The monthly rbc transfusions during the 14 months before the CMS policy change of July 1, 2007 were compared with the monthly rbc transfusions for 14 months after the policy change for each study facility, all Orange County facilities; and all cancer facilities combined.

These changes were compared with the historical growth in rbc transfusions between 2005 and 2006 for each facility and the before versus after CMS policy change in the control chronic care facilities, Kindred Hospitals.

**Results**

St. Joseph Hospital had a historical growth in red blood cell transfusions of 1.9% (-2% deviation) versus 4.6% increase in transfusions(-6% deviation) after the CMS policy change. Hoag Hospital had a historical red cell transfusion growth of 0.1% (-3.7% deviation) versus a 19.3% increase (-8% deviation) after the CMS policy change. As a whole, Orange County Cancer Center had a 1% historical increase in transfusions versus an 11.5% increase after the policy change. The National Control had a historical increase of 9.5% versus a post policy change of 10.0%. The non-cancer controls, Kindred Hospitals, experienced a 16.4% increase before and after the policy change.

**Conclusions/Discussion**

There was a definite increase in red blood cell transfusions in Orange County's community cancer centers following the CMS policy change that could not be explained by the historical growth in the cancer population. The study illustrated the unintended consequence of the CMS National Coverage Determination on erythropoiesis stimulating agents,ESAs, that lowered their threshold for utilization from a hemoglobin of 12 g/dl to 10 g/dl: the restriction led to a significant increase in red blood cell transfusions in Orange County community cancer centers.

**Summary Statement**  
How CMS's decreasing the ESA use affected red blood cell transfusions in Orange County cancer centers.

**Help Received**  
Medical Oncology Association of Southern California sponsored project.