



Intravenous literature: Lillo, R., Salinas, M., Lopez-Garrigos, M., Naranjo-Santana, Y., Gutiérrez, M., Marín, M.D., Miralles, M. and Uris, J. (2012) Reducing preanalytical laboratory sample errors through educational and technological interventions. *Clinical Laboratory*. 58(9-10), p.911-7.

Abstract:

BACKGROUND: A correct preanalytical phase procedure is critical to get an adequate sample and consequently to achieve the most reliable laboratory results, promoting patient safety. Continuous laboratory staff changes create the need to establish improvement strategies to reduce the error risk. The objective was to show how the numbers of preanalytical errors related to unsuitable samples in a hospital setting decrease following two improvement strategies related to new technology and educational actions and how their effects were measured by monitoring indicators.

METHODS: Samples were drawn by the laboratory and other hospital departments' nurses without previous patient appointment, therefore, prior tube preparation was not available before the phlebotomy. Corrective measures for these activities were established: educational program for nurses and a system of custom labels, which correlate each laboratory test in the Laboratory Information System (LIS) with the corresponding tube. Three phases were defined based on the implementation dates of the improvement actions to be assessed. The set of indicators designed to monitor the improvement related to clotted, hemolyzed, insufficient, and uncollected samples. Data were collected and indicators

calculated from the LIS using a data warehouse application. Patient satisfaction with respect to phlebotomy was also measured annually using a scoring survey.

RESULTS: There was a reduction in all types of preanalytical sample errors related to the improvement strategies adopted. The indicators demonstrated that the unavailable, insufficient, and clotted samples decreased between two- and three-fold, whereas hemolysis errors benefited more from these improvement strategies. Patient satisfaction with the laboratory and phlebotomy procedures improved over the past several years as based on the annual satisfaction surveys.

CONCLUSIONS: The educational program for nursing personnel is relevant and important as can be seen in the decrease of sample errors and the resulting quality improvement. The custom label system minimizes the potential oversight of forgetting to draw a tube, which happens frequently when operating without appointments, by printing the labels according to requested tests. Detection, identification, and monitoring of the error and implementing strategies to improve preanalytical quality reduces error numbers and thereby improves patient safety and health system outcomes.

