

Evidence-Based Practice Change: Is It Worth the Extra \$2?

Cheryl Ann Huang, RN, MS, AOCN, Cheryl.huang@osumc.edu

Arthur James Cancer Hospital and Richard J. Solove Research Institute

Problem: Nurses asked why infusion pumps are not used for transfusions? The response received indicated current infusion pumps could not handle transfusions. The clinical practice committee recommended benchmarking with other institutions and a literature review. **Evidence:** A literature review indicated very little current research with most studies completed in the 1980's. Results of the studies found no clinically significant effects on blood cells when transfused by infusion pump. The advantages of infusion pump transfusions cited in the literature were controlled flow and decreased product waste. The current vendor for the infusion pumps utilized in the institution provided research results that supported the use of the pumps. New tubing was the only **equipment** requirement to implementing the change. Benchmarking with similar institutions revealed both methods of transfusion were utilized. **Strategy:** Approval for practice change was sought and received from three major practice committees. Once new tubing was obtained the change could be implemented; however, the tubing cost two dollars more than current tubing used, translating to a large increase in cost for the health system. Approval for such an increase was required from another committee, but was not granted as the evidence provided did not support the cost increase. **Evaluation:** The focus of the study needed to change to why pumps should be used. New data was collected over the ensuing three months which examined costs related to missed or incomplete transfusions and nursing time invested in difficult transfusions. The cost, over \$60,000 supported the change. **Results:** There has been a dramatic drop in incomplete transfusions and staff and patient satisfaction with transfusions is high. **Recommendation:** All impacts of practice change need to be evaluated in the process of gaining evidence so that glitches to implementing change do not occur.

Bibliography

- American Association of Blood Banks (1999). *Technical manual* (13th ed.). Bethesda ME: American Association of Blood Banks.
- Burch, K. J., Phelps, S. J., & Constance, T. D. (1991). Effect of an infusion device on the integrity of whole blood and packed red blood cells. *American Journal of Hospital Pharmacy*, 48(1), 92.
- California Blood Bank E-Network Forum. (04, January 6). *Does new evidence exist on the safety of using automatic IV infusion pumps for red cell transfusions?* Retrieved January 13, 2004, from California Blood Bank Web Site: www.cbbsweb.org
- Frelich, R., & Ellis, M. H. (2001). The effect of external pressure, catheter gauge, and storage time on hemolysis in RBC transfusion. *Transfusion*, 41(6), 799-902.
- Frey, B., Eber, S., & Weiss, M. (2003). Changes in red blood cell integrity related to infusion pumps: a comparison of three different pump mechanisms. *Pediatric critical Care Medicine*, 40(4), 465-70.
- Hansen, T. G., Sprogøe-Jakobsen, U., Pedersen, C. M., Olsen, K. S., & Kristensen, S. R. (1998). Haemolysis following rapid experimental red blood cell transfusion--an evaluation of two infusion pumps. *Acta Anaesthesiologia Scandinavica*, 42(1), 57-62.

- Norville, R., Hinds, P., Wilimas, J., Fairclough, D., Fischl, S., & Kumkel, K. (1994). The effects of infusion methods on platelet count, morphology, and corrected count increment in children with cancer: in vitro and in vivo studies. *Oncology Nursing Forum*, 21(10), 1669-73.
- Petz, L. D., Swisher, S. N., Kleinman, S., Spence, R. K., & Strauss, R. G. (Eds.). (1996). *Clinical practice of transfusion medicine*. New York: Churchill Livingstone.
- Snyder, E. L., Rinder, H. M., & Napychank, P. (1990). In vitro and in vivo evaluation of platelet transfusions administered through an electromechanical infusion pump. *American Journal of Clinical Pathology*, 94(1), 77-80.
- Thompson, H. W., Lasky, L. C., & Polesky, H. F. (1986). Evaluation of a volumetric intravenous fluid infusion pump for transfusion of blood components containing red cells. *Transfusion*, 26(3), 290-2.