Table 4. Summary of Studies Reviewed

Citation	Design & Methods	Number of Subjects	Results	Conclusion / Recommendations
* Mukhopadhyay et al. (2010)	Before and after intervention study Evaluated the impact of a restrictive transfusion strategy and VAMP compared to control.	n = 250 Adult ICU patients (Control group n = 80, Active group n = 170)	Control group had higher Hb levels on admission (12.4 ± 2.5 vs. 11.58 ± 2.8 gm/dL, P = 0.02). Use of blood conservation device was associated with significantly decreased transfusion requirements (control 0.131 unit vs. active 0.068 unit RBC/patient/day, P = 0.02). Control group had a greater decline in Hb levels (2.13 ± 2.32 vs. 1.44 ± 2.08 gm/dL, P = 0.02) at discharge.	The use of a blood conservation device is associated with 1) reduced RBC transfusions and 2) smaller decrease in hemoglobin levels in the ICU.
* Mahdy, et al. (2009)	Prospective, randomized, unblinded controlled clinical study Comparing VAMP plus pediatric vials to control plus adult vials.	n = 39 Adult ICU patients Group A n = 20, Group B n = 19).	Statistically significant difference in sampling-induced blood loss between the groups over the first 72 hours of treatment (mean +/- standard deviation: 15.16 +/- 5.3 ml Group A vs. 45.11 +/- 14 ml Group B, p<0.001). There was a smaller decline in mean hemoglobin level, which was not statistically significant (0.79 +/- 0.6 g/dL vs. 1.30 +/- 1.13, p = 0.09).	Combined blood conservation strategy reduced measurable blood losses from phlebotomy. In larger trials it might also preserve hemoglobin levels.
* Thavendiranathan, et al. (2005)	Before and after study Determine the impact of blood loss due to diagnostic testing on hemoglobin and hematocrit changes during hospitalization.	n = 404 Adult internal medicine ICU patients	For every 1mL of phlebotomy, mean (SD) decreases in hemoglobin and hematocrit values were 0.070 (0.011) g/L and 0.019% (0.003%), respectively i.e. for 100 mL, hemoglobin and hematocrit levels would be expected to change by 7.0 g/L and 1.9%, respectively.	Phlebotomy resulted in decreased hemoglobin and hematocrit levels and clinically significant changes were reported between 6.6 and 10 g/L.

* Chant, et al. (2006)	Retrospective chart review	n = 155 Adult ICU patients	This study found that of patients transfused, daily phlebotomy volume was significantly higher.	Even small increases in daily phlebotomy volumes were associated with twice the chances of being transfused after day 21 in ICU.
* MacIsaac, et al. (2003)	Randomized controlled trial Compared the VAMP (VAMP group) to a standard arterial pressure line set attached to an arterial catheter (control group) to determine effect on iatrogenic blood loss and hemoglobin levels.	n = 160 (80 subjects per group)	Both groups had a similar (median [range]) change in Hb during ICU admission (VAMP-7 [-84 to +21] g/l; Control -4 [-67 to +40] g/l; P = 0.33). The VAMP group lost significantly less blood for diagnostic testing while in ICU (VAMP 63 [0 to 787] ml; Control 133 [7 to 1227] ml; P = 0.001).	VAMP device significantly reduced iatrogenic blood loss in critically ill patients, but this reduction did not affect the fall in Hb that accompanies critical illness.