

Providence

Providence Digital Commons

[View All Graduate Medical Education Content](#)

[Graduate Medical Education](#)

4-2023

Transition from Estimated Blood Loss to Quantitative Blood Loss in Labor and Delivery

Taylor K. Stewart

Providence, taylor.stewart@providence.org

Brigette Schuman

Providence, brigette.schuman@providence.org

Follow this and additional works at: <https://digitalcommons.providence.org/gme>



Part of the [Medical Education Commons](#), and the [Obstetrics and Gynecology Commons](#)

Recommended Citation

Stewart, Taylor K. and Schuman, Brigette, "Transition from Estimated Blood Loss to Quantitative Blood Loss in Labor and Delivery" (2023). *View All Graduate Medical Education Content*. 8.

<https://digitalcommons.providence.org/gme/8>

This Presentation is brought to you for free and open access by the Graduate Medical Education at Providence Digital Commons. It has been accepted for inclusion in View All Graduate Medical Education Content by an authorized administrator of Providence Digital Commons. For more information, please contact digitalcommons@providence.org.

Transition from Estimated Blood Loss to Quantitative Blood Loss in Labor and Delivery

Taylor K Stewart, MD, OB Fellow
Brigette Schuman, DO, PGY-3

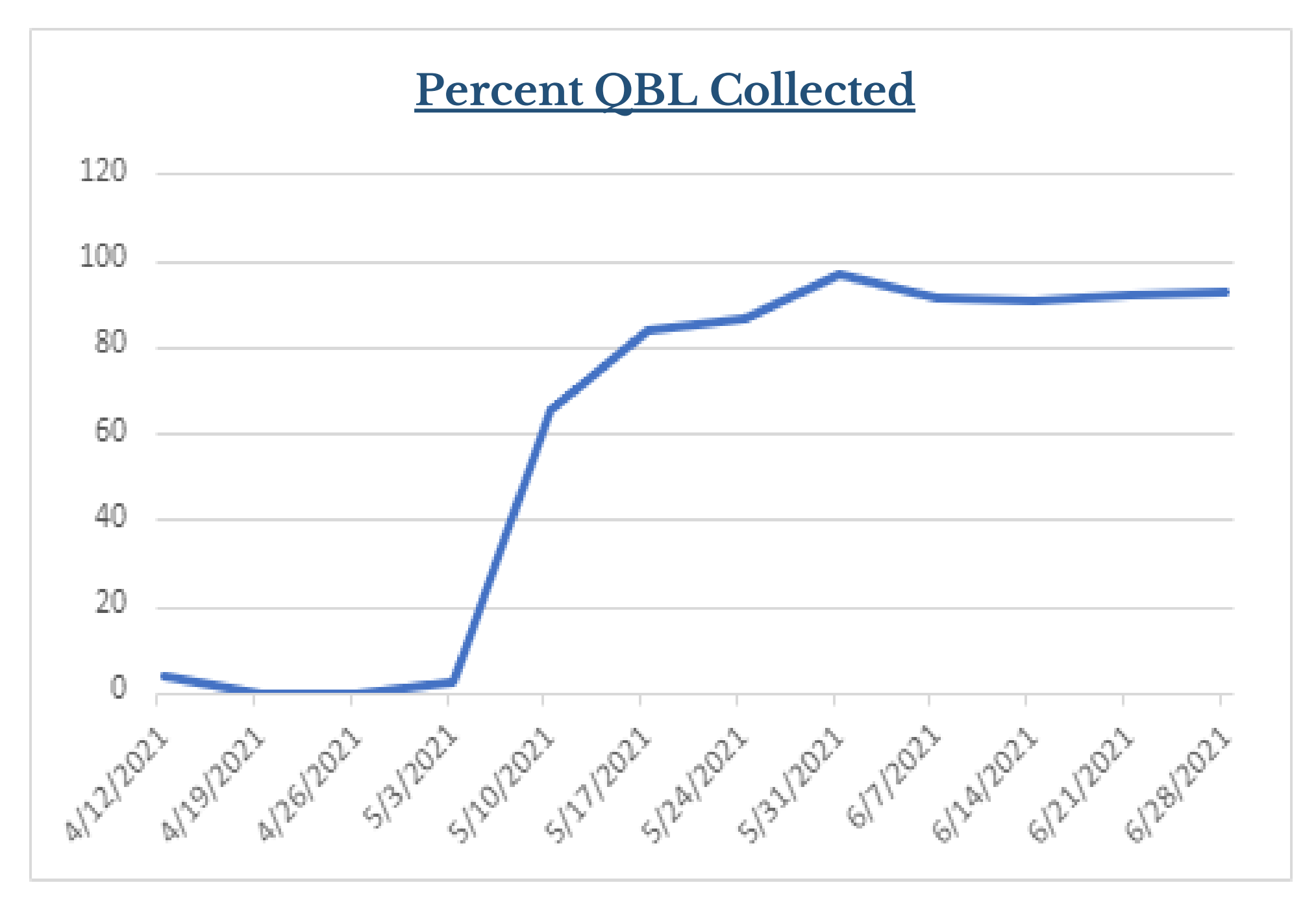
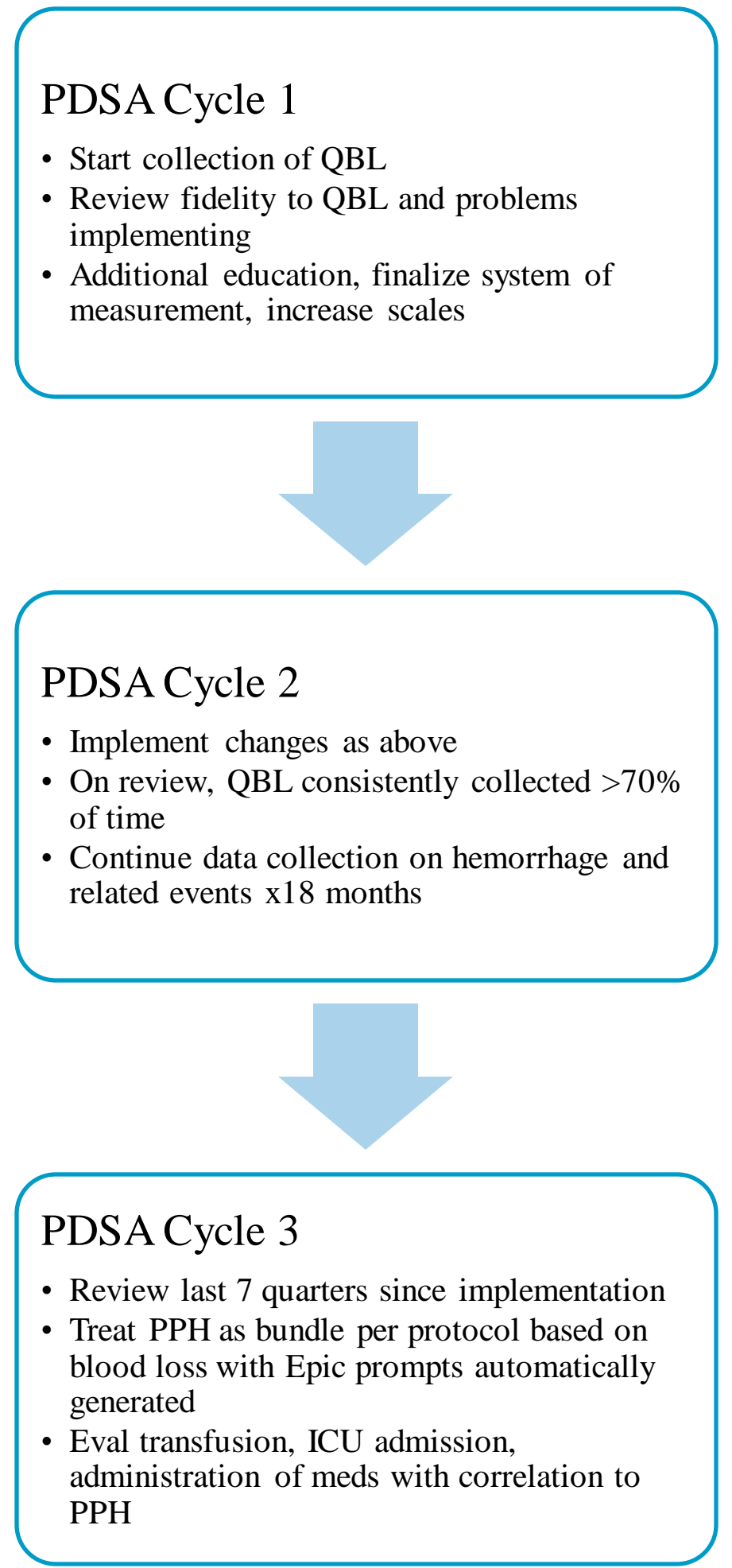


Figure 1: PDSA Cycle 1 goal of quantitative blood loss greater than 70% of the time within three months of implementation. An outcome of postpartum hemorrhage was evaluated with percent QBL documentation as a process measure for implementation.

Results

The longitudinal results of incidence of obstetrical morbidity over evaluated time period are demonstrated in Figure 3. There was increased incidence of postpartum hemorrhage following QBL implementation. There was also small though significant increase in use of hemorrhage medications and blood product administration. Table 1 demonstrates this overall increase from 17.9% to 20.6% and 1.98% to 2.74% respectively. ICU admission was evaluated as a balancing measure, with no increase in ICU admission with implementation of QBL.

	EBL	QBL	p
PPH	4.82	12.14	6.49E-09
Transfusion	1.98	2.74	0.0095
Hemorrhage Medication Administration	17.93	20.64	0.013
ICU Admission	0.54	0.60	0.34

Table 1: Increased incidence of postpartum hemorrhage (EBL PPH incidence of 4.8% for two years prior to implementation of QBL, QBL PPH incidence of 12.1% during evaluated period). Use of uterotonic/other PPH medications and transfusion rates increased. ICU admission with no statistically significant change.

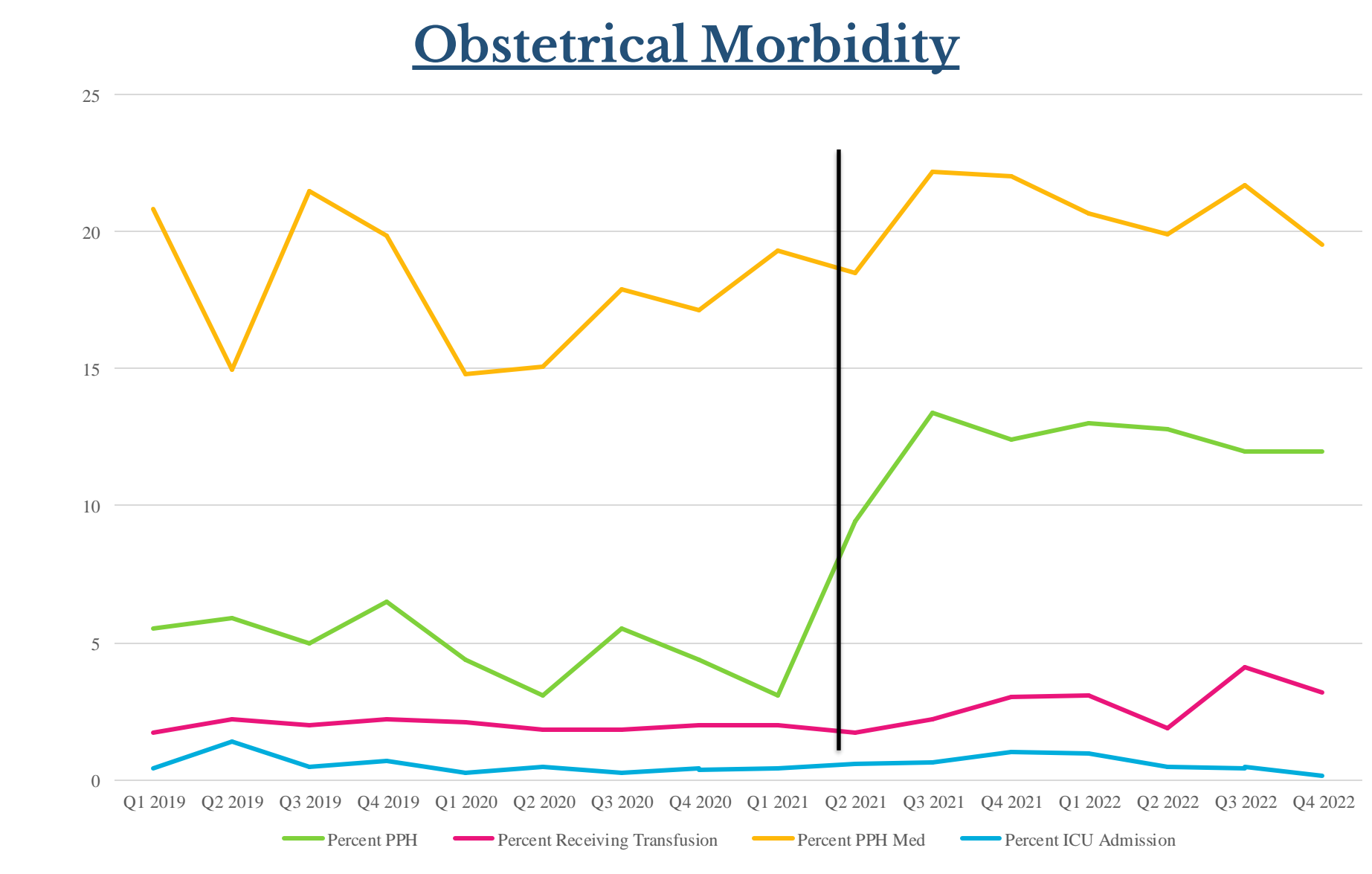


Figure 3: PDSA Cycle 3 demonstrating significant increase in documented PPH over time (green), with small upward trend in administration of blood products (red) and administration of hemorrhage medication (orange). ICU admission (blue) stable over observed period.

Background

Hemorrhage is a leading cause of morbidity and mortality in pregnant persons and is often preventable. Early recognition of hemorrhage is key to management, but providers visual estimation of blood loss is frequently inaccurate. ACOG recommends measurement of blood loss using quantitative methods.

Methods

Using "SlicerDicer" function within Epic EMR, percent QBL reported for deliveries was reviewed as percentage over study period to evaluate for adherence. When consistently documenting QBL, quarterly incidence of postpartum hemorrhage in all deliveries (vaginal and cesarean) was evaluated with average pre- and post-QBL compared to median. The administration of uterotonic hemorrhage medications and tranexamic acid, administration of blood products, and ICU admission were then evaluated in comparison to pre- and post-QBL implementation.

After implementation of QBL and adjustments for improved collection, there was consistent adherence to QBL in >70% of both vaginal and cesarian deliveries. Subsequently, an increase in recorded incidence was demonstrated with increase of postpartum hemorrhage to approximately 12% using QBL compared to approximately 4.8% using estimated blood loss (EBL).

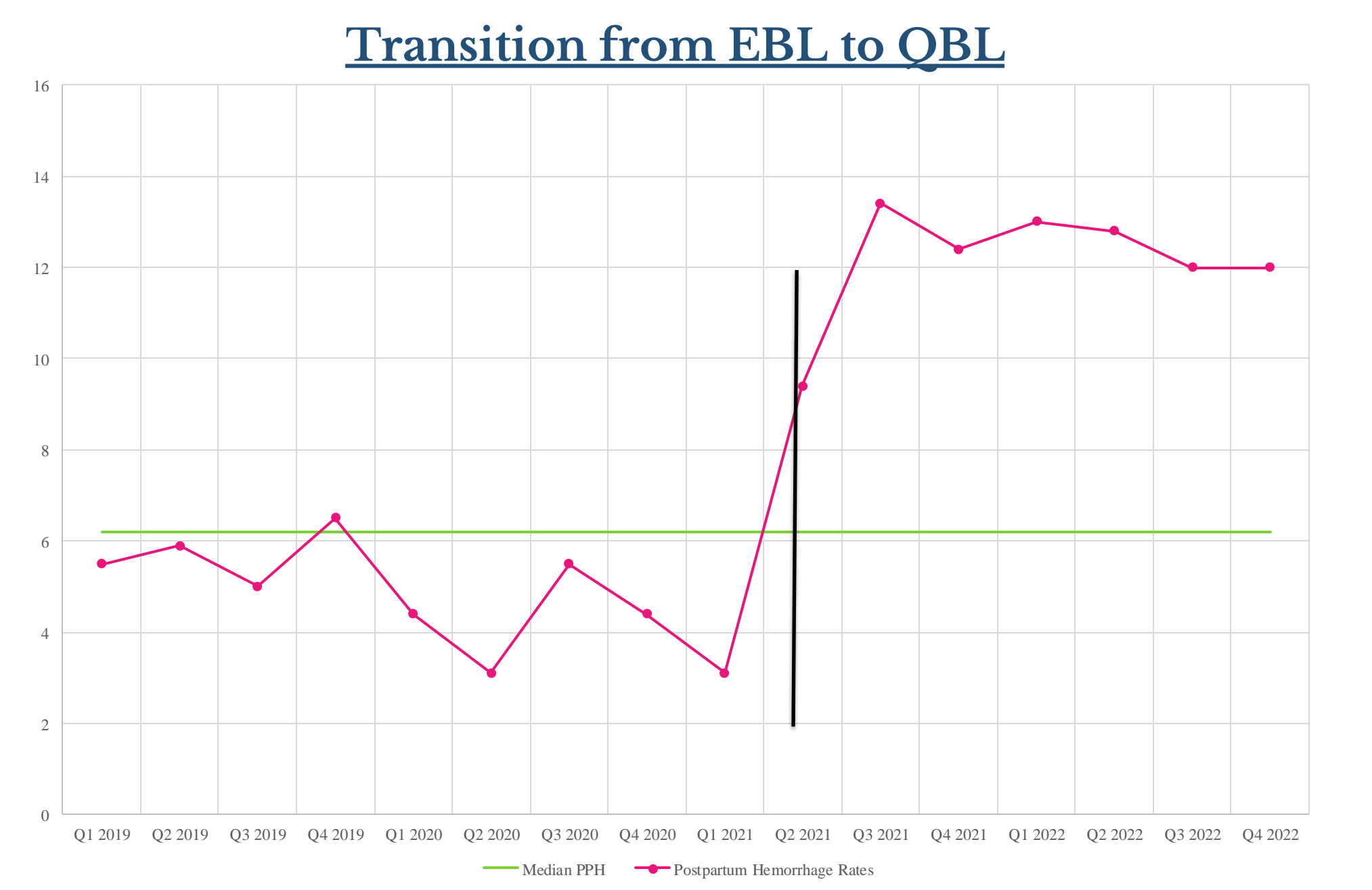


Figure 2: Run chart for PDSA Cycle 2 and Cycle 3. Line graph (red) showing rate of postpartum hemorrhage, with green line documenting median PPH of 6.2%. Black line indicates start of PDSA Cycle 3.



Conclusion

Collection of QBL reached goal levels, maintained greater than 70% of the time, after adjustments of increased provider and nursing education, practical changes such as increase in scale availability for measurement of blood loss, and increased experience with use. With institution of QBL, the subsequent increase in reported postpartum hemorrhage likely correlated with prior studies that suggested providers tend to underestimate blood loss when hemorrhage is occurring rather than any true increase in bleeding. Use of uterotonic and other medications for postpartum hemorrhage and incidence of transfusion increased proportionally less than incidence of PPH, therefore more likely accurately reflecting true incidence of hemorrhage. Other measures negatively impacting accuracy of QBL were identified during implementation through subjective provider experience with use, such as inaccurate measurement of amniotic fluid, unmeasured blood on provider clothing, and other contaminants in the field. These processes have been gradually adjusted to improve accuracy as much as possible. Future steps include investigation of benefits of QBL for patient outcomes and standardization of recommended QBL measurement approaches.

Acknowledgements

Thanks and appreciation to Karen Wildman, MD, OB Fellowship Director, Sarah Wilhelm, MD, FMRS Program Director, and Nurse Managers/Assistant Nurse Managers at Providence Sacred Heart Birth Place. Additionally, none of this project could have been completed without the incredible efforts of the Nurses, Nurse Technicians, and Surgical Technicians at the Birth Place.