ECRONICON OPEN ACCESS

EC GYNAECOLOGY
Guest Editorial

# Are We Ready for the 6 Ds for PPH Management a Global Tool for Postpartum Management

**Nicholas Pairaudeau***

*Obstetrics and Gynaecology Department, University of Toronto, Canada*

***Corresponding Author:** Nicholas Pairaudeau, Obstetrics and Gynaecology Department, University of Toronto, Canada.

**Received:** March 15, 2024; **Published:** March 22, 2024

## Introduction

As a reflection on the management after 50 years of birth and delivery as an Obstetrician and Consultant, from the UK and most of my professional life in Canada, and having spent the last few years reviewing research, opinion papers, conferences, and personal networking, there seems to be the need for some more focus on what matters in different environments for Post-Partum Hemorrhage or PPH. The seriousness of the severe condition from WHO statistics, suggests that 25% of maternal death can be attributable to PPH [1,2]. Do we really need complex devices when we all know when we have a severe PPH? That is a question many ask. But hopefully, the answer is yes but modifications in different environments.

There are hundreds if not thousands of papers on the management of Post Partum Haemorrhage, and every month there are just more and more papers. The content of many is overwhelming. There are many papers or guidelines that extend to over 150 pages [1]. So often we are confronted with such lengthy and complicated articles [3-5]. Many are adorned with tables that are very difficult to read and understand [1]. In these circumstances we readily move to the abstract and the conclusions at the bottom of the page, saving time but sometimes missing the point or realizing that maybe the facts and conclusions are questionable [6]. The citation lists are numerous as if the competition is to try and cite as many papers as possible. But there are other issues such as those recently brought up in the Economist, and "fraudulent medical Research, and not even in a medical journal [7].

Though we are all aware of the seriousness of this condition, it has struck me after an excellent conference from Europe, that there may be a chance to look back and then forwards. At this meeting of The Birth 6th edition Virtual Congress 2020 October 1-3, though that is over 2 years ago, it came to me that the whole topic should be reviewed carefully. I would like to suggest a compliment to the 4Ts, for causes of PPH, noted by Anderson and Etches in 2007. I would like to add the 6 Ds. It is well understood that 70% of PPH is associated with uterine atony, 20% with trauma,10% with retained placenta, and lastly thrombin [10,11].

However, the topic is much more complicated, and hence the focus is on the comprehensive management of PPH with the 6 Ds for PPH management in this terrible condition. A template for the world. With modern technology we should be able to connect anywhere in the world with power, a computer or smart phone and internet connection. We should be able to follow the course of such management. Of course there will need to be privacy and confidentiality agreements.

The 6 Ds are:

1. Delivery: Pre-delivery issues and the day of the delivery. Risk the patient. High-risk Hb.

2. Drugs: Most are directed at getting the uterus to contact. TXA reduces blood loss.
3. Devices: That accurately measure blood loss, in real-time, and local devices to slow bleeding.
4. Display: Why is there no standard method of displaying blood loss in real-time on a screen?
5. Documentation: Standard Documentation that can be helpful in the review of events.
6. Debriefing: Such an important aspect, particularly if the outcome is grim.

Let me expand on these 6 Ds:

1. **Delivery:** Pre-delivery of adequate hemoglobin, particularly with the smaller and underweight women, where a loss of 1000cs is more significant than a heavier woman. With my suggested EDC every drop counts, every effort at both vaginal delivery and C-Section, we must conserve blood. Every drop does count and in my opinion paper, I will point this out to you, after 50 years in labour and delivery. We, well some, do not seem to care. And my suggestions can be used in high and low-resource environments. There is a little extra cost, but education time for all involved and repeated reminders to focus on EDC. Stop the bleeding from lacerations and get the uterus to contract and clamp those angles at the C-section. It would be a great step forward to have a universal agreement on a standard of delivery care when it would be possible to compare different center's results on drugs and devices. Since 2014 The WHO has recommended active management of the third stage of labour with the addition of oxytocin and CCT [12]. But there is at last agreement on the simple action to gently massage the uterus on delivery of the baby, whilst any laceration bleeding is taken care of. There is a body of opinion who are biased against gentle fundal massage, and in my opinion, there are biased studies to prove their point. A contracted uterus with or without the placenta does not bleed that much. And it took a lifetime to convince a colleague that using oxytocin did not cause the placenta to be trapped. Why does the placenta normally come out because the uterus contracts? Please note that controlled cord traction should be carried out with the uterus contracting, whether at vaginal birth or C-section. CCT does shorten the 3rd stage of labour, but may not have the accredited benefits that are quoted [13].
2. **Drugs:** Many drugs help the uterus contract, thereby reducing blood loss and dealing with the largest cause of blood loss at delivery uterine atony [3,11]. The Fibrinolytic TXA has been demonstrated both in vaginal birth and c-section to reduce blood loss. It can work given the right dose and repeated if necessary, without the concern of thrombosis and Pulmonary embolus [8,9,20,25,26]. I am reminded that drugs do not always work, because of poor manufacture, poor storage, and improper use amongst other problems. The focus must also be to make sure that drugs are at their best when they are given. I am going to add Blood and components here as it is an important consideration, with implications and complications, but also life-saving. Cost is unfortunately important. Many do not know what each drug costs., and its cost-effectiveness [14].
3. **Devices:** We are all aware many devices have contributed to reduced blood loss at delivery. Balloons and other novel devices are well known [14,15]. The latest device is the opposite of a balloon, with gentle suction with the Jada device [16-18]. Some devices attempt to estimate blood loss at both vaginal delivery and C-section deliveries, which has posed a challenge to all who have been involved in this area of medicine. Just gravimetric methods of weighing sponges and drapes are the simplest way, and cost little, but overtasks nurses, and a scale for weighing, but contamination with amniotic fluid can make things difficult at C-section [19,20,28]. With the Triton system, attempts to correct these challenges with the use of a mobile monitoring system (Gauss Extraction Technology FET) [28]. The cost, however, may be too high for low resource areas, and the cost-effectiveness must be reviewed. In my group, we used simpler methods with a lidar scan and input into a computerized system [29]. This challenge is not only confined to Obstetrics but to other surgical and trauma services too. But we could also open a new concept on NOT just total blood loss, but a profile of how much blood loss is in real-time as well as the rate of blood loss. Only with devices that can do that will we be able to move into a new era of blood loss profile. There are also tests that have been around for some time that can confirm severe blood loss [19,21].

4. **Display:** For me, confronted with a significant post-Partum hemorrhage, I have difficulty reminding groups dealing with PPH that a chalkboard or screen with all the relevant information makes management so much easier. The Triton system does display these indices. I am aware that the MEOWS document provides documentation tools, and a paper trail, but is quite difficult to read, and input is very rudimentary. I wonder if someone has attempted to bring this to an electronic format with verbal input, but not at a huge cost. Also, if we are to bring in Telemedicine, which we are doing with the COVID-19 pandemic, and many other medical outreach places, cloud-based information, and assistant services could be set up. This is used already by forward-looking centers and the military [22] in the world, in dealing with acute emergencies. Hopefully, we hope to reduce the morbidity or mortality of this dreadful complication of childbirth not just in high-resource countries, but to be connected in areas of low resources too.
5. **Documentation:** At the end of the day, the documentation does matter. The opportunity to review and analyze the clinical situation later is paramount. Access to the documentation should first be restricted, and confidential initially and not interfere with the need to look at the possibility of improvements in the delivery of health care. Later medico-legal events will ultimately lead to lawsuits that seek compensation for poor outcomes. This is a later task for the administration. I intend to seek up-to-date legal advice highlighting the requirements for appropriate documentation in your jurisdiction.
6. **Debriefing:** There is no doubt that this should be done properly [23,24] soon after the event but also at a later date when more facts will be known. The immediate debriefing should be done on the same day if possible and include the senior Doctors, Residents, Nurses, and Midwives. Anesthesia, and other staff involved [29]. Yes, even secretarial staff could be involved as they can be the strongest or weakest link when things go wrong. Many are traumatized when something goes wrong in Labour and Delivery, and we should never forget that. Every attempt should be made to include the family in a suitable environment since when things go badly, the patient or her family is often not adequately involved. Though of course there are medicolegal risks, the balance suggests that open discussion with trained and experienced staff is paramount. Labour and Delivery is a team effort, and the name, blame, and shame should not be a part of the modern Labour and Delivery ward. Sadly, it is often the case.

In March of 2023, two recent papers that I reviewed deserve reading from cover to cover, the first one is Alexander Butwick., *et al*. how do I manage severe post-partum hemorrhage and the Latest Advances in post-partum management [27]. Dr. Sangeeta Kumaraswami and Dr. Alexander Butwick [19].

We are including the link of the website, https://weerteaching.com [30], https://www.6ds.org [31].

## Acknowledgements

I must thank Dr. Catherine Shao and Dr.Eiwin Yan, for their help in the EDC project as well as the writing of the paper. The project is just beginning but with all hands on the project will mature and start incorporating Medical Ai in the many aspects of day-to-day management too [32-34]. The contributors to my EDC which is part of the project are noted in the EDC and 6Ds citation.

## Bibliography

1. FIGO PPH Technical Working Group., *et al*. "FIGO and the International Confederation of Midwives endorse WHO guidelines on prevention and treatment of postpartum hemorrhage". *International Journal of Gynecology and Obstetrics* 158.1 (2022): 6-10.
2. Loïc Sentilhes., *et al*. "Postpartum hemorrhage: guidelines for clinical practice from the French College of Gynaecologists and Obstetricians (CNGOF): in collaboration with the French Society of Anesthesiology and Intensive Care (SFAR)". *European Journal of Obstetrics and Gynecology and Reproductive Biology* 198 (2016): 12-21.
3. Anne-Sophie Bouthors., *et al*. "The role of tranexamic acid in the management of postpartum haemorrhage". *Best Practice and Research Clinical Anaesthesiology* 36.3-4 (2022): 411-426.

4. Postpartum Hemorrhage. An AOM Clinical Practice Guideline Summary.

5. Postpartum haemorrhage: What is the most effective treatment for primary postpartum haemorrhage?

6. M E Hannah., *et al*. "Planned caesarean section versus planned vaginal birth for breech presentation at term: a randomised multicentre trial. Term Breech Trial Collaborative Group". *Lancet* 356.9239 (2000): 1375-1383.

7. Loïc Sentilhes., *et al*. "Study protocol. TRAAP - Tranexamic Acid for Preventing postpartum hemorrhage after vaginal delivery: a multicenter randomized, double-blind, placebo-controlled trial". *BMC Pregnancy Childbirth* 15 (2015): 135.

8. Loïc Sentilhes., *et al*. "TRAAP2 - Tranexamic Acid for Preventing postpartum hemorrhage after cesarean delivery: a multicenter randomized, double blind, placebo- controlled trial - a study protocol". *BMC Pregnancy Childbirth* 20.1 (2020): 63.

9. Roberto Picetti., *et al*. "The WOMAN trial: clinical and contextual factors surrounding the deaths of 483 women following post-partum haemorrhage in developing countries". *BMC Pregnancy Childbirth* 20.1 (2020): 409.

10. There is worrying amount of fraud in medical research.

11. Janice M Anderson and Duncan Etches. "Prevention and management of postpartum hemorrhage". *American Family Physician* 75.6 (2007): 875-882.

12. New WHO recommendations Help to Focus Implementation. Active management of the third stage of labor (2012).

13. Sherif Hanafia., *et al*. "Impact of controlled cord traction in the management of the third stage of labor on postpartum hemorrhage: a randomized controlled trial". *Evidence Based Women's Health Journal* 1.2 (2014): 78-81.

14. Ioannis Gallos., *et al*. "Uterotonic drugs to prevent postpartum haemorrhage: a network meta-analysis". *Health Technology Assessment* 23.9 (2019): 1-356.

15. Frances E Likis., *et al*. "Management of postpartum hemorrhage". Rockville (MD): Agency for Healthcare Research and Quality (US). Report No.: 15-EHC013-EF (2015).

16. WHO recommendation on Uterine balloon tamponade for the treatment of postpartum haemorrhage (2021).

17. Fast control of abnormal postpartum uterine bleeding.

18. Mary D'Alton., *et al*. "Profile of the Jada® System: the vacuum-induced hemorrhage control device for treating abnormal postpartum uterine bleeding and postpartum hemorrhage". *Expert Review of Medical Devices* 18.9 (2021): 849-853.

19. Sangeeta Kumaraswami and Alexander Butwick. "Latest advances in postpartum hemorrhage management". *Best Practice and Research Clinical Anaesthesiology* 36.1 (2022): 123-134.

20. S H Lee., *et al*. "Tranexamic acid, as an adjunct to oxytocin prophylaxis, in the prevention of postpartum haemorrhage in women undergoing elective caesarean section: A single-centre double-blind randomised controlled trial". *BJOG: An International Journal of Obstetrics and Gynaecology* 130.9 (2023): 1007-1015.

21. Rachel Collis and Sarah Bell. "The role of thromboelastography during the management of postpartum hemorrhage: background, evidence, and practical application". *Seminars in Thrombosis and Hemostasis* 49.2 (2023): 145-161.

22. Military Communication System. Objective Analysis. Effective Solutions.

23. Michaela Kolbe., *et al*. "Team debriefings in healthcare: aligning intention and impact". *British Medical Journal* 374 (2021): n2042.

24. https://www.uptodate.com/login

25. Loïc Sentilhes., *et al*. "Tranexamic acid for the prevention of blood loss after cesarean among women with twins: a secondary analysis of the TRAnexamic Acid for Preventing Postpartum Hemorrhage Following a Cesarean Delivery randomized clinical trial". *American Journal of Obstetrics and Gynecology* 227.6 (2022): 889.e1-889.e17.

26. Katharine Ker., *et al*. "Tranexamic acid for the prevention of postpartum bleeding in women with anaemia: study protocol for an international, randomised, double-blind, placebo-controlled trial". *Trials* 19.1 (2018): 712.

27. Alexander Butwick., *et al*. "How do I manage severe postpartum hemorrhage?" *Transfusion* 60.5 (2020): 897-907.

28. Virtual Workshop: Technology to Improve Maternal Health.

29. Cutler Abigail., *et al*. "Critical incident debriefing: impact of a teaching module for OB/GYN residents". *Obstetrics and Gynecology* 128.1 (2016): 43S-44S.

30. https://weerteaching.com

31. https://www.6ds.org

32. Boujarzadeh B., *et al*. "Machine learning approach to predict postpartum haemorrhage: a systematic review protocol". *BMJ Open* 13.1 (2023): e067661.

33. Shah SY., *et al*. "Prediction of postpartum hemorrhage (PPH) using machine learning algorithms in a Kenyan population". *Frontiers in Global Women's Health* 4 (2023): 1161157.

34. Xu L., *et al*. "Development and validation of an artificial neural network prediction model for postpartum hemorrhage with placenta previa". *Minerva Anestesiologica* 89.11 (2023): 977-985.

**Volume 13 Issue 4 April 2024**