INTESA – St. Mary's Hospital Lacor - March 9th 2024

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PREVENTING MATERNAL DEATHS

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WHICH IS THE PROBLEM

Despite the great progresses of Ugandans' health and welfare, Ugandan Maternal Mortality still ranks among the worst in development countries. The pandemic, blocking the transports, contributed to rise significantly the rate of maternal deaths in Norther Uganda. Indeed slow progress has been made in reducing maternal deaths, despite the relevant increase in skilled birth attendance from 59% to 73% and antenatal care attendance from 95% to 97% between 2011 and 2016, the maternal mortality ratio only declined from 438 deaths to 336 deaths per 100,000 live births.(1) Most of the women who die are from rural and hard-to-reach areas, and they are not rarely of lower education and HIV positive; they often delay seeking care and lack male partner support. The leading causes of maternal death are direct obstetric causes and include haemorrhage, infection, hypertensive disorders, and abortion complications. Actually, for example, in the Kitgum District (North) Maternal Mortality is still 536 deaths/100.000 live births (60-100 times more than in Europe). Early child mortality (in the neonatal period) is still the highest burden in the country (279/1000 live births). Puerperal sepsis is a leading cause of maternal death (2).
Treatment of Malaria in pregnant women is of utmost importance and has to be planned since early pregnancy considering the guidelines of national Ministry of Health, especially to deal with the rising problem of resistance to easily available drugs.

In order to promote the reduction of Maternal Mortality the following actions should be considered during training of personnel involved in maternal health and childbirth:

ACTIONS:

1.	4 pauses for Safe Childbirth WHO (3)
2.	Reduce Vitamin D 25 insufficiency in pregnant women (4)
3.	Prevent Puerperal Sepsis by one shot of Azytromicin (5,6), adopt Tranexamic acid to decrease hemorrhage.(7)
4.	Facilitate referral and early management by estimating at first contact with the mother the risk for an unfavorable outcome (8)
5.	Facilitate the vaginal delivery by considering the ODON Delivery Device (9,10,11). Apply Ellavi Baloon to manage Post Partum Haemorrage (12).

ADVICE FOR TRAINEES IN THE 'INTESA' Project Kenya, Tanzania and Uganda.

PRENATAL:

a. Treatment of Malaria considering drug resistance
b. During ante-natal clinic consider the supplementation with Vitamin D (1000 UI/day) since the 18th week of gestations, especially for women with risk factors (poor nutrition and care, diseases etc).
c. Facilitate referral to nearby facilities

AT ADMISSION:

a. Consider the four pauses of a WHO Safe Childbirth.
b. Estimate the risk of unfavorable outcome: Cases had multiple risks associated to Age >30 years (+110% risk), lack of antenatal care (+310% risk), HIV-positive serostatus (+310% risk), surgical delivery (+220% risk), and being referred (+560% risk).

AT DELIVERY:

a. Consider the administration of one single shot of Azytromicin to prevent Puerperal Sepsis.
b. Consider Prophylactic administration of tranexamic acid which significantly decreases postpartum blood loss, improves postpartum hemoglobin, decreases the need for additional uterotonics, and prevents postpartum hemorrhage following cesarean section in pregnant women at high risk of postpartum haemorrhage.
c. Consider the application of the Ellavi uterine balloon tamponade (UBT),which quickly stops postpartum bleeding due to uterine atony, to manage Post Partum Haemorrage.
d. Consider the application of the ODON device where indicated.

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Ezenwaeze [1], Ifeanyichukwu J Ofor [1], Chidinma C Okafor [5], Chigozie G Okafor [2] *Prophylactic tranexamic acid for reducing intraoperative blood loss during cesarean section in women at high risk of postpartum hemorrhage: A double-blind placebo randomized controlled trial*. Womens Health (Lond). 2024 Jan-Dec:20:17455057231225311. doi: 10.1177/17455057231225311. **Conclusion:** Prophylactic administration of tranexamic acid significantly decreases postpartum blood loss, improves postpartum hemoglobin, decreases the need for additional uterotonics, and prevents postpartum hemorrhage following cesarean section in pregnant women at high risk of postpartum hemorrhage. Its routine use during cesarean section in high-risk women may be encouraged

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ANNEXES

WHO SAFE CHILDBIRTH

THE RIGHT MOMENTS TO PAUSE AND CHECK The WHO Safe Childbirth Checklist is intended for use at four pause points during facility-based births:
DELIVERY ADMISSION PAUSE POINT 1: ***ON ADMISSION*** Checking the mother at the time of admission is important to detect and treat complications that she may already have, to confirm whether she needs to be

referred to another facility, to prepare her (and her companion) for labour and delivery, and to educate her (and her companion) about danger signs for which she should call for help.
PAUSE POINT 2: ***JUST BEFORE PUSHING*** (or before Caesarean) Checking the mother just before pushing (or before Caesarean) is important to detect and treat complications that can occur during labour and to prepare for routine events and possible crisis situations that may occur after birth. 1 2
PAUSE POINT 3: ***SOON AFTER BIRTH*** (within one hour) Checking the mother and newborn soon after birth (within 1 hour) is important to detect and treat complications that can occur after delivery, and to educate the mother (and her companion) about danger signs for which she should call for help.
PAUSE POINT 4: ***BEFORE DISCHARGE*** Checking the mother and newborn before discharge is important to be sure that the mother and newborn are healthy before discharge, that follow-up has been arranged, that family planning options have been discussed and offered to the mother (and her companion), and that education on danger signs to look out for, both in the mother and her baby, has been given in case immediate skilled care is needed. 3 4 R

VITAMIN D

The traditional role of vitamin D in calcium and phosphorus homeostasis has been well characterised in literature; besides such traditional roles, Vitamin D seems to be involved in many acute and chronic diseases, including autoimmune disorders, infectious and cardiovascular diseases, type 2 diabetes and neurological disorders [6].
In recent years, many studies have indicated the importance of vitamin D in fertilization, placental development, the course of pregnancy and offspring health. Vitamin D, in fact, shows anti-inflammatory and immunosuppressive properties, with relevant influence on placental implantation, the immune system and angiogenic factors. During **pregnancy,** calcitriol increases 2-3 fold in the first trimester, whereas maternal 25(OH)D crosses the placental barrier and is the main pool of vitamin D in the foetus. Vitamin D receptor and regulatory metabolic enzymes are expressed in the placenta and decidua, indicating a potential critical point in the immunomodulation at the maternal-foetal interface.

Recent observational studies have demonstrated that low vitamin D status in pregnancy is associated with multiple potential **adverse maternal, fetal and infant outcomes** [7]. It is presumed that several pregnancy complications (such as preeclampsia, preterm birth and gestational diabetes) and complications manifesting in offspring later in life (such as asthma, psychomotor development and cognitive disorders) could be the effect of vitamin D deficiency [7-8]. According to a Cochrane Systematic Review of 2019, supplementation with vitamin D during pregnancy may reduce the risk of preeclampsia and gestational diabetes, and probably reduces low birthweight; in terms of maternal adverse events, vitamin D supplementation may reduce the risk of severe postpartum haemorrhage [9]. In particular, as concerns **hypertensive disorders of pregnancy**, several studies have shown higher incidence of these conditions in dark-skinned and Muslim women [10-11]; the prevalence of preeclampsia in black women is much higher than in white women, and the condition tends to be more severe among black women [12]. As shown above, these women populations are also characterised by deficient vitamin D status. The effects of antenatal Vitamin D supplementation on reduced risk of preeclampsia have been investigated in a recent systematic review and meta-analysis [13].

Vitamin D_3 and placebo regimen: In the trial, pregnant women are randomized to receive of one of two regimens: 1) vitamin D_3 (cholecalciferol) oral supplements containing 3000 IU taken daily from randomization at 12–27 weeks gestation until 12 months postpartum; or 2) a matching placebo regimen taken daily from randomization until 12 months postpartum. the 3000 IU vitamin D_3 regimen was selected in order to sustain 25(OH)D levels > 32 ng/mL for nearly all pregnant women while having minimal risk of hypercalcemia. In a landmark safety and effectiveness trial of vitamin D_3 supplementation conducted by Hollis and Wagner, pregnant US women were randomized receive 400, 2000, or 4000 IU vitamin D_3/day from 12–16 weeks gestation until delivery [30]

Ellavi Uterine Balloon Tamponade (UBT)

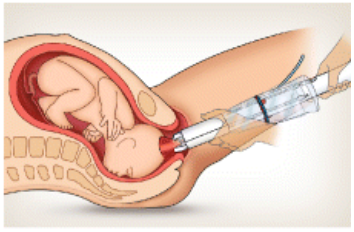
A mother is the whole world to a child - we help you save that world.

Postpartum haemorrhage (PPH) causes a third of maternal deaths worldwide.
The Ellavi uterine balloon tamponade (UBT) quickly stops postpartum bleeding due to uterine atony.
It's easy to insert, fills in 45 seconds and applies sufficient pressure to the bleeding uterine wall.

ODON DEVICE

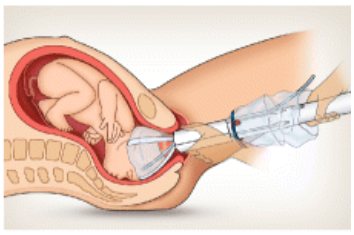
1

The inserter is applied on the head of the baby. A soft plastic bell assures perfect adaptation to the fetal head and prevents damage.



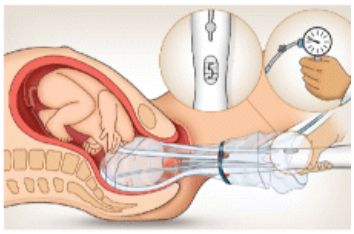
2

The inserter progressively positions the Odón device around the head of the baby. Positioning occurs as the inserter gently produces the sliding of the two surfaces of the folded sleeve along the birth canal and around the baby's head.



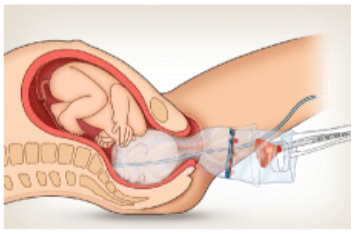
3

When the Odón device is properly positioned, a marker on the insertion handle become clearly visible in the reading window. A minimal and self-limited amount of air is pumped into an air chamber in the inner surface.



4

This produces a secure grasp around the head of the baby that fixes the inner surface and allows for traction. The inserter is removed.



5

The head is delivered taking advantage of the sliding effect of the two surfaces of the folded sleeve. Lubrication of the surfaces further facilitates the extraction process. If needed, traction can be applied up to 19 kg (which is equivalent to the force applied with the metal vacuum extractor).