

MamaNatalie[®]: a Birthing Simulator for Realistic Training to Control Postpartum Hemorrhage

I. Neuman and A. B. Lalonde

Skilled care at birth can save the lives of women and their babies¹. Of the approximately 1000 maternal deaths that occur each day, 800 could be saved if a birth attendant with appropriate skills was present during delivery². In order to prevent these unnecessary deaths, there is an urgent need to train a large number of birth attendants in how to master simple yet life-saving techniques before, during and after delivery³.

Implementing programs to reduce maternal mortality and morbidity due to postpartum hemorrhage (PPH) requires not only guidelines, but also continuous training and evaluation of health care workers at all levels. The International Federation of Gynecology and Obstetrics (FIGO) committee on safe motherhood and newborn care has seen new developments in this area, and we bring information on the MamaNatalie[®] birthing simulator that provides realistic life-like situations to train health care workers on a continuous basis.

The MamaNatalie birthing simulator was developed in response to the action call for 'significantly lower cost, durable, easy-to-disassemble and sanitize, high-fidelity mannequins with culturally appropriate features'⁴. This birthing simulator is an easy-to-use 'pregnant belly' that is strapped on the instructor, allowing the instructor – by only using his/her hands – to simulate birth scenarios (Figure 1).

Scenarios include fetal heart sounds, delivery of placenta, baby positions in birth tract and uterine firmness. The birthing simulator can also be used to train students on how to manage and detect more complicated situations, such as incomplete/retained placenta, atonic uterus, breech/shoulder dystocia, cord prolapse, vacuum assisted delivery and catheterization.

More importantly, MamaNatalie provides a realistic training tool to simulate PPH, the number one cause of maternal death during childbirth³. By wearing the MamaNatalie, the instructor takes the role of the mother and can control the intensity of bleeding and volume of blood loss as well as simulate a mother suffering from severe blood loss or shock. This teaches the students not only how to manage correctly PPH during and after delivery, but also how to

communicate with the mother and other team members during such a critical and stressful situation (Figures 2 and 3).

In 2010–2011, MamaNatalie underwent extensive field testing in developing and developed countries, showing excellent applicability as a simulator for both pre- and in-service courses in emergency obstetric and newborn care. The birthing simulator is currently being evaluated in a large prospective cohort study with over 6000 births in a rural hospital in Tanzania. The focus of this study is to look at behavior change and maternal survival outcomes in relation to training and use of MamaNatalie⁶. The birthing simulator is expected to have a particular impact when implemented through 'Helping Mothers Survive'. This is a new program led by Jhpiego which is based on the educational principles of effective hands-on simulation training, and focusing on basic skills with major life-saving potential. The first module, 'Bleeding after



Figure 1 The instructor wears MamaNatalie and controls all the features of the birthing simulator with his/her hands. Reproduced with kind permission of Laerdal Global Health



Figure 2 The unique features of MamaNatalie train students to control PPH and develop communication skills with the mother. Reproduced with kind permission of Laerdal Global Health



Figure 3 MamaNatalie birthing simulator comes with uterine bladder, umbilical cord, placenta, uterus and blood tank with a capacity of 1.5 liters. MamaNatalie also gives birth to NeoNatalie, a realistic newborn simulator that can be used to train management of birth asphyxia and essential newborn care. Reproduced with kind permission of Laerdal Global Health



Figure 4 As MamaNatalie does not require electricity and the model fits in a backpack, it can be used in any setting. Here it is used in an in-service training at Mitundu Community Hospital in Malawi, April, 2012

Birth', is currently being field tested using the MamaNatalie in India, Tanzania, Malawi and Zanzibar⁶ (Figure 4). The principles of risk management and adult education are embodied in this training module and accompanying instruction/ participant manual.

MamaNatalie is an innovative low-cost solution that has the potential to improve the confidence and skills of health workers in how to handle normal and complex birthing scenarios, in particular, controlling PPH in developing countries where currently 99% of all the maternal deaths occur⁷. It is therefore fitting that *A Comprehensive Textbook of Postpartum Hemorrhage* highlights educational materials that enable simulation of PPH in a low-cost effective teaching environment.

Video demonstrations are available on www.laerdalglobalhealth.com/mamanatalie.html.

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