

An Innovative Technology to Curb Maternal and Child Mortality In Sub-Saharan Africa: The GiftedMom™ Approach

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ABSTRACT

Maternal and child mortality are public health problems, particularly in sub-Saharan Africa. The main causes of these deaths can be prevented through adequate antenatal care and vaccination, respectively. In a bid to reduce the burden of these deaths, an android software called GiftedMom™ was developed in Cameroon. This application is geared at improving antenatal care attendance and the promotion of breastfeeding and child vaccination in areas with poor access to health services. The software is simple, inexpensive, and adapted for pregnant women and nursing mothers of all socioeconomic and cultural backgrounds. GiftedMom™ project could be the key to curb the alarming burden of maternal and child mortality in Cameroon.

Key words: Antenatal care, breastfeeding, child mortality, GiftedMom™, maternal mortality, software, sub-Saharan Africa, vaccination

INTRODUCTION

Maternal mortality is alarming in the sub-Saharan African region, known to contribute to 66% of global maternal deaths.^[1] In this resource-limited setting, a lot of efforts still need to be done to curb the current average maternal mortality ratio (MMR) of 546 maternal deaths per 100,000 live births to the targeted global MMR of 70 maternal deaths per 100,000 live birth by 2030.^[1] For this to be achieved, the causes of maternal mortality such as obstetrical hemorrhage, hypertensive disorders, and sepsis, which all contribute to more than half of maternal deaths in sub-Saharan Africa need to be addressed.^[2,3]

According to the World Health Organization (WHO) report for 2015, an under-five mortality rate of 5.9 million children

was recorded.^[4] 75% of these deaths were related to infant mortality, while 45% of all under-five deaths were related to neonatal mortality.^[4] These child deaths remain largely attributable to preventable pathologies such as prematurity, pneumonia, diarrhea, and malaria.^[4] Previous studies^[5-7] have elaborated on the preventive measures to reduce these maternal and child-related deaths which include adequate antenatal care, delivery by a skilled birth attendant, essential obstetrical care, vaccination of children, and health education and promotion. The implementation of preventive methods in low-income countries, however, should take into consideration potential challenges such as the low educational level of the local population and the sociocultural barriers which hinder adherence to antenatal care in 50% of pregnant women.^[8] Given that inadequate antenatal care is a major determinant of maternal and neonatal outcome,^[8] strategies have been

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developed to improve adherence to antenatal care services such as the implication of community health workers,^[8] the assignment of one patient to one health care provider for the entire duration of pregnancy,^[8,9] the auditing of delivery services,^[10] and recently, a novel cost-effective technological approach called “GiftedMom™.”^[11] This software received many international awards because of its originality and the astonishing merits in curbing maternal and child mortality in resource-limited settings.^[11]

THE GENESIS OF THE GIFTEDMOM™ PROJECT

GiftedMom™ is a mobile telephone health-care software created by a young Cameroonian engineer, called Alain Nteff in the Northwest region of Cameroon.^[12] This software was conceived in 2012 when Alain Nteff visited a physician and friend of his called Conrad Tankou at the hospital he was practicing in. During the visit, Alain noticed a high mortality of pregnant women and neonates as a result of suboptimal or lack antenatal care which could be prevented by adequate antenatal consultation. Alain then embarked on setting up this software in 2012, which he accomplished in 2013 and called it GiftedMom™.^[13] The pilot phase of the project started in the Northwest region of Cameroon with eight women and proved successful in the promotion of antenatal care.^[13]

OBJECTIVES OF THE GIFTEDMOM™ PROJECT

The aim of this mobile telephone program is to safe preventable maternal and child deaths through the provision of basic life-saving health knowledge in areas with poor access to health-care services.^[11] Pregnant women can enter their last menstrual period into this program. The software then automatically calculates their gestational age, and with the aid of mobile short message service (SMS) and voice platforms, the device reminds the pregnant women of each follow-up antenatal care session. The application uses the same operating system for health education of nursing mothers on breastfeeding and immunization of infants.^[14] To register, “MOM” is sent to 8566 for those in Cameroon or 30812 for those in Nigeria, and then, they receive a call from a particular number to confirm their registration. The software is designed such that specific questions can be asked for a doctor to reply.^[15] The subscription fee is <1 dollar and all the subsequent messages are free.^[16] Furthermore, GiftedMom™ has the advantage of being simple and inexpensive and its voice platform is adapted to four widely spoken native languages to ease communication with virtually all pregnant women.^[17] A good number of companies have supported GiftedMom™ to attain its international status such as The Partnership for Maternal and Newborn Health, Mobile Alliance for Maternal Action, MasterCard Foundation,

Women Delivery, ALN Ventures, human wireless, Lenovo for those who do, NESTLE Foundation, and Harambe Cameroon.^[15]

PRELIMINARY OUTCOMES OF THE PROJECT

It is worth noting that the implementation of GiftedMom™ has led to a 20% increase in antenatal care attendance in 15 rural Cameroonian communities. About 1200 pregnant women attended antenatal clinic between 2013 and 2014.^[18] The number of attendees rose to 2100 in the year 2015 and to 13,300 by 2016.^[15] The success of this project can be attributed to the active involvement of 34 health centers, 520 community health workers, and the dissemination of about 500,000 SMS between 2013 and 2016.^[15,19] The originality and great impact of GiftedMom™ in revolutionizing mother and child health in Cameroon earned its designers several reputable international awards and distinctions, namely the grand Anzisha Prize,^[11] the AppsAfrica Innovation Winner 2015,^[14] the Queen’s Young Leaders Award,^[18] and the African Start-up and D-prize.^[15]

CONCLUSION

GiftedMom™ software is adapted for resource-limited settings like sub-Saharan Africa. Further studies are needed to assess its impact on in antenatal care attendance, child vaccination, and overall maternal and child mortality. In the future, this project could be a major solution in achieving target 3 of the Sustainable development goal.

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How to cite this article: Temgoua MN, Tochie JN, Danwang C, Aletum VM, Tankeu R. An Innovative Technology to Curb Maternal and Child Mortality in Sub-Saharan Africa: The GiftedMom™ Approach. *Clin Res Obstetr Gynecol* 2018;1(1):1-3.