

## PREVALENCE OF GESTATIONAL HYPERTENSION AND PRE-ECLAMPSIA (PE) IN MAKOKO/IWAYA COMMUNITY IN LAGOS, NIGERIA

### RESULTS OF A COMMUNITY-BASED LIMITED SURVEY (JULY 2019 – JUNE 2020)

**AIM:** The Survey aims to ascertain the impact of the special obstetric training for the Traditional Birth Attendants (TBAs) and Traditional Healers (THs) of the waterfront community of Makoko/Iwaya and to gain insight on the prevalence of gestational Hypertension and its aftermath in the community by routine measurement of the Blood Pressure of pregnant women.

#### Introduction

Nigeria ranks statistically second in the world in respect of high maternal mortality rate and neonatal mortality (MMR and NMR). According to multiple studies by the WHO, one of the major causes is the lack of or inadequacy of skilled professional care of women during pregnancy and childbirth. Because of this background, the Federal and State Governments of Nigeria embarked on rigorous efforts to reduce the MMR and NMR in order to achieve the millennium development goals (MDG) set by the United Nations in 2000.

In a country where about 70% of the populace consult their Traditional Healers and Traditional Birth Attendants (in the following referred to combined as Traditional Medicine Practitioners or TMPs) for their medical needs, it is obvious that the Governments rely hugely on the involvement of the private sector in order to meet the healthcare needs of its citizens. The majority of these TMPs operate in a clandestine status (as is the case in the Makoko/Iwaya Waterfront community), despite provision by the Governments to certify and legalise the TMP practises after a defined basic 'medical training' and industrial placement of six weeks duration.

In 2015, responding to the aspirations and demands of the waterfront community of Makoko/Iwaya for a community healthcare facility, the Organization SUPPORT of Switzerland embarked on a long-term Primary Healthcare (PHC) project of integrated traditional and conventional medicine provision with emphasis on mother, Newborn and child health.

In the absence of conventional healthcare services in the community, the project en-

visaged to create new structures that are close to the people and low threshold, specifically accommodating and improving the existing services by the TMPs.

A new system of accessible (within the community), affordable and high quality PHC subsequently integrates their healthcare provision in a complementary manner thereby supplementing and supporting the efforts of the Lagos State Government (LSG) in its effort to provide primary healthcare to all its citizens.

In this particular community of upwards of at least 50'000 inhabitants, only three TMPs have the State legitimation to practice. The more than 40 others practise clandestinely. Among them, there is considerable varying degree of knowledge and skills. In order to achieve the goal of integrating the healthcare systems in the community, it is imperative that we first achieve a general and common understanding of some basic medical principles and skills in certain aspects of conventional medicine practices among the TMPs. In collaboration with our partner IROHES Initiative and assistance from the Lagos State Traditional Medicine Board, we carried out a total of three months training seminars spread over two years in areas of among others, basic hygiene, physiology and care of pregnancy as well as emergency recognition of obstetric and neonatal danger signs at birth. A particular aspect in the seminars was the training in blood pressure measurements and recording of every pregnant woman for early detection of preeclampsia and eclampsia, which is a major cause of pregnancy related maternal mortality. The facilitators constantly encouraged early referral of endangered mothers and new-borns. There was no practice or records of blood pressure measurements by the TMPs before this.

In a community devoid of written records or statistics of any kind, a further aspect of the training included the introduction to the necessity of registering and keeping of medical records and findings in the respective practices. This enables among others, the institution of record keeping as a nucleus for statistical surveys and record of disease morbidities in the community.

Of the 41 TMPs who registered for the training, 27 actually completed the course and attained recognition and certification from the Lagos State Government. The rest who did not fulfil all aspects of the course where not certified but formed part of the recruitment efforts.

## **Methods**

On successful completion of the training, 34 of the original 41 TMPs (including the uncertified) consented to be part of the survey, designed to maintain continuous records of blood pressure measurements and the course of the pregnancy at every client's visit. Each participant received a "Midwifery Kit" also containing a Sphygmomanometer.

A special template was created and made available to the TMPs containing information on pregnant clients' data, parity, history and duration of pregnancy, blood pressure measurement at each consultation, course of delivery (where applicable) and follow up (including death, referrals of mother and/or Newborn).

A monthly progress report meeting with FAQ facility and submission of data template with the survey coordinator frequently assisted by a qualified community-health-extension-worker (CHEW) took place regularly.

In order to delineate normal from pathologic measurements and identify patients at risk for possible referral, we employed the following standard definition of normal blood pressure. Every participant received a colour chart of blood pressure category as guide (diagram below).

BLOOD PRESSURE CATEGORY	SYSTOLIC mm Hg (upper number)		DIASTOLIC mm Hg (lower number)
NORMAL	LESS THAN 120	and	LESS THAN 80
ELEVATED	120 – 129	and	LESS THAN 80
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 1	130 – 139	or	80 – 89
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 2	140 OR HIGHER	or	90 OR HIGHER
HYPERTENSIVE CRISIS (consult your doctor immediately)	HIGHER THAN 180	and/or	HIGHER THAN 120

Fig. 1. Blood Pressure Category Chart

## Definitions

- 1. Gestational Hypertension:** A disorder of pregnancy characterised by onset of elevated BP of a previously healthy pregnant woman after 20 weeks of gestation (120 – 129/ 80 – 90 mm Mercury, measurements on 2 different occasions)
- 2. Pre-Eclampsia:** Elevated BP (>140/ >90) accompanied by significant proteinuria
- 3. Eclampsia:** Development of new convulsions in a preeclampsia patient not attributed to other causes.

**Fig. 2. and 3. :**  
Participant TMPs after training (left)  
and during the refresher course (right)



### **Data Management**

In the run-up and in first half year of survey, the coordinator collected the data from the TMPs, monthly. A further refresher course followed the run-up phase as participants exhibited insufficient routine in blood pressure (BP) measurement and recording of (BP). In the second half of the survey, the responsibility of data collection fell on two spokespersons of the TMPs covering the whole community and they in turn, reported monthly to the office of the coordinator at IROHES Initiative.

### **Ethical approval**

Ethical concerns of recording data without written consents of patients was alleviated by verbal consent given to the TMPs but there was no control mechanisms in place to verify this.

### **Results**

The overall respond quota of filled templates in the run up phase and later in the first half of the survey (July – December 2019) was very low – an average of 14 out of 34 recruited participants or **41,2%** gave regular monthly feedback! This **improved significantly** in the second half (January – June 2020) when the filled template response quota rose **to 61.5%** - an average of 24 out of 39 recruited participants responded monthly. More participants in the second half of the survey resulted in more pregnant women examined, which corresponds to more BP measurements taken and more newborns delivered.

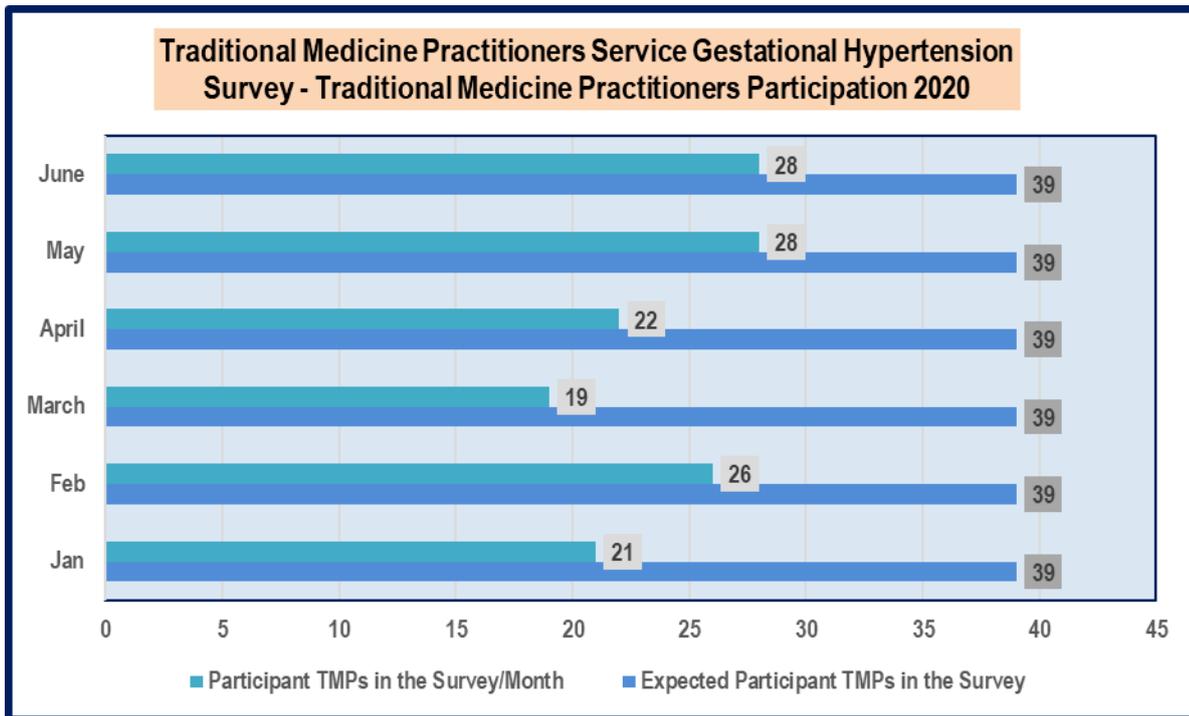
**Referral of pregnant mothers occurred eight times** more frequently in the second than in the first half and contrasted with only one Newborn referred to the nearest General hospital (Tab. 1.). The indication for referral was overwhelmingly due to gestational hypertension unresponsive to traditional treatment. By contrast, referral of the Newborn was indicative of multiple morbidity and occurred thirty six (36) times in the first half year! No incidents of maternal death and only one neonatal death was registered.

Of a total of **1'655 pregnant women** seen during the survey period, the TMPs took **3'005 BP measurements** out of which **71% were normal**, 149 patients were in the Stage 1 – Stage 2 hypertensive category and **six were in hypertensive crisis**. Symptoms of overt eclampsia did not occur in any patient as referral of patients at risk occurred early – a further achievement for this community. However, by definition **155 pregnant women or 9,4% fulfilled the criteria for Gestational Hypertension!**

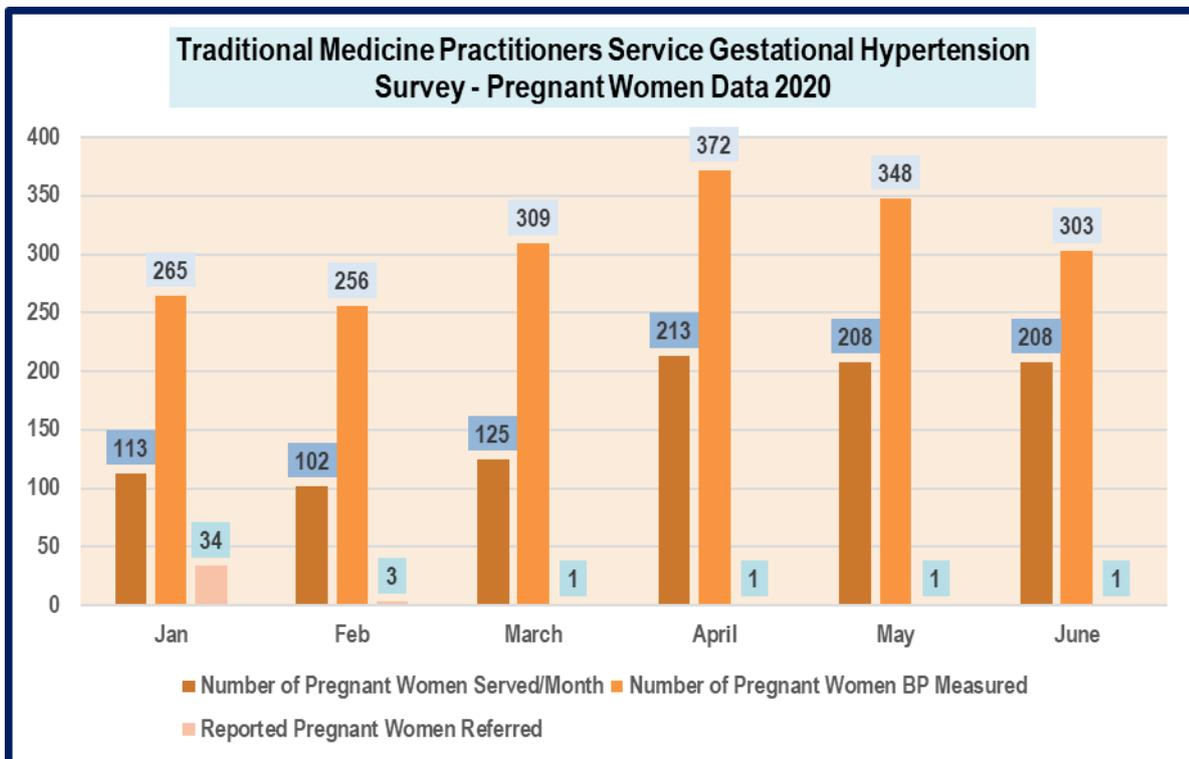
**Tab.1. TMPs Gestational Hypertension Survey July 2019 – June 2020**

<b>S / N</b>	<b>July – December 2019</b>	<b>January – June 2020</b>
Template return quota / No. of recruited TMPs	14 / 34 (41.2%)	24 / 39 (61.5%)
No. of pregnant women served	686	969
Total No. BP measured	1'130	1'875
No newborn deliveries reported	174	323
No referrals: a) Pregnant women b) Newborns	6 36	41 1
No mortality: a) maternal b) neonatal	0 1	0 0

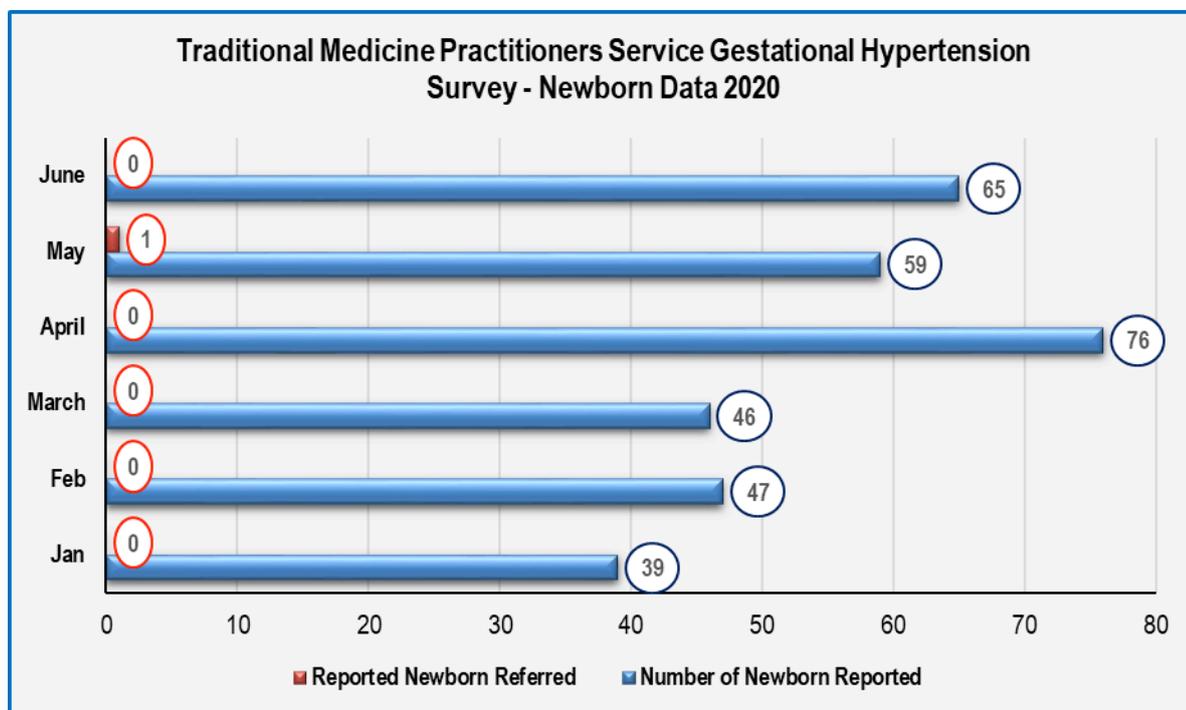
**Tab. 2. Template Response vs. Expected Participation**



**Tab. 3. No. Pregnant women seen and No. Blood Pressure measured**



**Tab. 4. No. Newborn deliveries and No. referred**



**Tab. 5. Gestational Hypertension Survey: Categories of BP measured**

S / N	July – December 2019	January – June 2020
Normal BP measurements	695	1'431
Elevated BP	305	374
High BP Stage 1	63	46
High BP Stage 2	18	22
Hypertensive Crisis	4	2

## Discussion

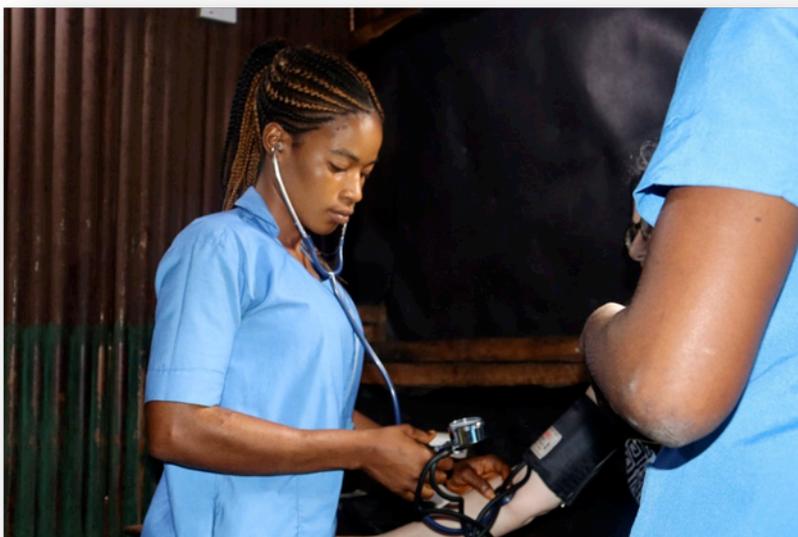
The absence of skilled professional obstetric care during the delivery period, contributes largely to the high maternal and neonatal mortality in most low and middle-income countries like Nigeria.

Unrecognised gestational hypertensive conditions leading to Pre-Eclampsia and Eclampsia therefore, becomes one of the most common major direct causes of pregnancy related maternal mortality, foetal growth retardation and perinatal death.

In this unique Waterfront community of Makoko/Iwaya on the Lagos State Lagos Nigeria, the more than 50'000 residents depend exclusively on the TMPs, who are also traditional birth attendants (TBAs), for their healthcare needs. They operate mostly in a clandestine status and patronised mostly in part because of easy accessibility, affordability, cultural affinity and empathic interaction with their healthcare providers.

In the absence of any data on the size of the population, medical statistics or morbidity, the prevalence of gestational hypertension is unknown. The special training afforded the TMPs the opportunity to achieve an officially recognised status (by the State Government) and at the same time acquire some conventional skills pertinent to their professional activities in the community.

**Fig. 4.** A TMP-Trainee measuring BP on a supervision tour in October 2019



**Fig. 5.** Monitoring visit on compliance in BP measurement procedure by TMPs, October 2019.



This pilot survey attempts to ascertain the impact of the skills learnt during the special training a year earlier and to regularise specifically the routine measurement of blood pressure and record keeping management. This achievable goal serves as part of the objectives of a broader project of an integrated Primary Healthcare System of traditional and conventional medicine in a complementary manner, envisaged for the community by the Organisation SUPPORT of Switzerland.

The overall result might appear seemingly sobering, but a closer assessment reveals elements of measurable successes, considering the challenging background of the survey. At the end of one year, there is significant increase in the number of recruits and template response to the survey, as more TMPs become more confident in measuring BP and reporting their records. The TMPs are empowered and they in turn empower their apprentices who now have learnt a new important skill and recognise the importance of BP measuring (Figs. 4 and 5). This fact is crucial in the efforts to help mitigate the incidence of pregnancy related causes of maternal and neonatal death rates. The majority of deaths due to pre-eclampsia and eclampsia are avoidable through the provision of timely and effective care to the women presenting with these complications.

The TMPs have overcome their shyness and insecurity towards the controlling authorities, having exchanged their clandestine status for legalised status and now are able to recognise Hypertension as evident in the relatively high No. of timely referral. For a start, the TMPs recognised 155 pregnant women who fulfilled the criteria of gestational Hypertension during pregnancy, albeit a further differentiation in the diagnosis of pre-eclampsia or eclampsia was not achieved. However, the survey program has laid a foundation for healthcare data mobilization and management among

the TMPs who hitherto have been unstructured. The data recording system has become a groundwork for possible statewide application for TMPs.

The perceived success on the part of the TMPs has signalled more confidence in the services they render in the community as measured by the rising no of patronising clients. This provides robust stability to upscale the program beyond Makoko/Iwaya Waterfront community.

The program is now routine and ongoing. A further differentiation of this survey will be pursued in the future. The TMPs now regularly submit their birth and death statistics to the local government council and subsequently the Lagos State Primary Healthcare Board. This enhances the probability of establishing a reliable medical statistic data bank of the Makoko/Iwaya community and enables subsequent evaluation and inclusion of incidences of adverse pregnancy outcomes in the national Healthcare Statistics, which hitherto was not considered.

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