

## **Midwives' Knowledge and Utilization of Anti-Shock Garment In Prevention of Postpartum Haemorrhage Shock at the University College Hospital, Ibadan Nigeria.**

Kolade, Oluwakemi Ajike ; \* Dr. Tijani Wakili Adelani ;  
Oladeji, Michael Oloyede; Dr . Ajibade, Bayo Lawal

(BSc, MSc Nursing) Lecturer Department of Nursing Ladoke Akintola University of Technology, Ogbomoso,  
Nigeria

(RN, PHD, FWACN) Senior Lecturer Department of Nursing Ladoke Akintola University of Technology,  
Ogbomoso, Nigeria

Lecturer Department of Nursing Ladoke Akintola University of Technology, Ogbomoso, Nigeria  
Senior Lecturer Department of Nursing Ladoke Akintola University of Technology, Ogbomoso, Nigeria

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**Abstract:** Postpartum Haemorrhage is the most common cause of maternal mortality in world. It is vaginal bleeding in excess of 500ml after vaginal delivery or in excess of 1000ml after cesarean delivery that can jeopardize the survival of client. The purpose of the study therefore, is to determine the midwives' knowledge on utilization of anti-shock garment in the prevention of postpartum haemorrhage shock in the University College Hospital, Ibadan Nigeria. Through incidental and purposive sampling methods, 110 respondents were selected for the study. Data collection was carried out from 19<sup>th</sup> to 29<sup>th</sup> October, 2011 with self-developed structured questionnaire. However, only 100 returned a fully completed questionnaire which was analyzed using Microsoft Excel. 2010 edition. Ages of the respondents ranged from 20 to 59 with a mean  $31 \pm 2.6$  and 100% of the midwives are females. The respondents' years of experience as midwives ranged from 1 to 27 with a mean  $13 \pm 5.9$ . Respondents held different views on the number of emergency cases of post partum haemorrhage referred weekly to UCH, Ibadan from other hospitals. The results revealed that 7% of them had no idea of the number, 46% said it is 10-20, 34% believed it is 21-30 while 13% believed it is >30. Awareness about the existence of non-pneumatic anti-shock garment (NASG) was high among the respondents as 96% of them said they have heard about it through various sources ranging from seminars and conferences (60%), textbook (16%), journals (11%), internet (7%) and electronic media (2%). As much as 76% of them could describe NASG application, removal and its general function in the prevention of post partum haemorrhage. Similarly, majority (74%) could correctly explain various advantage of NASG as well as some maternal and fetal conditions that are contraindicated in the use of NASG. However, their knowledge seems to be only theoretical as only 35% of them have had opportunities to apply NASG; the rest 65% had never applied it on clients. Because the respondents have never had opportunity to apply NASG on bleeding woman, their theoretical knowledge is of little use. Therefore it was recommended that the authority of the UCH, Ibadan should make NASG abundantly available for the use of its personnel. Also since the survival of the patient is the utmost goal of any hospital, application of NASG should not be limited to resident doctors and consultant obstetricians and gynaecologists alone; the midwife as a stake holder in midwifery matter should be given free hands to apply it on bleeding woman.

**Keywords:** Midwives, Post-partum Haemorrhage, Mortality, Pneumatic Anti-shock Garment, Anyone,

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### **I. Introduction**

Postpartum Haemorrhage is the most common cause of obstetric haemorrhage and one of the five leading causes of maternal mortality in world. According to Ijaya et al. (2003), postpartum haemorrhage (PPH) is vaginal bleeding in excess of 500ml after vaginal delivery and in excess of 1000ml after cesarean delivery or any amount that can make the condition of client deteriorate hence jeopardizing her survival. Uterine atony makes up the largest single etiology comprising of postpartum haemorrhage and can be reduced by 50% with the performance of active management of third stage of labour (AMTSL). Even with this, postpartum haemorrhage from uterine atony can occur (International Confederation of Midwives (ICM) and International Federation of Gynaecology and Obstetrics (FIGO) (2006). Other causes of postpartum haemorrhage which are not preventable by AMTSL, include retained placenta, ruptured uterus, vaginal or cervical lacerations and placenta accreta. These non-atonic PPH etiologies are not affected by the administration of uterotonics, and almost always require surgery. In the works of Lertakyamanee et al. (1999) and Anya and Anya (1999), it was observed that treatment protocols for postpartum haemorrhage and hypovolemic shock include the administration of uterotonics, bi-manual massage of the uterus, manual removal of placenta, repair of

lacerations, blood transfusion and surgery. All of these may be unobtainable in low-resource settings, except at the tertiary facilities, and women may experience long delays receiving treatment at these facilities. A woman suffering from postpartum haemorrhage can die within two hours unless she receives immediate and prompt medical care; therefore, when delay in managing postpartum haemorrhage occurs, first aid is needed to resuscitate and stabilize women with hypovolemic shock until definitive treatment is obtained (Balachandram, 1995, Bias et al., 2004 and Magann et al., 2005). In 2006, the joint statement of International Council for Midwives (ICM) and International Federation of Obstetricians and Gynaecologists (FIGO) recommended research on anti-shock garment to reduce mortality among women suffering from postpartum haemorrhage. The non-pneumatic anti-shock garment (NASG) is a first aid lower body compression device, made from Neoprene and Velcro. Each of its nine segments is sequentially wrapped tightly around a haemorrhaging woman's leg, pelvis and abdomen. The abdominal segment applies extra compression with a small foam ball. This circumferential counter pressure applied by the NASG reduces the total vascular space in the lower portion of the body, while simultaneously increasing the volume of blood in the central circulation. This oxygenated blood is shunted to vital organs (Miller et al., 2006). The application of NASG reverses haemorrhagic shock and can stabilize the patient while awaiting transport, during transport, during other operational/surgical measures at the suprapubic or genital areas or delay on receiving care in referral facilities.

FIGO and ICM are key partners in global safe motherhood effort to reduce maternal death and disability in the world. Nigeria has had a very poor record regarding maternal and child care outcomes. An estimated 53,000 women die annually, mostly as a result of preventable or treatable cause (ICM/FIGO, 2008). The true incidence of PPH may be underestimated by 50%, and this is responsible for about 25% of maternal mortality (Kolatat, 1999). FIGO and ICM have several joint statements and call for action by professionals in the health care delivery system on issues that address prevention and treatment of postpartum haemorrhage. They advocated that all birth attendants should have necessary training, appropriate to the settings where they work to safely administer uterotonic drugs and prevent postpartum haemorrhage.

The Nursing and Midwifery Council of Nigeria has also included Safe-Motherhood and Life-Saving Skills as topics to be taught in Midwifery Curriculum to ensure reduction in maternal mortality. Alongside, International Organization such as the WHO, United State Agency for International Development (USAID), Pathfinder International have also made their contributions towards reduction of maternal mortality by organizing workshops on prevention and treatment of postpartum haemorrhage; use of anti-shock garment for Nurses and Midwives and other members of health care team; all in an effort to empower them with the necessary skills to provide safe-motherhood services (Van-Rheenan and Brabin, 2006).

A pneumatic anti-shock garment according to Miller et al. (2006) was used by emergency medical teams in the United State to stabilize patients before and during transfer to the hospital. It gained widespread acceptance and use in the treatment of trauma and emergencies including pelvic and lower limb fractures, hypovolemic shock, septic shock and to control intra-abdominal, pelvic and thigh haemorrhage as well as gynaecological haemorrhage (Miller and Hensleigh, 2006). In the late 1980s to 1990s, the PASG fell into disfavour of emergency medicine based on findings of randomized controlled trials conducted on the use of PASG which revealed that the PASG was useful for temporary management of massive obstetric haemorrhage and that PASG was found not to be effective in decreasing hospital stay or mortality. Furthermore, Miller and Hensleigh (2006) identified that the PASG requires inflation and careful management of pressure levels, both to maintain adequate pressure and to prevent over-inflation resulting in compartment syndromes, ischaemia and necrosis. The valves and manometers that maintain inflation are subject to leaks and malfunctions. In addition, specialized training for safe and effective use of PASG is necessary which makes widespread use in developing countries difficult.

The newest adaptation of anti-shock garment is the non-pneumatic anti-shock garment (NASG) which was adapted from the PASG/MAST by the National Aeronautic and Space Administration in 1971. The NASG is a light weight, inexpensive (at least 50 times less in cost) neoprene garment that resembles the lower part of a wet suit. The NASG is designed in horizontal segments with three segments on each leg, a segment over the pelvis and a segment over the abdomen that contains a small, foam compression ball. NASG is left in place as long as needed to achieve haemostasis and replace red blood cell volume with transfusion of donor blood. The NASG can be removed when the haemoglobin level is greater than 7mg/dl or the hematocrit is 20%. The pulse is less than 100 and the systolic pressure greater than 100mmHg. Removal of the NASG begins with the lowest segment and proceeds upwards allowing 15 minutes between removing each segment for redistribution of blood. If the blood pressure falls by 20mmHg or the pulse increases by 20 beats per minute after a segment is removed, NASG should be replaced and one should consider the need for more saline or blood transfusion for the woman. If there is recurrent bleeding, NASG needs to be replaced and one should determine the source of bleeding (Miller and Hensleigh, 2006).

The benefit of the NASG for obstetric indication is that the design of the garment permits complete perineal access so that genital lacerations can be repaired, speculum or bi-manual examination can be performed

and manual removal of placenta or emptying of the uterus with manual vacuum aspiration or curettage can all be accomplished with the NASG in place. Thus the source of most obstetric haemorrhage can be located and attended to, while the garment maintains vital signs. Also, NASG significantly reduces further loss of blood. When applied, the external circumferential counter pressure is distributed evenly throughout the abdominal cavity and to the outside of the circulatory vessels, tamponading venous bleeding in the event of an arterial injury, continued bleeding results from the tension in the wall of the artery keeping the defect open. However, the NASG compresses all the intra-abdominal vessels including the internal iliac and uterine arteries. This compression reduces the radius of the arteries and reduces the transmural pressure (the difference between the pressure inside the artery and the pressure outside the artery), which in turn reduces the tension in the arterial wall, closing the defect and reducing blood loss. Because the applied pressure could interfere with uterine blood flow, the NASG is not recommended for obstetric bleeding when the fetus is still viable such as might be the case with placenta previa or abruption. Post delivery, however or when the fetus is not viable or is dead the NASG can be used for any obstetric haemorrhage.

NASG can be applied by anyone who has undergone the training irrespective of the level of profession - doctors, nurse/midwife, community health extension workers, hospital assistants and even ambulance driver (Mourad-Yousiff et al. 2010). It is taken care of by soaking in 0.5% chlorine solution i.e. 1 part of jik to 6 parts of water for 10 to 15 minutes. After which it is washed with detergent and thoroughly rinse with clean water. It is hung out in the air to dry. It is then kept in an unlocked but safe place, where it can be easily and readily accessed; when need arises for its use.

### **Empirical Studies on the use of Non-Pneumatic Anti-Shock Garment (NASG)**

The first published report on the use of the non-pneumatic anti-shock garment (NASG) in obstetric haemorrhage was by Hensleigh (2002), who described a case of series of six women with obstetric haemorrhage and shock in a large maternity hospital in Sialkot, Pakistan. The estimated blood loss prior to placement of the NASG was between 1200mls and 1400ml. The obstetric diagnoses included placenta praevia, uterine atony with retained placenta, laceration of the cervix and vagina, placenta accrete, and placental abruption. Finding revealed that patients placed in the NASG experienced rapid resuscitation from hypovolemic shock, as well as an extended period of stabilization while awaiting definitive treatment. The mean time that women remained in the NASG was 24.3 hours. No adverse effects were observed apart from a transient decrease in urine output. In another study, Brees et al. (2004) reported a second series of fourteen consecutive cases of obstetric haemorrhage and hypovolemic shock in the same hospital in Sialkot, Pakistan. Women with blood loss of  $\geq 750$ mls, systolic blood pressure of  $\leq 100$  and pulse  $\geq 100$  were included in the study. Blood loss before NASG application was estimated to be between 2000mls and 4500mls. The range of time in the NASG was 18 – 57 hours with a mean time of 31 hours. It took on an average 5 hours to obtain blood donors and commence transfusion; the women were transfused with one to six pint (500mls) of blood. Thirteen out of fourteen women survived, and the only case of mortality had multiple organ damage failure and severe anaemia before the application of the NASG. Also, in a study of 249 women with obstetric haemorrhage (104 pre-intervention and 145 post-intervention NASG group data) from Egypt, the NASG was documented to decrease the time to recover from hypovolemic shock as well as decreasing blood loss (Miller et al, 2006). Recovery from hypovolemic shock was defined as a decrease in pulse from  $\geq 100$  per minute to  $< 100$  per minute and a return to normal shock index (SI). Shock index, an indicator derived by dividing the pulse by the systolic blood pressure, is considered a more reliable indicator of shock and severity of hypovolemia than either sign alone, particularly with concealed haemorrhage, as with ectopic pregnancies. A higher shock index indicates a greater risk of severe morbidity or mortality. The Norma SI range for healthy euvoletic patient is between 0.5 – 0.7. Due to physiological changes in pregnancy and the higher blood plasma volume of pregnant women, an SI value of  $\leq 0.9$  was used. Recovery from shock was found to be independent of other resuscitative measures such as the volume of intravenous fluids given and the timing of blood transfusions. It was also reported that the median recovery time to  $SI \leq 0.9$  for the NASG group, 75 minutes was statistically shorter when compared to the recovery time of 120 minutes for the pre-intervention group (log rank test = 8.99,  $p = 0.003$ ). The time for pulse recovery was also demonstrated to be 180 minutes for the pre-intervention group and 90 minutes for the post intervention NASG group (log rank test = 17.92,  $p < 0.001$ ). Furthermore, an independent effect of the NASG on blood loss from PPH due to uterine atony, among 69 pre-intervention cases and 76 post intervention NASG cases, regardless of the oxytocin received. Women in the post-intervention NASG group had 50% lower blood loss when compared with women in the pre-intervention group, 299mls versus 603mls. In Nigeria, there is limited research on the NASG for obstetric haemorrhage. Therefore, there is much to be done in this area. However, Mourad – Youssif et al (2010) reported a study of 854 women which was conducted in four referral facilities in Nigeria, and two in Egypt between 2004 -2008. The entry criteria were women with PPH due to uterine atony, retained placenta, ruptured uterus, vaginal or cervical lacerations or placenta accrete with estimated blood loss of  $\geq 750$ ml and one clinical sign of shock. Results revealed that measured blood loss

decrease by 50% between phases; women experienced 400 mls of median blood loss after study entry in the pre-intervention and 200ml in the NASG phase ( $P < 0.0001$ ). As individual outcomes, mortality decreased from 9% pre-intervention to 3.1% in the NASG phase. Severe morbidity decreased from 4.2% to 1% in the NASG phase. Generally, there is paucity of literature, data and research on midwives' knowledge on application of NASG. Nevertheless, midwives as first line staff and central in the health team, have crucial role to play in the prevention, identification and management of postpartum Haemorrhage. The purpose of the study therefore, is to determine the midwives' knowledge on utilization of anti-shock garment in the prevention of postpartum haemorrhage shock in the University College Hospital, Ibadan Nigeria.

### **Theoretical Framework**

The theoretical framework for this study is adapted from Care-Core-Cure Theory, propounded by Lydia Hall in the late 1960s and referred to as the three Cs of Lydia Hall. The theory consists of three independent but interconnected circles that influence each other - the care, the core and cure. Hall clearly stated that the focus of nursing is the provision of intimate bodily care. She reflected that the public has long recognized this as belonging exclusively to nursing. To be expert, the nurse must know how to modify care depending on the pathology and treatment while considering the unique needs and personality of the patient. These three circle overlaps and change in size as the patient progress through a medical crisis to the rehabilitation phase of the illness. In the acute care phase of the circle, the cure is the largest; during the evaluation and follow-up phase, the care circle is predominant.

**The care circle:** This is the part of the theory reserved for nurses and focus on performing that noble task of nurturing the patient meaning that the component of this model is the "motherly" care provided by the nurse, which may include but not limited to provision of comfort measure, provision of patient teaching activities and helping the patient to meet her needs where help is needed. This aspect provided the opportunity for closeness and required seeing the process as an interpersonal relationship. Hands-on-care for patient provides an environment of comfort and trust and promotes open communication between the nurses and the patients.

**The core circle:** Core is the person or patient to whom the nursing care is needed and directed. The core has goals set by himself and not by any other person. The core behaves according to his feelings and value system. The social, emotional, spiritual and intellectual needs of the patient in relation to the family, institution community and the world is emphasized. Through the closeness offered by the provision of intimate bodily care, the patient will feel comfortable enough to explore with the nurse who he is, where he wants to go and will not, take or refuse help in getting there. Patient will make amazingly rapid progress towards recovery and rehabilitation. Hall believed that through this process, the patient would emerge as a whole person.

**The cure circle:** This is the attention given to patient by medical professional. According to Hall, this aspect is shared with medicine and is labelled "cure". This medical aspect was viewed in two ways by Hall as:

- i. The nurse assisting the doctor by assuming medical task and
- ii. The nurse helping the patient through his or her medical, surgical and rehabilitative care in the role of comforter and nurturer.

In relating this theory to the study, the core is a woman experiencing postpartum haemorrhage to whom, the midwife direct the noble task of nurturing in terms of application of the Non-pneumatic anti-shock garment in helping to meet her oxygenation and tissue perfusion need, so that the shock is reversed by the increased cardiac output and blood supply to vital organs – the brain, heart, lungs and kidney. Hand-on-care, for the application of the ASG and monitoring of the patient's vital signs as well as rendering other nursing care for the patient, provides an opportunity for closeness, therapeutic/interpersonal relationship and an environment of comfort and trust which promotes openness between the nurse and the patient. The cure aspect is achieved by assuming the medical task of assisting the patient in collaboration with other members of the medical profession through medical – administration of the prescribed uterotonics, blood transfusion and other prescribed drugs. Surgical – repair of lacerations, removal of placenta under anesthesia, and hysterectomy as the case may require. In addition, render rehabilitative care, which will help the patient to recover rapidly and emerge as a whole person.

## **II. Material and Methods**

The setting for the study was the University College Hospital, (UCH) Ibadan. It is the first teaching hospital in Nigeria for the training of various categories of doctors, nurses and other health personnel and it also serves as referral centre for primary and secondary health facilities within the south western Nigeria. As at the time of the study, the hospital has 863 bed spaces. The research design was descriptive to assess the midwives' knowledge on utilization of anti-shock garment in the prevention of postpartum haemorrhage shock. The target population comprised the midwives in the obstetrics and gynaecology department of the hospital which

comprised the following wards and clinics: South East 4, South West 4, West 4, West West 3, Labour Ward and the Ante-Natal Clinic. Incidental and purposive sampling methods were adopted in which any midwife found on duty during the period of data collection was included in the study after receiving her informed consent. Data collection from the respondents was carried out from 19<sup>th</sup> to 29<sup>th</sup> October, 2011 with self-developed structured questionnaire. The questionnaire contained two sections with 38 test items to elicit information on the respondent's demographic characteristics and her knowledge on utilization of anti-shock garment. The questionnaires were administered to the respondents, giving 10 minutes period for filling, and thereafter retrieved. The psychometric property of the questionnaire using Chronbach's coefficient of Alpha showed 0.75 for section two of the questionnaire. The data analysis was done using Microsoft Excel. 2010 edition.

### III. Results

A total of 110 questionnaires were distributed but only 100 were retrieved and analyzed; the rest 10 did not fill the questionnaire well for easy analysis.

Ages of the respondents ranged from 20 to 59 with a mean  $31 \pm 2.6$  and 100% of the midwives are females. The respondents possessed various categories of certificates: 54% of them were Registered Nursing and Midwifery (R.N.M) certificates holders, 23% possessed bachelor degree in nursing (B.N.Sc.) in addition to R.N.M certificates, while 16% possessed degree in Education apart from R.N.M certificates they possessed. Also, 7%, in addition to R.N.M certificates and BNSc. degree, also possessed Master degrees in Public Health, Education and Nursing. The respondents' years of experience as midwives ranged from 1 to 27 with a mean  $13 \pm 5.9$ . Respondents held different views on the number of emergency cases of post partum haemorrhage referred weekly to UCH, Ibadan from other hospitals. The results revealed that 7% of them had no idea of the number, 46% said it is 10-20, 34% believed it is 21-30 while 13% believed it is >30. Awareness about the existence of anti-shock garment, more especially the non-pneumatic anti-shock garment (NASG), was high among the respondents as 96% of them said they have heard about it through various sources ranging from seminars and conferences (60%), textbook (16%), journals (11%), internet (7%) and electronic media (2%).

Also, only 35% respondents claimed to have had opportunities to apply NASG, the rest 65% had never applied it on clients. Table 1 shows the frequency at which the respondents have applied NASG.

**Table 1: Respondent's number of times of application of NASG.**

frequency	Percentage (%)
5 – 10 times	26%
11 – 20 times	3%
Once	6%
Never	65%
Total	100%

Table 2 also shows the various views of the respondents on how NASG functions.

**Table 2: Respondents' views of NASG functions**

How Non-pneumatic Anti-shock Garment functions	Percentage (%)
Prevents shock	9%
Stabilizes a woman in shock	3%
Reverses shock and decrease blood	17%
Compresses blood vessels to increase loss blood flow to vital organs	66%
No response	5%
Total	100%

Respondents' knowledge on the advantages inherent in the use of NASG varied. And these are represented in table 3.

**Table 3: Respondents' knowledge of advantages of NASG**

NASG advantages	% Yes	% No
Saves time, energy and life	84%	16%
Inexpensive, comfortable, durable and easy to maintain	82%	18%
Ensures perineal access	83%	17%
Reduces further blood loss	85%	15%
Reverses shock	91%	9%
Prevents maternal morbidity and mortality	87%	13%
Persons with no medical background, but have been trained, can apply it.	78%	22%
Can be on the patients for several hours without adverse consequences	78%	22%

In a bid to demonstrate their familiarization with NASG, the respondents proceeded to describe a typical NASG segments: 37% of the respondents claimed that NASG has four segments, 5% said it has six segments, 4% claimed eight segment and 54 % identified nine segment of a typical NASG. Also, on the question about who could apply NASG during emergency, 89% of the respondents believed that anybody that has been trained to apply NASG can do so; 4% said only doctors can do it, while 7% respondents identified only midwives can apply an NASG. Majority of the respondents also identified with ease the sequence of application of NASG (56%), as well as order of its removal (52%) which is in order of ankle, calf, thigh, pelvis and umbilicus. In a similar manner, 63% of the respondents correctly identified mechanism of operation of a typical NASG which is by reversing shock through shunting of blood from abdomen and lower extremities. In the observation of women with NASG, order of monitoring of blood pressure, pulse, respiration and urinary output were correctly identified by 64% of respondents, while 67% of them also identified the usual approved 15 minutes interval of monitoring these vital signs. When asked about when one should be cautious on the application of NASG, majority of them identified those conditions correctly and these are represented in table 5.

Table 5: Respondents knowledge of contra-indication to the use of NASG.

Conditions	% Yes	% No
Viable fetus	70%	30
Dyspnoea	61%	39
Mitral stenosis	71%	29
Uterine massage after placenta delivery	62%	38
Congestive heart failure	72%	28
Pulmonary hypertension	78%	22
Bleeding above the level of diaphragm	76%	24

As much as 40% of the respondents identified the approved vital signs value at which NASG could be removed and these are: pulse of < 100b/m, systolic blood pressure of > 100mmHg and urinary output of 30mls/hour. The Norma shock index (SI) range for healthy euvoletic patient which is between 0.5 – 0.7 was also got correctly by 65% of the respondents. However, only 37% of the respondents got the correct time interval (of 15 minutes) at which each segment of NASG could be removed. The allowance of this time interval is believed to be for redistribution of blood. This, 61% of respondents got correctly. Other methods of post partum haemorrhage prevention were identified by the respondents, and these are shown in table 4.

Table 4: Respondents' knowledge of other methods of prevention of postpartum haemorrhage

Methods of prevention of PPH	%
Administration of uterotonic agents	90%
Controlled cord traction	89%
Uterine massage after delivery of placenta	88%
External bimanual compression of the uterus	87%
Active management of the third stage of labour	90%
Encourage maternal efforts to bear down with contractions	87%
Discourage maternal effort to bear down with contractions	88%
Encourage woman to keep her bladder empty	90%
Use of fundal pressure to assist birth of the baby	34%
Early referral when labour progress is unsatisfactory	87%
Develop birth preparedness and complication readiness plan.	90%
Use of partograph to monitor labour	87%

#### IV. Discussion

Awareness about the existence of anti-shock garment was high among midwives in UCH, Ibadan as 96% of the respondents said they have heard about it through seminars, conferences and other means. Many of them could describe NASG application, removal and its general function in the prevention of post partum haemorrhage. Majority of them could correctly explain various advantage of NASG as well as some maternal and fetal conditions that are contraindicated in the use of NASG. It shows that many of them have been exposed to the use of anti-shock garment through workshops, conferences and seminars. However, this seems to be the limit of their knowledge; many of them have never applied it on bleeding woman. Their knowledge seems to be only theoretical as only 35% of them have had opportunities to apply NASG; the rest 65% had never applied it on clients. This is very bad because it is not that there were no patients to apply it upon; UCH as a referral centre receives emergencies and post PPH cases every moment. It could be that there were no enough NASG or the hospital policy that authorize the medical practitioner only to take pre-eminent stand on patients forbid them from applying NASG when physicians are around. If a large proportion of midwives in UCH, Ibadan have not gotten opportunities to apply NASG in or outside their place of work since over five years of its introduction to managed post PPH in Nigeria, it is very doubtful if midwives, nurses or any health personnel whatsoever in the

state, private and rural health facilities would have ever seeing NASG or any anti-shock garment at all in their lives. Yet, PPH, according to Ijaya et al. (2003) is the most common cause of obstetric haemorrhage and one of the five leading causes of maternal mortality in world, Nigeria inclusive. Lertakyamane et al. (1999) and Anya and Anya (1999) observe that current treatment protocols for PPH and hypovolemic shock include the administration of uterotonics, bi-manual massage of the uterus, manual removal of placenta, repair of lacerations, blood transfusion and surgery. All of these are unobtainable in low-resource settings like Nigeria as many cases of PPH do experience long delays in getting transported to the UCH, Ibadan. It then became double burden when a PPH case could not get NASG to stabilize her condition pending medical attendance at the referred centre. According to Balachandram, 1995, Bias et al., 2004 and Magann et al., 2005, a woman suffering from PPH can die within two hours unless she receives immediate and prompt medical care. Although it could not ascertain if such death are common in UCH, Ibadan, it is still not good enough that many midwives in the hospital do not have opportunity to apply NASG on PPH cases. If NASG is not in common use by midwives in the hospital of UCH standard, it shows that NASG or any anti-shock garment whatsoever is not common in health facilities within the country and few hospitals that have it will probably have only one to display; not necessarily for use. According to Miller et al (2007), NASG is in common use by emergency medical teams in the United State to stabilize patients before and during transfer to the hospital. There are many emergency referral cases to UCH, Ibadan on daily basis from health facilities within the South Western Nigeria. Of importance is the several numbers of post partum haemorrhage cases that are being referred to UCH, Ibadan from private, state and local health facilities on weekly basis. Virtually all these referring health facilities have no NASG or any anti-shock garment to convey their clients alive to UCH, Ibadan. Cases that are lucky to get to the hospital alive too may die in the process of identifying the source of bleeding if there is no NASG to prevent further bleeding during the process. It is a known fact that NASG can be applied by anyone that has received training for it; and not necessary midwives or only health personnel. Even, hospital assistants or ambulance driver can be trained to apply it (Mourad-Yousiff et al. 2010). It is clear that one cannot rely on an ambulance driver to apply NASG in UCH, Ibadan when even some of the midwives, that is the professional directly in charge of bleeding woman, have never had a single occasion to apply it.

### **Recommendation**

There is urgent need for training and retraining of personnel of private, state and local government health facilities, as well as the community birth attendants on the application of NASG. This will assist in stabilizing the bleeding woman and preventing complications as well as maternal death before getting the woman to the referring hospital.

In-service-education unit of UCH, Ibadan should organize on regular basis workshop on the use of NASG for all its health personnel; and the hospital authority should make NASG abundantly available for the use of the personnel.

As survival of the patient is the utmost goal of any health facility, UCH, Ibadan should give more freedom to midwives on some life saving procedures as they are stake holders in midwifery matter. One of such area is the application of NASG on bleeding woman. This should not be limited to resident doctors and consultant obstetricians and gynaecologists alone.

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