

## ROLE OF NATIONAL BLOOD TRANSFUSION SERVICE (NBTS) IN PROMOTING EMERGENCY OBSTETRICS CARE (EMOC)

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### ABSTRACT

**Background:** Obstetrics haemorrhage is one of the leading cause of maternal mortality in our settings, this was compounded by the non availability to safe blood in situation of need. Hence the prompt access and availability of blood can avert this preventable cause of maternal death.

**Objectives:** to highlight the benefits of effective collaboration with NBTS in ensuring prompt availability of blood for emergency obstetric services requiring blood for transfusion.

**Material And Method:** All obstetrics cases requiring blood transfusion in FMC Nguru from 1st January 2006 – 31<sup>st</sup> December 2011 were retrospectively reviewed. Trends and pattern of the request and source of blood were looked at within the two periods (from 1<sup>st</sup> January 2006 – 31<sup>st</sup> December 2008 and 1<sup>st</sup> January 2009 – 31<sup>st</sup> December 2011). Records of 1634 obstetric patients requiring blood transfusion or received blood transfusion in the maternity units were retrieved from the medical records, maternity ward record and blood bank. Information pertaining to their age, parity, indication for the transfusion or requests and source of blood was obtained for analysis. Data was analysed using simple percentage.

**Results:** Between 1<sup>st</sup> January 2006 and 31<sup>st</sup> December 2008 only 513 (56%) of the units requested 907 units of blood were supplied, while between 1<sup>st</sup> January 2009 and 1<sup>st</sup> December 2011 1367 (87%) of the 1567 units of blood requested were supplied. Within the earlier study period the only available source were from willing relatives and commercial blood donors, however between 2009 and 2011 more than 2/3 (64.2%) were supplied from the north east zonal NBTS office in Maiduguri. In 2006 through 2008, donation from relatives and commercial donors accounted for 53.22% and 46.78% respectively, but in 2009 and 2011 donation from relatives and commercial donors were recorded as 23.9% and 11.6% respectively. The commonest indication for the requests were anaemia, obstetrics haemorrhage (PPH, APH) and emergency C/S.

**Conclusion:** Ready available source of blood will significantly improve timely availability of blood in our setting. There is the need to encourage this collaboration in other regions to ensure prompt availability of blood to attend to emergencies requiring blood transfusion.

**KEYWORDS:** NBTS, emergency obstetrics care, effective collaboration, tertiary health facility.

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### INTRODUCTION

Every second, someone in the world needs blood<sup>1</sup>, but many patients do not have access to safe blood when they need it. Generally, there is a large global unmet need of safe blood: 80% of the world's population has access to only 20% of the world's safe supply<sup>2</sup>. Of the estimated 80million units of blood donated annually worldwide, only 38% are collected in developing countries where 82% of the world's population lives. The demand for blood in Africa, of which the Nigerian population represents almost 25% is estimated to be 14 million units of which only 3.6 million units are available<sup>3</sup>.



A national baseline survey in 2005 revealed that only about half a million units of blood were collected from private and public sources in the previous one year – a grossly inadequate figure for a country of over 140 million<sup>4</sup>, of which about 70% is sourced commercially. At Nigeria's current level of health care delivery, it is estimated that about 1.5million units of blood per annum would be required.<sup>4</sup>

The factors responsible for this inadequacy in Nigeria are divergent and unsatisfactory practices everywhere characterised by poor culture of voluntary donation, costs of procuring the blood, poor organisation of safe blood transfusion practices and commercially driven source of blood.<sup>5</sup>

Most of the need for blood in women in Nigeria is to avert fatal consequences<sup>1</sup> of obstetrics haemorrhage which account for nearly half the cause of maternal mortality in Nigeria<sup>6,7</sup>. WHO estimates up to 150,000 pregnancy related deaths can be avoided each year through access to safe blood.<sup>8</sup>

Nigeria being a signatory to the World Health Assembly Resolution {WHA 28.72 of 1975 which require each member to develop a nationally coordinated blood transfusion service, based on voluntary, non remunerated blood donation} approved the national policy in 1991, launched in 2000 and reviewed in 2002, but the national blood transfusion service (NBTS) became operational in 2006 with the objective of establishing and coordinating blood transfusion services on a country wide basis within the national health plan and also to develop a system of blood donor mobilisation and motivation, based entirely on a voluntary non – remunerated donation of blood among others.

National and Zonal coordination centres were equally established With the Northeast Zonal office established in Maiduguri to address the challenge of inequities in blood transfusion service in our health care delivery.<sup>4</sup>

The objective is to highlight the benefit of effective collaboration with NBTS centre in ensuring prompt availability of blood for emergency obstetric services requiring blood for transfusion

## MATERIALS AND METHODS

This study is a retrospective review of all obstetrics cases requiring blood transfusion in Federal Medical Centre (FMC) Nguru from 1st January 2006 – 31<sup>st</sup> December 2011. Trends and pattern of the request and source of blood were looked at within the two periods: from 1<sup>st</sup> January 2006 – 31<sup>st</sup> December 2008 and 1<sup>st</sup> January 2009 – 31<sup>st</sup> December 2011). The first period is before the collaborative intervention of the Maiduguri Northeast NBTS centre, while the second period is the period of collaboration where blood is supplied or sourced through the NBTS centre.

During the collaboration, blood for transfusion are either supplied directly from the centres blood bank or sourced through blood donation drive from within Nguru or its neighbouring environments (schools, police & military barracks and interested public volunteers). Records of 1634 obstetrics patients requiring blood transfusion or received blood transfusion in the maternity units were retrieved from the patients case records, maternity ward record and blood bank. Information pertaining to indication for the transfusion or requests and source of blood were obtained for analysis. Data was analysed using simple percentage.

## RESULTS

A total of 1634 obstetrics cases requiring 2474 units for transfusion were managed within the two study periods as shown on table I. Between 1<sup>st</sup> January 2006 and 1<sup>st</sup> December 2008 out of the 907 units requested only 513 (56%) units were supplied, between 1<sup>st</sup> January 2009 and 31<sup>st</sup> December 2011 out of the 1567 request 1367 (87%) were supplied.

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Table II highlights the average units of blood per request with more than 75% requesting from 3 and above, more than 1/3 of the request is from 5 units and above. The commonest indications for the blood requests were anaemia 398 (24.4%), PPH 357 (21.8%), APH 288 (17.6%) and emergency caesarean section 292 (17.9%) as shown on table III.

Within the earlier study period, the only available source were from willing relatives, 273 (53.2%) and commercial blood donors 240 (46.78%) and none from NBTS centres. However within 2008 - 2009 more than 2/3, 876 (64.2%) were supplied/sourced from the north east zonal NBTS office in Maiduguri, while supplies through relatives and commercial donors were observed to be 325 (23.9% and 163 (11.6%) respectively as in table IV

**Table I:** Trends in requests for blood and supply pattern

| Year   | total patients | units requested | Units       | supplied |
|--|----------------|-----------------|-------------|----------|
| % supplied   |                |                 |             |          |
| 1 <sup>st</sup> Jan 2006 – 31 <sup>st</sup> Dec 2008 | 658            | 907             | 513         | 56.6     |
| 1 <sup>st</sup> Jan 2009 – 31 <sup>st</sup> Dec 2011 | 976            | 1567            | 1364        | 87       |
| <b>Total</b>   | <b>1634</b>    | <b>2474</b>     | <b>1877</b> |          |

**Table II:** Average units of blood per requests

| Units requested | Number      | %          |
|-----------------|-------------|------------|
| 2               | 618         | 24.97      |
| 3-4             | 1021        | 41.26      |
| 5 and above     | 835         | 33.75      |
| <b>Total</b>    | <b>2474</b> | <b>100</b> |

**Table III:** Indication for the request within the two period of review

| Indications for requests | Jan 2006 - Dec 2008 | Jan 2009 - Dec 2011 | Total patients |
|--------------------------|---------------------|---------------------|----------------|
| PPH                      | 164                 | 193                 | 357 (21.8%)    |
| APH                      | 127                 | 161                 | 288 (17.6%)    |
| ANAEMIA                  | 146                 | 252                 | 398 (24.4%)    |
| EMERGENCY C/S            | 98                  | 194                 | 292 (17.9%)    |
| ELECTIVE C/S             | 15                  | 32                  | 47 (2.9%)      |
| RUPTURED UTERUS          | 32                  | 42                  | 74 (4.5%)      |
| INDUCTION OF LABOUR      | 76                  | 102                 | 178 (10.9%)    |
| <b>TOTAL</b>             | <b>658</b>          | <b>976</b>          | <b>1634</b>    |



**Table IV:** Source of blood needed for transfusion within the two period under review

| Year      | Request supplied |       | NBTS    |       | Replacement |       | commercial |       |
|-----------|------------------|-------|---------|-------|-------------|-------|------------|-------|
|           | Request          | %     | Request | %     | Request     | %     | Request    | %     |
| 2006-2007 | 907              | 56.56 | 0       | 0     | 273         | 53.22 | 240        | 46.78 |
| 2009-2011 | 1567             | 87.05 | 876     | 64.22 | 325         | 23.9  | 163        | 11.6  |

## DISCUSSION

The observed wide variation in meeting the demand for blood transfusion from the two study periods was in line with the growing need for transfusion far in excess of what can be sourced as reported from the Nigerian national survey of 2005.<sup>4</sup>

So long as we continue to encounter obstetrics emergencies in our set up the need for blood transfusion is mandatory to prevent morbidities and mortalities. Earlier study from the centre revealed that the 2<sup>nd</sup> leading cause of maternal mortality was obstetrics haemorrhage<sup>5</sup>. The earlier report observed that obstetrics haemorrhage is the leading requests for blood transfusion, which differs with our finding as anaemia been the leading requests in both the two study periods. From this study more than 1/3 of the requests are from 5 units and above while more than 75 % of the requests is from 3 and above units. This might explain the need to have a readily available source of supply in order to meet the growing need for blood to avert maternal morbidity and mortality.

Because of the effective benefit of the collaboration with the NBTS centre there was much improvement (56.7% in 2006 - 2008 to 87% in 2009 - 2011 ) to meet our requests for blood transfusion.

Though there was a relative improvement in the requests to donation from 2006 - 2008 of 56.7% to 87% of 2009 - 2011 period it still fall short of our needs, this finding is much higher than the 25% ( our population need 14 million

while supply is only 3,6 million) reported for Nigeria.<sup>3</sup>

The reversal in the trend from commercial to non remunerated donation source through the NBTS centre is a great achievement of the establishment of the NBTS program and subsequent effective collaboration with health care delivery centres like ours. This was the recommendation of the NBTS policy documents as contained in the Nigerian national blood policy 2006.<sup>4</sup>

The drop in trend for commercial donation from 46.78 % in 2006 - 2008 period to 11.6% in the 2009 - 2011 was encouraging for the centre.

## CONCLUSION

In spite of the support from the NBTS centres we were unable to meet our total blood transfusion needs. Readily available sources of blood will significantly augment our blood needs for emergency obstetrics care in our setting. Where not available there is the need to establish and have strong collaboration with NBTS centres in the regions to ensure prompt availability of blood. The general public should be enlightened to promote voluntary non remunerated blood donations. This intervention will greatly contribute to improve maternity care.



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