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MATERNAL MORTALITY IN KENYA: THE STATE OF HEALTH FACILITIES IN A RURAL DISTRICT

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ABSTRACT

Background: This study was formulated from the premise that the known causes of maternal mortality, namely haemorrhage, sepsis, obstructed labour and abortion belie the more fundamental development problems that influence it, such as the state of local medical services, quality of care and the facilities' ability to respond to reproductive health emergencies.

Objective: To document some of the underlying problems and how they were found to influence maternal mortality in Kenya, with specific reference to a rural district.

Design: The researchers used the Prevention of Maternal Mortality Network (PMMN) methodology/study design to assess the current state of health facilities, their level of function, and factors influencing their utilisation. Both qualitative and quantitative methods of data collection tools were used.

Setting: Siaya District in the western region of Kenya. Data were collected from thirty facilities, which provide obstetric care in the district.

Participants: Data were collected by nurse/midwives, nursing school tutors and social scientists with experience in qualitative research methods. Respondents included health service providers and managers at the 30 health facilities. Qualitative data were obtained through focus group discussions with health facility staff as well as community members.

Results: All the thirty facilities studied, were grossly wanting in terms of staffing, equipment, essential drugs and supplies. Both quality of care and record keeping were well below acceptable standards.

Conclusions: The study findings are a sad but a fair reflection of our situation not only in Kenya but also in sub-Saharan Africa ten years after the declaration of the Safe Motherhood Initiative (SMI). The results indicate a predictable, widening gap in basic service provision that must be urgently bridged as a prerequisite to any serious and meaningful approaches to reducing maternal mortality in Africa.

INTRODUCTION

Of the estimated 600,000 annual maternal deaths, 90% occur in developing countries(1). The risk of dying from a pregnancy related cause is 1:21 for a girl born today in Africa compared to 1:10,000 for her counterpart in Europe. The saddest reality, however, is that what will kill that African girl will be highly preventable causes such as bleeding, infection, obstructed labour and complications of unsafe abortion. In 1987, the Safe Motherhood Initiative was launched in Nairobi with the noble objective of reducing maternal mortality rates by 50% within ten years. A decade later, reproductive health experts meeting in Sri Lanka to review progress sadly concluded that not much had changed(2). In fact data from Africa indicated a significant rise in maternal deaths, which was attributed to declining economies, rapid population growth rates and ever-poorer quality of health services in general and maternity services in particular. During the decade, African

countries did not invest much in the reduction of maternal deaths. There was, however, considerable misplaced emphasis and faith in training of traditional birth attendants (TBAs) by donors at the expense of improving Emergency Obstetric Care (EmOC) at health facility level - a situation that would have fulfilled the adage 'cleaning the house first before the visitor is invited in'.

But maternal deaths can be prevented, even within poor communities. This has been aptly demonstrated by studies conducted by the Prevention of Maternal Mortality Network (PMMN); which focused on improving emergency obstetric care(3). According to the PMMN paradigm, maternal deaths result primarily from delays in receiving emergency treatment at that critical moment when the woman needs attention. Three distinct levels of delay are recognised as: (i) delay in deciding whether or not to seek care; (ii) delay in reaching the facility where care can be provided and; (iii) delay in receiving appropriate care once the patient arrives at the facility.

In principle, therefore, the PMMN approach focuses on improving performance at all these levels and hence providing timely and appropriate care(4). For women's lives to be saved, it is critical that the facilities function optimally. If facilities are not performing their designated roles effectively, lives will still be lost however promptly obstetric emergencies arrive at the facilities(5,6). It is against this background that this study was undertaken. In Kenya the Ministry of Health is the major health provider and operates 1957 facilities; 97 hospitals, 487 health centers, 1322 dispensaries and 57 others(7). This study was carried out in Siaya, one of the twelve districts of Nyanza province in western Kenya. The district has one of the highest maternal mortality rates in the country. Since the government is committed to equitable distribution of health services across the country the major thrust of the findings should be representative of the situation in the rest of the country.

MATERIALS AND METHODS

Location: Siaya district covers an area of 3523 square kilometres and borders Lake Victoria. The climate is modified equatorial, being dry near the lake and progressively wetter in the higher altitudes. The district population is about one million, growing at the rate of 2.3% per annum. The population is youthful with 60% aged less than 20 years. Females in the reproductive age group constitute 45% of the total population. Total fertility rate is higher than the national average of 5.4 and contraceptive prevalence is below 20%(8). The district has no industry and the population relies on subsistence farming, fishing and repatriated income from those working in urban areas.

Data collection: The project recruited nurse midwives, tutors at the local nursing school, and social scientists with experience in qualitative research methodology to assist with data collection. The team received three days of training on safe motherhood, data collection and instruments. Pre-testing was done at two facilities outside the research district and the tools revised appropriately.

Data was collected using adaptations of the PMMN needs assessment tools(9). Of the 64 public and private facilities in the District, 30 provided obstetric care according to the District Health Management Team assignment records. The researchers visited each of these 30 facilities to assess the emergency obstetric services available, how they functioned and factors influencing utilisation of the services.

For quantitative data the following PMMN tools were used: Facility function assessment forms, summary form for gathering 12 months retrospective data [obstetric admissions, deliveries, complications referrals and deaths], supervision visit checklist [for emergency drugs, equipment and supplies], staff interview questionnaire [to identify barriers to prompt, effective care], and case study forms [to assess referrals, quality of care, barriers to seeking care and costs involved]. Findings from the quantitative data were used to select four facilities for later programmatic intervention based on caseload (i.e. number of admissions, deliveries and complications handled), location, accessibility and personnel.

Qualitative data on the other hand, was obtained through Focus Group Discussions (FGDs) separately with staff and community members at each facility. The FGD discussion guide was adapted from the original PMMN prototype. This guide

covered issues such as community knowledge of obstetric complications, awareness of where to seek help and their experiences in the process, decision making processes, views of health facilities and staff and ideas on how to address perceived problems. The sub-groups within each community interviewed were youth groups, opinion leaders, women's groups, taxi/matatu operators, administrative personnel and religious leaders. Women who had suffered obstetric complications previously or their relatives were also identified for interviews.

All the data was analysed collectively by the Kenya Prevention of Maternal Mortality team and the results fed back through joint meetings with the District Health Management Team, staff, community and District administrators with the intention of eliciting response and designing interventions.

RESULTS

Overview: The district had a total of 64 health facilities, of which the government managed 80%. The other facilities were managed by private individuals or by religious organisations and NGOs. Only 30 (47%) of these facilities offered maternity/delivery services and were therefore the focus of this study. Table 1 shows details of the facilities, ownership and the workload recorded for the period January - December 1997. It is evident that government-owned facilities admit the majority of maternity-related patients (80%) and therefore handle most of the deliveries (76%).

Table 1

Facility/ ownership	No.	Facilities/ownership and workload			
		Admissions		Deliveries	
		Case load/ activity	Complic- ations	Deaths	
Government	16	3904	2898	229	41
Private/NGO	7	168	162	1	1
Church-sponsored	6	911	729	28	1
Community	1	28	18	10	-
Total	30	5011	3827	268	43

All the records kept in the facilities were extremely poor and did not therefore give a true reflection of the total workload. On record though, were a total of 5,011 maternity admissions, 3,827 normal deliveries and 268 complications. There were 43 maternal deaths, which translate to a maternal mortality ratio of 1124/100,000 deliveries. Maternal deaths were almost non-existent at the health centers and private facilities. Thirty-nine of the recorded deaths occurred at the District Hospital. According to the communities, this was because health center staff rarely accepted critically ill patients. They would instead invariably turn them back at the gate or door with verbal instructions to relatives to rush the patient to the district hospital. Very rarely was any resuscitation offered or the patient registered or seen. They would not be accompanied by a staff or offered help with transport to the referral facilities.

The most common obstetric complications and causes of death were haemorrhage, unsafe abortion, obstructed labour, post-partum sepsis, malaria and eclampsia. It was interesting that 15 of the 30 facilities identified unsafe abortion as an important cause of maternal complications even though the facilities are basically rural. There were records of 62 such cases in the 15 facilities, representing about 30% of all the recorded complications.

Only 14 (47%) out of the 30 facilities offered at least basic emergency obstetric care. Comprehensive obstetric care was only offered at the Siaya District Hospital. The only two sub district hospitals; Yala and Bondo (the latter recently elevated to a district hospital status) provided only very basic obstetric care and had no theatre facilities. Treatment of complications from incomplete abortion was only provided at the District Hospital, which had theatre (Dilation and Curettage) facilities. A new privately run facility in the district offering comprehensive obstetric care; Sagam Community Hospital was opened in April 1998 and therefore excluded from this analysis of the 1997 data.

Specific: Equipment and supplies: All the facilities both government and private lacked basic supplies such as needles, syringes, intravenous giving sets, fluids and sutures. The staff confirmed that the shortages were perennial and they had accepted this to be the norm. In terms of equipment, vaginal speculums, ovum forceps and vessel clamps were either very few or totally lacking. At the District hospital there was only one caesarean section set making it impossible to handle multiple surgical obstetric emergencies. There were only four functioning Blood Pressure machines in the whole district. All emergency obstetric drugs, including oxytocics, pethidine and diazepam were either not in stock or available only in very small quantities. Oxygen cylinders were only available at the District hospital. The only blood bank in the district was at the District Hospital and was functioning sub-optimally. In fact the amount of blood processed in the year was far short of the needs of the district hospital itself, leave alone the peripheral facilities over which it had responsibility. Laboratory facilities were scanty, with haemoglobin testing and urinalysis offered (usually sporadically) only at the district and sub-district hospitals.

Staffing: All the 30 facilities were found to be both understaffed and lacking in appropriately trained staff. The private facilities especially mission ones rarely employed qualified nurse/midwives and instead deployed nurse-aids and dressers in the maternity units and wards. The District Hospital, for example has an establishment for six physicians (with at least one of them being an obstetrician/gynaecologist), 20 clinical officers, 40 registered and 150 enrolled nurses. During this study, the hospital had only two physicians (33%) and no obstetrician, two Clinical officers (10%), 21 (50%) registered and 71 (50%) enrolled nurses. A similar picture of staff deficit of 50-70% was common at all facilities. A clinical officer, instead of a physician headed the sub-district hospitals. Only three (18%) health centers had a clinical officer as

opposed to the requirement of at least one in every health center. This very gross shortage of staff affected both morale and performance. Many complained of long working hours and gave this as the main reason for their failure to accompany patients on referral to the next level of care. Table 2 shows the staffing situation at the main district referral hospital.

Table 2

Staffing at the Siaya District Hospital

Personnel cadre	Establishment	Actual No.	Deficit %
Obstetrician/Gynaecologist	1	0	100
Physicians/Medical Officers	5	2	60
Clinical Officers	20	2	80
Registered Nurses	40	21	47
Enrolled Community Nurses	150	71	53

Record keeping: Records were poorly kept in almost all the 30 facilities. Entries in the registers were erratic, in some cases missing for several months. Most facilities did not have a specific register for obstetrics. Where present, much of the important information such as maternal/foetal outcome and complications would be missing. It was evident that no effort had been made to organise records making it obvious that they were not being used regularly for any purpose, including planning, monitoring and supervision.

Transport: The District Hospital was the only government facility with an ambulance. One ambulance for a remote and busy health center had broken down and was still awaiting repairs in a garage one year later. The cost of repairs had been quoted to be KSh. 150,000 [US\$ 2,500]. Since none of the peripheral facilities had telephones, it was unlikely that they would be able to call for help from the district hospital in case of emergency. In any case the telephone to the District Hospital had also been disconnected, a few months earlier due non-payment of bills. They were using a public phone booth that had been installed within the hospital compound. To reach the health centre from home patients were carried on bare back or on wheelbarrows. To transfer patients from the health centre to the District hospital public transport or hired transport would be used. Bicycle taxis called "Boda Boda" were gaining popularity due to their availability and affordability. Except for two Mission facilities the privately run facilities did not have ambulances. Interestingly, the vehicles at the two Mission facilities were not designated as ambulances. They were for private use by the officer in charge of the facility and could only be hired at the pleasure of the officer. Often the vehicle would be out of the station or in the station but on standby for other non-medical assignments.

DISCUSSION

The ICPD in Cairo (1994), the Fourth World Conference on Women in Beijing (1995) and the Safe

Motherhood Technical Consultation in Colombo (1997), helped to focus the attention of the international community on the need to accelerate action to achieve the Safe Motherhood Initiative goal of reducing maternal mortality by half. The primary responsibility for implementing interventions and monitoring progress has traditionally been assigned to governments. Thus the Safe Motherhood Consultation placed maternal mortality in the context of human rights and urged governments to fulfil the obligations imposed by their endorsement of various international human rights instruments.

Experience from developing countries such as Sri Lanka has shown that improving accessibility, utilization and quality of services for the treatment of complications during pregnancy and childbirth are critical in reducing maternal mortality(10). Evidence further shows that at least 15% of all pregnant women develop sudden serious complications that require life-saving access to quality obstetric services(11). To provide quality maternal health care, services must be readily accessible, safe, effective, and acceptable to potential users and offered by technically competent staff. The findings from this study show that the health facilities in Siaya could not have offered quality maternal care even if they wanted. The main referral facility was not accessible and most services offered were of poor quality due to various factors and therefore not acceptable to the potential users. There were no telephones, ambulances or even radio calls to facilitate referral of patients when and if necessary.

It has been estimated that for every 500,000 population, the minimum acceptable number of facilities should be one providing comprehensive emergency obstetric care and four providing basic emergency obstetric care. This indicator was defined in relation to population rather than births because most health planning is done in relation to population. In terms of births this translates to one facility for every 20,000 annual births(12). For Siaya district therefore, the single district hospital with comprehensive EmOC is quite inadequate for the population of 1 million, more so that it functions less than optimally. The 14 facilities providing basic EmOC satisfied minimum numerical requirement but again suffered the perennial limitations of functionality due to severe multiple shortages and inadequacies.

Geographical distribution and accessibility of basic and comprehensive EmOC facilities as well as proportion of all women with complications who are treated in these facilities are other factors, which determine maternal outcome. The more sparsely distributed and difficult to reach these facilities are (as is the case in Siaya), the poorer the maternal outcome.

Time is crucial to the survival of women with complications. Estimated average interval from onset to death for major obstetric complications in the absence of intervention is shortest for haemorrhage [2 and 12 hours for postpartum and ante-partum respectively] and longest for obstructed labour and sepsis [3 and 6 days respectively]. It would therefore be reasonable to have basic EmOC

available within 2 hours and comprehensive EmOC within 12 hours' travel of most women(12). While the district hospital could be reached within 12 hours even from the farthest village in Siaya district, bad roads [made worse during the rainy seasons] and absence of reliable transport would render this impossible for a majority of women. In addition shortages would make it difficult for the basic EmOC facilities to handle some emergencies even if they arrived in time. It is note worthy that emergency preparedness for haemorrhage, which is the fastest killer of women was virtually non-existent in the district. The only blood bank at the district hospital was empty at the time of the study and could not cope with the additional responsibility of providing screened matched blood to the basic EmOC facilities too.

The number of Caesarean sections as a proportion of all births is another indicator of whether EOC facilities are providing life-saving obstetric services. As a proportion of all births in the population, caesarean section should account for not less than five or more than 15(12). Although the records at the district hospital were incomplete and did not allow for proper analysis of this there were enough problems and shortages within the operation theatre to lead to the conclusion that they were unlikely to cope with the demand for Caesarean sections. The single Caesarean Section set could clearly not allow concurrent management of multiple emergencies while irregular supply of oxygen would render surgery impossible at all times.

In Kenya, as in most of Africa, complications of unsafe abortion account for 30 to 50% of maternal deaths(13). Quite significantly, abortion was responsible for 30% of the recorded complications in this study and was identified as a major problem in half of the studied facilities. Unsafe abortion and its complications are now easier to manage and prevent via the Post Abortion Care (PAC) approach(14). PAC can be provided by non-physicians and does not need an operation theatre or general anaesthesia. There were, remarkably, no PAC services in any of the assessed facilities in this district. The need and the potential difference that PAC programs can make in such a situation cannot be overstated. Indeed this has been shown in adjacent districts (to Siaya) where abortion related complications have diminished following aggressive introduction of PAC in the private sector(15). Abortion is legally restricted in Kenya and is permitted only in the preservation of a woman's life(16). Complications of abortion account for over 60% of women admitted to gynaecological wards in many of the country's public hospitals(17). Kenya was one of the first African countries to start PAC training and further effort to decentralise and accelerate expansion is underway. But there is also a growing realisation that the secondary approach that PAC programs espouse at the facility level alone are not enough to seriously impact abortion-related morbidity and mortality without community involvement. Emphasis needs to be placed on the community settings in which unwanted pregnancies and unsafe abortion take place(18). A primary prevention approach to this critical

issue would strengthen safe motherhood efforts and is very much in line with the PMMN approach.

In conclusion, why is maternal mortality persistently high and even increasing in Africa? This study provides a clear and unambiguous answer. Africa is yet to make the commitment and investment needed to mitigate against these deaths. Ten years after the SMI declaration in Nairobi, maternal mortality ratio in Siaya district stands at a high 1200/100,000 live births. The reason for this is evident from the state of the obstetric care facilities, perennial and crippling shortage of both trained staff and supplies. But this situation can be reversed. Three types of interventions are now recognized as critical to bringing about meaningful positive change: legislative and policy-related interventions; society and community interventions, and health sector-related interventions. The government has to realise that safe motherhood is a human rights issue. The death of a woman during pregnancy or childbirth is not only a health issue but also a matter of social justice. Significant reduction in maternal deaths is achievable even with modest investment. This has been documented recently in Sri Lanka, Cuba, China and Malaysia. More than anything else Kenya and Africa as a whole needs to show both political will and moral responsibility to reduce maternal mortality.

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