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AVERTING MATERNAL DEATH AND DISABILITY

The status of maternal and newborn care services in Sierra Leone 8 years after ceasefire

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ABSTRACT

Objective: To conduct a needs assessment for emergency obstetric care (EmOC) to address the unacceptably high maternal and newborn mortality indices in Sierra Leone 8 years after the end of the civil war. *Methods:* From June to August 2008, a cross-sectional survey was conducted of health facilities in Sierra Leone offering delivery services. Assessment tools were local adaptations of tools developed by the Averting Maternal Death and Disability program at Columbia University, New York, USA. *Results:* There were enough comprehensive EmOC (CEmOC) facilities in the country but they were poorly distributed. There were no basic EmOC (BEmOC) facilities. Few facilities (37% of hospitals and 2% of health centers) were able to perform assisted vaginal delivery (AVD), and 3 potentially BEmOC facilities did not meet the standard only because they did not perform AVD. Severe shortages in staff, equipment, and supplies, and unsatisfactory supply of utilities severely hampered the delivery of quality EmOC services. Demand for maternity and newborn services was low, which may have been related to the poor quality and the high/unpredictable out-of-pocket cost of such services. *Conclusion:* Significant increases in the uptake of institutional delivery services, the linkage of remote health workers to the health system, and the recruitment of midwives, in addition to rapid expansion in the training of health workers (including training in midwifery and obstetric surgery skills), are urgently needed to improve the survival of mothers and newborns.

1. Introduction

The 10-year Sierra Leone Civil War began to wind down with the signing of the Abuja Ceasefire Agreement of November 2000 [1,2]. The war caused severe destruction to infrastructure, the death or emigration of skilled personnel, and the collapse of services in all sectors of the economy.

At the end of hostilities, the Government of Sierra Leone and its partners invested in reviving services in the face of very limited resources and gargantuan deficits in infrastructure, utilities, and the supply of human resources. Health services depend, to a large extent, on the availability of both human resources and properly equipped health facilities. Maternal and newborn care services are particularly dependent on health facilities with the equipment and skilled staff to provide the essential life-saving services required for mothers with complicated deliveries and ill newborns.

Eight years after the war, the most recent data available indicate that the maternal mortality ratio (MMR) and neonatal mortality rates are 1300 per 100 000 live births and 159 per 1000 live births, respectively [3]. This MMR is one of the highest in the world. In light of the unacceptable maternal and newborn mortality statistics, coupled with the commitment of the Government of Sierra Leone to attain the 4th and 5th Millennium Development Goals, the Ministry of Health and Sanitation (MoHS) of Sierra Leone and UN Partners commissioned a nationwide needs assessment for emergency obstetric care (EmOC) study in June 2008.

The purpose of the assessment was to identify the specific steps needed to reduce maternal and newborn mortality in Sierra Leone. The specific objectives were as follows: to determine the availability, utilization, and quality of EmOC services in all regions of Sierra Leone; to identify gaps in service delivery and interventions needed to close the gaps; to provide baseline data for monitoring interventions, leading to maternal and newborn mortality reduction using UN EmOC indicators; and to identify areas of the health system that needed strengthening.

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2. Methods

From June to August 2008, a cross-sectional survey was conducted of health facilities offering delivery services. All public, private, mission, and non-governmental organization hospitals providing maternal and child health (MCH) services were selected. A sampling frame of community health centers (CHCs) by health districts was developed from data received from the MoHS and Statistics Sierra Leone. The data were cleaned with the assistance of district Sisters (senior nurses/midwives) who were aware of the current status of health facilities in their districts. In total, 172 CHCs were identified at the time of the survey. A systematic random sample was selected for the study by choosing a sampling interval of 1 in 3 (33%) and applying it to a sampling frame listing CHCs by health districts. Sampling weights were applied to CHC data during analysis. In addition, a convenience sample of 4 community health posts (CHPs) or MCH posts (MCHPs) per health district was selected. The nearest CHPs and MCHPs en route to selected CHCs or hospitals were selected. It was decided that, despite the nonrandom selection, the potential of these health posts would be deducible. The total sample comprised 38 hospitals, 55 CHCs, and 52 MCHPs and CHPs countrywide (Table 1).

Questionnaires and checklists developed by the Averting Maternal Death and Disability program at Columbia University, New York, USA, and UN Partners were adapted for local use at a workshop with local midwives and other health personnel. Local adaptation of tools, pilot testing of tools, training of data collectors, and finalization of tools were carried out before data collectors and supervisors were deployed nationwide. All data collection teams included at least 1 midwife, and all supervisors were nurse/midwives. Data entry was performed on data entry screens created with Epi Info 6.04D (Centers for Disease Control and Prevention, Atlanta, GA, USA), and data were exported into Excel 2007 (Microsoft, Redmond. WA, USA) as needed. Analyses were conducted in accordance with UN guidelines for monitoring obstetric services, performance of signal functions, and the calculation of EmOC indicators [4]. (There has been a revision to the guidelines since the study was conducted [5].) The signal functions are administration of parenteral antibiotics, oxytocics, and anticonvulsants; manual removal of the placenta (MRP); removal of retained products; assisted vaginal delivery (AVD); blood transfusion; and obstetric surgery. Health facilities providing the first 6 signal functions are classified as basic EmOC (BEmOC) facilities and those providing all 8 signal functions are classified as comprehensive EmOC (CEmOC) facilities.

3. Results

3.1. Availability of EmOC services

This indicator uses the performance of signal functions in the 3-month period before the needs assessment to classify health facilities as BEmOC, CEmOC, or partially functioning facilities. In the event that a facility did not perform all of the first 6 signal functions, it was considered a partially functioning facility.

Only 14 of the 38 hospitals qualified as EmOC facilities and all were CEmOC facilities. There were no BEmOC facilities in the country, although 3 facilities would have qualified had they performed AVD. These were classified as BEmOC-1. All MCHPs and CHPs were partially functioning facilities.

The UN Guidelines for Monitoring the Availability and Use of Obstetric Services [4] recommend that, as a minimum, there should be 1 CEmOC and 4 BEmOC facilities per 500 000 population. [Editor's note: in the 2009 version, the UN recommends 5 EmOC facilities per 500 000 population, at least 1 of which should be a CEmOC facility.] The EmOC coverage for Sierra Leone was 1.2 facilities per 500 000—well below the recommended level.

Table 1
Number of facilities selected, classified by ownership, Sierra Leone 2008.

Type of facility	Public	Private	Mission	NGO	Military	Total
Hospital	17	8	8	3	2	38
Community health center	52	0	3	0	0	55
MCHP and CHP	52	0	0	0	0	52
Total	121	8	11	3	2	145

Abbreviations: CHP, community health post; MCHP, maternal and child health post; NGO, non-governmental organization.

3.2. Geographic distribution of EmOC facilities

Eastern Province and Southern Province had the lowest coverage, whereas the highest coverage was in Northern Province. Six districts (Bonthe, Kailahun, Kono, Moyamba, Pujehun, and Tonkolili) had no EmOC services, and other districts such as Bombali and Port Loko had CEmOC coverage of 3.5 and 2.1 per 500 000, respectively. Kenema was the only one of 3 health districts in Eastern Province to have EmOC services; similarly, Bo was the only one out of 4 districts in Southern Province.

Fig. 1 highlights the spatial inequalities in the distribution of EmOC services. There was an abundance of CEmOC facilities in Western Area District (where the capital city, Freetown, is located), whereas large populations in Pujehun and Kailahun had no EmOC facilities.

3.3. Proportion of all births in EmOC facilities

The proportion of all births occurring in EmOC facilities is an indication of the utilization of services by expectant mothers. It is recommended that at least 15% of expected births should be in EmOC facilities [4]. The expected births in each region were calculated assuming a crude birth rate of 46 per 1000 [6]. The highest proportion of births in health facilities was in Moyamba District, even though it had no EmOC facility. Western Area District had the highest proportion (6%) of births in EmOC facilities. Only 10% of expected births in Sierra Leone occurred in a health facility of any type, with 2% occurring in an EmOC facility (Table 2).

3.4. Met need for EmOC services

This is an indicator of the utilization of health services by expectant mothers with complications. It is estimated that 15% of pregnancies involve complications [4]; therefore, at least 15% of all expected births should have taken place in EmOC facilities. Only Western Province had a met need above 10%. The national met need was only 7% in the 12 months preceding the survey.

3.5. Cesarean deliveries as a percentage of all births

This indicator computes cesarean deliveries as a fraction of expected births in the population. It is a measure of accessibility and utilization of critical services [7]. The UN Guidelines recommend that 5%–15% of pregnancies can be expected to require cesarean delivery [4]. In the 12 months preceding the needs assessment, less than 1% of expected births in Sierra Leone were cesarean deliveries.

3.6. Case fatality rate (CFR)

This is an indicator of the quality of services rendered to women with obstetric complications. It is defined as the total number of direct obstetric deaths recorded in a facility as a proportion of the total number of direct obstetric complications on record. The CFR should not exceed 1%. Data quality was poor and no data on obstetric complications were recorded in 2 CEmOC facilities. The documentation of maternal death data was even more appalling.