

**Assessment of the capacity of the health
services to provide
Essential obstetric care in Gaza province,
Mozambique**

Final report of the needs assessment

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1. INTRODUCTION

Maternal mortality is a serious health problem in Mozambique. While the last census in 1997 and the DHS¹ did not calculate exactly the maternal mortality ratio in the country, careful estimates indicate the MMR to be between 500 and 1500 deaths per 100 000 live births, but no reference is given. The only reliable information that is available is from a sisterhood survey done in 1991, only published in 1995². Even with these important differences in estimation, the problem is being recognised as an important one for the health planners and the donors in the country.

Mozambique has made a clear commitment to reduce the maternal mortality in the country. In 1998 a first general Safe Motherhood needs assessment³ was done which was followed in the same year by a systematic review of the causes of maternal deaths⁴. Following this dynamism within the Ministry of Health a national strategy to reduce the maternal morbidity and mortality and neonatal mortality was formulated in 1999 and adopted in 2000,; "...Estrategias para a redução da morbimortalidade materna e neonatal." This document ⁵forms the basis for formulating interventions to reduce maternal mortality in the country and it is based on strengthening the health services at provincial level with the concept of the provision of essential obstetric care (basic and comprehensive) with an adequate referral system, community involvement and an improved data collection system.

This needs assessment contributes to a better understanding of the link between service delivery and the problem of maternal mortality in the province of Gaza. It evaluates the capacity of the actual health system to deal with obstetric complications that may lead to maternal deaths. This service assessment in Gaza forms part of a larger nation-wide survey that was performed in Sofala, Tete, Inhambane and Zambezia.

Background information

Gaza is one of Mozambique's 11 provinces and is located along the coast in the southern region of the country, with a population of 1.23 million in 2000. The province is divided into 12 districts including the provincial capital district of Xai-Xai.

The province has the necessary infrastructure in place to provide maternal health and family planning services. There are 111 health units in the province and 66 of them have maternity wards (which report deliveries). The rural hospitals are based in the districts of Chokwé, Chicumbane, Chibuto and Manjacaze. There is a provincial hospital in the capital district of Xai Xai.

The province has been hit during the months of March and April by flooding and tropical cyclones, which have seriously damaged the health services. More than 20 health units were flooded; presently the rural hospital of Chokwé is still organising part of its services in makeshift shelters and tents.



Many partners (UN agencies, bilateral aid, Ngo's and others) came into the province during the flooding to provide emergency medical assistance to the affected population, however very few of them have committed themselves to a long term assistance. Long-term partners in health sector development are SCF, Unicef, the Portuguese development agency and UNFPA.

Figure 1. Map of the districts in the Province

The use of Reproductive Health services in Gaza during pregnancy and delivery is below the national average. The crude birth rate in Gaza is 45/1000, similar to the national average. Thus, the Province can expect about 63,000 births per year.

Organisation of the health services in relation to obstetric care

The hospitals

The provincial hospital acts as the main referral for the majority of obstetric complications in the province. Services are working well, but staffing is insufficient and the maternity operates as a teaching unit for the nurse training school of Chicumbane. There are four rural hospitals in Gaza, and all of them are providing major obstetric interventions, namely Chibuto, Chokwé, Chicumbane and Manjacaze. However, due to dispersed population spatial distribution, and the fact that hospitals are unequally distributed in the province, access to these units for the population in the more isolated districts is poor.

Peripheral maternities (health centres and posts)

The majority of the peripheral maternities is staffed by elementary midwives (with one year of training). These units are dispersed in the province and fall under the management of the provincial health directorate who organises regular supervisions there.

TABLE A: SOME BASIC INDICATORS RELATED TO THE SAFE MOTHERHOOD/RH CARE AVAILABLE FROM REPORTS OR NATIONAL SURVEYS.

INDICATOR		SOURCE OF INFORMATION
Total fertility rate for the province	5.	DHS census
Contraceptive prevalence rate (first cons)	4.9%	Annual report
Maternal Mortality ratio	1551/100 000	Estimate
Proportion of women attended at least once during pregnancy	100%	Annual report
Skilled attendance at delivery*	51% urban 22.8% rural	Annual report
Institutional Perinatal mortality rate	2.26%	Annual reports
% of Admissions owing to abortion	0.6%	Survey (underreported)
% of live births of low birth weight (instit)	12%	Annual reports
Reported incidence of urethritis in men.	2.48%	.Annual reports

* Excluding traditional birth attendants

In the 1997 DHS (demographic and health survey), more than 80% of the interviewed women in Tete reported prenatal care and about 30% had institutional deliveries.

2. OBJECTIVES OF THE NEEDS ASSESSMENT

In absence of reliable data on maternal mortality, the use of process indicators is recommended⁶. These indicators, which are basically measuring service delivery, are easy to construct and allow assessing the availability and the use of essential obstetric care. Another indicator which has been used in this needs assessment is the Unmet Obstetric Need for major obstetric interventions (UON indicator)⁷. The objective of the study in Gaza province is to collect data in order to construct these seven indicators and assess the capacity of the current health system to provide essential obstetric care and deal with the current load in obstetric complications. As a sub-objective the study will provide the baseline data that are necessary for the monitoring process and strengthen further programme planning.

In this report we have defined needs from the perspective of the health professionals which implicates that needs are determined as the capacity to benefit from health services. The methodology of this Needs Assessment is designed to assess the current capacity of the health services from a professional point of view. In the field of maternal health care a maternal death is evidence that this need has not been met. This definition of need is a way of analysing more specifically the health services. This methodology of formulating a needs assessment to evaluate the obstetric services and their capacity to deal with obstetric complications was also used as a basis for a wider needs assessment in the country. Similar assessments have been done in the provinces of Sofala, Inhambane, Tete and Zambezia.

Subsequently the results of this assessment will be used to formulate an appropriate intervention to improve the essential obstetric care in the province.

3. METHODOLOGY

The methodology that was used was adapted from existing international material for the needs assessment in Safe Motherhood; it was divided in three parts. A first part was the assessment of the functioning of the health units with a maternity based on the type of services they are delivering and the complications they are dealing with. The methodology is described by UNFPA, WHO and UNICEF in the guidelines for monitoring the availability and use of the obstetric services⁸ Data were collected from the registers in the maternity wards.

The second part was designed to evaluate the unmet need for major obstetric interventions in the rural hospitals and the provincial hospital. For details about this methodology we refer to the modules on the concept and the protocol^{9;10} of the UON network . In this part of the needs assessment the individual files of all women who received a major obstetric intervention for an absolute maternal indication (MOI for AMI) in the rural hospitals and the provincial hospitals were used to construct the indicator. The indications were discussed with the ob/gyn of the provincial hospital in Xai-Xai and the provincial health team and were extended to include all the interventions for maternal and foetal indications.

The third part was designed from the WHO guidelines for a Safe Motherhood needs assessment and was mainly dealing with material, medical equipment, infrastructure for service delivery and availability of drugs. An additional form was made for the evaluation of the staff profile and their most recent refresher courses.

Selection of the baseline indicators

The following indicators were selected as a basis to evaluate the current health care provision for obstetric care:

- Availability of Essential obstetric care services for basic essential obstetric care (BEOC)
- Availability of Essential obstetric care services for comprehensive essential obstetric care (CEOC)
- Skilled attendance at delivery
- Met need for Essential obstetric care (basic or Comprehensive)
- Caesarean sections as a proportion of all births (or met need for caesarean sections)
- Case fatality rate (facility based)
- Unmet Obstetric Need for major obstetric interventions

In annex 4 we have attached a table on how these indicators were calculated and what their minimum level is to proper functioning health system.

Selection of the sample.

A total of 29 health units were selected for evaluation in all the health districts of the province. Annex 1 provides a detailed list of the units, the district and its current workload in terms of deliveries/month. All hospitals were included in the sample (1 provincial hospital in Xai-Xai, and 4 rural hospitals). The selection of the peripheral maternities was based on the presence of a midwife (elementary midwife or basic MCH

nurse) and the present workload. The cut-off point for selection was chosen to be at least 30 deliveries a month, because below that level the units were probably not seeing any obstetric complications.

Data collection

The data collection forms were based on the guidelines for doing needs assessment and were afterwards translated into Portuguese. For each part of the assessment specific forms were used and the ones for material and infrastructure were divided for typical hospital use and peripheral maternity use. Form one and two assessed the obstetric complications in the health units. Form three to six evaluated the infrastructures, the equipment and medical material to provide the basic equipment for the essential obstetric care provision, the list of the available drugs for obstetric care and the registers for the basic registration of the movements in the maternity wards. The forms to assess the availability of equipment were adapted to the actual context of Mozambique by a specialised operation theatre assistant. Forms 7 and 8 were dealing with the registration tools and the staffing of these units.

For measuring the unmet need for major obstetric interventions a form was designed based on an available protocol. The use and completion of the forms was discussed with the local obstetrician who then adapted the questionnaire to the provincial context, before starting the exercise. The forms were pre-tested with the staff during a one-day practical training session. Two teams went out to do the survey. One team concentrated on the rural hospitals, while the other team was surveying the peripheral maternities. The exercise was co-ordinated by an obstetrician assisted by the provincial health team and the UNFPA technical assistant in Gaza. Data were entered and analysed in Epi-Info 6.01b. For the mapping we used standard maps provided by WHO and Map-Info Software.

Data were collected between June and September 2000.

4. RESULTS AND ANALYSIS

Part one: The assessment of the functioning of the health units based on the type of services they are delivering and the complications they are handling (forms one and two)

Availability of the Essential obstetric care services

The criteria for allocation of a basic essential obstetric care status to the health units were the following: the provision of parenteral antibiotics, the provision of parenteral oxytocic drugs, the provision of parenteral sedatives and anticonvulsant drugs, the manual removal of the placenta, the removal of other retained products in the womb and the expertise to perform an assisted vaginal delivery (here were chosen, vacuum extractor, forceps and breech delivery). For the determination of comprehensive services the criteria was the above mentioned plus blood transfusion and caesarean section.

Only one of the surveyed peripheral maternities (Macia-Bilene health centre) was providing the full range of basic services, all the others did not. Further all of the hospitals were doing caesarean sections and providing blood transfusions and thus respond to the criteria of comprehensive essential obstetric care provider. Table B gives an overview of the actual coverage.

TABLE B: AMOUNT OF ESSENTIAL OBSTETRIC CARE SERVICES

	ACTUAL AMOUNT OR COVERAGE	MINIMUM NORM
Basic EOC	0.41 / 500 000	4 / 500 000
Comprehensive EOC	2.1 / 500 000	1 / 500 000

These minimal norms are references from the literature. It is clear that the number of units that should provide the essential obstetric care should be higher and that the benchmark for Mozambique should be higher, yet even this low end estimate is not met in Gaza province. Considering the fact that not all of the

components of Basic Essential obstetric care are missing, we hereby suggest a breakdown of the activities. The provision of Basic Essential obstetric care can be broken down according to the different components of basic care provision in order to clarify where priorities should be defined.

Table c: Breakdown of the basic EOC services

ACTIVITY	COVERAGE OF ACTIVITIES
Parenteral antibiotics	47%
Parenteral Oxyturics	21%
Parenteral anti convulsive drugs	32%
Assisted delivery (including breech)	26%
Manual removal of Placenta	26%
Removal of placental rests	21%

Skilled attendance at delivery

Skilled attendance at delivery is the assistance of a delivery by a trained and qualified midwife. This definition excludes all births assisted by traditional birth attendants. For the construction of this indicator we used two sources of information. First the health information system (HIS) in the province and in a second place the survey results.

The number of deliveries that were assisted by a skilled birth attendant from the survey is 18% while for the HIS it is 22.8% (for the whole province). The accuracy of this reporting is quite high.

Met need for essential obstetric care:

This indicator corresponds to the proportion of women estimated to have the obstetric complications that are treated in essential obstetric care facilities. As a working definition of obstetric complications includes the following conditions: ante-partum or post-partum haemorrhage, prolonged or obstructed labour, post-partum sepsis, complications of abortion, pre-eclampsia and eclampsia, ectopic pregnancy and ruptured uterus. As a benchmark we can assume that in 15% of the deliveries present with a complication of the above-mentioned origin. The aim is that 100% of the complications are treated in essential obstetric care units.

Here the survey experienced a problem and the registered complications are not very representative for the geographical areas. The main reason is an underreporting of the number of obstetric complications in the peripheral maternities and even in the rural hospitals. A total of 1244 complications were seen in the hospitals and the peripheral maternities, this corresponds to a met need of 18.2% only. Of all obstetric admissions, including the normal deliveries, 6.2% were considered to be complications as follows: 59% are obstructed labour, 4.7% are uterine rupture and 6.1% are related to postpartum sepsis or post-abortion sepsis.

The majority of the obstetric complications are treated at the provincial hospital and of those 18% are referred cases from the neighbouring rural hospitals.

Case fatality rate (CFR)

The reporting of maternal deaths is also low. In the whole survey only 28 direct maternal deaths were reported in the institutions. The case fatality rate can thus be calculated from the number of reported deaths and the number of complications in the province. The total is estimated at $28/1244 = 2.25\%$

TABLE D: CASE FATALITY RATE (CFR) PER CAUSE

CAUSE	CASE FATALITY RATE (CFR)
Haemorrhage	2.3%
Ruptured uterus	12.1%
Sepsis	5.26 %
Abortion	25%

Caesarean sections as a proportion of all births.

For this major obstetric intervention all rural hospitals and the provincial hospital are performing the C-sections although some of the rural hospitals did not give continuity to this service, mainly due to the emergency situation and the floods. A total of 745 C- sections were registered in this survey, the majority (59%, or 441 interventions) are performed in the provincial hospital of Xai-Xai, followed by 89 or 11.9% in Chibuto, the remaining are equally spread over Chicumbane, Chokwé and Manjacaze. The proportion of C-section of all estimated births is thus 1.58%.

The indications for the caesarean section can be calculated as follows.

TABLE E: INSTITUTIONAL C-SECTION RATE, TETE PROVINCE 1999

INDICATION FOR C SECTION	PROPORTION
Dystocia	77.8%
retro-placental bleeding	7.3%
Malpresentation	7.3%
Placenta praevia	4.5%
Frontal presentation	1.4%

Part two: The unmet need for major obstetric interventions

Here the survey experienced a problem. For exact calculation of the indicator we needed more information on the indications for which the major obstetric interventions were performed and during the survey the district of residence of the parturients was not registered.

A total of 862 major obstetric interventions were performed in the rural hospitals. Of those 474 were for absolute maternal indications (pre and post partum haemorrhage, obstructed labour and transverse and brow position). 93% of the interventions were caesarean sections, 5.8% were hysterectomies for ruptured uterus and 0.6% were laparatomies for uterine tears. It is important to mention that no craniotomies are performed in this province, neither did we register a podalic version in the survey. Estimated that the Benchmark for MOI for AMI is around 1,5% (reference use in Tete and should be the same for the whole country) we see that the unmet need for major obstetric intervention in Gaza is 45%. This is low compared to the other provinces. The majority of the interventions are performed in the provincial hospital and it is worth while considering where the patients were coming from. There for we have done a spatial analysis, but because of inaccurate registration during the survey, we have to rely on C-section only. Let us in theory refer to the benchmark set by WHO of a minimum of 5% of estimated deliveries to be done by C-section. This allows calculating per district the unmet need for C-sections. These deficits can be put in maps based on the district of residence of the women. Annex 4 -5 are maps of the spatial analysis of the deficit. Annex 4 is the absolute deficit, while annex 5 is a spatial analysis of the relative or proportional deficit. The absolute deficit is most important in Angonia and Mutara. This means that the actual capacity of these hospitals fails to respond to the needs of the population (for major obstetric interventions) and that the services need to be strengthened. In terms of service provision of essential obstetric care, we see that the more distant units

from the districts of Massangena, Chicualacuala and Chigubo have a 100% unmet Need. It is most probably that the obstetric complications in those districts are being seen in Zimbabwe.

Other analysis of the individual files.

It is important to note the lethality rate after the major obstetric interventions. For C-section it is 1%, this means that the C-sections in general have a fatal outcome in one out of a 100 interventions. The lethality is 3% after a laparotomy and 8.6% after a hysterectomy.

However in case of the 99 interventions done for intra uterine foetal deaths the lethality of the C-section here is 7.2% and up to 42% of the maternal deaths occur in this group.

Part three: material and equipment

Analysis of the needs for drugs.

The availability of essential drugs in the maternities is rather poor in the province. Sixteen percent of the health units did not have any oral antibiotic available and 20% of the units remained without injectable antibiotics. 12% of the surveyed health units only had one antibiotic available at the moment of the survey. A similar poor situation was encountered with the occitocic drugs. Twenty eight percent of the units remained without any injectable occitocic drug, and more than out of three did not have Ergometrin or a derivative in stock.

Injectable anticonvulsant drugs were available in 72% of the maternities, but only 28% of them had an injectable drug for treating hypertension attacks. In 12% of the cases there were no intravenous fluids available.

All of the units had at least one form of contraception available, and overall the availability was sufficient to offer at least a choice to a possible client after birth. The same was true for anti-malaria treatment.

Availability of medical equipment.

Here the situation was varying but in general the situation for basic equipment could be improved. All hospitals had at least some equipment to do their interventions such as a C-section, a hysterectomy or a laparotomy. A detailed list of the material that is necessary is available at the provincial health directorate.

Evaluation of the staffing.

In this needs assessment we looked briefly at the current staffing in the surveyed units in relation to their specific training to assist deliveries, their number of years of experience and the last refresher course they received.

The majority of the units (11/24) are staffed by an elementary midwife with only one-year of training, while 4 or 16% have a basic level midwife as the main responsible for the provision of essential obstetric care. However these units with the basic level MCH nurse do not give the services they are supposed to give such as a removal of placental rests after an incomplete abortion. 38% of the units has a medium level MCH nurse as the main responsible for the maternity ward. A detailed list of the training and years of experience in each of the surveyed maternities is available at the provincial health directorate.

5. DISCUSSION

The survey provided us in the first place with a series of indicators that allow us to have an idea on the actual performance of the health services in relation to obstetric care provision, but they also gave us baseline data that will allow programme monitoring and measure progress and programme effectiveness. The following table gives us an overview of the current indicators.

In general the survey was hampered by the loss of a lot of files and registers with the floods and cyclones. The exercise would not have been possible without the detailed work of the team who collected the data in the different units and travelled to some remote areas of the province. There was however a

serious subnotification of obstetric complications in all of the units. It was estimated that less than 50% of the complications that really occurred were noted down in the registers. The notification of maternal deaths and their causes was also a serious problem in the surveyed maternities.

The following table gives us a summary of all the indicators.

TABLE F: SUMMARY OF THE PROCESS INDICATORS

INDICATOR	VALUE FROM THE SURVEY
Availability of basic Essential obstetric care	0.41/ 500 000
Availability of comprehensive essential obstetric care	2.1/ 500 000
Skilled attendance at delivery	18%
Proportion of births in EOC facilities	.../
Met need for EOC	18.2%
C-section as a proportion of all births	1.58%
Case fatality rate	2.25%
Unmet need for major obstetric interventions	45%

These indicators have been presented in a radar chart in annex 6.

Availability of essential obstetric care.

The number of units that provide basic EOC is low, yet the analysis of the different components of Basic EOC shows that all of the surveyed units have a potential for the provision of basic EOC. The recommended benchmark of 4 units per 500 000 inhabitants is a theoretical norm for the provision of Basic EOC and is ⁸ is probably not applicable for the province because of the low population density and the unequal population distribution, the poor accessibility in terms of roads and transport possibilities. However even with this low benchmark, the coverage is unfortunately not yet reached which means that the availability for basic essential obstetric care is low in the province. The analysis of the different functions of basic essential obstetric care reveals that the main problem is the removal of placental rests. This act is not allowed to be performed by elementary midwives in the country, the basic MCH nurses are trained to perform the intervention but in practice they do not carry it out in the peripheral maternities.

The actual provision of Comprehensive EOC is sufficient for the province, yet the reach of the units is short. To improve the accessibility to these services an effective referral system is required. The rural hospitals are unequally distributed over the province in relation to the population (and hence the need for obstetric care). However this distribution has a historical basis and is not due for review in the coming years. It is necessary that the rural hospitals assume the workload that is presented to them. The units are sufficiently equipped to perform the major obstetric interventions but they are not performing this intervention. The main reason for this discrepancy is probably a disorganisation of the services after the emergency situation.

Skilled attendance at delivery

The proportion of all deliveries that occur in the maternity of a health facility gives us a crude idea of the use of the services. It is by no means a target that all women should deliver in institutions but historical evidence¹¹ shows that considerable reduction of the maternal mortality has been obtained through focussing on the use of skilled midwives to attend the births in the maternity wards (and also for home deliveries). Traditional birth attendants who are also working in the province are not included in the definition of a skilled attendant that assists births. The skilled attendance at delivery in the rural health units remains still low in Gaza province despite the opening of new maternities in the last 5 years. Of course what is more important is that the health unit are used by women who actually need them, (that is present at the health unit with obstetric complications).

The met need for essential obstetric care

The met need for Essential obstetric care has been difficult to calculate in the population. There are probably very many women with obstetric complications who do not arrive in the health units. There is an important bias coming from sub-notification at the health units, not only because people do not register the complications in the proper register of the maternity (we only found them back after careful examining each of the individual clinical files, but probably also do not recognise them. In the majority of the cases these are complications that occurred after the admission, such as post partum haemorrhage and complications of abortion. The majority of the complications in the province are treated in Tete hospital. Delay in seeking the appropriate care by patients is probably also an important reason why there is a low level of met need for essential obstetric care. Another reason is the limited provision of services in the rural hospitals.

The case fatality rate

The case fatality rate is dependent upon the accurate registration of the obstetric complications and of the maternal deaths. The indicator gives us an idea of the performance of the health units however this should be interpreted with caution. Quite ironically the high CFR here might be an index of activity and workload rather than of performance in an ill functioning health system. A more detailed analysis of time factors would allow us a better understanding but this was not the scope of this survey. The case fatality rate is rather low in the province but most probably this is the result of the poor registration of complications and maternal deaths as mentioned in the previous paragraph. As a benchmark it is suggested that the CFR should be less than 1%, hence in Gaza the CFR can be considered as high.

C-section as a proportion of all births

Caesarean sections, as a proportion of all births is still low, but still higher than the other provinces. International recommendations set a benchmark of 5% as minimum to reduce maternal and perinatal deaths and this is still far from being met. This indicator remains somehow controversial because we are not aiming at increasing C-sections only as a way to reduce maternal mortality. It might also lead to an overuse of the intervention and one should be aware of the possible iatrogenic causes of maternal deaths such as overuse of certain major interventions. In fact C-sections should be analysed alongside other major obstetric interventions such as hysterectomy, craniotomy and eventually symphysiotomy as it is done for the next indicator.

The unmet need for major obstetric interventions.

Mapping the deficits for major obstetric interventions (annex 4) in an absolute number gives the planner an idea where the needs are the highest in terms of number of women that probably dead. Projected against the actual health care delivery system it provides evidence for the distribution of resources within that system, for the need for additional health units that provide Major Obstetric Interventions, or set geographical priorities and contribute to the equitable development of the health system. The disadvantage however is that the most densely populated areas are most likely to receive more attention and consequently more resources.

Mapping the deficits, as a proportion of the total needs to be covered (as an annex 4) has the advantage of expressing the degree to which the health system is performing against coverage of 100%. For example 60% unmet need for MOI/AMI means that 3 out of 5 women do not benefit from the services. Presenting the results in this way reduces the effect of the population in comparison to the absolute figures, and it informs us how well the health services are accessible. However it is less useful in setting priorities for resource distribution.

What about the more distant districts where there are no rural hospitals such Massangena and Chicualacuala and others? The analysis shows that the absolute deficit here is much lower compared to the more populated districts. People probably seek care in the neighbouring countries, however the relative need is the highest in those districts. Here it is up to the provincial directorate to further decide how they want to distribute their resources or organise their planning. This could be done on a basis of equity (equal access to the same type of care) or equitable distribution of resources or on a basis of effectiveness and cost-effectiveness (maximise the benefit of the resources).

The map in annex nr 4 provides a view in absolute figures. Here we see that the health services are not able to deal with the obstetric complications there where the hospitals are. The town of Xai-Xai is probably well covered (it was not possible to make a distinction between the town and the district. Again we see that the important workload the provincial hospital is dealing with is mainly due to the fact that the rural hospitals are really functioning.

Annex 5 gives us an idea of the proportionate needs. Here we see that the less populated areas are not benefiting at all from the services. The population of Massagena, Chicualacuala and Chigubo is probably receiving care in Zimbabwe but this is not certain. Anyway the unmet need (here for caesarean section in this case) is 100%.

Medical material and equipment

The availability of medical equipment is minimal for the provision basic essential obstetric care. It are mainly the peripheral maternities that are missing small equipment, while the rural hospitals have a minimal availability of instruments which allows them to perform C-sections, hysterectomies or other major obstetric interventions. Thirty three percent of the units did not even have a suction pear for neonatal care after delivery and more than half of them did not even have any neonatal ambu-bag.

The availability of specific kits to do uterus revision and D&C is an urgent requirement considering the high number of post abortion complications. All units should have at least one delivery couch in good conditions to provide appropriate conditions for the labour and delivery.

It needs to be said that despite important assistance during the past emergency phase, very little material is available for obstetric care.

Provision of essential drugs for obstetric care

It should be noted that the provision of drugs for the peripheral maternities is dependent on a national drug kit system, which is calculated on the number of consults in the out patient department, not on the actual workload of the maternity ward. Therefore drugs are not always available. The Ministry of Health is planning to introduce a kit specific for the maternities, in the mean time supplementary drugs should be provided.

Staffing of the health units

The staff is unequally distributed over the province and some units in and around the capital city of Xai-Xai are staffed by basic level midwives while their workload is very low; while maternities in the more remote districts with a high workload are staffed by only one low level trained elementary midwife.

In total 11 out of 24 peripheral maternities (or 45%) are staffed by only an elementary midwife with one year of training. Only an elementary level nurse and 9 staffed 4 out 24 or 38% had a medium level midwife of the peripheral maternities were staffed with a superior level midwife.

Refresher courses were only organised on STD and Aids related problems according to the staff in the surveyed health units.

6. HEALTH SERVICE INDICATORS CAN BE CONSTRUCTED FROM THE ACTUAL HEALTH INFORMATION SYSTEM.

While this survey was conducted as a separate exercise, most of the indicators could also be collected from the existing health information system. The following table gives a brief summary on how these indicators could be constructed and used at provincial/national level.

TABLE G: CONSTRUCTION OF THE INDICATORS FROM THE HEALTH INFORMATION SYSTEM

INDICATOR	COLLECTION OF DATA	Constraints
Availability of basic Essential obstetric care	Supervision and certification	
Availability of comprehensive essential obstetric care	and accreditation process	
Skilled attendance at delivery	Health information system	Sub notification
Proportion of births in EOC facilities	Health information system	
Met need for EOC	Health information system	Poor registration of complications
C-section as a proportion of all births	Health information system	Sub-notification of major interventions
Case fatality rate	Health information system	Poor registration of complications and maternal deaths
Unmet need for major obstetric interventions	Hospital level prospective data collection	Place of residence is absent form registers

As mentioned above, the internal validity of the health information system in relation to obstetric care registration and notification is poor and could be improved at the level of the peripheral and hospital maternities. To construct these indicators and to measure the progress no new forms need to be introduced and

7. CONCLUSIONS

The actual health services in Gaza province are insufficient to cope with the present load of obstetric complications and several reasons have been found for this.

A first reason is that the numbers of health units that are providing basic essential obstetric care in the province are insufficient. The definition of basic essential obstetric care is based on the provision of services that are dealing with obstetric complications. Services for obstetric care need to be strengthened in the province and this can be achieved through different strategies

1. The number of health units providing basic Essential obstetric care can be extended.

The low-level coverage of health units that provide basic essential obstetric care is a contributing factor to the high maternal mortality. Therefore this coverage should be increased however within the existing resources it is difficult to plan for high level outcomes in the whole province. We hereby propose an algorithm to select these units and establish a list of maternities that could be gradually upgraded.

The units can be selected per district based on the following criteria.

- A workload of at least 30 deliveries a month
- A geographical distribution (at least one maternity in low populated districts, even with a low workload)
- Fairness or equity of the selection (expressed in number of units per population in the district.

A suggestion of maternities that could be selected for upgrading is given in annex 3

Following this selection we also suggest introducing the certification/accreditation process in the province similar to the proposals made in Tete, Sofala and Gaza.

Certification

In a first phase we suggest to make a list of criteria/norms that should be at least available in the health units. This can be done based on the definition of essential obstetric care with quality norms added to

it, eventually the staffing and the minimal equipment. Following this definition of minimal criteria we suggest than to make a selection of maternities where this norms/criteria should be followed-up and to each of the criteria a target value should be added. Further a plan to attain the set targets within let us say the next two years can be developed. The selection of the units should be made by the provincial health team and will be mainly determined by the actual workload, the geographical location and population density of the districts.

Accreditation

The accreditation of the units is the process through which the selected peripheral maternities are monitored and evaluated to what degree they have reached the set targets in the norms and criteria. This evaluation process is based on the reports of the supervisions and is done in collaboration with the health team of the units, the district health team and a responsible from the provincial health team. The aim of the accreditation meetings is to formulate plans at the unit level to improve the services. In theory this is not a fact finding exercise but a way to improve the health system functioning. It should be developed as a Total Quality Management (TQM) exercise, this means quality defined from within the health system, evaluation by different stakeholders and use of the results of the evaluation to improve the health system functioning.

2. Provide at least some basic equipment for assisting deliveries and deal with obstetric complication and assure the availability of drugs for the treatment of obstetric complications.

Awaiting the introduction of a drug kit specific for maternities, supplementary drugs should be provided. All units selected for the provision of essential obstetric care should at least have basic medical equipment. A sufficient provision of gloves and other disposal medical material to protect patients and staff is elementary in the actual HIV epidemic. It was surprising that even after the floods some of the units were rehabilitated and provided with equipment, but the basic material for obstetric use was not available at the moment of the survey.

3. Install a proper system of referrals with ambulances and a radio-network

The rural hospitals require fulfilling their role as an important referral point in the obstetric care provision. An adequate referral system is necessary. Moreover the medical doctors working in those rural hospitals should be encouraged to perform the major obstetric interventions which are life saving for the mothers, and not delegate all the surgical tasks to the surgery technicians.

At the same time efforts should be made to level the rural hospitals up to their mandate, that is the provision of continuity of the comprehensive essential obstetric care. The current assessment demonstrated that the rural hospitals are not fulfilling their role in the health system, and emphasis should be put on the actual dealing with the obstetric complications in stead of systematically referring the cases, hence increasing the burden on the provincial hospital.

The introduction of ambulances stationed at the rural hospitals linked to the peripheral maternities with short wave radios has proven to have a considerable effect on the reduction of maternal mortality. Networks could be defined based on the referral links of these maternities with the hospitals they are referring to. Similar initiatives have started in Sofala province.

4. Update knowledge and skills of the staff working in the maternities.

Elementary midwives and MCH nurses should receive practical training in treating complications. This is part of their training curriculum however very few put them into practice. This practical training can be organised in the central hospital of Xai Xai in collaboration with an obstetrician or with tutors of the nurse training school. Medical doctors without sufficient surgical experience should receive additional training. The creation of teams of staff dealing with essential obstetric care at the rural hospitals is a means to assure the continuity of care. The vicinity of the nurse training school is an opportunity to strengthen the skills of the staff.

There is also a need to gradually replace the elementary midwives in the peripheral maternities with better-trained basic level MCH nurses.

5. Early recognition of danger signs in pregnancy

While this needs assessment has not looked in depth into constraints and withdrawals of the use of the offered services by the beneficiaries, it was noted that a lot of the complications were arriving late at the maternities. The delay in seeking care in case of obstetric complications remains an important contributing factor to the high case fatality rate we have noted in the province. There is a need for interventions, which aim to increase the awareness within the population on the importance of recognising the early signs of obstetric complications and the importance of early medical treatment in case of obstetric danger symptoms. The antenatal care services with their high coverage are a good opportunity for providing this kind of essential information.

6. Focus on management and monitoring

When developing the essential obstetric care in the province there is a need to look at the health system as a whole and the management of the services plays an important role. This management should be seen at two levels. A first level is the internal management at the health unit for the provision of essential obstetric care. However considering the very basic training of the elementary midwives and the basic MCH nurses they need to be supported by the provincial health directorate for the organisation of the services and receive on the job clinical support for strengthening their skills. A second level of management is more concerned with the interaction of the health units, the referral system and the reporting. The formulation of district plans, which are fed into an overall provincial plan, is essential in this process.

The health information system (HIS) needs to be strengthened in relation to the obstetric care provision. The process indicators should be gradually included in the existing HIS at provincial level but the health units that are registering obstetric complications and reporting them to the provincial health directorate should also be able to analyse their own data and thus measure their own progress. This feedback on the process indicators should be done through supporting visits from the provincial health directorate.

It should be noted that the presented indicators do not all measure quality of care, only the case fatality rate gives an idea on the QOC in the maternities. However they form an ideal basis for evaluating programme effectiveness and measure progress.

At the end the 7 proposed indicators form a basis for measuring progress and monitoring the health care interventions in the province.

Policy constraints.

Two important low-level policies are influencing the provision of essential obstetric care. The first one is the fact that very few of the basic level MCH nurses are allowed to do a uterus revision after an incomplete abortion when intra-uterine placental cause a bleeding.

A second low-level policy decision is the non-performance of craniotomies in the spectrum of major obstetric interventions. The decision to do a C-section in a case of intra-uterine foetal death increases the risk of iatrogenesis by a factor 7.

8. ANNEX 1: TABLE H LIST OF THE SURVEYED UNITS

	<i>Deliveries/year</i>	<i>Deliveries/month</i>
<i>Bilene district</i>		
Macia / Bilene	1325	110,4
Chissano	712	59,3
Incaia	498	41,5
<i>Chibuto district</i>		
Chibuto	2269	189,1
Alto changane	167	13,9
Malehice	788	65,7
<i>Chicualacuala</i>		
Chicualacuala	212	17,7
Mapai	152	12,7
<i>Nhonale</i>		
Nhanale		
<i>Chokwé district</i>		
Chalucwane	831	69,3
Barragem	713	59,4
Chókwè	1714	142,8
Hokwe	615	51,3
<i>Guija district</i>		
Guijá	454	37,8
Chibabel	645	53,8
<i>Mabalane District</i>		
Mabalane sede	392	32,7
<i>Manjacaze District</i>		
Tavane	472	39,3
Manjacaze	1227	102,3
Chidenguele	678	56,5
Dengoine	388	32,3
<i>Massagena district</i>		
Massagena	150	12,5
<i>Masingir District</i>		
Massingir	196	16,3
<i>Xai-Xai capital District</i>		
Xai-xai Provincial Hospital	2903	241,9
Inhamissa	1334	111,2
Maciene	410	34,2
Chicumbane	1071	89,3
Chongoene	486	40,5
Julius nyerere	439	36,6
Inhacutse	625	52,1

9. ANNEX 2: PROCESS INDICATORS FOR THIS STUDY.

INDICATOR	DEFINITION	NUMERATOR	DENOMINATOR	MINIMUM LEVEL
<i>Availability of basic Emergency Obstetric care</i>	<i>Number of health facilities providing BEOC functions per unit of population</i>	<i>Nr of facilities providing Basic EOC</i>	<i>Population of catchment area / 500 000</i>	<i>4 units per 500 000</i>
<i>The availability of comprehensive essential obstetric care</i>	<i>Number of Health facilities providing CEOC per unit of population</i>	<i>Nr of facilities providing CEOC</i>	<i>Population of catchment area / 500 000</i>	<i>1 unit per 500 000</i>
<i>Skilled attendance at delivery</i>	<i>Proportion of all deliveries taking place in health facilities</i>	<i>Nr of deliveries occurring in all health units within one year</i>	<i>Total number of expected deliveries in the area in one year</i>	<i>At least 100% take place in a health facility</i>
<i>Met need for EOC</i>	<i>Proportion of women with obstetric complications treated in EOC units</i>	<i>Nr of women with obstetric complications who were treated at EOC facilities in one year</i>	<i>Expected number of deliveries x 15%</i>	<i>100 % of all women with obstetric complications should be treated at the EOC facilities</i>
<i>C-section as a proportion of all births</i>	<i>Proportion of C-section to all births</i>	<i>Nr of C-sections in all health facilities during one year</i>	<i>Total number of expected deliveries in the area in one year</i>	<i>At least 5% of all the deliveries</i>
<i>Case fatality rate in facilities</i>	<i>Proportion of women with an obstetric complication admitted to a facility who die</i>	<i>Nr of direct obstetric deaths in facility in one year</i>	<i>Number of admissions for obstetric complications in a year</i>	<i>CFR should be less than one %</i>
<i>Unmet need for major obstetric interventions</i>	<i>Absolute or relative deficit for major obstetric interventions</i>	<i>Difference between the number of interventions that should have been done and the ones that were performed in the hospitals</i>		<i>Should be between 1% and 2% of the estimated number of deliveries</i>

10. ANNEX 3: CERTIFIED MATERNITIES FOR ACCREDITATION

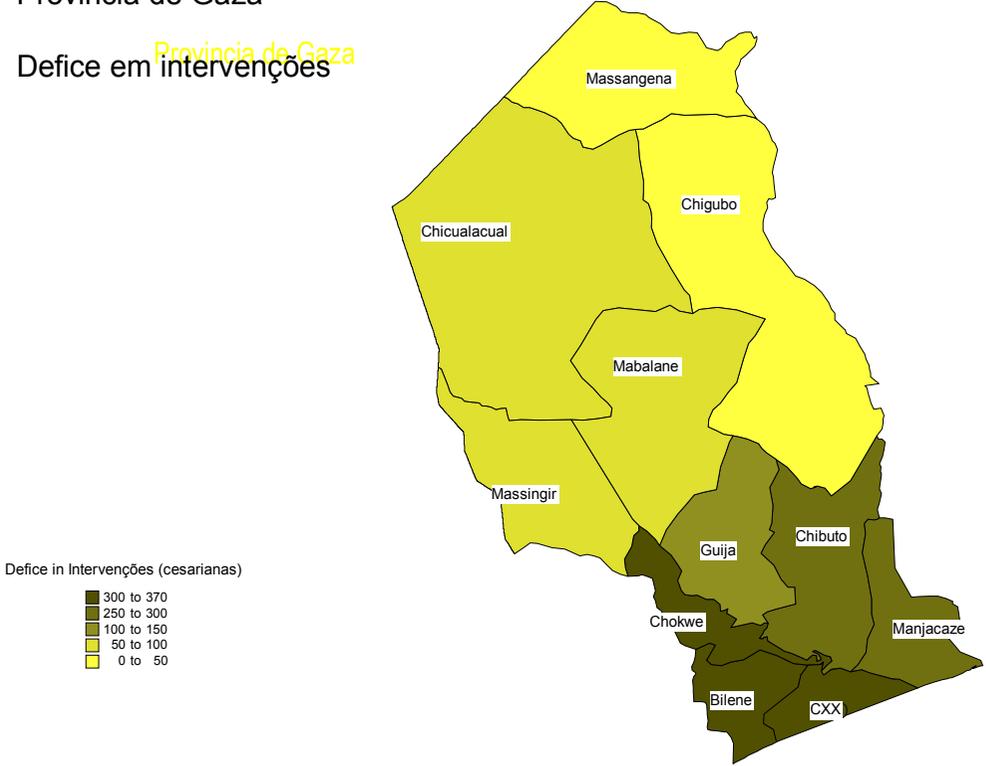
DISTRICT/UNIT	TYPE	DISTRICT POP.	NEED FOR RADIO	SMALL REPAIRS
<i>Bilene district</i>		151 764		
Macia Bilene	Hcenter			
Chissano	Hpost			X
Incaia	Hpost			X
<i>Chibuto district</i>		166 536		
Chibuto	Rur Hosp.		Yes	
Alto Changane	Hpost		Yes	X
Malehice	Hpost			
<i>Chicualacuala district</i>		37 244		
Chiculacuala	Hcenter		Unicef plan	
Mapai	Hpost		Yes	
<i>Nhanale District</i>		14 333		
Nhanale	Hcenter		Unicef plan	
<i>Chokwe district</i>		207 175		
Chalucuaane	Hcenter		Unicef plan	
Barragem	Hcenter		Yes	
Chokwé	Rural hospital		Yes	
Hokwé	Hpost			
<i>Guija district</i>		63 048		
Guija	Hcentre			
Chibabel	Hpost		Yes	X
<i>Mabalane district</i>		27 898		
Mabalane sede	Hcenter		Unicef plan	
<i>Manjacaze district</i>		172 573		
Tavane	Hcenter		Yes	X
Manjacaze	Rural Hosp		Yes	X
Chidenguele	Hpost			
Dengoine	Hpost		Yes	
<i>Massagena District</i>		13 476		
Massagena	Hpost			
<i>Massingir District</i>		24 948		

Massingir	Hcenter	Unicef plan	
<i>Xai Xai Cidade</i>			<i>130 528</i>
Xai Xai	Provincial hosp.	Yes	
Inhamisssa	Hpost		
<i>Xai xai District</i>			<i>193 770</i>
Maciene	Hcenter	Yes	
Chicumbane	Rural Hosp	Yes	
Chongoene	Hpost		X
Julius Nyerere	Hpost	Yes	
Inhacutse	Hpost		X
Total		<u>13</u>	

Annex 4: Unmet Obstetric need for major obstetric interventions: Absolute deficit see map

Provincia de Gaza

Defice em intervenções

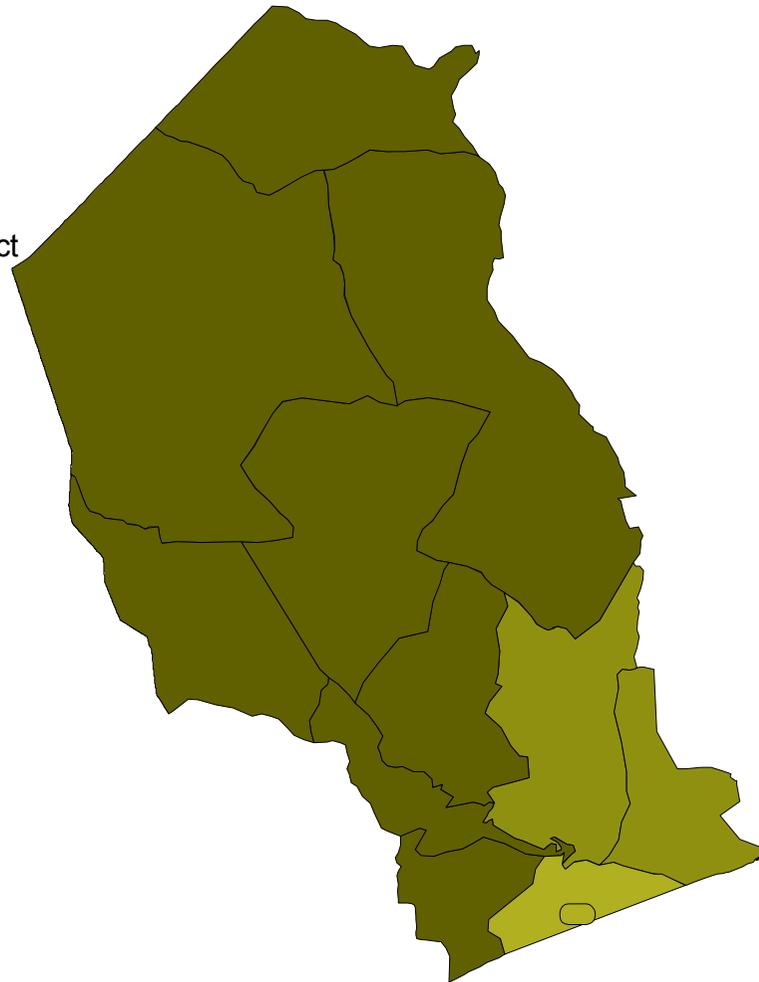
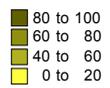


Annex 5: Unmet Obstetric need for major obstetric interventions: Relative deficit

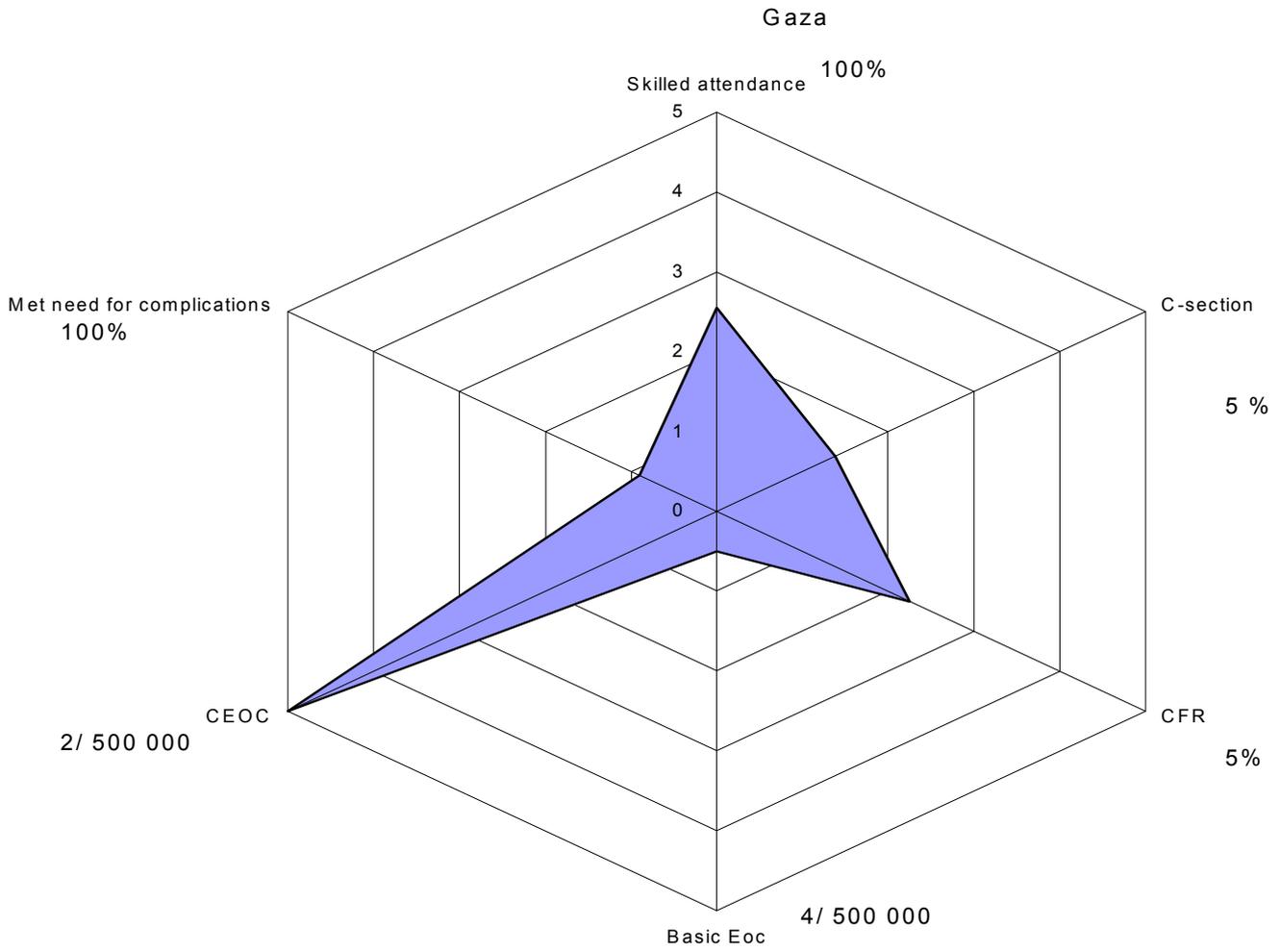
Gaza Province

Needs in C section per district

Percentage need in csections



12. ANNEX 6: SUMMARY OF THE INDICATORS IN RADAR CHART.



REFERENCES:

- 1 DHS. (1997) Inquérito Demográfico e de Saúde 1997.
- 2 Direcção nacional de estatística, Gabinete central do recenseamento, and Ministério do plano e finanças. (1995) Moçambique: Panorama demográfico e socio-económico. 113-114.
- 3 Ministerio Da Saude. (10-4-1999) Avaliacao das necessidades para uma maternidade segura em Mozambique - 1999.
- 4 Ministerio Da Saude. (1999) Revisão de Mortes Maternas em Moçambique 1998-1999.
- 5 Ministerio Da Saude and Departamento de Saude da Comunidade. (2000) Estrategias para a redução da morbimortalidade materna e neonatal.
- 6 Maine, D., McCarthy, J., and Ward, V. (1992) Guidelines for monitoring progress in the reduction of maternal mortality. UNICEF. 88.
- 7 Van Lerberghe, W. and De Brouwere, V. (1997) Unmet Obstetrical Need: a strategy to improve maternal health. UNICEF. 1-32.
- 8 Maine D., Wardlaw T.M., Ward V., and Mc Carthy J. (1997) Guidelines for Monitoring the Availability and use of Obstetric Services.
- 9 UON Network. (1999) Establishment of the protocol on the collection of data. UON Network. 1st .
- 10 UON Network. (1999) Concepts, General principles and International network. 1st .
- 11 De Brouwere, V., Tonglet, R., and Van Lerberghe, W. (1998) Strategies for reducing maternal mortality in developing countries: what can we learn from the history of Western countries? Tropical Medicine and International Health, 3 .