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MATERNAL AND PERINATAL HEALTH SITUATION IN TELAVI AND SAGAREJO RAYONS

SHORT TERM TECHNICAL ASSISTANCE FOR ANALYSIS OF THE MATERNAL AND PERINATAL HEALTH

Technical Report #1

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ACRONIMS

CDC – Center of Disease Control

CEO – Clinical Effectiveness Office

CIF – Curatio International Foundation

DAC - Doctor Ambulatory Centers

FAP -Feldsher Ambulatory Posts

MOLHSA – Ministry of Labour, Health and Social Affairs

MSH – Managment Science for Health

MSIC -Medical Statistic Information Center

NRISVD – National Research Institute of Skin and Venereal Diseases

PATH – The Program for Appropriate Technology for Health

SMI – Safe Motherhood Initiative

USAID – Unated Sates Agency for International Development

WC – Women consultation

WHO – World Health Organization

PURPOSE OF THE REPORT

This consulancy is an element of a project Georgia Safe Motherhood Initiative, which started in October, 2000 and is funded by USAID/Caucasus. The objective of this consultantship is to carry out a situation analysis of the reproductive and perinatal health in Telavi and Sagarejo Rayons, in close collaboration with regional Safe Motherhood Project Team in order to identify priority health problems, their underlying causes and to provide recommendations for interventions and preventive strategies.

Purpose of the Report is to provide data presenting demographic and reproductive health issues (e.g. birth and death rates, including those occurring at home, case-specific death rates, abortion rate, complications of pregnancy, etc.) for the 1999 and 10 months of 2000; produce list of the most common disorders of pregnancy and delivery during 1999 and 10 months of 2000, and a list of maternal health priorities that influence pregnancy outcomes. Report should highlight problems related to negative pregnancy outcomes; Problems in recording / reporting of pregnancies and pregnancy outcomes for the region. Report should provide suggestions for the development of a maternal/perinatal health surveillance system, including a list of practical indicators.

EXECUTIVE SUMMARY

The findings of the assessment indicate that it is possible to provide a quality maternal and newborn health services at Telavi and to less extent at Sagarejo rayon. The maternities have the capacity to: administer parenteral antibiotics; administer parenteral oxytocic drugs; administer parenteral anticonvulsants; perform manual removal of placenta; perform removal of retained products of conception; perform assisted vaginal delivery (e.g. vacuum extraction or forceps delivery); perform surgery (i.e. administer anesthesia, perform cesarean section, provide surgical treatment of sepsis, perform hysterectomy, repair cervical/high vaginal tears, and provide blood transfusion. These interventions are considered essential for the management of the major complications of pregnancy which account for the majority of maternal deaths in Georgia

Prenatal care

Many perinatal problems were discovered in Telavi and Sagarejo rayons regarding prenatal services. Prenatal care is fragmented, simple practical checklists for risk assessment during prenatal care do not exist for use by midwifes in the periphery to identify women with characteristics that often lead to complications or the symptoms necessitating immediate attention at higher level of care. The women consultations , nor maternities at Telavi and Sagarejo do not have written educational materials available for mothers, like warning signs of complications of pregnancy, antenatal nutrition, preparation of birth, postnatal of care, breastfeeding, newborn care, family planning, STD/AIDS. Vitamin/mineral supplementation is not provided to pregnant women. Prevalent maternal health problems among pregnant women were found in Sagarejo - anemia (cut –off point 100 g/l) – 44.1%, gestosis – (7.1%), goiter – (6.5%), veins dysfunction connected to pregnancy – (6.04%), genitourinary tract system diseases (cystitis, pyelonephritis) (3.7%). In Telavi leading health problems were – anemia - (18.6%), goiter –3.3%), genitourinary tract system disease (cystitis, pyelonephritis) – (2.7%), gestosis – (2.7%), veins dysfunction connected to pregnancy – (1.6%).

Different health priorities were discovered in Iormughanlo and other 5 villages (hereafter referred as Iormughanlo) within Sagarejo rayon with Azerian ethnic background population of about 17 000 inhabitants. Leading health problem among pregnant here were gestosis (different stage - 1999 - 31.8%, 2000 – 39.2%). Rate of anemia was found considerably low - from 11% in 1999 to 8.7% in 2000 respectively. The reason given for such a difference in the better eating habit among Azeri background population (daily meat consumption)

The main reasons for directing pregnant women to the higher level of care from WCs of Telavi and Sagarejo were: 1) history of difficult deliveries in the past – 16 women (19%) 2) EPH gestosis –10 (11.9% , 3) Rh(-) blood –9 (10.7% 4) pelvic disproportion –7 (8.3%) , breech presentation – 6 (7.1%) There is a no communication among women's consultations in Telavi and Sagarejo and Tbilisi Institute of Perinatology obstetricians regarding case management.

Labour and delivery

Both maternities currently need to be repaired Hospital equipment is old , hardly functioning, There are also lack of linen, swaddling clothes, toilets, showers. Existing equipment is not always fully utilized, usually for lack of maintenance and spare parts. The services at maternities were never fully satisfactory but deteriorate for time being due to lack of fuel and electricity, hot water, food for mothers, scarcity of many medicaments, lack of transport

21.3% of births in Telavi and 19.2% in Sagarejo were classified as pathological deliveries. Most common and dangerous complications of delivery and postpartum noted at Telavi and Sagarejo maternities were: hemorrhage due to abrabtio placenta or placenta pravia which ranged from 5.3% in 1999 to 4.4%. Percent of EPH gestosis was about 5% at both maternities with few cases of preeclampsia and eclampsia . Appropriate management of preeclampsia and eclampsia utilizing magnesium sulfate not in use. Alarming was high number (ranged from 5.2% to 7.3%) of prolong/obstructed labors, The management of prolonged or obstructed labour is outdated and garbled, not evidence based. During labour poor progress of labour and fetal distress not usually timely recognized. The rate of episiotomy
is too high ranged from 33 % at Telavi to 43% at Sagarejo The current protocols\guidelines at both maternities are not based on evidence-based research.
Recognition of problems during the first stage of labour however depends on correct notation and interpretation of the partogram, developed by WHO, which unfortunately is not in use to prevent a prolonged/obstructed labour, postpartum hemorrhage, ruptured uterus, and sepsis.
The blood bank is not organized. The patient requiring blood transfusion must rely on relatives or members of her medical staff to donate blood. This process costs valuable time.
Health care providers at Telavi and Sagarejo maternities need to reform their attitudes by valuing patient input, respecting personal concerns and tailoring care toward individual needs.

Postpartum

Postpartum hemorrhage was low – at both maternities (1.07% –2.4%) . In case of septic complications the maternities do not have the capacity to do blood cultures and other bacteriological testing.. Obviously no screening method being used in maternities for STD,s.
There are a high number of home deliveries both at Telavi and Sagarejo maternity (from 6.4% to 36.9% respectively) in Azerian ethnic background population.

Telavi rayon

- Crude birth rate [1]– 1999 – 7.7; 2000 – 5.3
- Total birth and deaths: live and stillbirth at Telavi Maternity during 1999 and for 10 month of 2000 totaled 1067[2]. A total of 49 deaths were notified - comprising 15 stillbirth, 27 neonatal deaths (4 pre- discharged early neonatal deaths, 16 transferred and 7 late neonatal deaths) and 7 postneonatal deaths
- Stillbirth : the stillbirth rate was 11.1/1000 –1999, 18.3/1000 –2000
- Neonatal deaths: the overall neonatal death rate was 27.2/1000 –1999, 23.3/1000 –2000
- Overall feto- infant mortality rate 39.3/1000 (1999-2000)
- Contribution of each birthweight category to overall mortality rate; (500-1499 – 692,3/1000, 1500 –2499 –470.5/1000, 2500+ - 11.1/1000)
- Other mortality rates
    - early neonatal death rate –20.8/1000 –1999, 16.3/1000 -2000
    - perinatal mortality rate – 31.9/1000 –1999, 34.3/1000 -2000
    - postneonatal mortality rate –6.4/1000 –1999, 7.0/1000 -2000
    - infant death rate – 33.7/1000 –1999, 30.3/1000-2000
        - Cesarean section rate – 13.7% -1999, 13.2% -2000
        - Home birth [3] – 6.4% -1999, 8.9% -2000

[1] without unregistered home birth
[2] without unregistered home birth
[3] including unregistered home birth (1999 – 44, for 10 month 2000 – 43)

Sagarejo rayon [4]

- Crude birth rate [5] – 1999 – 4.5 ; 2000 – 4.3
- Total birth and deaths: live and stillbirths at Sagarejo Maternity totaled 553 in 1999 and for 10 month of 2000. A total of 17 infants death were notified comprising 6 stillbirth, 10 neonatal deaths (4 pre discharched, 4 discharched, 2 late neonatal) and 1 postnatal death.
- Stillbirth: the stillbirth rate was – 7.1/1000 –1999, 14.6 /1000 -2000
- Neonatal deaths: the neonatal death rate was –25.2/1000 –1999, 11.2/1000-2000.
- Overall feto-infant mortality rate – 29.0/1000
- Contribution of each birthweight category to overall mortality rate; (500-1499 – 714.2/1000, 1500 –2499 –102.5/1000, 2500+ - 7.8/1000)
- Other mortality rates:
  - early neonatal death rate – 18.0/1000 –1999, 11.2/1000-2000
  - perinatal mortality rate – 28.5/1000 –1999, 25.6/1000 -2000
  - postneonatal mortality rate –0 – 1999, 3.7/1000 -2000
  - infant death rate – 25.2/1000 –1999, 14.9/1000 –2000
    - CS rate – 7.2% -1999, 6.6% -2000
    - Home birth [6] – 51.5%-1999, 51.3 %-2000

Perinatal Mortality

- The highest number of stillbirth was observed in age group 20-24, with parity 0-1.
- 33.3%- of women with stillbirth have had no prenatal care, 28.5% have had only 2 visits, 19% women complete the obligatory number of visits, and only 4.7% women have had more than 4 visits
- More than 64 % of women with neonatal deaths had only 0 –2 prenatal visits
- Majority of women with neonatal death had complications during delivery and labour - abrubtio placenta or placenta previa - almost 22%, uterine rupture (1) eclampsia (1) premature labour – 33%, arrest of labour – 14%.
- Most of babies (60.6%) died during the day 1 of early neonatal period.
- Among stillbirth case of death in Telavi and Sagarejo during 1999-2000 were antepartum hemorrhage and hypoxia.
- Among neonatal deaths – the "unexplained" category, followed hypoxia /trauma, lung immaturity/ hyaline membrane disease, hypertension, congenital abnormalities were the main contributors

[4] rates for Sagarejo rayon include data collected from maternity only, except % of home birth
[5] without unregistered home birth
[6] including the known number of home birth in Sagarejo rayon with Iomughanlo (1999 – 296, 2000 – 285)

- Very low birthweight rates (0.9% in Sagarejo and 0.6% in Telavi) were low that of Georgia rate -1.2% .This differences may indicate some degree of underreporting of low birhtweight infants.
- Rates for feto-infant deaths 1500 – 2499 were found extremely high (261.9/1000 in Telavi rayon, 102.5/1000 in Sagarejo rayon)
- Treatment of infants with birth weights below 1500 – 1800 gram cannot be undertaken successfully considering inability to maintain such infant's body temperature, adequate ventilatory support and parenteral nutrition. Surfactant therapy is not available, parenteral fluid administration is limited by lack of central venous and arterial access and by the absence of infusion pumps.
- There are no established referral patterns with neonates being moved to centers where appropriate care may not be available In addition there is no existing standard mode of transfer of infants from one facility to another and infants are frequently transported by family members in taxi or private car with no medically-trained personnel in attendance. Resuscitation is restricted by lack of trained personnel and appropriate supplies and equipment. Electricity is almost not available and maternities have inadequate heating. Laboratory services are not reliably available or of sufficient quality to support a neonatal unit.
- High rate of feto-infant death weighing 2500 g or grater (11.1/1000 in Telavi and 7.8/1000 in Sagarejo) suggests the need for interventions targeting also maternal delivery and newborn care practice.

METHODOLOGY

The consultancy took place from November 20 to December 25, 2000. November 20 and 21 were spent in meetings with CIF staff and relevant staff in CEO to plan visits and preparing guidelines for the collection of assessment information.Travel from Tbilisi to Sagarejo and Telavi was undertaken on 22- 27 November, 2000.
Additional visit were undertaken on December 25 and January 11 of 2001 when results of the survey were discussed with relevant staff. (Full list of contacts made during the mission id included in attachment 4).

During the work following activities have been conducted:

- Visit to Sagarejo and Telavi and meeting with Regional Working Team
- Collecting all regional data with help of regional teams in the rayon's
- Review pregnancy registration in women's consultations, birth/death logs in maternity houses and admission/death logs of children hospital and other facilities where referral occurred
- Analyze obtained information regarding the maternal health priorities and service provision failures

A common approach of work team was used for the visits, which included meeting with the head of the maternity to explain the purpose of the mission and to collect required initial information The meeting with the head of the maternity and women's consultation was followed by discussions with the obstetrician(s), neonatologist(s) and, if available, the midwife about the clinical practices relevant to (a) normal labour and delivery care, (b) care of the newborn, including neonatal resuscitation and care of the sick newborn, (c) emergency obstetric care. Following the

discussions, a tour of the facilities was then undertaken, accompanied by an local team member. During the tour it was possible to observe the general condition of the facility (i.e. physical structure, cleanliness and organization). In addition, it was possible to speak briefly with some of the staff about the care provided to mothers and babies. Later the birth/death logs in maternity houses and admission/death logs of children hospital and other facilities were examined where referral occurred.

DEFINITIONS (WHO)

Livebirth – to complete expulsion or extraction from the mother of a product of human conception, which after such expulsion or extraction, breathes or shows any other evidence of life, such as beating of the heart, pulsation of umbilical cord, or definite movements of voluntary muscles.
Stillbirth – deaths prior to complete expulsion or extraction from the mother after 22 week of pregnancy, or have weight 500 gr. or more and have length 25 cm or more; the death indicated by the fact that, after such expulsion or extraction the fetus does not breath or show any other evidence of life .
Perinatal deaths – refer to stillbirth and death in the first 0-6 day of life
Neonatal deaths - refer to deaths in first four weeks of life
Early neonatal deaths - refer to deaths in the first week of life 0-6 days
Late neonatal death - refer to deaths in weeks two to four of life (7-28 days)
Postneonatal deaths - refer to death after the first four weeks before the end of the first year
Infant death refer to all death (neonatal and postneonatal) in the first year of life

Rates

Crude birth rate - number of live birth to women x1000/total estimated mid-year population
Stillbirth and perinatal death rates are based on the total of live and stillbirth
Neonatal, postneonatal, and infant deaths rates are based on live birth only

Neonate

Very very low weight – any neonate, regardless of gestational age whose weight at birth is less than 1000 g
Very low birth weight - any neonate, regardless of gestational age whose weight at birth is less than 1500 g
Low birth weight -any neonate, regardless of gestational age whose weight at birth is less than 2500 g

BACKGROUND

The population of Georgia is estimated to be of 4,604,500 people with 28% being under the age of 18 years. (MSIC- 2000). Georgia has undergone major socio-economic and political changes: civil war, forced migration and population displacement, economic hardships, deterioration of social services, which have affected practically all aspects of life for it's people. (Unicef's mid-term Review) Summary for Georgia for the programme of co-operation from 1996-2000 reports that although there has been stabilization of the political and economic situation since 1995, GDP level in 1997 still stand at only 33% of 1990 levels. Poverty estimates continue to range at over 50%.

The National health system is directed by the MOLHSP, which sets the budget for health care programs, coordinates services and is responsible for health policy. Local health care is administered by the local authorities and the Mof Health through district health offices. They monitor all local health services, report communicable diseases, supervise immunization and other preventive activities, and regulate environmental hazards. Perinatal care are provided through three levels of health care facilities: a) primary health care network, represented by various ambulatory (e.g. FAP, DAC) in rural areas and women's consultation clinics in urban areas; b) secondary health care network, consisting of rural, central district, and municipal hospitals usually equipped with a maternity unit of 20-40 beds where uncomplicated delivery suppose to be delivered, and c) tertiary health care, delivered by republican level hospitals, and research institutes (Children's Hospital and Institute of Perinatology in Tbilisi) Within the context of the transition to a market economy, the medical institutions are gradually switching over to self-financing the decentralization of health care and the development of a health insurance system (MOLHSP 1995). So far, the health care reforms have been met with mixed results and the health sector has not received adequate resources to provide basic standards of care. Most reproductive health services are largely supported by out-of-pocket expenses. Currently Government being paid for 6 visits but the patient should pay out of pocket for additional visits if needed. The usual visit schedule consists of visits – within the first 13 weeks of pregnancy, at 22 weeks, at 30 weeks, at 36 weeks and after delivery Not all women receive prenatal care and of those that do not all attending to this schedule (60% - complete 4 free prenatal visits) There appears to be less if any attention given during prenatal visit to assisting the client in making preparations for birth and in particular to discuss sexually transmitted diseases (STDs) which were increased, especially in primary and secondary syphilis. Syphilis rate (new cases) increased by almost 4 times between 1993 and 1998, from 12.1/100,000 to 46.6/100,000 (MOLHSP and e NResearch Institute of Skin and Venereal Diseases, 1999).

The rate of childbearing has fallen below the replacement level of slightly more than one births per woman - 1.07 (MSIC- 2000). The main method of fertility regulation remains legal abortion.(39.1/100 live birth). Reproductive Health Survey, Georgia, 1999 showed at least two abortions for each live birth for 1997-1999 period. Despite enough contraceptive supplies delivered to the country (condoms, IUDs, pills and barrier devices), the contraceptive prevalence for modern methods remains low.

Pregnancy related morbidity and mortality are higher than in most countries in Europe. For example, in 1997, 5,945 of cases of complications during pregnancy, delivery and postpartum were reported to the MOLHSP (112 per 1000 live births).

As the absolute number of maternal deaths is relatively small, the figures tend to fluctuate from year to year from random causes, making it difficult to establish a time trend or predict the future. The figures do not suggest that there has been a significant change over the last five years, at any rate.

The reported maternal mortality rates appears to have slightly increased from 41 (1994) to 51.5 per 100,000 live births in 1999 (MOLHSP –2000) A review of the routinely collected statistical information of 393 maternal deaths in Georgia between the years of 1984 and 1995 (in two regions there has been no population data provided since 1992) showed the major causes of death were hemorrhage (45%); embolism (18%); sepsis following cesarean section (13%); and hypertension of pregnancy (11%). ***(T.Asatiani, 1996).*** Parity and age were highly associated with maternal mortality. Analyzing the profile of women who died giving birth indicates that 43% occurred to women having the third and more birth, and 47,7% were over 30 years old. Some 34,4% had more than 5 pregnancies. Half of the deaths occur in maternity hospitals with a capacity for 500-1000 birth per year. These hospitals lack 24-our intensive care and anesthesia services, and the professional level of the personnel is unsatisfactory. Reasons given vary from anemia and poor nutrition in the women, unsatisfactory perinatal care – only 4 visits have made 60.9% of women (MSIC- 2000), collapse of blood supplies all together in some districts, to the absence of essential resources to deal with the obstetric emergencies. An additional problem identified has been a worrying increase in the number of unsupervised home deliveries. It has been recorded that unattended births have increased in recent years up to 4% ((MSIC- 2000).

The reported perinatal mortality rate have increased from 29.9\1000 (1996) to 32.4/1000 (stillbirths-13.01/1000 and early neonatal deaths –19.31/1000). Postneonatal (1.4 –1999) and infant (13.01 -1999) deaths are also have increased. Infant mortality has decreased recently from 21.4 infant deaths per 1000 live births in 1993 to 23.3/1000 -1999 (MSIC- MOLHSP -2000) .Some of this change is due to a change of definition. Until 1996 only deaths weighing at least 1000g were recorded. From 1996 onwards Georgia has followed WHO recommendations and included all deaths weighing at least 500g. Between 1980 and 1994 the rate remained relatively constant around 15/1000. For the next six years the rate increased to around 30/1000.

STATISTICS - TRUTH OR FICTION

Statistical data presented below needs some reservation. Several potential sources of underreporting exist:

- Reporting of maternal and perinatal death and analysis of data.
  There is a strong opinion that there are inaccuracies in the reported causes of death and in the completeness and accuracy of information provided to the MOLHSP form the rayons. Medical malpractice in Georgia is a criminal offence, not a matter of civil law. In practice, over the years very few physicians were ever convicted for malpractice but the threat of criminal actions was concern enough. This may, in part, be behind the problems with accuracy of reporting of the circumstances surrounding maternal and perinatal deaths death.

- Home birth are believe to be increasing, particularly in rural areas. A home birth will be reported to the system only if a mother presents to a maternity after giving a birth (in Telavi we had 7 , in Sagarego 8 such cases during 1999-2000, which were included in calculation rates) However, data collected reports from Telavi and especially from Sagarejo rayon suggest that many women are giving a birth at home are not accessing the health care system at all. For example in Iormughanlo Sacrebulo comprising of 4 villages with Azerian ethnic background population estimated to be 17 000 within Sagarejo rayon, almost all deliveries occurred at home (during 1999 – from 336 pregnant women – 296 gave birth at home, during 10 month of 2000 – among 321 pregnant –285 gave birth at home). Note that there is substantial annual difference between the number of pregnant and actually delivered women. How many infant deaths remains unregistered each year is quite difficult to calculate. Parents of children who died home do not always applied for death certificate which should be obtained in Marriage Bureau, rather it is believed they may bury children themselves
  One source of discovering an unregistered birth is a polyclinic where parent presents child for immunization – where birth certificate is required. This way 163 home birth in Iormughanlo policlinic were registered during 1999, which is still far away from 296 deliveries occurred at home by given year. Similarly, 132 home birth were registered in Iormughanlo policlinic during year 2000 with factual 285 deliveries at home. Again, this figures based only on estimation made by nurses in village, but not represent the official data. Thus it is impossible at present to estimate correctly the number of such unregistered home birth and outcomes.

- Additional source of under reporting is that parents are charged a fee (10 lari – 5 Usd) for the birth certificate. Many parents especially in rural area cannot afford to pay this fee. There is no fee for death certificate but again the cost of burial may deter death registration as well

- Previously only infants born at 28 week of gestation or greater showing only breath were recorded as livebirth. In 1993 and that secondly in 1996 the WHO recommendation was accepted. Now a live birth includes infants born with any signs of live (not only breath) and with weight 500 grams or more. In spite of this changes the mentality of physicians has lagged behind. If an infant is born early and does not survive even greater than 22 weeks gestation or 500 grams it may be classify as 20 or 21 week gestation and record it as an abortion This delivery will then be recorded in the gynecology log book rather that the delivery log book an will not be counted as birth. For example, periodic spot checks of gynecology log books in Sagarejo maternity have revealed “questionable” abortions

recorded as 20-21 weeks gestation. Reason for this reluctance to completely use the WHO definition for livebirth is that physicians are still afraid of administrative punitive measures during the case reviews. The abovementioned it is believed to be a problem in all regions of the country

FINDINGS IN MCH INSTITUTIONS IN TELAVI AND SAGAREJO

Telavi

Maternity with WC located within the district hospital, has 2 floor building with 65 beds, fully equipped with staff : 9 physicians, 12 midwives in maternity and 5 physicians and 5 nurses in WC. Maternity was built in 1965, currently needs to be repaired – high humidity is observed in whole building due to wet walls. Hospital equipment is old , hardly functioning (ventilators for adults and newborns) also apparent lack of linen, swaddling clothes, toilets, showers. Catchments area is about 70 km with population roughly estimated to be 80 thousands. Number of women of reproductive age is about 17000. Prenatal care in rural areas is provided by midwives at 14 Ambulatory Centerss. 3 obstetricians currently supervise work of midwives and are visiting rural areas on weekly basis. Time needed to reach at ambulatory ranged from 15 to 55 min.

Table 1Ambulatory Centers (Telavi rayon)

Ambulatory Centers
1. Tsinandali
2. Karadjala
3. Napareuli
4. Ikalto
5. Kondoli
6. Kisiskhevi
7. Gulgula
8. Kodasheni
9. Akura-Kanti
10. Tetritsklebi
11. Laphaneuri
12. Pshaveli
13. Saniore
14. Kurdgelauri

Sagarejo

The catchment population we were given an estimate only, rather than an official figure –62.558 with women of reproductive age 13.300. Maternity located on the 4 floor of Sagarejo district hospital and has 20 beds (15 obstetric and 5 gynecology). Staff composition : 8 obstetricians, 4 neonatologist, anestegiologist, internist.

Existing equipment is not always fully utilized, usually for lack of maintenance and spare parts. The services at maternity were never fully satisfactory but deteriorate for time being due to lack of fuel and electricity, hot water, food for mothers, scarcity of many medicaments, lack of transport - which is serious problem

Prenatal care provided with 2 obstetricians which supervise 11 rural Ambulatory Centers and 7 FAPS where midwives are responsible for prenatal care. In Iormuganlo prenatal care are provided at the Policlinics-Ambulatory Unification and 2 FACs with 4 midwives and 1 doctor. Those

obstetricians from Sagarejo maternity usually visited villages on a monthly basis. sTime needed to reach the points form Sagarejo maternity ranged between 90 to 15 min

Table 2 Ambulatory Centers and Feldsher Ambulatory Post (Sagarejo rayon)

Ambulatory Centers	Feldsher Ambulatory Centers
1. Badiauri	1. Shibliani
2. Kandauri	2. Verkhkiani
3. Kakabeti	3. Boganovka
4. Chailuri	4. Krasnogorka
5. Manavi	5. Sasadilo
6. Giorgitsminda	6. Kochbaani
7. Nikotsminda	7. Rusiani
8. Patardzeuli	
9. Khashimi	
10. Udabno	
11. Gombori	
12. Iormughanlo Policlincs-Ambulatory	

Many problems in the perinatal clinics were identified in Telavi and Sagarejo rayons regarding prenatal services. Prenatal care in women's consultation typically involves physical examination including determining fetal position, fetal heart rate, his growth, the monitoring of the weight, blood pressure, hemoglobin, screening for STD and preeclampsia Some simple analysis available only – CBC, hemoglobin, urinalysis without testing to detect asymptomatic bacteuria, determination of blood group and Rh type, syphilis screening. Care is fragmented, simple practical checklist for risk assessment during prenatal care do not exist for use by midwifes in the periphery to identify women with characteristics that often lead to complications or the symptoms necessitating immediate attention at higher level of care. Neither WC nor the maternities at Telavi and Sagarejo have written educational materials available for mothers, like warning signs of complications of pregnancy, antenatal nutrition, preparation of birth, postnatal of care, breastfeeding, newborn care, family planning, STD/AIDS. Judging from discussions with Sagarejo and Telavi practitioners there is no vitamin/mineral supplementation provided to pregnant women.

The physicians at Telavi and Sagarejo maternities report that condition of pregnant women and babies are jeopardized by late arrival of women who require immediate attention in intrapartum care. They attributed these delays to the late recognition or underestimation of complications and to difficulties in obtaining transport for referral.
Women's consultation at Telavi and Sagarejo should referred women who are likely to develop complication in time to a higher level of care – usually to Tbilisi Institute of Perinatology for treatment and assistance.

During 1999 -2000 61 (1999 - 36 and 2000 –25)women from Telavi WC 23 (1999- 14; 2000 - 9) from Sagarejo WC had been directed to Tbilisi for second opinion and delivery, mainly to Institute of Perinatology- 58 cases – 93.5%

During 1999-2000 at Sagarejo WC among 645 pregnant women the leading health problems were- anemia (less than 100 g/l) 285 – 44.1%, gestosis – 46 (7.1%) goiter – 42 (6.5%), veins dysfunction connected to pregnancy – 39 (6.04%) genitourinary tract system diseases (cystitis, pyelonephritis) –24 (3.7%).

At Telavi WC during years 1999-2000 among 2080 pregnant women the following was found – anemia - 387 (18.6%), goiter – 70 (3.3%), genitourinary tract system disease (cystitis, pyelonephritis) – 57- (2.7%), gestosis – 58 (2.7%), veins dysfunction connected to pregnancy – 35 (1.6%).

Different health priorities were revealed in Iormughanlo with Azerian ethnic background population about 17 000 inhabitants. In contrast with Telavi and Sagarejo leading health problem were gestosis (different stage - 1999 - 31.8%, 2000 – 39.2%). Rate of anemia was found considerably low - from 11% in 1999 to 8.7% in 2000 respectively. The reason given for such a difference in the better eating habit among Azeri background population (daily meat consumption).

Table 3 Refereed cases to higher level of care from Telavi and Sagarejo women's consultations

Cases/	Telavi						Sagarejo*					
	weeks 1999			weeks 2000			weeks 1999			weeks 2000		
	<28	29-37	>37	<28	29-37	>37	<28	29-37	>37	<28	29-37	>37
Abortion							1			1		
RH (-)			5			1	1	2				
Hypert.						1	1	1				1
Hypoten.		1										
Pelvis disp.		1	3				1	2				
Placenta praevia									1			
Varicose							1					
IUGR								1				
Intrauterine death								1				
Congenit anomaly			1				1				1	1
Previous CS			1								1	
History		3	3	2		4			1	3		
Goiter	1											
Anemia						2				2		
Prematur labour		1		1								
Obesity						2						
Heart d-s			1		1							
EPH		2	2		2	4						
Transv. lie			2									
Twins			1		1							
Pielonephritis				2		1						
Breech			3			3						
Thyretoxocosis	1	1	2									
Young nulli –15			1									
Total	2	9	25	5	4	18	6	7	2	6	2	2

* Does not include Iormughanlo data

Thus, 18 women (21.4%) were transferred at less than 28 week of gestation, 21(25%) with gestation of 27-37 week and more that half (53.5%) about the end of pregnancy.
The main reasons for directing to the higher level of care were: 1) history of difficult deliveries in the past – 16 women (19%) 2) EPH gestosis –10 (11.9%), 3) Rh(-) blood –9 (10.7% 4) pelvic disproportion –7 (8.3%) , breech presentation – 6 (7.1%)
Tables 4 and 5 presented below reflect the outcome of pregnancies referred from Sagarejo and Telavi.

Table 4 Pregnancy outcomes from Sagarejo women consultation transferred during 1999-2000

Cases	Sagarejo 1999					
	weeks and pregancy complications					
	<28	outcome	29-37	outcome	>37	outcome
Abortion	1	Late induced abortion				
RH (-)	1	Term delivery	2 1) goiter, fetal hypotrophy 2) Hydrocephaly	1) Term delivery 2) Term delivery, E ND		
Hyper.	1	term delivery	1 pyelonephritis	Stillbirth		
Pelvis disp.	1	Term delivery	2	Term delivery		
Placenta praevia					1	Term delivery
Varicose	1	Delivery				
IUGR			1	Term delivery		
Intrauterine death			1 hydrocephaly, Rh-	C section, stillbirth		
Congenital anomaly	1	Late induced abortion				
History					1	Term delivery
Total	6		7		2	

Cases/	Sagarejo 2000					
	weeks and pregnancy complications					
	<28	outcome	29-37	outcome	>37	outcome
Hypert.					1	term delivery
Congenital anomaly	1	Induced abortion	1	Preterm delivery, END	1	Term delivery, END
Previous CS			1	Elective CS		
History	3 1) Anomaly of uterus 2) Herpes infection 3) Antiphosplipid syndrome	1) Operation 2) Preterm delivery at 22 weeks. 3) Pregnancy continues				
Anemia	**1** RH -	Preterm delivery				

Total	6		2		2	

Out of 25 women transferred from Sagarejo rayon during 1999 and 2000 to Tbilisi 2 stillbirth and 3 early neonatal death were observed. Because of lack of communication regarding case management Sagarejo and Telavi data were collected after completion of the report and therefore were not included in general rayon statistics.

Table 5 Pregnancy outcomes from Telavi women consultation transferred during 1999-2000

Cases	Telavi 1999-2000					
	Weeks and pregnancy compications					
	<28	outcome	29-37	outcome	>37	outcome
Abortion	1 Goiter	1) Spont. ab				
RH (-)		1)Term . delivery	2 STD	2 Term delivery	2 Anemia	2 term delivery
Hyper.	1 Young Nullip.	1) Term delivery	1 NCD	1 Term delivery		
Hypoten.			2 1) NCD 2) Pyeloneph.	2 Term. delivery		
Pelvis disp.			2 1) ARI 2) Twins	1) Term delivery 2) Preterm delivery	5 1) 2) Pyeloneph. 3) 4) Std 5)	5 Term. delivery
Transverse lie					1 1) Cyst	1) Term delivery
Breech presentation					2 1) Old nullip. 2) Goiter	2 Term delivery
Postterm delivery					1 1) Young nullip, Unatt. deli.	1) delivery
Gestosis			6 1) Colpitis 2) Old nullip. 3) 4) Anemia 5) 6) Anemia	1) Preterm delivery 5) Term delivery	2 1) 2) Breech	2 Term delivery
Varicose					1	1) Term delivery
IUGR					2 1) 2) Anemia	2 Term delivery
Intrauterine death			1 1) Anemia, gestosis	1) Stillbirth		
Congenital anomaly					1	1) Term delivery
Previous CS					2 1) 2) Breech	2 Term delivery
History	4 1) Pyeloneph. 2) 3) CVD 4) Pyeloneph.	1) Cont. pregnan. 2) Preterm delivery 3) Cont. pregnan. 4)Term. delivery	10 1) 2) CVD 3) Anemia 4) 5) Goiter 6) Cholelit. 7) Twins 8) 9) Prev. Surg. 10)	2 Preterm delivery 8 Term delivery	13 1) 2) Nephrolit. 3) Goiter 4) Anemia 5) CVD 6) 7) Anemia 8) Anemia 9) Goiter 10) Infertility 11) 12) 13) Goiter	13 Term. delivery
Total	6		24		32	

Out of 62 women transferred from Telavi women consultation one stillbirth, one spontaneous abortion (<22 week), four preterm birth with live birth were observed. 54 women completed pregnancy on term and by 2 women at the moment of survey pregnancy were proceeded.

Induced abortions

Only 18 induced abortion were reported for period (1999 – 2000) at Sagarejo maternity which is obvious case of underreporting. In Telavi number of reported induced abortion estimate to be 148, 74 each year, which is still seems very low. This figures do not include the number of mini-abortions (vaccum aspiration). According to the findings 74 induced abortions shows 11.7/100 livebirth which considerably lower than Official Government statistics showed 39.1/100 livebirth (MSIC – MOLHSP, 1999) CDC survey however also showed considerably higher than the official data ratios; at least two abortions for each live birth (2.1:1 in 1997, 2.0:1 in 1998, and 2.2:1 in 1999). Additionally, both maternities reported providing post-abortion family planning, although it was not clear whether this involved the provision of information and advice about family planning methods alone or in combination with the actual provision of a method before the woman left the maternity. No contraceptives were found during visit

Labour and Delivery

Number of births in 1999 and 2000 according to log books in Telavi maternity are equal 1067 (630 +437). 21.3% of births in 1999 and 19.2% in 2000 were classified as pathological deliveries, which is very close to country data (20.7%)(MSIC –1999)
Two patients were referred from Telavi maternity during labour and delivery : one women to Institute Perinatology with hypertension and second - after home delivery with septic complications with good outcome. No maternal cases were reported during 1999-2000.
The number of births in 1999 and 10 month of 2000 at the Sagarejo maternity visited ranged from 278 to 270, equal – 548. No patients were sent to higher level of care.

Table 6 Complication of delivery and postpartum (Telavi, Sagarejo – 1999-2000)

Complications of delivery	Telavi		Sagarejo	
and postpartum [7]	1999	2000	1999	2000
Total number of birth*	630+44	437+43	280+ 296	273+285
Abruptio placenta or placenta praevia (hemorrhage)	10(1.5)	7(1.6)	14(5.03)	12(4.4)
Postpartum hemorrhage	16 (2.4)	5(1.1)	3 (1.07)	1 (0.3)
Gestosis	26(3.9)	23(5.2)	14(5.03)	17(6.2)
Preeclampsia	0	1(0.3)	0	1(0.3)
Eclampsia	1(0.1)	2 (0.4)	1(0.3)	0
Diabetes	0	0	0	0
Thyroid dysfunction	24(3.6)	18 (4.1)	2(0.7)	1(0.3)
Anemia	32(4.7)	21	72(25.8)	90(33)
Cardiovascular system disease	0	0	0	0
Prolong\obstruct labour	49 (7.3)	23(5.2)	14(5.3)	15(5.5)
Breech	20 (2.9)	14(3.2)	8((2.8)	10(3.7)
Twins	6 (0.9)	3(0.6)	1(0.3)	1(0.3)
Metroendometritis	3 (0.4)	2 (0.4)	3 (1.0)	2 (0.7)
Sepsis	0	0	0	0

[7] total number of birth (maternity + home)

Peritonitis after CS	0	0	0	0
STD	7 (0.6)	5 (1.1)	0	0
Episiotomies	225(33)	190(43)	58(20)	49(18)
Tears of perineum 3-4	0	0	0	0
Blood transfusion	10 (1.5)	1 (0.2)	6(2.1)	8(2.9)
Forceps	5 (0.8)	2 (0.4)	5(1.7)	3(1.1)
Ventous	0	1(0.2)	0	0
Revision of placenta by hand	21(3.1)	15(3.4)	16(5.7)	12(4.4)
Revision of uterus by curette	2 (0.3)	0	4 (1.4)	5 (1.8)
Cesarean section	85(13.7)	57(13.2)	20(7.1)	18(6.6)
Home birth	44(6.4)	43(8.9)	296(51.5%)	285(51.3%)

Most common and dangerous complications of delivery and postpartum noted at Telavi and Sagarejo maternities were hemorrhage due to abruptio placenta or placenta praevia and ranged from 5.03% to 4.4%. Percent of EPH gestosis was about 5% at both maternities.. Rate of preeclampsia and eclampsia was found 0.1%-0.3% at both maternities. Alarming is a high number of prolong/obstructed labors. The rates ranged from 5.2% to 7.3% which usually followed by labour augmentation, fetal hypoxia and hemorrhage.

Complications of labor and delivery in Telavi and Sagarejo were examined considering the ability to follow to a proper management of the major complications of pregnancy which account for the majority of maternal deaths in Georgia (hemorrhage, sepsis, embolism, and hypertension of pregnancy)

Hemorrhage – during 1999-2000 17 cases in Telavi and 26 cases in Sagarejo were observed due to placenta abnormalities followed by cesarean section in most cases. Management of hemorrhage due to placenta abnormalities was described at maternities as administration of oxytocic, revision of the uterus, and administration of intravenous fluids. In some cases plasma expanders were used, if necessary, and at others blood transfusion If the bleeding continues, maternities have the capacity to intervene surgically, typically to do a hysterectomy. Hemorrhage due to retained placenta is managed by manually removing the placenta (rate is 3.4%-5.7%) Maternity also have the capacity to manage hemorrhage due to genital trauma by repairing lacerations, either using general or local anesthetic. The blood bank is not organized. In case of blodd transfusion (rate is ranged from 0.2% to 2.9%) the patient must rely on relatives or members of his medical staff to donate blood. This process costs valuable time.

Prolonged/Obstructed Labour –(5,2%-7.3%)The management of prolonged or obstructed labour varies depending on the obstetrician's preference for forceps delivery (7 cases in Telavi and 8 at Sagarejo maternity) or vacuum extraction used. Prolonged labour is first augmented with vitamin and estrogen preparations and/or an oxytocic. This treatment is outdated, not evidence based. If these interventions (i.e. augmentation, forceps delivery or vacuum extraction) are not successful, cesarean section is resorted to. Maternity does not use a partograph – developed by WHO which is utilized to prevent a prolonged/obstructed labour, postpartum hemorrhage and sepsis.

Pre-eclampsia and Eclampsia (0.1%-0.4%) 2 cases a preeclampsia and 1 a eclampsia were reported at both maternities. Protocol of treatment does not exist. The management of pre-eclampsia and eclampsia varies somewhat case to case, primarily with respect to the drugs used. (diazepam, propanalol, methyldopa) Appropriate management of preeclampsia and eclampsia utilizing magnesium sulfate not in use. In general, delivery of eclamptic patients is expedited usually by cesarean section.

Eclamptic patients are managed mutually by the obsterician and anesthetist.

Metroendometritis (0.4% –1,0%.) **T**here are very few cases revealed in Telavi and Sagarejo; however, when it does occur the usual management includes intravenous administration of a combination of broad spectrum antibiotics. The maternities does not have the capacity to do blood cultures and other bacteriological testing, whereas the appropriate surgical interventions are available, if necessary.

Episiotomy – at Telavi maternity rate is too high- 43% Usually should not exceed 15% -20% to all deliveries.

STD- (1.1%)Only few cases have been reported at Telavi maternity with no reported cases in Sagarejo. Obviously no screening method being used either in maternity or WC where theoretically routine check up should be provided during prenatal care and postpartum. With deterioration in laboratory facilities and the general lack of reagents for serological detection of STD's it is expected that the screening process may not be generally observed at this time. It would seem appropriate to establish simple, quick and effective ways to diagnose STD's at periphery.

Anaemia – This is serious concern of increasing numbers of women with anaemia, although accurate statistics are not available to describe the dimensions of the problem. According to Sagarejo maternity data % of women with anaemia (Hb below 100 g/l) is very high – ranging from 25.8% to 33% in 1999 –2000 respectively, exceeding country data – 22.8% (MOLH&SW –1999) On the other hand at Telavi maternity we have found only 32 such women - 4.7%, in spite of high number of women with reported anaemia at Telavi WC. This findings quite difficult to interpret , but one of the reason might be that maternity does not check HB level upon admission without vital necessity.

Home birth – Although official statistics showed slow decrease in home deliveries rate from 4.4% in 1997 to 3 % in 1999 (CMSI, MOLH&SW -1999) this not the case in Telavi and Sagarejo, especially for place settled with Azerian ethnic background. For example officially 8 home birth were registered in Sagarejo with .296(51.5%) home birth revealed in 1999 and 285 (51.3%) in 2000. At Telavi maternity officially was registered 7 home birth, but later 44 cases (6.4%) were found in 1999 and 43 (8.9%) in year 2000. This figures significantly higher than official ratios. Our data confirmed by 1999 CDC survey showed that home birth reached a significant proportion among some subgroups. Among living in rural areas were six times more likely to deliver at home than women in urban areas (13% vs. 2%). Home deliveries were higher in Azerian ethnic background, those with two or more other births (17%), and those with no prenatal care (54%). Eleven percent of low birth weight babies were delivered at home.

Live and stillbirths (Telavi)

Live and stillbirths in Telavi totaled 1067 in 1999 and for 10 month of 2000 presented in table

Table 7 Birhtweight distribution and perinatal deaths (0 -6) days in Telavi (1999-2000)

Weight	Livebirth		Stillbirth		Early neonatal deaths		Total death in maternity
	1999	2000	1999	2000	1999	2000	1999 –2000
500-999			1	3			4
1000 –1499	2	4		1			1
1500 –1999	14	4	2	1	2	1	6
2000 –2499	27	18	1	2			3
2500 – 2999	106	72			1		1
3000 –3499	259	172	3				3
3500 –3999	176	137		1			1
4000+	29	22					
Unknown							
TOTAL	623	429	7	8	3	1	19

All deaths (stillbirth, neonatal death, postneonatal death) were traced in maternity, children hospital and policlinics. Complete data flow presented in table

Table 8 Complete data flow of livebirth, stillbirth, neonatal death and postneonatal death revealed in maternity house, children hospital and pediatric polyclinic in Telavi (1999-2000)

*		1	2	3	4	5		6	7
Weight	Live birth	Late Abort. 12-21	Intra Uterine Death 22-27	Ante natal Death 28+	END (0-6) maternity	Transfer (Deaths in.child hosp (0-6)	Transfer (Deaths in.child hosp (7-28)	Inf.deaths in hospital (new) (28 – 1)	Inf deaths (report polyclc
0-499		5							
500 –999			4						
1000-1499	7			1		4			
1500-2499	62			6	3	7	6	7	7(same)
2500+	983			4	1	5	1		
Unknown									
Total	1052	5		15	4	16	7	7	7

* cells 1-4 data from Telavi maternity
cell 5 – data from children hospitals (Telavi – 10, Tbilisi – 6)
cell 7 - data from Telavi children policlinic

Table 9 Summary data - Telavi (1999 –2000)

Indicators	1999		2000	
	Number	Rate	Number	Rate
Stillbirth	630/7	11.1	437/8	18.3
Early Neonatal death	623/3+10*	20.8	429/1+6**	16.3
Perinatal mortality	630/ 7+3+10	31.9	437/8+1+6	34.3
Late Neonatal death	623/4	6.4	429/3	6.9
Neonatal death	623/3+10+4	27.2	429/1+6+3	23.3
Postneonatal death	623/4	6.4	429/3	7.0
Infant death	623/21	33.7	429/10+3	30.3
Cesarean section	630/85	13.7%	437/57	13.2%
Home birth	630/44	6.4%	437/43	8.9%

* 1999 - plus 10 newborns transferred and died to children hospital (0 - 6 days)
** 2000 – plus 6 newborns transferred and died to children hospital (0-6 days)

Considerable increase of stillbirth rate observed in 2000 comparing 1999. Same trend observed in perinatal mortality in spite of high rate of Cesarean section (more than 13%). Slight increase of home birth rate occurred from 7.1% to 9.9% All perinatal health indicators are higher that average national data.

Live and stillbirth (Sagarejo)

Live and stillbirths in Sagarejo totaled 553 during 1999 and for 10 month of 2000.

Table 10 Birthweight distribution and perinatal deaths (0 -6) days in Sagarejo maternity house (1999-2000)

Weight	Livebirth		Stillbirth		Early neonatal deaths		Total deaths in maternity	
	1999	2000	1999	2000	1999	2000	1999	2000
500-999	1			1	1		1	1
1000 –1499	2	2		1	2		1	2
1500 –1999	5	11					1	
2000 –2499	7	9	2			1	2	1
2500 – 2999	48	50						
3000 –3499	126	108		2				2
3500 –3999	69	65						
4000+	18	23						
Unknown*	2	1						
Total	278	269	2	4	3	1	5	5

* 3 deaths were reported lately (1999 - 3 days old, 25 days old, 2000 – 10 month old)

Complete data flow presented in table

Table 11 Complete data flow of livebirth, stillbirth, neonatal death and postneonatal deaths revealed in maternity house, children hospital and pediatric polyclinic in Sagarejo (1999-2000)

*		1	2	3	4	5		6	7
Weight	Live birth	Late Abort. 12-21	Intra Uterine Death 22-27	Ante natal Death 28+	END deaths (0-6days) maternity	Transfer (Deaths in.child hosp (0-6)	Transfer (Deaths in.child hosp (7-28)	Inf.deaths in hospital (new) (28 – 1y)	Inf deaths (report to p-c
0-499		9	1						
500 –999	1			1	1				
1000-1499	4			2	2	1			
1500-2499	32			2	1	1			
2500+	507					2			
Unknown	3						2**		1***
Total	547			6	4	4	2		1

* cells 1-4 data from Sagarejo maternity

cell 5 – data from children hospitals (Telavi – 2, Tbilisi – 2,)Sagarejo-2 **reported lately)

cell 7 - data from Sagarejo children policlinic (*** 1 death reported lately)

Table 12 Summary data - Sagarejo* (1999-2000)

Indicators	1999		2000	
	Number	Rate	Number	Rate
Stillbirth	280/2	7.1	273/4	14.6
Early Neonatal death	278/3+2**	18.0	269/ 1+2***	11.2
Perinatal mortality	280/2+3+2	28.5	273/4+1+2	25.6
Late neonatal death	278/ 2	7.2	269/0	
Neonatal death	278/5+2	25.2	269/3	11.2
Postneonatal death			269/1	3.7
Infant death	278/7	25.2	269/4	14.9
Cesarean section	278/20	7.2%	273/18	6.6%
Home birth	280/296	51.5%	273/285	51.3%

* Data for Sagarejo Rayon does not include Iormughanlo data with exception of home deliveries
** 1999 - 2 newborns transferred and died in children hospital (0 - 6 days)
*** 2000 – 2 newborns transferred and died in children hospital (0-6 days)

Sagarejo data more favorable in terms of compatibility with average national data. Due to relatively small number of birth the difference between 1999 and 2000 shouldn't be considered valid, but there is almost twice as much increase of stillbirth rate.

Table 13 Summary data comparing Telavi and Sagarejo* perinatal indicators with country data (1999)

Indicators	Sagarejo		Telavi		Georgia
Years	1999	2000	1999	2000	1999
Stillbirth	7.1	14.6	11.1	18.3	19.31
Early neonatal deaths	18.0	11.2	20.8	16.3	13.01
Late neonatal deaths	7.2	0	6.4	6.9	1.41
Neonatal death	25.2	11.2	27.2	23.3	14.42
Perinatal mortality	28.5	25.6	31.9	34.3	32.69
Postneonatal death	0	3.7	6.4	7.0	
Infant death	25.2	14.9	33.7	30.3	23.36
CS rate	7.2%	6.6%	13.7%	13.2%	6.9%
Home birth	51.5%	51.3%	6.4%	8.9%	3.9%

* Data for Sagarejo Rayon does not include Iormughanlo data with exception of home deliveries

A total 13 late abortions (Telavi –5 and Sagarejo –9) were noted at which gynecology log books were examined. We did not investigate the medical charts for these abortions and thus it was nor determined if any of these may have had a period of livebirth. Spot checks of gynecology log books in Sagarejo maternity have revealed "questionable" abortions recorded as 20-21 weeks gestation. As we mentioned physicians are still afraid of administrative punitive measures during the case reviews. However, the practice of recording late abortions in separate department creates a potential mechanism to under- report livebirth and early neonatal death .

Since perinatal death rates tend to fluctuate in a rural settings with small number of deliveries, therefore with smaller number the examination of annual perinatal mortality rates is less useful, however examination of the individual cases is beneficial.
Determining the types of complications that occurred, errors in management, causes of death and related avoidable factors provided useful information

Total 58 perinatal deaths were available for analysis – special stillbirth and neonatal death inquiry form was used (attachment 2) - comprising 15 stillbirth, 27 neonatal deaths (4

predisharched early neonatal deaths, and 16 transferred , 7 late neonatal deaths) and 6 stillbirth, 9 neonatal deaths(3 pre-disharched and 4 transferred early neonatal death, 2 late neonatal) in Sagarego. 8 postneonatal deaths in Telavi and Sagarego were also available for analysis.

Evaluation of anterpartum and intrapartum fetal deaths separately would be useful to more completely interpret the data but no intrapartum deaths were recorded either one of maternities during the observation period

Stillbirths

Total 21 stillbirths were reported at Telavi and Sagarejo maternities

Table 14 Age of patients with stillbirth - (Telavi Sagarejo 1999 –2000)

Age	Telavi		Sagarejo	
	1999	2000	1999	2000
<20				
20-24	4	4		
25-29	1	4		
30-34	1			
35+	1			
Total	7	8	2	4

Table 15 Parity of patients with stillbirth

Parity	Telavi		Sagarejo	
	1999	2000	1999	2000
0	1	4	1	
1	1	3		2
2		1	1	1
3	2			1
4+				
Total	7	8	2	4

The highest number of stillbirth was observed in age group 20-24, with parity 0-1.

Table 16 Prenatal care of patients with stillbirth

Number of prenatal care	Telavi		Sagarejo	
	1999	2000	1999	2000
0	2	3	1	1
1	1			
2		5		1
3	1			1
4	2		1	1
4+	1			
Total	7	8	2	4

33.3%- 7 women have had no prenatal care, 6 have had only 2 visits, 4 women complete the obligatory number of visits, and only 1 women have had more than 4 visits

Table 17 Complications of pregnancy and delivery of patients with stillbirth

Complications of pregnancy	Telavi		Sagarejo	
	1999	2000	1999	2000
Abruptio placenta	2	1		2
Uterine rupture				
Hypertension				
Eclampsia		1		
Anemia	1		1	1
ARI		2		
Cord prolapse		1		
Kidney infection		1		
Premature rupture of membranes		2		
Twins			1	
Without complications	4			1

Throughout pregnancy 5 women (23.8%) experienced hemorrhage due to abruptio placenta with emergency cesarean section, 1 women have had a eclampsia, 6 women (28.5%)) had intra uterine death without any associated pregnancy complications.

Table 18 Method of delivery of patients with stillbirth

Method of delivery	Telavi		Sagarejo	
	1999	2000	1999	2000
Cesarean section	2	2		1
Craniotomy	2	2		1
Spontaneous vertex	3	4	2	1
Breech				1

Most common methods of delivery of stillbirth were spontaneous delivery –(47.6%). Cesarean section were performed in 23.8% - in most cases emergency- due to mother condition (abruptio placenta)

Table 19 Birthweight of stillbirths

Birthweight	Telavi		Sagarejo	
	1999	2000	1999	2000
500-999	1	3		2
1000 – 1499		1		
1500 – 2499	2	3	2	
2500+	4	1		2

Birthright of 6 infants (28.5%)was not exceed 1000 gr. 14 infants (66.6%) were more than 1500 gr. and 6 of them(42.8) weighed more 2500 gr

Neonatal deaths

37 neonatal deaths were reported at Telavi and Sagarejo

Table 20 Time of neonatal death

Age	Telavi		Sagarejo	
	1999	2000	1999	2000
0-6 days	3	1	5	3
0-6 day *	10	6		
7-28 days**	4	3	1	1
Total	17	10	6	4

* children hospital

** children hospital and policlinic

Table 21 Age of patients with neonatal death - (Telavi Sagarejo 1999 –2000)

Age	Telavi		Sagarejo	
	1999	2000	1999	2000
<20	1	1	2	2
20-24	4	3		1
25-29	4	4	2	
30-34	5	1		
35+	3	1		
Unknown			2	1
Total	17	10	6	4

Table 22 Parity of patients with neonatal death

Parity	Telavi		Sagarejo	
	1999	2000	1999	2000
0	6	5	2	2
1	6	3	1	1
2	4	2		
3			1	
4+	1			
Unknown			2	1
Total	17	10	6	4

48 % cases of neonatal death occurred in age group 25-34 years with 63% of nullipara

Table 23 Prenatal care of patients with neonatal death

Number of prenatal care	Telavi		Sagarejo	
	1999	2000	1999	2000
0	7	1	3	
1	4	4		2
2	1	2	1	1
3	3	1		
4	2	1		
4+		1		
Unknown			2	1
Total	17	10	6	4

More than 64 % of women had only 0 –2 prenatal visits

Table 24 Complications of pregnancy and delivery of patients with neonatal death

Complications of pregnancy and labour	Telavi		Sagarejo	
	1999	2000	1999	2000
Abruptio placenta	5	3		
Placenta praevia	2	2		
Uterine rupture	1			
Hypertension				
Eclampsia	1			
Polyhydroamnion				
Anemia	2	1		
ARI				
Cord prolapse	1			
Kidney infection				
Fetal hypoxia	3		1	2
Premature rupture of membranes				
Manual removal of placenta	1		1	
Premature labor	8	9	1	1
Congenital anomaly			1	
Arrest of labor	2	6		
Twins				
Without complications				
Unknown			2	1

Majority of women had complications during delivery and labour. Most serious were abrubtio placenta or placenta previa - almost 22%, uterine rupture, eclampsia, premature labour – 33%, arrest of labour – 14%. As shown in the table the majority of deaths in early neonatal period occurred among low birth weight babies.

Table 25 Method of delivery of patients with early neonatal death

Method of delivery	Telavi		Sagarejo	
	1999	2000	1999	2000
Cesarean section	5	4		
Spontaneous vertex	5	3	4	3
Breech	2	2		
Forceps	1			
Ventouse	1	1		
Unknown			2	1

40.5% of women had spontaneous vertex delivery, with 32.4 % of cesarean sections mainly due to abruptio placenta.

Table 26 Time of neonatal deaths (days)

Rayon's	0-24 h	1 day	2 day	3 day	4day	5day	6day	7-28day	Total
	n /%	n /%	n /%	n /%	n /%	n /%	n /%	n/%	n/%
Telavi	10	5	2	1	1	2		6	27
Sagarejo	5	1	1				1	2	10

As table shows majority of deaths (60.6%) occurred during the first 24 hour – with substantial decrease on days later.

Because of absence of postmortem examinations of stillbirths and neonatal death cause of death were evaluated with obstetric and pediatric classifications categories for evaluation of primary causes of deaths (Scottish Program for Clinical Effectiveness – 1996) – Attachment 2

Details of stillbirth and neonatal mortality rates in Sagarejo by obstetric complication preceding the death are shown below.

Table 27 Stillbirths and neonatal death in Sagarejo by obstetric classification and time of death (1999 –2000)

Obstetric classification	Stillbirth	END	LND	Stillbirth*	Neonatal mortality**
	Numbers			Rates	
Congenital anomaly	1			1.82	
Isoimmunisation					
Hypertension of pregnancy					
Antepartum hemorrhage	2			3.65	
Trauma/mechanical	1	3	2	1.82	9.0
Maternal disorder		1			1.8
Miscellaneous					
Unexplained <2500	1	3		1.82	5.4
Unexplained >2500	1	1		1.82	1.8
Total	6	8	2	10.93	18.0

2 per 1000 total birth –547

**per 1000 live birth – 553

Leading cause of stillbirth by obstetric classification were antepartum hemorrhage (3.65/1000) followed by mechanical, congenital anomaly, unexplained (all 1.82/1000)
Leading cause of neonatal mortality was trauma –9.0/1000, followed by unexplained causes (5.4/1000)

Table 28 Stillbirths and neonatal death in Sagarejo by pediatric classification and time of death (1999 –2000)

Pediatric classification	Stillbirth	END	LND	Stillbirth*	Neonatal mortality**
	Numbers			Rates	
Congenital anomaly	1	1		1.8	1.8
Isoimmunisation					
Hypoxia/birth trauma	5	4		9.1	7.2
Lung immaturity		3			5.4
Hyaline membrane disease					
Intracranial					

Pediatric classification	Stillbirth	END	LND	Stillbirth*	Neonatal mortality**
	Numbers			Rates	
hemorrhage					
Infection			2		3.6
Other hemorrhage					
Other pediatric factors					
Unexplained					
Total	6	8	2	10.9	18.0

3 per 1000 total birth – 547
**per 1000 live birth – 553

Almost all birth among stillbirth are ascribed to hypoxia events (9.1/1000).
Among neonatal deaths – hypoxia/birth trauma (7.2/1000) with lung immaturity (5.4/1000) were the main contributors.

Table 29 Stillbirths and neonatal death in Telavi by obstetric classification and time of death (1999 –2000)

Obstetric classification	Stillbirth	END	LND	Stillbirth*	Neonatal mortality**
	Numbers			Rates	
Congenital anomaly	2			1.9	
Isoimmunisation			1		0.9
Hypertension of pregnancy	1	1		0.9	0.9
Antepartum hemorrhage	3			2.9	
Trauma/mechanical	2	4		1.88	3.8
Maternal disorder	5			4.8	
Miscellaneous					
Unexplained <2500	1	11	3	0.9	13.3
Unexplained >2500	1	4	3	0.9	6.7
Total	15	20	7	14.0	25.6

4 per 1000 total birth – 1067
**per 1000 live birth – 1052

Under the obstetric classification leading cause of stillbirth were maternal disorders –4.8/1000 followed by antepartum hemorrhage (2.9/1000), congenital abnormalities (1.9/1000), hypertension of pregnancy (0.9/1000)
Leading cause of neonatal mortality were unexplained reasons – low birth weight (13.3/1000), followed by unexplained with normal birth weight –6.7/1000 and birth trauma – 3.8/1000.

Table 30 Stillbirths and neonatal death in Telavi by pediatric classification and time of death (1999 –2000)

Obstetric classification	Stillbirth	END	LND	Stillbirth*	Neonatal mortality**
	Numbers			Rates	
Congenital anomaly	2			1.9	
Isoimmunisation			1		0.9
Hypoxia/birth trauma	13	9	3	12.1	11.4
Lung immaturity		9	3		11.4
Hyaline membrane disease		2			1.9
Intracranial					

hemorrhage					
Infection					
Other hemorrhage					
Other pediatric factors					
Unexplained					
Total	15	20	7	14.0	25.6

5 per 1000 total birth – 1067

**per 1000 live birth –1052

Under the pediatric classification causes of neonatal death in Telavi during 1999-2000 were included low weight birth and hypoxia/trauma (11.4/1000 and 11.4/1000 respectively) which make up almost 90% of all neonatal deaths, with hypoxia/birth trauma (12.1/1000) among stillbirths.

Outcome of twin deliveries

11 set of twins known to examiner as having been born during 1999-2000 in Telavi and Sagarejo is summarized in table (9 at Telavi and 2 at Sagarejo)

Table 31 Stillbirth and neonatal deaths by gestation for twins

Gestation (weeks)	Both twins died		Twin 1 died		Twin 2 died		Total
	SB	END	SB	END	SB	END	
Total			1	2	1	2	6
22-27			1	1	1	2	5
28 –36				1			1
37-41							

It has already been highlighted that prematurity is an important factor of mortality and table shows that of 6 deaths all occurred in babies born before term (37 weeks) and 5 occurred in babies born before 28 weeks.

Table 32 Number of livebirths, stillbirth and neonatal deaths at Sagarejo (1999-2000)

Birhtweight	Livebirth	Stillbirth	Neonatal deaths
500-999	1 (0.1)	1 (16.6)	1 (10.0)
1000-1499	4 (0.8)	1 (16.6)	3 (30.0)
1500 –2499	32 (5.8)	2 (33.4)	2 (20.0)
2500+	507 (93.2)	2 (33.4)	2 (20.0)
Unknown			2 (20.0)
Total	544 (100%)	6 (100%)	10 (100%)

Birthweight among livebirth in Sagarejo ranged from 600g to 4800g with a mean of 3336 g These data were normally distributed. The low Birthweight rate (<2500 g) among livebirth was 37(6.8%)and the very low birth weight rate (<1500g) was 0.9% -5 babies.

In contrast to the livebirth data 69.2% (9) of all fetal death weighed less than 2500g, and 15.3% (2) had weighed less than 1000g.

Overall fetal-infant mortality rate for this sample of population can be calculated as 29.0/1000

The contribution of birth in each birhtweight category to its overall feto-infant mortality rate is presented in table

Table 33 Birthweight specific mortality rate at Sagarejo (1999-2000)

Birthweight/live birth	Stillbirth	Neonatal death	Rate
500 –1499 / 5	2	3	714.2/1000
1500 –2499/32	2	2	102.5/1000
2500+ /507	2	2	7.8/1000
544	6	7	23.6/1000

Table 34 Number of live births, stillbirth and neonatal deaths at Telavi (1999-2000)

Birthweight	Livebirth	Stillbirth	Neonatal deaths
500-999	1 (0.2)	4 (26.6)	
1000-1499	6 (0.6)	1 (6.8)	4 (14.8)
1500 –2499	62 (5.9)	6 (40)	16 (59.3)
2500+	983 (93.3)	4 (26.6)	7 (25.9)
Total	1052 (100)	15 (100)	27 (100)

Birthweight among livebirth in Telavi ranged from 700g to 5200 g with a mean of 33546 g These data were also normally distributed, like in Sagarejo The low Birthweight rate (<2500 g) among livebirth was 69 (6.6 %)and the very low birth weight rate (<1500g) was 0.6% - 6 babies. Again, in contrast to the livebirth data 64.2% (27) of all fetal death weighed less than 2500g, and 9.6 % (4) had weighed less than 1000g.

Overall fetal-infant mortality rate for this sample of population can be calculated as 39.3/1000

Table 35 Birthweight specific mortality rate at Telavi (1999-2000)

Birthweight/live birth	Stillbirth	Neonatal death	Rate
500 –1499 / 7	5	4	692.3/1000
1500 –2499/62	6	16	470.5/1000
2500+ / 983	4	7	11.1/1000
1052	15	27	39.3/1000

This information would be useful in determining which type of intervention will have the most impact on reducing the feto-infant mortality (table)

Table 36 Feto –infant deaths

Birthweight	Late abortions (12-21 w)	Intrauterine Deaths (22-27 w)	Antenatal deaths (28+ wks)	Intrapartum death	Early neonatal death (0-6 days)
VVLBW (0-999)	Maternal Health	Maternal health			
VLBW (999-1499	Maternal Health				
IBW (1500 –2499)	Maternal Care	Maternal Care			Newborn Care
NBW (2500 +)	Maternal care				

Once the time of death-birthweight categories that should be targeted for interventions have been identified. Table 34 can be used to determine the type of intervention strategy – maternal health, maternal care, or newborn care – that would be greatest impact on reducing the feto-infant mortality rate.

Collected data appear to be of reasonable quality given the large range of birhtweight and the normal distribution. However, very low birthweight rates 0.9% in Sagarejo and 0.6% in Telavi were low that of Georgia rate -1.2% (MSIC – 2000) This differences may indicate some degree of underreporting of low birhtweight infants. Low birthweight rate - 6.6 % at Telavi and 6.8% at Sagarejo is close to national ratio (6.9%) MOLHSP-2000. If correctly reported, birth weight could be a sensitive indicator of the health and nutritional status of mothers at the time of birth.
Rates for feto-infant deaths weighing less than 1500g and 2500g were extremely high. Thus in addition to interventions targeting maternal and newborn care practices this preliminary data suggest that pre-preganat and prenatal maternal issues must also be ultimately addressed to improve the feto-infant mortality rate in this population. Treatment of infants with birth weights below 1500 – 1800 gram cannot be undertaken successfully considering inability to maintain such infant's body temperature, adequate ventilatory support and parenteral nutrition. Surfactant therapy is not available, parenteral fluid administration is limited by lack of central venous and arterial access and by the absence of infusion pumps.

In interpreting the feto-infant mortality findings it is important to remember that only one category of fetal death was reported – stillbirth . No intrapartum deaths were reported. Despite this limitation the high rate of feto-infant death weighing 2500 g or grater (11.1/1000 in Telavi and 7.8/1000 in Sagarejo) is striking and suggests the need for interventions targeting maternal delivery and newborn care practice. Pregnancies resulting in perinatal deaths have high complication rate. All of the intrapartum conditions associated with perinatal deaths could be recognized which will have allowed time for interventions that may have prevented perinatal deaths. During labour no action was taken in cases with poor progress and fetal distress was not timely recognized Recognition of problems during the first stage of labour however depends on correct notation and interpretation of the partogram, which unfortunately not in use at both maternities.

Proposed indicators for monitoring maternal/perinatal health outcomes and services

Pregnancy

Proportion of women who received pre-natal care
Number of visits per pregnant women
Proportion of women who received iron and foliate supplementation
Prevalence of anemia among pregnant women
Prevalence of STD among pregnant women
Percentage of women referred to delivery with home based record
Proportion of pregnant who were referred to higher level of care

Delivery
Indicators (near – miss cases)

1. Number of cases with preeclampsia (with hypertension not less that 160/100, proteinuria > 300 mg/24 hour

2. Number of cases with eclampsia
3. Number of postpartum hemorrhage required hysterectomy
4. Number of septic complications (t more than 38 degree – twice in postpartum period
5. Number of abruptio placenta and placenta praevia (surgery only)

Indicators (family oriented maternity care)

1. % CS
2. % of partogram use
3. % of episiotomies
4. % of breastfeeding in delivery room
5. % of oxitocin use for augmentation
6. % of women participating in family oriented maternity care

Indicators (perinatal care)
% of home deliveries
Maternal mortality ratio
Maternal mortality rate
Maternal mortality by cause
Neonatal mortality
Postneonatal mortality
Infant mortality

Postpartum
Mean length of stay in days for normal delivery
Percentage of women breastfeeding post -partum
Proportion of women who received post-partum family planning
Proportion of women with post-partum complications (hemorrhage, sepsis, gestosis,)
Proportion of women referred post-partum to higher level of care

ANNEX 1

Reccommendations

The findings of the assessment indicate that, despite problems with infrastructure and shortages of material resources, it is possible to provide a quality maternal and newborn health services at Telavi and in less extend at Sagarejo maternities.
The maternities have the capacity to: administer parenteral antibiotics; administer parenteral oxytocic drugs; administer parenteral anticonvulsants; perform manual removal of placenta; perform removal of retained products of conception; perform assisted vaginal delivery (e.g. vacuum extraction or forceps delivery); perform surgery (i.e. administer anesthesia, perform cesarean section, provide surgical treatment of sepsis, perform hysterectomy, repair cervical/high vaginal tears, and provide blood transfusion. These interventions are considered essential for the management of the major complications of pregnancy which account for the majority of maternal deaths.

Near miss cases
Complications at the severe end of the morbidity spectrum such as near miss death events are potentially useful health oiutcomes that can be measured at both maternities. A near miss death event is a severe life-threating complications necessitating complication necessitating an urgent medical intervention in order to prevent the likely death of the mother . The advantage of near miss death events over complications is that near misses are better proxy for maternal death while still occurring in large enough for statistical analysis.
The main requirements are

- the definition of severity must be agreed upon
- protocols to identify near miss death events must be developed these should be site-specific especially when retrospective data or treatment information are used

Development of evidence based guidelines /protocols
The current protocols\guidelines at both maternities are not based on evidence-based research. Preference should be given to the development of standard protocols/guidelines for newborn resuscitation and for the management of pre-eclampsia/eclampsia, followed by protocols/guidelines for the other obstetric emergencies, normal labour/delivery and newborn care. In particular, it may be helpful to introduce the use of a partograph to document the progress of labour. The protocols/guidelines should be based on the most up-to-date technical evidence-based information available, such as that provided by WHO or other international or national organizations or institutions.

Family oriented maternity care
The relationship found between patients and medical staff at Telavi and Sagarejo is unsatisfactory. The women themselves had (and still have) little to say. No visitors are allowed during labour and delivery or lactation because of fear of infection. Women are passive recipients of care. Patients are not informed of their options or involved in decision making related to their case They merely accepts the diagnosis and treatment and follows physician's instructions. Some useless routine intervention still in practice, like pubic shaving and administration of an enema; however, they have long been considered unnecessary. For example, randomized control trials have shown that enemas have no effect on the duration of labour or on neonatal infection or perineal wound infection. Although some women may ask for an enema, many may find them embarrassing. With respect to pubic shaving, there is no evidence to support that it reduces infection and facilitates

suturing. It may, therefore, be worthwhile to consider eliminating these procedures. A family oriented maternities should shift the purpose and focus of care on the patient. Health care providers will need to reform their attitudes by valuing a patient input, respecting personal concerns and tailoring care toward individual needs. It is necessary to conduct a orientation meeting with higher level of MOLHSP and directors of Sagarejo and Telavi regions in percepts of family oriented maternity care.

Prenatal care

Prenatal care is fragmented, simple practical checklist for risk assessment during prenetal care do not exist for use by midwifes in the periphery to identify women with characteristics that often lead to complications or the symptoms necessitating immediate attention at higher level of care.

Neither WC nor maternities in Telavi and Sagarejo didn't have written educational materials available for mothers like warning signs of complications of pregnancy, antenatal nutrition, preparation of birth, postnatal of care, breastfeeding, newborn care, family planning, STD/AIDS. Judging from discussions with Sagarejo and Telavi practitioners there is no vitamin/mineral supplementation provided to pregnant women. There is a need to improve antenatal care, with a view to ensuring that (a) all women seek this care early in pregnancy and attend the minimum recommended number of visits and (b) that all deliveries take place in maternities.

Also it is important to reduce LWB infants which accounted for majority of early perinatal deaths at both maternities. Strategy should be linked with four risk factors –early and closely spaced childbearing, smoking throughout pregnancy, late or no prenatal care, and poor maternal nutrition. These improvements should contribute to a decrease in perinatal and infant mortality rates.

It is necessary to upgrade the level of care provided by FAPs and ambulatory in redefine the obstetric risk assessment and referrals and prenaral care .

At the level of the FAP or ambulatory the midwife should be capable of providing more comprehensive prenatal care. Appropriate and practical risk assessment checklist can be developed for this level of care. Any treatment or characteristics of women which often lead to complications would be noted.

Transport and Coomunication

Due to difficulties to reach ambulatories in rural settings prenatal supervision of pregnant women is hindered. Catchments area in Telavi rayon is 70 km that requires 15-55 minutes to reach 14 ambulatory centers. In Sagarejo Rayon 15-90 minutes is needed to reach the most near and remote among 11 Ambulatory Centers. Health providers use public transport to visit ambulatories, that is an extra abuse for them.

It is recommended to provide maternal care service with a vehicle, that will be used for mobile team to visit ambulatories and for referral of high-risk pregnant within the rayon. During the discussions with local staff it was clear, that they will assure petrol and technical maintenance of the vehicle.

Home based records

The MOLHSP has a policy which states that hospitals must receive from women's consultations lists of all high risk women about to give birth. In practice, there lists are neither complete nor detailed enough to be useful.. The only information about a women's antenatal care available at the time of admission into labour is contained in the prenatal records kept by women's

consultation obstetrician. Unfortunately , in a significant number of cases, the records are not transferred to the hospital on time.
The development and implementation of home based pregnancy – birth – postpartum reproductive health record which would include precoded recording system and educational information for women (danger symptoms of complicated pregnancy) - as possible solution to this problem. Such a booklet could help motivate women to take responsibility for their own health Improvement of surveillance, detection and prevention of iron deficiency anemia in pregnant women

Anemia can seriously compromise the health of a pregnant women and success at childbirth. There is a serious concern within the health professionals of increasing number of women with anemia although accurate statistics are not available to describe the dimension of the problem. According to official data anemia rate during pregnancy estimated to be 22.8% (MOLHSP-1999) We have revealed higher rate at Sagarejo maternity records (up to 33%) Program assistance could be directed to rises the awareness of providers of the dangers of the anemia to pregnant women, routine administration of iron and folic acid supplementation for pregnant and surveillance of iron anemia within the population Technical reference sheets or posters could serve as aids to the providers.

Integration of STD treatment into services at FAPS and WCs
In Georgia reporting of HIV, syphilis, and gonorrhea is mandatory by law but these statistics reflect only patients who seek medical care and under-report those who avoid visiting a medical care provider and use self-treatment.
Since many women are asymptotic for certain STDs trained midwifes and obstetricians can screen clients while they seeking prenatal care. Given the dearth of laboratory equipment and supplies at FAPS and maternities (e.g. chlamydia is diagnosed only in a few laboratories), quick, simple and effective techniques to clinically diagnose and treat STD at this level should be introduced. The more difficult cases should be refereed . Treatment should also include strategies for personal risk assessment, prevention and informing and treating partners.

Redefinition of basic packages of services and standards for newborn care
Telavi and Sagarejo maternities have the capacity to provide essential newborn care (i.e. cord care; thermal regulation; early and exclusive breast feeding; initiation of breathing/resuscitation; eye care for the prevention and management of ophthalmia neonatorum; immunization (BCG) - except care of preterm and/or low birth weight babies). Results of assessment showed also the high rate of feto-infant death weighing 2500 g or grater (18.2/1000 in Telavi and 7.8/1000 in Sagarejo) that suggests the need for interventions targeting delivery and care not only preterm but a normal Birthweight newborns as well.

Neonatal deaths in Sagarejo and Telavi which occur in preterm infants however, and especially for very preterm infants (< 32 weeks), requires timely referral in utero to well equipped neonatal intensive care units. In addition, ensuring the provision of good quality antenatal care is an important preventive measure with respect to low birth weight and preterm infants and birth asphyxia. Unfortunately, at present time numerous problems continue to exist which prevent to delivery of care to such preterm infants

At both maternities standards of care in the form of protocols have been severely limited. There are no established referral patterns with neonates being moved to centers where appropriate care may not be available In addition there is no existing standard mode of transfer of infants from one

facility to another and infants are frequently transported by family members in taxi or private car with no medically-trained personnel in attendance. The transfer of mother prior to delivery or the planned delivery of the high-risk mother in the high level care is essential for optimum early institution of care. There must be also an adequate neonatal transport system for those infants who for whatever reason cannot be delivered at the regional center. Resuscitation is restricted by lack of trained personnel and appropriate supplies and equipment Oxygen positive pressure ventilation and equipment for endotracheal intubation must be present along with people who know how to use them. Electricity is almost not available and maternities have inadequate heating. Laboratory services are not reliably available or of sufficient quality to support a neonatal unit.

Educational Materials for Mothers

There is an obvious lack of educational materials for mothers about antenatal, intranatal, and postnatal issues. This activity will involve the development and testing of educational materials aimed at promoting good health during pregnancy, identifying risk factors early, and preparing women for the birthing experience. The materials should be designed for use during antenatal care visits (signs of pregnancy complications, nutrition, planning for delivery, newborn care, breast feeding, family planning) and at maternities after delivery. The materials could be provided to expectant mothers/mothers and also be used by staff as a basis for client/patient health education.

In - service training

Support for in-service training for the staff at maternities, related to changes in policies and protocols/guidelines. Preference should be given to in-service training aimed at updating the knowledge and skills of staff with respect to in family oriented maternity care, partogram during labour , neonatal resuscitation , and providing them with opportunities for regular refresher training to enable them to maintain their skills.

Improving Perinatal Mortality Surveillance

Categorizing livebirth by Birthweight and fetal and infant deaths by both time of death and birhtweight will provide an indication of what type of intervention strategy will be most effective in reducing the feto-infant mortality rates Currently livebirth fetal deaths occurring from 22 to 40 weeks gestation and neonatal deaths that occur before discharge or transfer are reported by maternity house. Children's hospitals and policlinics report total number of infants deaths only; there is no stratification by either birthweight or time of death.

Modification of this reporting system is proposed. First, infant deaths from all sources should be reported by birthweight. Although the current perinatal health care system is fragmented and birth records from maternity house may not be available to children's hospital reporting late infant deaths, a mechanism of obtaining birthweights for all infant deaths provided within the current health care utilization practices. Birthweight is currently recorded at children's policlinic during the initial registration visit. If an infant death occurs in a children's hospital and birthweight is unknown, the policlinic record should be contacted

Secondly, the current birhtweght can be modified slightly to include 500-999 – very very low birthweight (VVLB); 1000-1499 (VLB); 1500-2499 (MLB); 2500+ (NB); unknown birthweight.

Additionally, a modification of the current categories used for time of death is recommended. The proposed categories include:

1. Late abortions
2. Intauterine death – 22-27 week
3. Antenatal death 28+

4. Intrapartum death
5. Pre discharge infant death (maternity house)
6. Infant death – maternity house transfer – children hospital
7. Infant death – children hospital – new admission
8. Infant death – reported to policlinic

Because the data are currently being collected in aggregate only, it is important to collect data is as many discrete categories as may be potentially informative. Time of death categories can be combined later during the analysis phase. For example it may be useful to combine categories 5 and 6 as all pre-discharge deaths and categories 7and 8 as all post-discharged deaths to obtain more stable rates. The recommendation for collecting data on late abortions is included because as previously discussed one source of under-reporting both livebirths and fetal deaths may be detected here.

Data collection form has been designed and presented below

Complete data reporting form

*		1	2	3	4	5		6	7
Weight	Live birth	Late Abort. 12-21	Intra Uterine Death 22-27	Ante natal Death 28+	Pre-discharge deaths (0-6 days)	Transfer (Deaths in child hosp (0-6)	Transfer (Deaths in child hosp (7-28)	Inf.deaths in hospital (new) (28 – 1y)	Inf. deaths (report to p-c
0-499									
500 –999									
1000-1499									
1500-2499									
2500+									
Unknown birth weight									

*cells 1-4 to be completed at maternity
cells 5-6 to be completed in children hospital
cell 7 to be completed in policlinic

Further modification of current reporting system is possible via WHO Obstetric Quality Integrated Data form (OBSQID). Project has suggested a Perinatal Aggregated Data(PAD) sheet which is recommended for use in European Region.
Project has launched in Georgia recently. Several maternities were equipped with computers for this specific task. Workshop/consultancy need in order to determine which indicators will be in use.

ANNEX 2

Stillbirth and neonatal death enquiry form

Details of Mother

Name
Address
Case ref #
Date of birth
Marital status Single Married Widowed Divorced Other
Parity
Number of birth this pregnancy (singl. twin. etc)
Complications of pregnancy (specify)
Complications of delivery (specify)

Details of baby

Date of delivery
Time of birth (24 hr clock)
Date of death
Time of death (24 hr clock)
For stillbirth Death before labour Death during labour
Transferred after delivery
Place of death if transferred (specify)
Method of delivery
Birhtweight
Sex Male Female
Best estimate of gestation (weeks)
Birth order (if this multiple pregnancy)
Obstetric classification
Pediatric classification

ANNEX 3

Obstetric and paediatric classification - categories

Code Category

1-7 **Congenital anomaly**: any structural or genetic defect incompatible with life or potentially treatable, but causing the death

- 1 Central nervous system
- 2 Cardiovascular system
- 3 Renal
- 4 Alimentary
- 5 Chromosomal
- 6 Biochemical
- 7 Other

8-9 **Isoimmunisation:** death ascribable to blood group incompatibility

- 8 Rhesus incompatibility
- 9 Non-rhesus incompatibility

10-11 **Toxemia** : in deaths with antepartum hemorrhage secondary to toxemia, classify toxemia first

- 10 – Severe – diastolic of 110 mm Hg or more on two or more occasions after 20 weeks with proteinuria of 300 mg/24 hours or more
- 11 Other toxemia

12-14 **Antepartum hemorrhage**

- 12 Abruptio placenta
- 13 Placenta previa
- 14 Other APH

15-17 **Mechanical:** any death from uterine rupture, cord compression, birth trauma or intrapartum hypoxia that is associated with disproportion, malpresentation or breech delivery of babies 1000 g or more. Deaths from anoxia or cerebral trauma should be classified as Unexplained (codes 24-27) if three is no evidence of difficulty in labour.

- 15 Breech
- 16 Cord plolapse
- 17 Other mechanical

18-22 **Maternal disorder**

- 18 Maternal trauma
- 19 Essential; hypertension
- 20 Diabetes
- 21 Abdominal operations in preganacy
- 22 Other(including maternal infection)

23 **Miscellaneous**

- 23 Specify

24-27 **Unexplained**

- 24 Birhtweight <2500 before 37 weeks
- 25 Birthweight <2500 at 37 weeks or over
- 26 Birhtweigt 2500 or over before 37 weeks
- 27 Birthweight 2500 or over at 37 weeks or over

Pediatric classification

Code Category

1-7 Congenital anomaly

1. Central nervous system
2. Cardiovascular system
3. Renal
4. Alimentary
5. Chromosomal
6. Biochemical
7. Other

8-9 **Isoimmunisation**

8 Rhesus incompatibility
9 Non-rhesus incompatibility

10-11 **Intra uterine anoxia**

10 Antepartum
11 Intrapartum

12 **Birth trauma** – (serious damage to falx, great cerebral vein, cervical spine, rupture of liver or avulsion of spleen in the absence of clinical or post-mortem evidence of severe fetal anoxia)

12 (Specify)

13 **Lung immaturity** <27 weeks

13 Structural lung immaturity sufficient to render ventilation impossible

14-15 **Hyaline Membrane Disease**

14 HMD with significant intraventricular hemorrhage
15 HMD without significant IVH

16-20 **Intracranial Hemorrhage**

16 IVH (in the absence of potentially lethal HMD)
17 IVH (in a baby who never had HMD)
18 Subarachnoid hemorrhage
19 Subdural hemorrhage
20 Intracerebral hemorrhage

21-24 **Infection**

21 Necrotising enterocolitis (NEC)
22 Antenatal
23 Intranatal
24 Other postnatal infection

25-27 **Hemorrhage** (other than intracranial)

25 Disseminated intravascular coagulation
26 Pulmonary – massive intra-alveolar
27 Other hemorrhage

28 **Other pediatric factors**

28 Specify

29 **Unexplained** (sudden infant death syndrome)

29 Specify

ANNEX 4

List of contact persons

Telavi Rayon:

Avto Kambarashvili	Telavi Rayonal Chief OB/Gynecologist, Head of The Telavi Maternity House
Tamila Teimurazashvili	Head of the Kakheti Regional MCH Department, Child Health Care Center" Director (former Polyclinic- hospital unification)
Natela Kizilashvili	Head of the WC center
Manana Knanonaidze	Neonatal department, Telavi Maternity House
Marina Pruidze	Head of the OB/Gyn department, Telavi Maternity House

Sagarejo Rayon:

Mamuka Khoshtaria	Sagarejo Rayonal Chief OB/Gynecologist
Tamaz Tskhvariashvili	Head of Sagarejo Maternity House
Tsitsino Giunashvili	Gynecologist, WC at the Ambulatory-Policlnic Unification
Nana Tseradze	Gynecologist, WC at the Maternity House, Iormughanlo Ambulatory-Policlinic Unification

ANNEX 5

Terms of Reference for Short Term Local Technical Assistance

Support for the Analysis of the Maternal and Perinatal Health situation in Kakheti Region

Background

A Project supporting the Georgia Safe Motherhood Initiative, which started in October, 2000 is funded by USAID/Caucasus (TASC order RFP No. 114-00-005). MSH (Management Sciences for Health) will implement project in partnership with The Program for Appropriate Technology in Health (PATH), Emory University/CDC WHO Collaborating Center for Perinatal Health Services Research, and Curatio International Foundation (CIF).

The purpose of the Georgia Safe Motherhood Initiative (SMI) activity is to improve maternal and infant health in Georgia through the strengthening of integrated maternal and perinatal health services. The project will assess the quality of perinatal services provided and begin to support the transformation of the existing system of women's care into a more integrated and effective system. This will be result in the delivery of continuous, high quality, and patient-oriented services; and increase women's awareness of the importance of perinatal care for themselves and their child's health. The project will direct its activities to the regional and local level. This strategy fully supports the Ministry of Labor, Health and Social Protection policy of strengthening primary health care.

Georgia Safe Motherhood Initiative Project activities will be implemented in Telavi and Sagarejo Rayons of Kakheti Region.

The project is organized into three inter-linked components dealing with:

1. Management and Information system development
2. Community mobilization and provider-client interactions
3. Enhancement of maternal and perinatal clinical performance

Management and Information system development

It is intended that this project will demonstrate how clinical data can be used to provide a relatively complete picture of the health of mothers and their infants, and the outcome of pregnancy. Using essential indicators, for which data is known to be available within the facilities of the participating regions, it will be possible to define the routine data collection system for maternal and perinatal monitoring and to develop and set up maternal/perinatal database.

Community mobilization and provider-client interactions

The Project will support activities to increase community access to accurate, relevant, and timely information concerning pregnancy and reproductive health and life style factors. The focus of this informational effort will be: improvement of the counseling that takes place between health providers and women during the course of their pregnancies and in the post-natal and post-partum periods; introducing information on safe motherhood and reproductive health within villages and municipalities through local community mobilization

Enhancement of maternal and perinatal clinical performance

The Project will provide support for clinical procedure improvements in antenatal, perinatal and postnatal care services through sets of activities: Assessment of the Perinatal Health Care System, Development of Perinatal Guidelines, Clinical Protocols and Educational Modules, Provision of training activities.

Objective of the Consultantship

The objective of this consultantship is to carry out a situation analysis of the reproductive and perinatal health situation in Telavi and Sagarejo Rayons, in close collaboration with regional Safe Motherhood Project Team in order to identify priority health problems, their underlying causes, and to provide recommendations for interventions and preventive strategies. The specific tasks of the consultantship include:

- To identify the most common disorders of pregnancy and delivery for the past two years (1999 and 10 months of 2000).
- To obtain complete data regarding outcomes of all registered pregnancies that includes for all deaths and survivors (stillbirths, live births, early neonatal and neonatal deaths) the date of delivery, the birth weight, and the date of death. This data should cover deliveries for all of 1999 and 10 months of 2000.
- To analyze the resulting data and identify priority health and service delivery problems.
- To propose indicators for monitoring maternal / perinatal health outcomes and services.

Activities:

Working closely with the Regional Safe Motherhood Project Teams and the CIF project staff:

- Collect all relevant regional data with the help of regional teams and Curatio project staff;
- Review pregnancy registration in women's consultations, birth/death logs in maternity houses and admission/death logs of children's hospital and other facilities where referrals occur (preparatory work will be conducted by the regional working teams).
- Analyze the resulting information to determine the maternal health priorities and service provision failures.

Deliverables

A draft of the final report to be shared with the Regional Teams for their comments/inputs. The final report is to be delivered to the Project Director.

The Consultancy Report should address (but need not be limited to) the following topics:

1. Problems related to negative pregnancy outcomes.
2. Problems in recording / reporting of pregnancies and pregnancy outcomes for the region.
3. Suggestions for the development of a maternal/perinatal health surveillance system, including a list of practical indicators.
4. Data presenting demographic and reproductive health issues (e.g. birth and death rates, including those occurring at home, case-specific death rates, abortion rate, complications of pregnancy, etc.) for the 1999 and 10 months of 2000.
5. A list of the most common disorders of pregnancy and delivery during 1999 and 10 months of 2000, and a list of maternal health priorities that influence pregnancy outcomes.
6. Strategies recommended on the basis of data analyzed regarding birth weight -specific outcomes of all registered pregnancies that include all deaths and survivors (stillbirths, live births, early neonatal and neonatal deaths) for the 1999 and 10 months of 2000.