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**Pregnancy Monitoring: Towards Reducing Maternal and Infant Mortality
in Sub-Saharan Africa**

Progress Report: October 1983-September 1984

December 1984

FAMILY HEALTH INTERNATIONAL
RESEARCH TRIANGLE PARK, NC 27709, USA

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I. SUMMARY

In October, 1983, Family Health International agreed to conduct a series of research projects to obtain information on pregnancy care and childbirth in selected sub-Saharan African populations. The proposed program included four country projects.

During the period covered by this report, FHI identified and developed country-specific projects in Senegal, Ivory Coast and Zaire (detailed protocols are given in Appendix A). Data collection instruments to obtain information on provision of obstetric services and treatment of pregnancy wastage as well as associated questionnaires to collect data on mortality among reproductive age women and infants/young children have been developed and pretested (Appendix B). Software for processing and analyzing data have been developed. FHI has conducted site visits to recruit and train project staff, and initiate data collection activities for each project (trip reports in Appendix C).

II. GENERAL BACKGROUND AND PROJECT GOALS

Family Health International designed the Sub-Saharan Africa Pregnancy Monitoring program to obtain information on pregnancy care and family planning needs in selected African countries considered to be priority areas for health and population assistance by the U.S. Agency for International Development.

Research findings from each of the country projects will be shared with government policy-making officials, health care providers, and international donor agencies. The broad goal of this program is to assist in the design of appropriate service delivery and training programs to improve maternal and child health. Areas that can be addressed through study findings include better utilization of limited medical personnel, hospital facilities and traditional birth attendants (TBAs); improved prenatal screening; and better counseling and services for birth spacing.

Most African countries have come to realize that health for all cannot be achieved simply by increasing the number of hospitals and health care providers. Throughout the Sahel, poor and deteriorating economic conditions emphasize the need for comprehensive health and family planning policies. In times of economic austerity, policymakers and economic planners are looking for ways to achieve better utilization of existing resources to improve health. In most African countries hospitalization for pregnancy related reasons currently makes up the largest portion of care needed by and provided to women. These services also constitute a substantial proportion of all hospital-based health care. Decreasing the risks associated with early, late, numerous or closely spaced pregnancies is a serious concern among those involved in the delivery of health care. Consequently, birth spacing as a health measure for both mothers and their infants is becoming an increasingly accepted concept in many African countries.

Few countries in Africa have recent or reliable information on the health of parturient women to allow in-depth study of pregnancy-related morbidity and mortality. The pregnancy monitoring program was designed to fill this need in selected countries and sub-regions. The research collects a wide range of clinical and sociodemographic information through the administration of questionnaires to women who receive pregnancy-related care in a variety of institutions ranging from government and university teaching hospitals in major cities to health huts in remote rural areas.

General program objectives are:

1. To obtain information on pregnancy care and family planning services in selected countries in sub-Saharan Africa by collecting data on an estimated 25,000 pregnancy outcomes.
2. To analyze these data for use by health care providers and policymakers.
3. To conduct seminars in participating countries to present project findings and encourage the use of these findings to

improve resource management and patient care.

4. To establish in each participating country a maternal and child health advisory committee to demonstrate to their governments the need to provide family planning information and services to those who want them as a means to improve the country's quality of life and socioeconomic development.

III. DEVELOPMENT ACTIVITIES

The first phase of this program concentrates on three study sites. They are the rural Ubangi Monganza region in the northwest Equateur province of Zaire, the Sine Saloum region of central Senegal, and the Ivory Coast's capital and largest city, Abidjan. In selecting the study sites, a number of factors were taken into consideration. Criteria included: (1) the overall significance of the project, (2) the ability to collect information on deliveries occurring in non-institutionalized settings, (3) the administrative and technical skills of those managing a project, and (4) the potential policy impact of the project on health care delivery.

Three study sites were selected after a number of contacts and negotiations including several site visits by FHI technical staff. During these visits, information was gathered for the design of country-specific protocols. Each study focuses on pregnancy surveillance, but each has additional service, research and training objectives.

The development of the various data collection instruments to be used in the studies was accomplished during the period covered by this report. The principal questionnaires for the surveillance of pregnancy outcomes represent a new generation of FHI monitoring instruments. They have been designed to monitor all pregnancies (e.g., pregnancy wastage as well as obstetric delivery) occurring within a defined catchment area. They collect information on a patient's reproductive history, prenatal care and conditions, pregnancy outcome, complications and treatment, and previous and planned contraceptive use. Information on sources of methods used and planned, and reasons for non-use are being collected. In addition, the pregnancy surveillance questionnaires incorporate questions on the referral status of patients across levels of the health care infrastructure. This will enable investigators to learn more about the incidence of high-risk pregnancies and the effectiveness of referrals and whether treatment is given at the appropriate level.

Recognizing that the great majority of pregnancies in sub-Saharan Africa are not attended by medically trained persons under clinical conditions, FHI has developed a birth registry to be completed on the basis of oral reports from traditional birth attendants or village health workers. These record summary information relating to pregnancy outcomes at the village level. Data collected in this manner will complement the information reported on the detailed obstetric surveillance questionnaire, and provide a representative picture of regional pregnancy outcomes.

In addition, questionnaires on causes of death have been developed for specific country projects. Using existing FHI hospital death report forms and symptom questionnaires from Reproductive Age Mortality Studies, new data collection instruments have been designed to assess causes of death to women of childbearing age at both hospital and non-institutionalized (village) levels in Senegal.

Multiple pretests of the various questionnaires have been conducted by physicians, nurse midwives and other health workers at the three designated country sites, and also in other countries in English- as well as French-speaking Africa.

Software programs have been developed for the processing and analysis of data collected by the above questionnaires. A detailed loading program for the pregnancy surveillance form has been written, tested on FHI's mainframe in-house computer, and used for the creation of an analysis program for preliminary data received from the Ivory Coast. Analysis programs have also been prepared to provide standardized tables for pooled as well as center-specific data sets. Planned for late 1984 is the adaptation of data loading and analysis software for microcomputer application, to be used for in-country data processing in the recently initiated Senegal project.

The following section gives a brief description of each of the three country projects initiated during FY84.

IV. COUNTRY PROJECTS

A. Senegal: Obstetric Surveillance and Determinants of Mortality to Women of Reproductive Age

1. Background and Rationale

To gain a better understanding of the complex factors affecting maternal and child health in rural Senegal, this project has been designed in collaboration with Senegalese health researchers and service providers. It collects and analyzes information on obstetric care and mortality among women during the childbearing years. Senegal, particularly the Sine Saloum Medical Region, was selected for inclusion in this program for several reasons. A predominately Muslim, francophone nation with traditional high fertility and low levels of contraceptive use, Senegal's Total Fertility Rate (6.5 births per woman by the end of her childbearing years) and Infant Mortality Rate (146 per 1000 births) are considered high even by African standards. In 1980, longstanding pronatalist legislation restricting the importation and sale of contraceptives was repealed. Family planning activities quickly expanded, though principally in urban areas and through the private sector. The Ministry of Health actively supports the provision of family planning in the broader context of family welfare. The Sine Saloum region is predominantly rural. Only limited information on maternity care and the use of contraceptive services is available. Since 1978, a USAID-supported primary health care project has provided assistance to reinforce the health infrastructure of this region. Evaluation of maternity care services is seen as an excellent opportunity to measure how well the population has been reached by this large-scale health project. FHI, USAID and local health authorities have had a longstanding interest in identifying causes of death to reproductive age women in Senegal, a vital first step in the design and implementation of service delivery programs to reduce deaths resulting from preventable causes.

2. Objectives

The goals of this project are to obtain policy-relevant information on the integration of family planning services into maternal and child health care activities as currently provided in the region. In addition to addressing a series of research issues concerning pregnancy-related care and maternal outcomes at various levels of the existing health care system, the study will document the level and causes of mortality among reproductive-age women to identify preventable causes of death. A second goal is to improve the quality of health service statistics through the design and implementation of a uniform reporting system for obstetric care which can serve as a model for the entire country. Specific objectives are:

- To collect and analyze data from a representative sample of deliveries occurring to women at all levels of the health care institutions in the region, including health huts,

health posts, health centers and the regional referral hospital.

- To study causes of death among women of reproductive age over a period of one year, including deaths occurring outside of as well as within health care institutions in the study area.
- To improve the health statistic system for maternal child health care and vital statistics in the project area.

In meeting these objectives, the project will provide policy-relevant information on the factors associated with unsuccessful pregnancy outcomes compared with normal deliveries, and mortality among women of reproductive age.

3. Institutional Collaboration

In the execution of this two-year project, FHI has made subgrants to two Senegalese governmental organizations. The Medical Region of the Sine Saloum is responsible for the collection of obstetric data at each level of the health care infrastructure. Information on deaths to reproductive age women, as reported by surviving family members to a trained interviewer, is collected by the Division des Etudes Demographiques (DED) of the National Direction de la Statistique. The DED (also known as the Bureau National du Recensement) also receives, processes and analyzes the data collected under both phases of the project. Directing these activities is Mr. Fara Guedel Mbodji. As part of the institutional collaboration characterizing this project, the DED will receive (under a separate grant) a Texas Instruments business systems microcomputer, with appropriate software and training. Use of this equipment will not be limited to the present study.

4. Project Description and Implementation

In this project, pregnancy monitoring information will be obtained from an estimated 6500 deliveries occurring at various levels from the regional referral hospital in Kaolack to home deliveries in rural areas attended by traditional midwives and recorded at village health huts. Data will be collected on FHI's Pregnancy Surveillance Form or, in the case of births reported at the village level, a summary Registry of essential information relating to the delivery. Deaths to women of reproductive age are reported to the Medical Region by means of a reporting card completed at the relevant health care level. Each death is investigated by a trained interviewer using a detailed, open-ended questionnaire that allows sufficient descriptions of symptoms for a panel of physicians to establish a diagnosis of cause of death.

It is anticipated that data collection will be completed during the second year of the project. Questionnaires will be transferred on a monthly basis from the Medical Region to the Dakar offices of the DED, where they will be processed and analyzed. Interim reports will be prepared by the collaborating subgrantee agencies, with technical assistance from FHI. A final

report summarizing project activities and findings will be prepared at the close of the subgrant and will be used in the evaluation of pregnancy care services and the design of an effective health vital statistics system for use in the Sine Saloum and ultimately throughout Senegal.

During the time period covered by this report, the subgrant was drawn up and approved by the implementing agencies; a project workplan was finalized; study questionnaires were prepared, pretested and printed; on-site training was conducted in data collection procedures; and the study was initiated. Site visits by FHI project monitors occurred several times during the period.

B. Ivory Coast: Pregnancy Care Surveillance in Abidjan

1. Background and Rationale

In order to achieve a better understanding of the delivery of pregnancy care services in an urban setting, a monitoring project has been established in Abidjan, the capital of the Ivory Coast.

The Ivory Coast was selected for this study because of the potential policy impact of the project. The magnitude of the study and the project setting also contributed to the site's selection. In Abidjan, the vast majority of parturient women come to a maternity or a hospital either to deliver or to register a baby born at home in order to obtain a birth certificate. A very large proportion of women have at least one prenatal care visit. Obstetric care is provided to women in either one of the 11 maternities of the city or one of the two referral hospitals which are the only locations where a woman can have a cesarean section or other surgical treatment.

Ivory Coast, like its neighboring countries, has given priority to improving the health of its people, in particular that of mothers and children. However, the contribution that high fertility makes to maternal and infant morbidity and mortality is not well understood. Fertility continues to be high throughout the country. Recent estimates indicate a Total Fertility Rate in Abidjan in excess of 5.5 births per woman, compared with 5.34 births per woman reported in the 1963 Census. Age-specific fertility rates have remained at near-constant levels over the past twenty years, falling slightly among 15-19 year age group but rising among 25-29 year-olds. Along with high fertility, the Ivory Coast has moderately high levels of infant mortality and morbidity. A demographic survey in Abidjan (Enquete a Passage Repete 1978-79) reported an Infant Mortality Rate of 65 per 1000 live births. Over 50 percent of infant deaths occur during the first month of life, with the great majority of these taking place during the first week. For this reason, the care provided to the neonate while still in hospital or maternity center is likely to have an important impact on his/her chances for survival in the critical first days and weeks of life.

In addition to reported high rates of neonatal and maternal morbidity and mortality, there is also anecdotal information of a growing incidence of illegal abortions, particularly among unmarried adolescents who have no access to contraceptive services. The proportion of scarce health resources which go to treat these young women for abortion complications, and to what degree poorly performed illegal procedures contribute to pregnancy-related morbidity and mortality, is unknown.

It is expected that the data collected in this study will be used in three ways: research - as a foundation for planning service programs in health and family planning; training - for clinical and record keeping purposes and for teaching medical students and trainee midwives appropriate clinical management of complicated cases; and administrative - to monitor resources' utilization to optimize their use.

2. Objectives

The purpose of this study is to collect and analyze data on pregnancy care to assess the impact of resource distribution in the delivery of health care services, to explore the effectiveness of programs to identify and refer high risk pregnancies to appropriate levels, and to assess the impact of childspacing practices, antenatal care and institutionalized treatment on the health and well-being of mothers and their newborn infants. Specific program objectives are:

- To collect data on a representative sample of obstetric deliveries in maternities and referral hospitals in Abidjan.
- To examine the factors associated with morbidity and mortality among women hospitalized for complications of pregnancy wastage.
- To improve and regularize a uniform statistics system for hospitals and centers providing pregnancy related care.

In meeting these major objectives, this project will provide policy-relevant information on the factors associated with poor pregnancy outcomes and will help to establish a permanent pregnancy care monitoring system that can serve as a continuing source of information for health planning and evaluation.

3. Institutional Collaboration

This project is being conducted in collaboration with the staff of the two University hospitals in Abidjan, the Centre Hospitalo-Universitaire (CHU) Cocody and CHU Treichville. The CHU Cocody Director of Ob/Gyn is Prof. M. Sangaret. This hospital is responsible for providing backup services for seven maternities in the city. The other hospital, CHU Treichville, provides back up services for the other four maternities in Abidjan. The Ob/Gyn service is directed by Dr. S. Diarra who is also Director of the School of Midwifery. Both professors are keenly interested in

improving maternal and child health services in the Ivory Coast. Other institutions invited to collaborate in this project include the division of MCH services of the Ministry of Health and the National Institute of Health Statistics.

4. Project Description and Implementation

Using FHI pregnancy monitoring data collection instruments, this project will collect prospective data on a representative sample of women hospitalized for obstetric care at maternity centers and hospitals in Abidjan over a twelve month period. Outcomes of approximately 15,000 pregnancies (out of an estimated 100,000) will be monitored at thirteen centers in the capital city. During the final six months of data collection, information will be recorded for all women receiving treatment for abortion-related complications at the participating study centers.

The project was initiated in June 1984 at the two referral hospitals and two selected maternities. Data collection was expanded to include the remaining nine maternities during October 1984, and will continue for twelve months at all sites. Preliminary tabulations of data collected during the pilot period (June to October) will be available in early 1985.

C. Zaire: Traditional Birth Attendants and Pregnancy Care Monitoring

1. Background and Rationale

Though endowed with vast untapped natural resources, Zaire is one of Africa's poorest countries, with an estimated per capita income (1982) of \$190. Its fertility is among the continent's highest, resulting in an annual rate of natural increase approaching three percent. Infant mortality is also high: roughly one out of every eight live births does not survive the first year of life.

The study is being conducted to provide a more complete picture of the factors which affect pregnancy outcome, maternal and infant mortality, and the effectiveness of TBAs in providing pregnancy care in a rural population.

This project will obtain information to enable health planners, administrators, policymakers and researchers to improve maternal and child health in rural areas of Zaire. It will also examine the role of paramedical personnel in the provision of pregnancy care and study the relationships between the formal and informal health service delivery systems.

The Karawa hospital was selected as a site for this study for several reasons. It is the only major referral hospital in the region, and thus permits comparatively easy study of patient referral and transfer patterns. In addition, the center is one of the national coordinating hospitals for a USAID-supported primary health care project (SANRU), which includes training of TBAs. An

existing supervisory and monitoring system for the TBAs will facilitate data collection on home deliveries.

Findings will be shared with the staff of the Karawa Hospital, the SANRU Project, International Training for Health (INTRAH) and the American College of Nurse Midwives (ACNM). Results will be useful in designing training programs and to suggest ways of better integrating traditional birth attendants into outreach service delivery programs of rural hospitals.

2. Objectives

This study will collect data on women receiving pregnancy related care at the major referral hospital in Karawa, Zaire over a one year period. Because a high proportion of maternity care services is provided in the villages by traditional birth attendants (TBAs), data will also be collected on home deliveries attended by trained TBAs using a newly developed Registry based on oral reports. Infants in the home delivery cohort will be followed up during the study period to estimate the rate of infant mortality. The principal objectives of this project are:

- To test a new methodology for collecting information on deliveries attended by TBAs in a rural setting, and to determine whether or not TBAs can identify and refer women with high risk pregnancies.
- To study the factors affecting maternal and perinatal morbidity and mortality among obstetric patients in a rural area of Zaire.
- To estimate the infant mortality rate and determine the causes of death among infants whose deliveries were attended by or who were referred by TBAs.
- To study the factors affecting morbidity and mortality among women hospitalized for complications of pregnancy wastage, to study the resources used in treating these women during their hospitalization and to compare these resources with those used in caring for obstetric patients.

3. Institutional Collaboration

There are several levels of institutional collaboration associated with this project. FHI has a longstanding relationship with the Karawa hospital in the monitoring of maternity care. In addition, TBAs participating in the study are trained at the hospital as part of the SANRU project, using staff and consultants of the ACNM under a grant from INTRAH.

4. Project Description and Implementation

Data collection related to hospital and home deliveries began in July 1984 and will continue through June 1985. Infant follow-ups will continue for an additional twelve months to provide

prospective data on a full year's deliveries. It is anticipated that data will be collected on 2500 hospital deliveries, 1000 TBA attended deliveries and 350 cases of pregnancy wastage. The project was initiated by an FHI staff member and a consultant from the ACNM to train the principal investigator and other hospital staff in data collection. A second site visit will be made to reinforce the original training and to train the investigator and hospital staff in the use of the data collection instrument related to pregnancy wastage cases.

During the period covered by this report, information has been gathered on approximately 400 hospital deliveries and about 300 TBA deliveries. Preliminary analysis by FHI staff is under way. Data collection on pregnancy wastage cases is scheduled to begin in January 1985.

V. FUTURE PLANS

During FY85, FHI will continue with data collection activities for these projects in Senegal, Ivory Coast and Zaire. Continued monitoring visits will be made by FHI technical staff and consultant specialists. During these site visits, plans will be made for the reporting and dissemination of study findings and discussions will be held on their policy implications for pregnancy-related health care programs.

FHI intends to assist in the establishment of Maternal and Child Health Advisory Committees in participating countries. These will be composed of leading clinicians, health policymakers, and economic planners who will demonstrate to their governments the implications of high fertility on maternal and child health, and the need to improve the delivery of health care and family planning services, particularly in rural areas.

To continue this important work in additional countries in sub-Saharan Africa, FHI plans to seek further support from AID and other donor agencies. Preliminary development work in Nigeria, Sudan, Niger and Somalia indicates that regionally based pregnancy monitoring studies could have substantial impact on the delivery of services in these countries. Requests for technical and financial assistance for this kind of research have been received from numerous countries in Africa. With continued funding, FHI hopes to develop and implement additional studies throughout Africa which will contribute to our understanding of the relationships among pregnancy outcome, family planning and maternal and child health.

VI. FINANCIAL REPORT

Total costs for the program were projected at \$592,210 over a period of 3 years (Appendix D). At the beginning of fiscal year 1984, the U.S. Agency for International Development, through the Africa Bureau's Family Health Initiatives project, made \$200,000 available to Family Health International for partial support to these activities. FHI submitted a workplan for FY 1984 (Appendix E). In January 1984, AID requested a justification for the proposed utilization of the funds made available to FHI and a budget was submitted on January 25, 1984 (Appendix F).

In support of the activities described earlier, FHI has spent a total of \$153,882 through September 30, 1984. Of this amount, \$63,988 was used for general development activities and \$89,894 was spent on the three specific projects described in the preceding sections. Data collection activities for all three country projects began during the last quarter of the reporting period. The field expenditures for FY 84 were \$18,000 of the total funds spent on the three projects (\$89,894). A total of \$120,201 is currently committed for in-country data collection costs in Senegal, Ivory Coast and Zaire, out of a total projected cost of \$592,210 for the program through FY 1986.

Table 1 shows how the Africa Bureau Family Health Initiative project funds were budgeted and spent. The total amount spent by FHI during FY 1984 for each line item and the amount contributed by FHI through its grant PHA-G-1198 are also presented.

Table 1. Family Health Initiative Funds Budgeted and Spent - Cofunding Family Health International PHA-G-1198

	<u>Africa Bureau Family Health Initiatives Project</u>		<u>Family Health International Co-Funding PHAG 1198</u>	<u>Total</u>
	<u>Budgeted</u>	<u>Spent</u>	<u>Spent</u>	<u>Spent</u>
General Development*	\$15,000	\$15,000	\$48,988	\$ 63,988
Senegal Project*	30,000	30,000	6,652	36,652
Ivory Coast Project*	35,000	34,186	-	34,186
Zaire Project*	14,000	14,000	5,056	19,056
Total	\$94,000	\$93,186	\$60,606	\$153,882

* Detailed expenditures given in Appendix G

Table 2 shows FHI's projected expenditures for the first year of the program and what where the actual expenditures for the entire program by line item. During FY 1984, the program has progressed as planned. Field operations started on schedule. The lag time in submitting expense reports from the field to FHI, accounts for the lower than expected field costs at the end of the fiscal year. This is particularly noticeable since FHI reimburses expenses incurred. Also during the early months of the data collection, the three projects have operated in pilot phases with minimal expenses.

Preparation for data analysis has progressed ahead of schedule as reflected in the larger than expected "in-house" costs, mostly computer charges to develop the necessary software to process the data. In addition, all project medical equipment and office supplies (scales, blood pressure cuffs and forms) were purchased in bulk at the outset of the program, and will be distributed during the course of each of the country projects.

Table 2. Projected and Actual Expenditures for Fiscal Year 1984

	<u>Projected</u> All Sources FY 1984	<u>Actually Spent</u> All Sources FY 1984
Salaries and Wages	\$ 35,145	\$ 37,649
Fringes and Benefits	7,908	8,585
In-House Associated Expenses	25,192	51,120
Field Costs	30,000	18,000
General & Administrative Costs	26,288	38,528
Total	<u>\$124,533</u>	<u>\$153,882</u>

Table 3 shows the planned expenditures by program component for FY 1985. FHI expects to spend \$199,931 during this period to proceed toward completion of the three ongoing projects. Originally the program included plans for a fourth project to be initiated during FY 1985. However, the limited availability of funds to Family Health International to support this activity does not permit initiation of any additional projects during FY 1985.

Table 3. Planned Expenditures by Program Components for Fiscal Year 1985

	<u>Africa Bureau</u> <u>Family Health</u> <u>Initiative Project</u> <u>Budgeted</u>	<u>Family Health</u> <u>International</u> <u>PHAG-1198 Co-funding</u> <u>Budgeted</u>	<u>Total</u> <u>Budgeted</u>
General Development	-	\$13,009	13,009
Senegal	\$ 31,000	36,665	67,665
Ivory Coast	55,000	33,789	88,789
Zaire	20,000	10,468	30,468
Total	<u>\$106,000</u>	<u>\$93,931</u>	<u>\$199,931</u>

In summary, FHI expenditures and plans for each project are as follows:

Senegal

FHI has committed \$98,050 for this project. Of this total, \$31,607 are for subgrants to the Medical Region and the Division des Etudes Demographiques to support data collection expenses. During the period covered by this report, FHI has spent \$36,652 on this project; \$61,398 is programmed for FY85.

Ivory Coast

The total budget for this project is \$179,310. Of this, \$74,894 will be subgrants to Dr. M. Sangaret and Dr. S. Diarra. Through September 30, 1984, FHI has spent \$34,186 on Pregnancy Care Surveillance in Abidjan; \$88,789 is budgeted for FY 85.

Zaire

The total budget for this activity is \$63,685. Of this total, \$13,700 is committed for field expenses. During FY 84, FHI has spent \$19,056 to start activities relating to this project; \$30,468 is budgeted for FY 85.

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P R E G N A N C Y M O N I T O R I N G

I N A F R I C A

WORKPLAN

Oct. 1, 1983 - Sept. 30, 1985

FAMILY HEALTH INTERNATIONAL
RESEARCH TRIANGLE PARK NC 27709

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P R E G N A N C Y M O N I T O R I N G

I N A F R I C A

W O R K P L A N

Oct. 1, 1983 - Sept. 30, 1985

FAMILY HEALTH INTERNATIONAL
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I. Introduction

We propose to conduct, in a selected number of counties, a series of projects to study institutionalized pregnancy care in sub-Saharan Africa. At each participating center a record will be completed for all women admitted for pregnancy-related care over the study period, varying between six months and one year. The following sections discuss the data collection instruments to be used, the selection of a sample of participating centers in a given country and various aspects of study implementation. The criteria for country and center selection in the conduct of this research will also be discussed and a schedule of activities will show how and where we plan to execute this project.

II. Data collection instruments, manuals and related forms

To conduct these studies a new data collection instrument is being designed (a draft of this questionnaire is presented in Appendix). In addition to this basic monitoring questionnaire other study instruments will be designed or adapted from previously used FHI instruments. They include a pregnancy follow-up questionnaire and a maternal form.

Other study questionnaires and manuals will be developed as needed to conduct the studies. All these instruments will be made available in the countries studied.

A. Pregnancy Monitoring form.

This form will be used to obtain information on all women hospitalized for pregnancy-related care. As discussed earlier it includes information on both previous and planned contraceptive use, planning status of the pregnancy, resources used in caring for women and referral status of patients. In addition, it contains information on the woman's previous reproductive history including outcomes for previous deliveries and pregnancy

interval. Data on the health status of the woman and the newborn during and immediately after delivery is obtained.

- B. A recently revised Maternal Mortality Form will be completed for all pregnancy-related deaths at participating centers (presented in appendix). This form will be linked to the Pregnancy Monitoring form so that obstetric history, pregnancy complications and resources expended can be related to maternal mortality.
- C. A follow-up questionnaire, to be administered three months after pregnancy-related care, will be developed for use in special studies. This questionnaire will obtain data on maternal and infant mortality, breast-feeding and contraceptive use during the immediate postpartum period. This form will be linked to the Pregnancy Monitoring form so that previous contraceptive use, parity and pregnancy intervals can be studied in relation to current contraceptive use and infant feeding practices. Also, condition of the neonate can be related to longer survival.

III. Sample in a given country

- A. An illustrative sample of institutions in selected countries or regions of a country will be identified. This sample will include primary, secondary and tertiary institutions in an effort to provide information on the range of services available. Within each hospital/institution either all women or a random sample of women will be included in the study. The magnitude of the total case load and the staffing patterns will be major determinants for sample size at the participating institutions

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- B. Information on referral patterns will be obtained so that women with unfavorable pregnancy outcomes can be contrasted with women with favorable outcomes according to the care they receive. If referral patterns are ignored, information on the effect of obstetric history (age, parity, etc.) on reproductive outcome for women presenting themselves at any one hospital or maternity would be biased. For each region studied, an analysis of the catchment area of the participating institutions will help us to design appropriate questions on referral patterns.
- C. All women, or a known sample of women, seeking pregnancy-related care will be included in the study. This information will be obtained at each hospital for the whole spectrum of pregnancy outcomes usually over the period of one year.
- D. For a very few sites, women at selected hospitals will be followed up to determine contraceptive use, infant feeding practices, etc., as described above. Such studies, it is to be emphasized, will be carried out on a very limited scale.

IV. Study Implementation

We propose that over the period of the project similar studies be conducted in three or four major countries or regions in sub-Saharan Africa. In this section we will first review the criteria leading to country selection and then explain how we envision the planning of a study, the training of data collection staff, the conduct of the data collection phase itself, and the elements of study monitoring at the selected study sites.

A. Criteria for country selection

Several countries will be considered to implement this program.

In order to establish a priority ranking of countries, two major criteria will be applied. They are:

1. Potential for policy impact. The perceived potential impact of the data in modifying family health programs will be considered as a priority factor.
2. Feasibility. In order to implement these studies, a programmatic approach must be maintained. Pregnancy care monitoring projects consume a great deal of staff time. While some institutions would appear ideal sites for such projects, available resources to conduct the study must be considered. In order to have high quality data from the participating centers, it is important that adequate means for communication exist between the data collection center, the in-country multi-sites coordinating center and FHI.
3. Research projects are currently contemplated in national or regional samples in six African countries. They are Ivory Coast, Senegal, Zaire, Nigeria, Liberia and Sudan. Final country selection will be made by FHI in consultation with AID staff in Washington and in-country USAID missions. Within each country, centers will be selected to be both geographically and culturally illustrative of the region. The sample will include one or more institutions providing various levels of maternal health care, from university-affiliated teaching hospitals to rural maternity or dispensary birth centers and traditional birth attendants. Data will be collected

on a minimum of 10,000 deliveries in each country, providing a data base on approximately 40,000 women receiving pregnancy care in a wide variety of settings.

B. Initial Planning and Coordination

Since approval of this proposal, FHI staff have initiated site visits needed to finalize selection of countries to be included in the project. These visits are used to formulate plans for each project, identify local project staff, establish administrative and coordinating mechanisms, work out budgetary details, and prepare a study plan following established FHI procedures. Input of local USAID mission staff is sought in developing and finalizing each country project.

A local Project Director will be identified in each country to work with the FHI Project Monitor to oversee all aspects of the project. In addition, a Data Collection Coordinator will be selected and trained. This person will have responsibility for receiving and checking completed forms from each participating center, making regular shipments of data to FHI, assuring that all centers have adequate supplies of study materials and maintaining records and logs of the study.

At the time of the initial site visit, a protocol is prepared. It specifies the elements specific to the study site.

Concurrently, the data collection tools are pretested, finalized and produced in preparation for the project. Training manuals and other study aids will be prepared before project initiation.

C. Pre-project Training of Investigators

Careful attention will be paid at the beginning of a study to the training of individuals who will complete the data collection forms.

This will greatly enhance the quality and usefulness of the information gathered. Such training not only clarifies problems that individuals usually have in interpreting and reporting information for certain questions but also helps to generate enthusiasm on the part of the staff of participating hospitals. Thus, the trainers will pay special attention to generating among staff a feeling of being a part of an important effort. Such an effort sets the stage for encouraging investigators to use study findings to improve the care of parturient women and their newborns.

At each participating hospital, the team of physicians, nurses and midwives will be trained in data collection techniques, as well as in carrying out any sampling procedures that may be specified in the protocol for each center. The training will be conducted by the local Project Director and FHI staff during the two weeks immediately before the initiation of data collection, with follow-up supervision during the first few days of recording.

D. Data Collection

At each participating center, information will be collected on women admitted to hospitals for pregnancy-related care during a specified period. This information, obtained from patient interviews and from hospital records, will be recorded on FHI's forms.

Data collection will be done by a team of doctors, nurses and/or midwives at each center. In addition, one individual at each center will be responsible to ensure that sampling

are followed and that all required forms are completed correctly. At the end of each month the center coordinator will send all completed forms to the country Data Collection Coordinator who will scan the forms to ensure consistency and completeness of data. Carbon copies of the forms will be kept at each participating center for future reference in case of queries. Random spot checks will be conducted to monitor quality and reliability of the data. Following the initial screening, forms will be forwarded once a month to FHI for processing. Feedback on data quality will be sent to the Data Collection Coordinator on a regular basis. The Data Collection Coordinator will ascertain that all centers are informed regularly concerning the quality of their data so that any problems can be corrected without delay.

Following the initiation of data collection, each center will be visited quarterly during the course of the study by the local project coordinating team or FHI.

E. Data Processing and Analysis

As data from the studies are received at FHI, they will be keypunched and loaded into a data file from which standard analysis tables will be generated. Software for these tables will be developed. Frequent monitoring of quality and informal analyses of the data as they are received will insure validity and reliability.

Standard computer-generated analysis tables will be provided

for the country (or region) as a whole, as well as for each participating center, summarizing through frequency distribution and cross-tabulations, the entire range of variables included in the data collection form.

The standard tables will serve as the basis for "in-depth" discussions with the principal investigator as well as the staff members of the participating institutions.

Based on these discussions, additional tabulations will be prepared at FHI and shared with participating staff.

F. Report Preparation

A final report will be prepared by FHI staff in cooperation with each country Project Director. This report will emphasize the findings pertaining to project objectives and research questions for that country. Summary descriptive information on patients' sociodemographic characteristics and obstetric and contraceptive history will be provided in addition to clinical aspects of delivery. Particular attention will be paid to high risk pregnancies, to factors associated with maternal and perinatal mortality and to demonstrating the relationship between high fertility and poor pregnancy outcome.

G. Dissemination of Results

Final reports and copies of any papers and publications resulting from analyses of these data will be made available to policy makers and care providers in the participating

countries. Wherever possible, FHI staff, the country Project Director and members of the project MCHAB (MCH Advisory Board) will make formal presentations of the findings to appropriate government officials. Ministries of Health and Planning will be particularly targeted for these presentations.

In order to maximize the dissemination of study findings to health care and family planning providers, seminars and workshops will be conducted in each participating country following presentation of the final reports to the appropriate officials. These seminars and workshops will provide feedback to providers from each center that took part in the study, permitting them to share their experiences with colleagues in other centers and to encourage an exchange of information to improve care of pregnant and parturient women and their newborns and to strengthen postpartum family planning services. Special attention will be paid during these workshops and seminars to formulating specific policy recommendations concerning ways of improving maternal and child health through limiting obstetric outcomes to the most appropriate ages and parities and to emphasizing the need for appropriate child spacing.

V. Schedule of activities

Concurrently to in house efforts to develop pregnancy monitoring data collection tools, FHI field staff will finalize the sites selection procedures. The schedule of activities presented on the next page shows the proposed chronology of activities.

VI. Profile of country specific projects

Concept proposals for projects in Senegal and in Zaire have been approved by FHI scientific committee. For each of these projects a detailed workplan is currently being developed and will be forwarded to AID for approval. Data collection initiation is projected for the spring of 1984.

A concept proposal for the Ivory-Coast project will be submitted to FHI scientific committee in November 1984 and after approval the workplan will be developed in detail to be submitted to AID for approval (projected initiation during the spring of 1984.)

A project is also contemplated in Nigeria. It needs to be further defined before a detailed workplan can be prepared. Projects in Liberia and the Sudan are at very early stages of development and interested collaborating institutions have not yet been identified.

In the next pages the concept of the four most fully developed projects are presented.

Senegal: Obstetric care in the Sine-Saloum

Senegal is a French-speaking, predominately Muslim, country with a strong tradition of large families and much emphasis on childbearing. The current population is approximately six million and is projected to reach almost 10 million by the end of the century (the annual rate of natural increase is 2.6%). The total fertility rate is 6.5 and the infant mortality rate of 160 is very high. Life expectancy at birth is only 44 years.

In December 1980, the law restricting use of contraceptives was repealed and family planning services, both in terms of manpower and supplies, are generally unavailable except through private clinics. It is desirable in Senegal, as in other African countries, to place family planning in the context of family welfare. Thus, family planning activities can be integrated into the maternal and child health system.

Senegal's Sine-Saloum region is located in the central part of the country, north of the Gambia and southeast of the capital, Dakar. There is little information about maternity care and contraceptive services in this area. An AID-sponsored survey of the region, conducted by the Centers of Disease Control in 1982, provided inferences concerning the use of contraceptives, the site of deliveries (home or maternity center), and the need for an integrated system of referrals for high risk women. The combination of data from an institutional-based maternity care monitoring study and a community level survey make this region an ideal site for evaluating the provision of maternity care.

The AID-funded primary health care project currently underway in this region can provide the needed infrastructure to study the referral network. The personnel active in the project can assist in this evaluation activity.

In summary, the strategy would include a multicenter obstetric surveillance study. Data collection sites will include the referral hospital in Kaolack the regional capital (with about 3500 deliveries per year) and a sample of three health centers with a total annual case load of 1500 deliveries, six health posts with a total annual case load of 1400 deliveries and twelve health huts with a total annual case load of 700 deliveries. These health centers, posts and huts are the basic government of Senegal health institutions reinforced by the program of the Sine-Saloum basic rural health project sponsored by AID.

Concurrently at all participating centers an institution based mortality study will permit to study in detail the main causes of death for women of reproductive age.

Ivory Coast: Obstetric Surveillance in Abidjan

The Ivory Coast has an estimated population (1982) of nearly nine million. With an annual rate of natural increase of approximately 2.9%, the population is expected to reach 15 million by the year 2000. The total fertility rate is very high (6.7) as is the infant mortality rate (estimates range from 127 to 170 deaths per 1000 live births). The average life expectancy at birth is 46 years. The Government of the Ivory Coast has a stated pronatalist policy.

Initial planning for a pregnancy monitoring care study in a national sample of Ivory Coast hospitals has been done by FHI staff in discussion with physicians from a hospital in the provincial city of Daloa and from the two major university hospitals in Abidjan. One of these hospitals CHU Cocody has already collected maternity care data. A preliminary examination of this data shows extremely high maternal and perinatal death rates of 20 and 207 per 1000 deliveries, respectively. Breast-feeding is nearly universal, although its average duration (less than 10 months) is much shorter than in maternities in Mali and Senegal. Previous use of modern contraception is very low (about 4 percent), but almost half of the women planned to use some method (mainly orals or injectables) after delivery.

A pregnancy monitoring project conducted in a representative sample of maternities in Abidjan will identify risk factors associated with maternal and perinatal morbidity and mortality rates among Ivorian women in the region of Abidjan will assess the role of maternity institutions in improving maternal and child health. Breast-feeding and contraception will be examined with regard to their impact on pregnancy outcomes and birth spacing. The need for and effectiveness of postpartum contraception programs can also be assessed using these data.

FHI field staff will travel to the Ivory Coast in November (1983) to finalize the design of this project.

Zaire: Surveillance of deliveries and referrals by traditional birth attendants.

Hospital C.E.U.M is located in the Northwestern corner of Zaire and serves as a referral center of a rural catchment area of about 250,000 inhabitants. Since 1982, FHI has been collecting Maternity Record data (of exceptionally good quality) on institutional deliveries at Hospital C.E.U.M.

TBAs provide a significant portion of maternity care services in the Karawa area. While data is scant, it has been estimated that over 60% of pregnant women, even those who come to Hospital C.E.U.M. for prenatal care, deliver in their villages in the care of a TBA. Since the fall of 1982, Hospital C.E.U.M. has been involved in TBA training activities in collaboration with INTRAH and the American College of Midwives in the framework of the AID sponsored SANRU project. To date about 50 TBAs have been trained. SANRU is a large scale basic rural health project designed to coordinate and complement rural health services provided by various religious missions and the Zaire government. Karawa has been the test site for the development of this TBA training program.

In the past, FHI pretested a pictorial TBA form in this area but because the TBAs were illiterate and had difficulty filling out the forms the attempt was not very successful. The current project proposes to use a registry completed from oral reporting to record information on deliveries executed by TBAs. Each month the TBAs report to their training supervisor for reinforcement of their training and supervision. At the time of these monthly visits, oral reports can be transcribed by the supervisors on to the registry.

The new Pregnancy Monitoring form will be used to collect information on booked and referred OB patients at the Hospital C.E.U.M. In addition to standard information regarding course of labor and outcome of delivery, both the TBA registry and the Pregnancy Monitoring form will place special emphasis on information regarding prenatal care and referral patterns. The TBA training program emphasizes the referral of high risk pregnancies.

TBAs included in this study will be selected on the basis of several criteria:

1. All will be from the same training cohort
2. Caseload will average at least 5 deliveries per month
3. A variety of distances from the hospital will be included
4. Hospital C.E.U.M. will be their only referral option

It is anticipated that approximately 12 TBAs will participate and that information will be obtained on approximately 700 deliveries.

Because of the paucity of trained physicians and health professionals in Zaire, there has always been a strong emphasis on the integration of paramedical personnel into the health service delivery system especially in rural areas. Hospital C.E.U.M. is the site of an integrated primary health care project of which TBA training is only one part. This project also includes formation of village health committees, building new health posts, protection of water supplies, wide scale vaccination against several diseases and improving access to family planning. The hospital itself has active prenatal well baby clinics and nutritional services and a dynamic family planning program. The attitude of the hospital direction is very favorable towards research and they have a track record of being able to collect high quality information under difficult circumstances.

Nigeria

The Federal Republic of Nigeria is situated on the western bulge of Africa. Population estimates for 1982 put the population between 75-90 million. The birth rate is 50 and the death rate is 18. The population is growing at an annual rate of 3.2%

As a consequence of its colonial ties with England, its large and growing population, its political and military influence in Sub-Saharan Africa, and--more recently--its status as one of the world's leading oil producers, Nigeria has had numerous relationships with foreign organizations, including agencies concerned with the study and control of population growth.

Most of the population research in Nigeria to date has been conducted by the major universities in the southwestern portion of the nation: Ibadan, Ife and Lagos. All have major teaching hospitals and have been actively involved in clinical and community outreach programs relating to population, fertility and contraception.

It is estimated that where facilities are available, 25 to 30 percent of all deliveries take place in hospital and about three percent of domiciliary deliveries are conducted by professional personnel. In some areas only about 15 percent of deliveries take place in hospitals. Thus in some areas up to 85 percent of deliveries are conducted by traditional birth attendants.

Maternity care monitoring studies have been conducted in both Ibadan and Benin City but no data are available for the northern areas of the country. A pregnancy monitoring study in this region will fill this gap by providing information on pregnancy outcomes and reproductive risks for women residents in the more remote sections of the country. Contacts have already been made with Dr. Ekwempu of Amadhu Bello University Hospital in Zaria and he has shown interest in participating in such a study.

A comparison of obstetric care between a northern city and a southern town would provide useful information.

FAMILY HEALTH INTERNATIONAL

PREGNANCY MONITORING RECORD

PART A - OBSTETRICS

42. Complications: (0=no, 1=yes, diagnosed before admission, 2=yes, diagnosed after admission)

anemia	<input type="checkbox"/>	placenta previa	<input type="checkbox"/>
diabetes	<input type="checkbox"/>	placenta abruptio	<input type="checkbox"/>
prolonged labor	<input type="checkbox"/>	postpart. hemorrhage	<input type="checkbox"/>
obstructed labor	<input type="checkbox"/>	other hemorrhage	<input type="checkbox"/>
uterine rupture	<input type="checkbox"/>	retained products	<input type="checkbox"/>
preeclampsia	<input type="checkbox"/>	meconium staining	<input type="checkbox"/>
eclampsia	<input type="checkbox"/>	fetal distress	<input type="checkbox"/>
other hypertension	<input type="checkbox"/>	cord prolapse	<input type="checkbox"/>
premature rupture of membranes (>24 hours)	<input type="checkbox"/>		<input type="checkbox"/>
hyper/hypotonic uterine contractions	<input type="checkbox"/>		<input type="checkbox"/>
maternal trauma, specify _____			<input type="checkbox"/>
other, specify _____			<input type="checkbox"/>

43. Episiotomy (0=no 1=yes)

44. Duration of labor (in hours):

45. Attendant at delivery: (0=none 1)traditional birth attendant 2)auxiliary 3)student nurse 4)nurse-midwife/midwife 5)medical student 6)general physician/resident 7)OB/GYN specialist 8)other, specify _____

46. Anesthetic administered: (0)none/psychoprophylaxis only 1)analgesic(systemic or inhalation) 2)local 3)paracervical/pudendal 4)spinal/epidural 5)general 6)combination, specify _____ 7)necessary, not available 8)other, specify _____

47. Blood transfusion (cc given) (0000=none, 8888=not available)

48. Oxytocics: (0)not necessary 1)necessary, not available 2)prophylactic 3)therapeutic 4)both 2&3

FETAL OUTCOME

49. Sex of infant(s) born males females

50. Birthweight (in grams):

51. Apgar score at 5 minutes (99=not done)

52. Fetal/neonatal condition (0=no, 1=yes):

respiratory distress syndrome	<input type="checkbox"/>
neonatal sepsis, specify _____	<input type="checkbox"/>
malformation, specify _____	<input type="checkbox"/>
trauma, specify _____	<input type="checkbox"/>
other, specify _____	<input type="checkbox"/>

53. Death of fetus/newborn: (0=no death 1)antepartum 2)intrapartum 3)postpartum

MATERNAL OUTCOME

54. Postpartum condition (0=no, 1=yes):

fever requiring treatment	<input type="checkbox"/>	mastitis	<input type="checkbox"/>
bleeding requiring treatment	<input type="checkbox"/>	dehiscence	<input type="checkbox"/>
thromboembolic condition	<input type="checkbox"/>	psychosis	<input type="checkbox"/>

Maternal Death (complete Death Report)

other, specify _____

55. Additional surgical procedures during this hospitalization: (0)none 1)IUD insertion 2)tubal ligation 3)hysterectomy 8)other, specify _____

56. Date of Death/discharge:
day month year

FAMILY PLANNING

57. Number of additional children desired: (7 or more=7, 8=uncertain)

58. Feeding plans during first month: (0)breastmilk only 1)breastmilk and other milk 3)other milk only 8)other, specify _____

59. Contraceptive method planned at discharge: (0)none 1)pills 2)IUD 3)condom/diaphragm/spermicides 4)withdrawal 5)rythm 6)postpartum abstinence 7)tubal ligation 8)other, specify _____

60. Reason for not planning to use a contraceptive: (0)plans to use 1)desires pregnancy 2)no regular sexual relations 3)opposition of husband/family/religion 4)lack of knowledge about contraception 5)not available 6)too expensive 7)fear of side effects 8)other, specify _____

61. Source of planned contraceptive: (0)not planning to contracept 1)not applicable (rythm, withdrawal, etc.) 2)hospital 3)pharmacy/shop 4)private doctor 5)family planning clinic 6)health worker 7)not sure 8)other, specify _____

62. Planned method provided before discharge: (0)no 1)yes 2)not applicable (rythm, withdrawal, etc.) 3)not planning to contracept

63. When planning to begin to use contraceptive: (0)not planning to contracept 1)immediately 2)during postpartum period (40 days) 3)after postpartum period

SPECIAL STUDIES

64. _____

65. _____

66. _____

Recorder's name _____

PATIENT IDENTIFICATION

1. Hospital or clinic name _____ 3. Husband's name _____
 2. Patient's name _____ 4. Address _____
 family first maiden

STUDY IDENTIFICATION

5. Center name: _____ and number:

 6. Study numbers: _____
 7. Patient order numbers: _____
 8. Admission date:

--	--

 day

--	--

 month

--	--	--

 year
 9. Emergency admission: 0)no 1)yes

27. Outcome of last pregnancy: 0)not previously pregnant 1)live birth, still living 2)live birth, deceased 3)stillbirth 4)spontaneous abortion 5)induced abortion 6)other,specify _____
 28. Number of months between the end of the last pregnancy (delivery or termination) and the current hospitalization: (98 or more=99)

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REFERRAL/TRANSFER

10. Referral/transfer status: 1)admitted before delivery 2)admitted after delivery 3)referred by other medical facility/personnel before delivery 4)referred by other medical facility/personnel after delivery 5)transferred before delivery 6)transferred after delivery 7)combination,specify _____
 8)other,specify _____
 11. Referred from: (00=not referred, 88=TBA)

 12. Transferred to: (00=not transferred)
 13. Primary reason for referral/transfer: 0)not referred 1)hypertensive disorder 2)hemorrhage 3)prolonged/obstructed labor 4)premature rupture of membranes 5)previous cesarean 6)abnormal presentation 7)combination,specify _____
 8)other,specify _____

29. Estimated duration of pregnancy at admission (in completed weeks since the first day of the last menstrual cycle):
 30. Duration of breastfeeding of last live birth (in months): (00=did not breastfeed)

--	--

 31. Breastfeeding during month of conception: 0)no previous pregnancy 1)yes 2)no

PREVIOUS CONTRACEPTIVE USE

32. Primary contraceptive used during month of conception: 0)none 1)Pills 2)IUD 3)condom/diaphragm/spermicide 4)withdrawal 5)rythm 6)other,specify _____
 33. Reason for not using contraception in month of conception: 0)not applicable(used a contraceptive) 1)desired pregnancy 2)no regular sexual relations 3)opposition of husband/family/religion 4)lack of knowledge 5)not available 6)too expensive 7)fear of side effects 8)other,specify _____

PATIENT CHARACTERISTICS

14. Patient's age (in completed years):

 15. Place of residence:

 16. Last year of school completed:

 17. Patient's employment: 0)not employed 1)works in home 2)works outside home 3)student
 18. Marital status: 0)never married 1)currently married 2)consensual union 3)divorced/separated 4)widowed

34. Source of the contraceptive used: 0)did not use 1)not applicable (rythm, withdrawal, etc.) 2)hospital 3)pharmacy/shop 4)private doctor 5)family planning clinic 6)health worker 8)other,specify _____

ANTENATAL DATA

35. Number of antenatal visits:

--	--

 36. Month of pregnancy at time of first visit (0=no visits):
 37. Patient's height in centimeters: (999=not measured):

--	--	--

OBSTETRIC HISTORY (not including this pregnancy)

19. Number of living children (males + females):

--	--

 20. Number of deaths to children less than five years:

 21. Total live births:

 22. Number of stillbirths:

 23. Number of spontaneous abortions:

 24. Number of induced abortions:

 25. Total number of pregnancies:

 26. Number of previous cesarean sections:

- LABOR AND DELIVERY
 38. Delivery date:

--	--

 day

--	--

 month

--	--	--

 year
 39. Type of labor: 0)no labor 1)spontaneous only 2)spontaneous, augmented(ARM,drugs or both) 3)induced-ARM 4)induced-drugs 5)induced-both 6)other,specify _____

For multiple births code information for the most difficult delivery in items 40,41,50,51,52 and 53.

40. Presentation: 0)vertex 1)brow/face 2)breech 3)transverse 4)compound 6)other,specify _____
 41. Type of delivery: 0)spontaneous-unassisted 1)outlet forceps 2)vacuum extractor 3>manual rotation 4)breech extraction 5)cesarean section 6)symphisiotomy 7)destructive procedure 8)other,specify _____

12

SCHEDULE OF ACTIVITIES

Oct. 1, 1983 - Sept. 30, 1985

	1983			1984										1985											
	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10
<u>Data collection tools development</u>																									
<u>Data collection tools pretesting</u>		x		x																					
<u>Initial site visit</u>																									
Sudan (1)	x																								
Ivory Coast (2)		x																							
Senegal (2)				x																					
Zaire (3)					x																				
Nigeria (4)			x		x																				
Liberia (4)							x				x														
<u>Data collection</u>																									
Ivory coast																									
Senegal																									
Zaire																									
Nigeria																									
Liberia																									
<u>Data Processing and analysis for all studies</u>																									
<u>Interim progress reports</u>																									
<u>Final reports</u>																									

- Notes
1. Exploration for potential interest in participation to this program
 2. Project development with already identified interested collaborators
 3. The principal investigator is currently in the USA and project design will be conducted here. A first site visit will be done at the beginning of the project.
 4. A pretest period is currently underway under FHI Maternity Care Monitoring program (a precursor of this project). If pretest is successful, the scope of the study will be expanded and funded under this project.

xx xx xx xx
 Ivory Coast Zaire Senegal Nigeria-Liberia

DRAFT

Fiche de Mortalité Maternelle

IDENTIFICATION DE LA PATIENTE:

1. Nom de la patiente _____
2. Date d'admission _____
 Jour mois année

IDENTIFICATION DE L'ETUDE

3. Nom du centre _____ et numéro: _____
4. Numéro de l'étude: _____
5. No. (rang) de la patiente dans l'étude: _____

DONNEES MEDICALES A L'ADMISSION

6. Tension artérielle: 999) pas mesurée
 Diastolique _____
 Systolique _____
7. Taux d'hémoglobine (gr/ml): 99) pas fait _____
8. Température (°C): _____
9. Oedème: 0)aucun 1)localisé 2)généralisé
10. Poids (en kg.): _____
11. Taille (en cm): _____
12. Date de la fin de cette grossesse: _____
 999999) pas terminée
13. Date du décès: _____
14. Lieu de l'accouchement: 0) pas accouchée 1)hôpital 2)maternité
 3) domicile 8) autre, spécifier _____
15. Lieu du décès: 1) hôpital 2) maternité 3) domicile
 8) autre, spécifier _____
16. Moment du décès: 1) antepartum 2) intrapartum 3) postpartum

33

COMPLICATIONS ET TRAITEMENTS

17. Enregistrer (par ordre d'importance) toutes les complications jusqu'au moment de la mort de la patiente, indiquer le traitement de chaque complication.

<u>Complication</u>	<u>Traitement</u>
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
4. _____	4. _____
5. _____	5. _____
6. _____	6. _____

DERNIERE ANESTHESIE ADMINISTREE

18. Anesthésie: 0) inutile 1) nécessaire, pas disponible 2) analgésie seulement
3) locale 4) régionale (blocage cervical, etc) 5) générale
6) combinaison (spécifier) _____ 8) autre, spécifier _____
19. Mode d'administration de l'anesthésie: 0) pas d'anesthésie
1) orale 2) intraveineuse 3) intramusculaire
4) inhalation 5) anesthésie endotrachéale
8) autre, spécifier _____
20. Complications associées à l'anesthésie:
0) aucunes 1) apnée 3) allergie 3) convulsion
4) choc 5) aspiration 6) combinaison, spécifier _____
8) autre, spécifier _____
21. Responsable de l'anesthésie: 0) pas d'anesthésie 1) médecin anesthésiste
2) obstétricien 3) médecin généraliste 4) infirmier(e) anesthésiste
5) infirmier(e) 6) sage-femme 8) autre, spécifier _____
22. Raison de l'anesthésie: 0) pas d'anesthésie 1) accouchement seulement
2) traitement des complications, seulement
3) accouchement et traitement des complications
8) autre, spécifier _____

ANTIBIOTIQUES ADMINISTRES

23. Antibiotiques 0) inutiles 1) nécessaires, pas disponibles 2) prophylactiques
3) thérapeutiques 4) prophylactiques puis thérapeutiques

TRANSFUSIONS

24. Transfusions (cc utilisés) 0000) inutile 8888) pas disponible
antepartum _____
interpartum _____
postpartum _____

25. Complications associées à la transfusion: 0)aucunes 1)oui, spécifier_____

PERSONNEL PRESENT AU MOMENT DU DECES

26. Responsable du service au moment du décès: 0)personne 1)accoucheur/
accoucheuse 2)infirmier(e) 3)sage-femme 4)étudiant(e) en
médecine 5)médecin généraliste 6)gynécologue-accoucheur
8) autre, spécifier _____

AUTOPSIE ET LABORATOIRE

27. Autopsie 0)pas faite 1)oui, par pathologiste 2)oui, par autre personnel
(spécifier)_____

28. Diagnostique _____

29. Diagnostique histologique_____

30. Diagnostique bactériologique_____

CAUSE(S) DU DECES

31. Ce décès était: 1)obstétrique direct 2)obstétrique indirect
3)médical 4)anesthésie 5)accidental
7)combinaison (spécifier)_____

32. Cause principale du décès:_____

33. Cause secondaire du décès _____

CIRCONSTANCES

34. Responsable au moment de l'admission 0)personne, clarifié _____
1)gynécologue-obstétricien 2)médecin généraliste
3)infirmier(e) 4)sage-femme 8)autre, spécifier _____

35. Matériels/Services défectifs ou manquants: 0)non 1)oui, clarifier_____

36. Distance (en km) du domicile de la patiente à ce centre _____

37. Moyen de transport utilisé: 1)véhicule 2)animal 3)à pied 4)litière
5)combinaison, spécifier _____
8)autre, spécifier _____

38. Refuse de la patiente/famille du traitement 0)non 1)oui, clarifier_____

39. A votre avis, est-ce-que cette mort était préventable?
0)non 1)probablement 2)oui, clarifier _____

40. Evaluation de la préventabilité vérifiée par:
1)personnel présent au moment du décès 2)comité des responsables de
l'hôpital 3)autre, spécifier _____